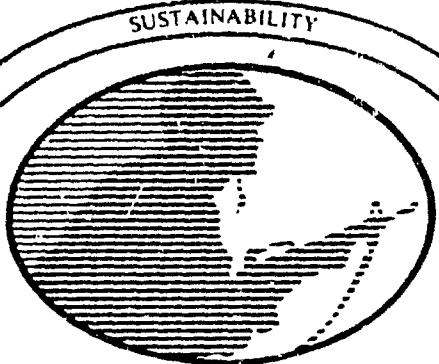


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# 1988 ANTHROPOMETRIC SURVEY OF U.S. ARMY PERSONNEL: METHODS AND SUMMARY STATISTICS

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19. ABSTRACT (Continue on reverse if necessary and identify by block number) <b>Results of the 1987-1988 anthropometric survey of Army personnel are presented in this report in the form of summary statistics, percentile data and frequency distributions. These anthropometric data are presented for a subset of personnel (1774 men and 2208 women) sampled to match the proportions of age categories and racial/ethnic groups found in the active duty Army of June 1988. Dimensions given in this report include 132 standard measurements made in the course of the survey, 60 derived dimensions calculated largely by adding and subtracting standard measurement data, and 48 head and face dimensions reported in traditional linear terms but collected by means of an automated headboard designed to obtain three-dimensional data. Measurement descriptions, visual indices and a glossary of terms are included to help identify and locate dimensions. Also appearing in this report are descriptions of the procedures and techniques used in this survey. These include explanations of the complex sampling plan, computer editing procedures, and strategies for minimizing observer error. Tabular material in Appendices (see reverse)</b>			
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A and C are designed to help users understand various practical applications of the dimensional data, and to identify comparable data obtained in previous anthropometric surveys.

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## PREFACE

This publication is another in the series of reports issued in connection with the U.S. Army Anthropometric Survey (ANSUR) of 1987-1988. The survey was among the most ambitious ever undertaken. A multifaceted sampling strategy and a number of newly devised data-gathering techniques and measuring devices were used for the first time. A measuring team of 22 persons spent nearly a year collecting data on some 25,000 screened subjects and close to 9,000 measured subjects at 11 Army bases. Final editing and analysis of the data that appear in this report in summary form took an additional year. It goes without saying that a project of this scope could not have been completed without the help of numerous military and civilian personnel.

Successful execution of a complex sampling strategy and acquisition of the most comprehensive anthropometric data set ever collected by the Army would have been impossible had it not been for the full and active support received from GEN Carl Vuono, Army Chief of Staff, GEN Joseph Palastra, Commander of the Army Forces Command, GEN Maxwell Thurman, Commander of the Army Training & Doctrine Command (TRADOC), GEN Louis Wagner, Commander of the Army Materiel Command, and CSM William B. Tapp, Jr., Army Materiel Command.

From the U.S. Army Troop Support Command, we thank MG John E. Long, MG Henry G. Skeen (retired), BG Charles E. St. Arnaud, BG Leo J. Pigaty, and CSM Henry L. Thornton for their personal encouragement and active support of ANSUR during its planning, coordination, and execution.

We also thank the command groups and staffs of the following organizations, which provided test subjects despite their heavy mission commitments: the U.S. Army Health Services Command, I Corps, III Corps, the XVIII Airborne Corps, the U.S. Army Chemical School, the U.S. Army Military Police School, the U.S. Army Signal Center, the U.S. Army Aviation Center, the U.S. Army Training Center at Ft. Jackson, and the U.S. Training Center at Ft. Dix. Within each of these organizations were liaison officers and noncommissioned officers responsible for coordination of all the logistic details needed to actually execute the survey at each of the host installations. These liaison personnel made the successful execution of a difficult project possible: MAJ John Roper and CPT Raphael Deegan, Ft. McClellan; MAJ Lawrence Hall and SFC Norman Homan, Ft. Campbell; COL Robert Smoot and SGM Waiter Taylor, Ft. Bragg; CPT Joel Weeks, Ft. Stewart; CPT Michael Robinson, Ft. Ord; LTC James Gildersleeve, MAJ Marguerite Campbell and CPT Joseph Dirac, Defense Language Institute; MAJ James Taylor, Ft. Lewis; MAJ James R. Sisson and MAJ Arne W. Owens, Ft. Hood; LTC Dees Stallings, Ft. Gordon; CPT Mark Becker, Ft. Jackson; COL James B. Sauer and CPT Anthony Shannon, Ft. Rucker; MAJ Dale E. Graham and CPT George Trotter, Ft. Dix.

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Within the U.S. Army Natick Research, Development and Engineering Center we gratefully acknowledge the guidance and support received from COL Clinton A. Hodder, COL A.D. Rodgers III, Dr. Robert Lewis, Mr. Edward Levell, Dr. Abner Salant, Dr. Herbert Meiselman, Dr. Lawrence Symington, Mr. Charles Williams, Dr. Carolyn Bensel, and SMG William Wright. These individuals were instrumental in the planning, funding, and execution of ANSUR.

Also at Natick, LTC Stanley Holgate served as senior liaison officer for ANSUR. LTC Holgate's planning of feasible approaches to subject acquisition and his coordination of the acquisition of both facilities and subjects at each ANSUR post were critical to the success of this project. Ms. Beth Ann Holloway, in the capacity of 1LT, served as the Officer in Charge (OIC) at each post and the primary Natick military liaison in LTC Holgate's absence. In her role as OIC, Ms. Holloway kept day-to-day operations functioning smoothly and efficiently.

The data reported in this manuscript were collected by a specially recruited and trained measuring team, who, throughout a year of fieldwork, maintained the highest of professional standards. Ms. Jeryl Neff, the team leader, was responsible for overseeing data collection quality and for the maintenance of crew morale and professionalism. Field crew members, in alphabetical order, were: Donna Acton, Scott Anspach, Gary Ball, Karen Ball, Cindy Blackwell, Mary Bloom, Jeffery Bonner, John Crafts, Lee Gasaway, Lori Hedberg, Mike Herzing, Chuck Janini, Julie Janini, Anne Kaminski, Sara Kelly, Shirley Kristensen, Lisa Love, Jill Parks, Lisa Prenger, Amy Pulse, Lisa Richards, Robyn Tebbetts, Timi Trawick, and Phillip Walker.

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## 1988 ANTHROPOMETRIC SURVEY OF U.S. ARMY PERSONNEL: METHODS AND SUMMARY STATISTICS

### CHAPTER I

#### INTRODUCTION

All U.S. military and many foreign services compile and maintain extensive collections of body-size information used primarily to guide the design and sizing of clothing, personal protective equipment, work stations, and computer-generated human models. In order to be effective, such a data base must be updated periodically to accurately reflect the body sizes and proportions of the military population it purports to represent.

The last anthropometric survey of U.S. Army men was conducted in 1966,<sup>1</sup> some 22 years or the equivalent of a military generation ago. A substantial proportion of the sample was young (88% were under 25 years old), and some 78% of the subjects were White. By comparison, only 44% of today's male soldiers are under 25, and 66% are White.<sup>2</sup> Blacks represent 25% of Army men today as compared to 15% in the 1966 survey.<sup>2</sup>

The most recent body-size survey of U.S. Army women was conducted in 1977<sup>3</sup> and, while more current than the male survey, it is characterized by considerably greater differences in racial composition. Three-quarters of the 1977 survey subjects were White, and slightly less than one quarter were Black. Black women comprise more than 40% of today's Army,<sup>2</sup> Whites slightly more than half. The majority of today's Army women are aged 25 and over;<sup>2</sup> in the 1977 survey more than half were 25 and under.

Between 1970 and 1980, the percentage of women in the Army increased nearly sevenfold from 1.46% to 9.85%. Today, women make up 10.88% of Army personnel,<sup>2</sup> and with each passing year, more jobs are filled by women. This means that clothing, protective equipment, and workspaces, originally sized and designed to accommodate males only, must be modified and redesigned to accommodate the larger variations represented by an integrated male/female population.

It was apparent in the mid-eighties that the Army's anthropometric data base had serious deficiencies that limited its applicability for current and future sizing, design, and procurement.<sup>4,5,6</sup> A comprehensive body-size study of U.S. Army men and women was undertaken in 1987-1988 to correct these deficiencies. The goals of this anthropometric survey (ANSUR) were to acquire a large body of data from comparably measured males and females to serve the Army's current design and engineering needs, as well as those anticipated well into the future.

Several new and improved methodologies in the areas of sampling, instrumentation, and verification were used. These included: a complex sampling plan designed to produce a data base that can be adapted to changing population demographics; simultaneous collection and processing of male and female data for the creation of an integrated data base; the use of portable computers for data entry and first-level editing in the field;<sup>7</sup> and the development and use of new measuring devices for the collection of head and hand data.<sup>8,9</sup>

A year of planning preceded the survey. During this time, hundreds of candidate dimensions were sifted to arrive at the final selection, which included 132 directly measured dimensions and three-dimensional coordinates on 26 points of the head and face.<sup>5,6</sup> Summary statistics, including percentile and frequency tables, for these dimensions as well as an additional 60 derived dimensions are reported in this volume. Over 8,000 hand photos were also taken as a permanent resource for future needs.

## SELECTION OF SURVEY DIMENSIONS

To develop the list of dimensions measured in this survey, a comprehensive list of candidate measurements was reviewed and assessed in several ways.<sup>5,6</sup> First, a list of 298 dimensions measured in one or more of 32 anthropometric surveys of men and women, both military and civilian, was circulated among persons who represented many decades of experience in applying anthropometric data to the design of military systems, equipment, and clothing. Each was asked to choose from the list those dimensions considered essential or useful in his or her work and to supplement his or her choices with additional dimensions not found on this list. For some applications, such as the design of three-dimensional head, face, and body forms, individuals who had been responsible for their development were solicited to determine what specific dimensions had been incorporated in these forms and what other dimensional data would have been useful if they had been available. A second line of inquiry involved a questionnaire survey administered to 22 Army and Air Force clothing designers and patternmakers to learn what dimensions they required for their work.

These inquiries resulted in a candidate list which included variables measured in previous surveys as well as dimensions not previously measured but identified as being needed by users of anthropometric data for design purposes. From this list, 12 categories of uses (e.g. clothing design, work space design, human analog design) were identified and 132 dimensions believed to be most useful for meeting these needs were selected to be measured directly on each subject. As noted, another 60 dimensions were derived from the direct measurements. The 26 three-dimensional coordinates obtained from an automated headboard device specially developed for this survey were used to calculate an additional set of 48 head and face dimensions. The use categories and the dimensions applicable to them appear in Appendix A.

## THE SAMPLE

A total of 25,811 subjects at 11 Army posts were screened for this survey. These subjects were measured for height and weight, and filled out biographical questionnaires to provide information that included age, race, ethnic identity, rank, grade, and Army occupation, among other items. The screening sample had a twofold purpose: (1) it was intended to provide a data base for use in studying questions about overall body-size differences (e.g. stature and weight) between occupational subgroups in the Army, and (2) it functioned as a pool from which to select subjects for full measurement in the survey. The sampling strategy and the method used to select subjects to achieve its purposes are described in Chapter III.

From the larger sample, 8,997 subjects were selected to be more fully measured. Because a number of age and race categories were deliberately oversampled as a bankable resource to draw upon should the proportion of these groups change in future years, the measured survey sample was further winnowed to carve out a working data base that reflects the proportions of men and

women in various racial/ethnic and age groups found in the June, 1988 Army. It is this set of 1,774 men and 2,208 women -- the working data base -- whose measurement data appear in this report.

Tables 1, 2 and 3 outline the age and racial/ethnic distributions of male and female subjects in the working data base.

## HOW TO USE THIS REPORT

The working data in this report are given in Chapters IV, V, and VI, which include summary statistics and descriptions of the standard dimensions, the derived dimensions, and the headboard measurements, respectively. Each dimension is described and illustrated. Summary statistics are reported separately for each sex. Visual indices precede the statistical material in each chapter and are designed to help readers identify and locate dimensions by their anthropometric designations.

The landmarks used to define the origin and termination of the measurements made in this survey are listed and briefly described in Chapter II. This chapter also summarizes the operational aspects of the survey and includes descriptions, illustrations, and sources of the instruments used. A full explanation of the sampling strategy appears in Chapter III, which also includes a number of tables that describe the demographic character of the working data base. Chapter VII details the procedures developed to control observer error throughout the year-long survey.

Appendix B contains a brief explanation of the summary statistics used to report the measurement data in Chapters IV, V, and VI. An assessment of the comparability of measurements obtained in this survey with measurements from other major anthropometric surveys appears in tabular form in Appendix C. Finally, a glossary of terms (Appendix D) and an index are included to further help the reader understand the terminology used in this report and locate dimensions of interest.

TABLE 1. Age Distribution of Subjects  
in the Working Data Base.

Females (Mean Age - 26.19)				Males (Mean Age - 27.22)			
<u>Age</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Percent</u>	<u>Age</u>	<u>Frequency</u>	<u>Cumulative Percent</u>	<u>Percent</u>
17	0	.0	.0	17	1	.1	.1
18	47	2.1	2.1	18	27	1.6	1.5
19	132	6.0	8.1	19	128	8.8	7.2
20	184	8.3	16.4	20	156	17.6	8.8
21	155	7.0	23.5	21	133	25.1	7.5
22	149	6.7	30.2	22	141	33.0	7.9
23	176	8.0	38.2	23	98	38.6	5.5
24	179	8.1	46.3	24	102	44.3	5.7
25	151	6.8	53.1	25	100	49.9	5.6
26	142	6.4	59.6	26	94	55.2	5.3
27	133	6.0	65.6	27	65	58.9	3.7
28	103	4.7	70.2	28	70	62.9	3.9
29	103	4.7	74.9	29	59	66.2	3.3
30	74	3.4	78.3	30	60	69.6	3.4
31	64	2.9	81.2	31	61	73.0	3.4
32	82	3.7	84.9	32	56	76.2	3.2
33	64	2.9	87.8	33	62	79.7	3.5
34	62	2.8	90.6	34	42	82.0	2.4
35	41	1.9	92.4	35	51	84.9	2.9
36	43	1.9	94.4	36	44	87.4	2.5
37	33	1.5	95.9	37	42	89.7	2.4
38	19	.9	96.7	38	42	92.1	2.4
39	13	.6	97.3	39	36	94.1	2.0
40	19	.9	98.2	40	29	95.8	1.6
41	13	.6	98.8	41	28	97.4	1.6
42	5	.2	99.0	42	15	98.2	.8
43	4	.2	99.2	43	9	98.7	.5
44	5	.2	99.4	44	8	99.2	.5
45	4	.2	99.6	45	4	99.4	.2
46	4	.2	99.8	46	4	99.6	.2
47	2	.1	99.9	47	2	99.7	.1
48	1	.0	99.9	48	4	99.9	.2
49	1	.0	100.0	49	0	99.9	.0
50	1	.0	100.0	50	0	99.9	.0
51	0	.0	<u>100.0</u>	51	1	<u>100.0</u>	<u>.1</u>
TOTALS	2,208	99.9	100.0		1,774	100.0	99.9

**TABLE 2. Racial/Ethnic Distribution of Subjects  
in the Working Data Base.**

<b>Females</b>			<b>Males</b>		
<u>Race</u>	<u>Frequency</u>	<u>Percent</u>	<u>Race</u>	<u>Frequency</u>	<u>Percent</u>
White	1,140	51.6	White	1,172	66.1
Black	922	41.8	Black	458	25.8
Hispanic	58	2.6	Hispanic	68	3.8
Asian/Pacific	32	1.4	Asian/Pacific	28	1.6
American Indian	14	.6	American Indian	12	.7
Mixed/Other	<u>42</u>	<u>1.9</u>	Mixed/Other	<u>36</u>	<u>2.0</u>
<b>TOTALS</b>	<b>2,208</b>	<b>100.0</b>		<b>1,774</b>	<b>100.0</b>

**TABLE 3. Percentage of Working Data Base Subjects  
by Age and Racial/Ethnic Category.**

<u>Age (yrs)</u>	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Pacific Island</u>	<u>American Indian/ Alaskan Native</u>	<u>Mixed/ Other</u>
<b>Females</b>						
≤ 20	9.47	5.89	0.45	0.23	0.14	0.27
21-24	15.44	12.50	0.72	0.36	0.23	0.59
25-30	15.04	14.99	0.82	0.41	0.14	0.59
≥ 31	11.68	8.38	0.63	0.45	0.14	0.45
<b>Males</b>						
≤ 20	12.63	3.78	0.56	0.23	0.11	0.28
21-24	17.93	6.93	0.90	0.34	0.11	0.51
25-30	15.39	7.67	1.07	0.39	0.11	0.62
≥ 31	20.12	7.44	1.30	0.62	0.34	0.62

## CHAPTER II

### THE SURVEY

#### SUBJECT PROCESSING AND MEASURER TRAINING

In order to measure some 9,000 soldiers at 11 Army posts around the country in the 12 months allotted to the task, considerable advance planning took place both at Anthropology Research Project and at the U.S. Army Natick Research, Development and Engineering Center (NATICK). In preparation for assembling a measuring team, project personnel prepared a training manual<sup>10</sup> designed to serve as the primary instructional guide for members of the team. This handbook contained detailed written and illustrated instructions for marking and measuring subjects, and explained the operation and maintenance of the computer data-entry system, the automated headboard, and the hand photometric system.

A streamlined procedure was devised for measuring some 40 subjects a day. The measurements were divided into groups of approximately 22 each, based on principles of time/motion efficiency. Dimensions assigned to a given measuring station were those that could most easily be measured in sequence without excessive repositioning of subjects, and those that required a minimum of picking up and laying down of instruments. Dimensions were also grouped in such a way that the time required to measure all dimensions at each station was approximately equal. Two landmarking stations were similarly established, as were in- and out-processing stations. Figure 1 illustrates the subject flow plan.

In the meantime, all the necessary arrangements were made at Army posts where measuring teams were to work for periods ranging from ten days to eight weeks. The itinerary was as follows:

Fort McClellan, Alabama	Fort Hood, Texas
Fort Campbell, Kentucky	Fort Jackson, South Carolina
Fort Bragg, North Carolina	Fort Gordon, Georgia
Fort Stewart, Georgia	Fort Rucker, Alabama
Fort Ord, California	Fort Dix, New Jersey
Fort Lewis, Washington	

In July of 1987 a measuring team of 22 persons began an intensive four-week training period prior to their deployment in the field. Early in the training period, team members were assigned to the landmarking or measuring station at which they would work for the duration of the survey. Thus, each team member, under the instruction of professional anthropometrists, concentrated for about three weeks on learning to locate and draw the landmarks or measure the dimensions for which he or she would be permanently responsible.

Two people were assigned to each measuring station, one to serve as a measurer and one as a recorder; pairs of team members alternated these functions throughout each day. Two women were permanently assigned to five of the measuring stations. A male team alternated with a female team at the station where most dimensions between the waist and knees were measured, depending on whether subjects were men or women. These same teams alternated assignments to the headboard/hand photo station. Male and female marking personnel at the landmarking stations also changed from day to day, depending on whether subjects were men or women. They alternated as in- and out-processing clerks when members of the opposite sex were being marked.

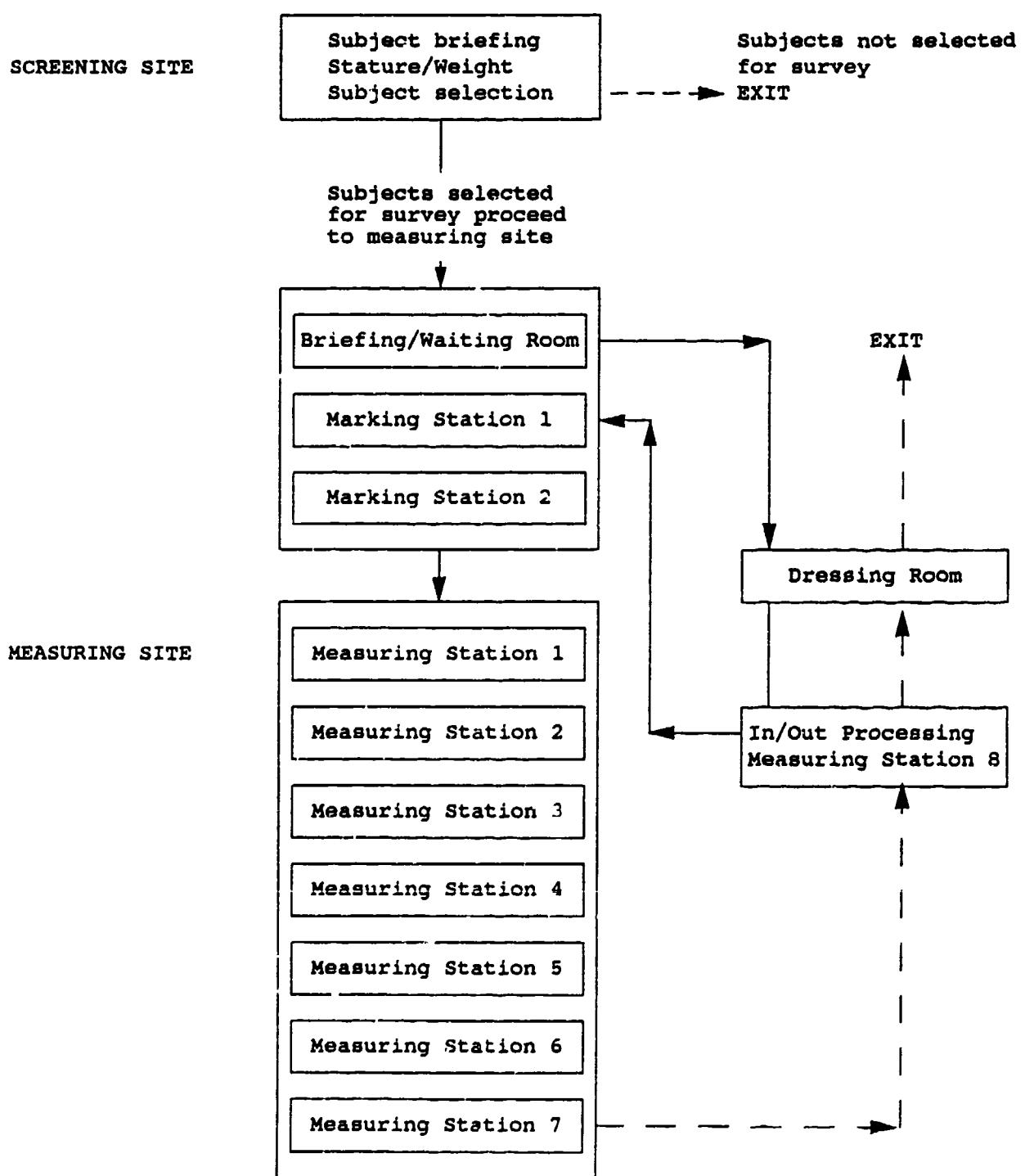


Figure 1. Flow chart for subject selection and processing.

Subjects were selected for measurement in accordance with procedures described in Chapter III. Essentially, they were selected either from unit rosters before the measuring team arrived at a particular post, or from units assembled at a subject-screening site. There, soldiers were briefed on the general purposes of the survey, and filled out forms giving demographic and biographical information about themselves; the data form is attached as Appendix E. At this site, soldiers were measured for Stature and Weight, and were selected or rejected for inclusion in the fully-measured sample by means of a computer program designed to meet the objectives of the sampling strategy.<sup>7</sup>

Soldiers who had been put on the roster from their units for full measurement bypassed the screening formation. These subjects completed biographical forms at the measuring site where they joined screened subjects in a full briefing, which included a description of the measuring procedures to be carried out. After the briefing, all soldiers were given nylon running shorts in which they were measured. Men were measured bare-chested. Women were measured in their bras, and were issued T-shirts to wear while moving around between measuring stations and at stations where upper body exposure was not required.

## COMPUTER PROCEDURES

One of the features that distinguishes this survey from its predecessors is the use of portable computers for data entry in the field.<sup>7</sup> Computers were used for three reasons:

- Entering the data onto electronic media saved time by eliminating hand recording of data. Data were ready for analysis much more quickly than in the past. This also eliminated transferring handwritten data as a source of error.
- The computers were equipped with custom-designed software that edited data values as they were entered. In this way, if a questionable value was identified by the software, the measurers could check it while the subject was still present. Thus, the data coming in from the field contained many fewer errors of measurement or entry than in past surveys and many fewer questionable values about which the data editors had to make decisions.
- The floppy diskettes used in the computers could hold much more data than paper forms of the same size.

Portable personal computers were independently operated at each measuring station. Each subject's data were kept together on a single floppy diskette, which the subject carried from station to station as he/she moved through the measuring process. The subject received the diskette at an in-processing station, at which a computer wrote the subject's number, sex, and date onto the diskette. Each subject was measured and the recorder entered the data into the station's computer. The anthropometric data from that station were then written onto the subject's diskette and onto a station diskette which kept a record of each person measured at that station. Each station's computer also printed the data from that station onto a paper form which the subject carried from station to station. Both the printed form and the station diskette served as backups in case of loss or damage to the subject's diskette. After the subject had been measured, all the data from the diskette were read at the out-processing station to verify that the subject had visited each station, and that the data from each station were recorded properly on the diskette. Data from the subject's biographical questionnaire were also added to the subject diskette at the out-processing station.

The editing routines in the computer software were based on procedures which had been used successfully for some time by the contractor in a number of previous military surveys.<sup>11</sup> The approach is essentially two-phased. A value is first checked against the highest value and the lowest value measured for that variable. If the measured value is higher than the highest value to date, or lower than the lowest value to date, an audible signal is given, which instructs the measurer to take the measurement again. This approach is very effective in screening out wildly aberrant values resulting from a misassembled instrument, misreading an instrument, transposing digits, or misentering a value by 100 or 1000. After each dimension at a station was measured, the second phase of data editing began. The computer software contained a series of multiple regression equations in which the value for each dimension was predicted from the values of two other dimensions at that station. The measured value for a given subject, for a given dimension, was compared to the predicted value. If the measured and the predicted value differed by more than a preset amount, the audible signal was given, and the measurer was asked to remeasure that dimension. In that way, values which were not aberrant for the population as a whole but were disproportionate for that individual were identified and checked.

The computer data entry and editing system, including program source code listings, is completely described in Churchill et al., 1988.<sup>7</sup>

## ANTHROPOMETRIC INSTRUMENTS

Several standard anthropometric instruments as well as a few unique instruments were used in this survey. The standard instruments, all of which are available from Seritex, Inc., 450 Barell Avenue, Carlstadt, NJ 07072, included:

GPM anthropometer	Catalogue No. 101
base plate	Catalogue No. 101F
sliding caliper	Catalogue No. 104
sliding caliper (Poech type)	Catalogue No. 114
spreading caliper, rounded	Catalogue No. 106
Bicondylar Vernier caliper (Holtain caliper)	Catalogue No. 604
steel measuring tape (2-meter)	Catalogue No. 110

These instruments are illustrated in Figures 2 and 3. In Figure 2 the anthropometer is illustrated in the two modes in which it was used.

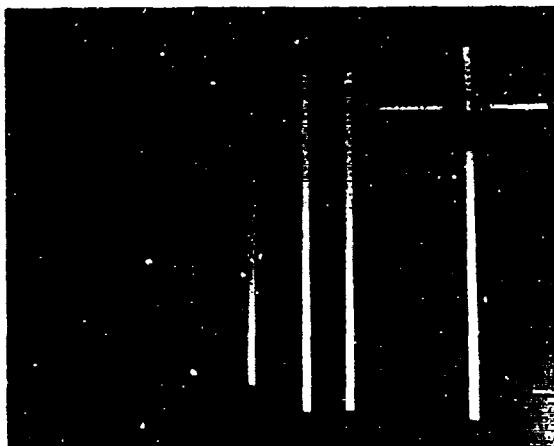


Figure 2.

Anthropometer:

- a. beam caliper;
- b. four sections of the basic anthropometer.



Figure 3.

Calipers and tape:

- a. steel tape;
- b. spreading caliper;
- c. sliding caliper;
- d. Holtain caliper;
- e. Poech caliper.

The pupillometer for measuring interpupillary breadth is shown in Figure 4.

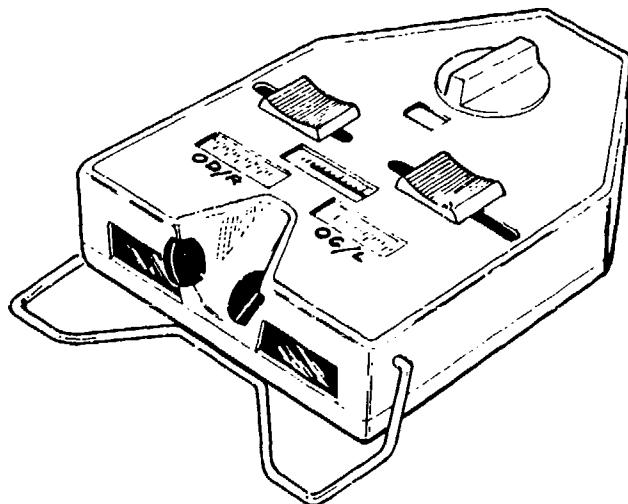


Figure 4. Pupillometer.

This commercial device can be obtained from: Multi-Optics Corporation, 1153 D. Triton Drive, Foster City, CA 94404.

Measuring instruments that were modified or created for the survey include: a functional leg length anthropometer, wall scales, foot measuring boxes, a modified sliding caliper, and a modified tape. Several instruments for use in locating landmarks were also devised. These include a buttock plate, a smooth vertical board that is moved along a table to establish the anterior buttock point of a seated subject (see photograph on page 124).

Other devices were specially designed to help position subjects correctly. The leg leveller, for example, consists of two horizontal flat boards approximately 1 foot by 1.5 feet in size. Sandwiched between the boards are two scissor jacks situated at right angles to each other. When the jacks are raised in concert, the upper board is raised, parallel to the floor. The lower board rests on the floor. The purpose of the device is to raise or lower the legs of the seated subject so that the thighs are parallel to the floor.

The functional leg length anthropometer is shown in Figure 5. This instrument consists of a standard GPM (early series) anthropometer mounted vertically on a sole plate.

Two wall graphs were used to measure arm reaches. Both wall graphs are of graph paper scaled in millimeters and sealed in mylar sheeting. The orientation of the graphs is shown in Figure 6 with reference to the corner near which it is mounted.

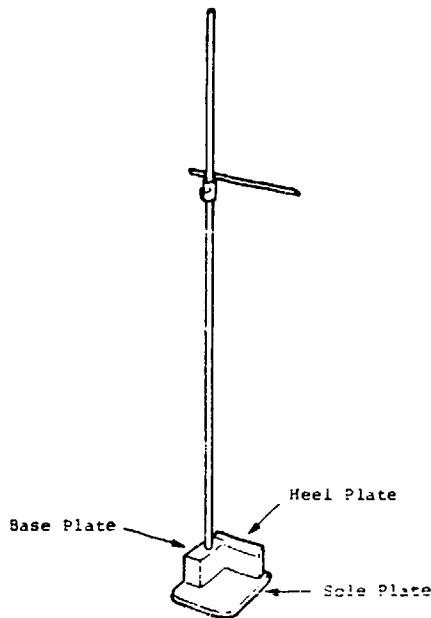


Figure 5. Functional leg length anthropometer.

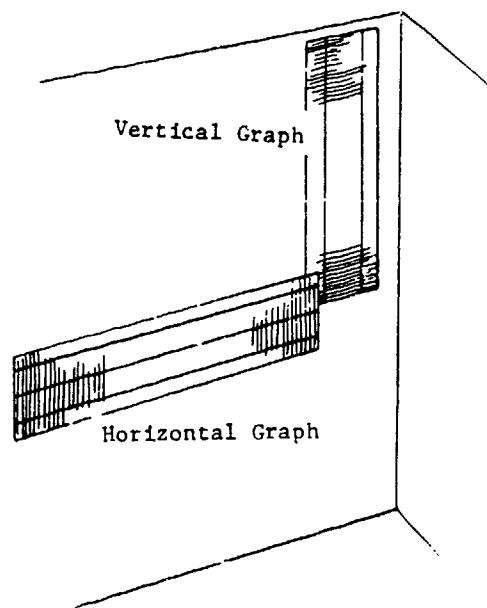


Figure 6. Orientation of wall-mounted graphs.

The foot measuring boxes are made of three-millimeter aluminum stock. Millimeter graph paper affixed to the standing surfaces is covered with Plexiglas. Used in measuring linear dimensions of the foot, the two footboxes, a left and a right, are shown in Figure 7.

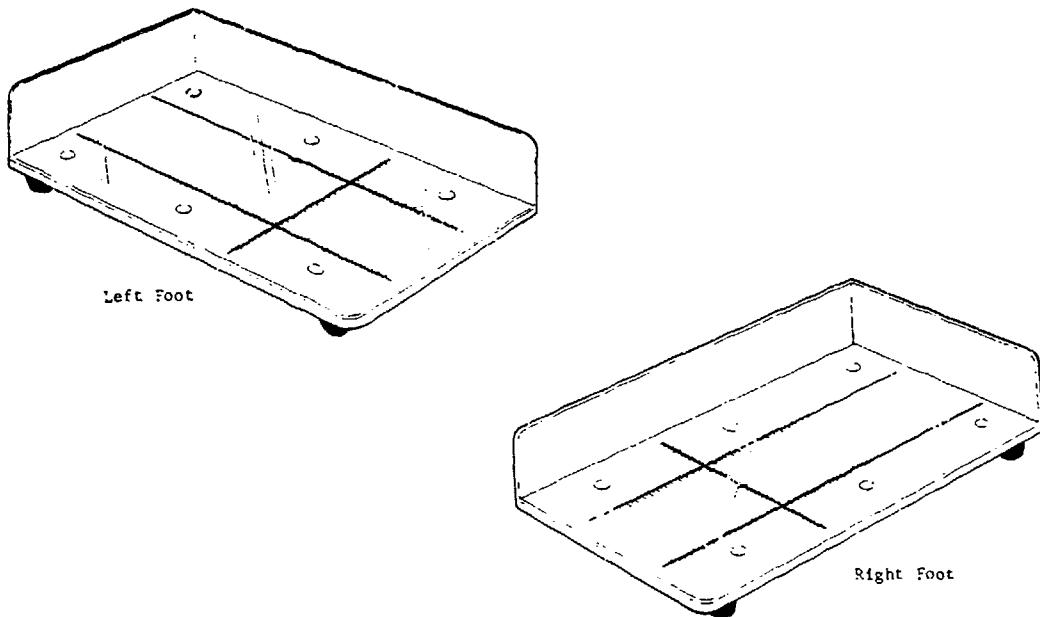


Figure 7. Foot measuring boxes.

A standard GPM (early series) sliding caliper was modified to use in measuring lateral malleolus height. The sliding caliper was modified by removing the fixed arm and substituting a 77-mm arm for the 51-mm arm. The modified instrument is shown in Figure 8.

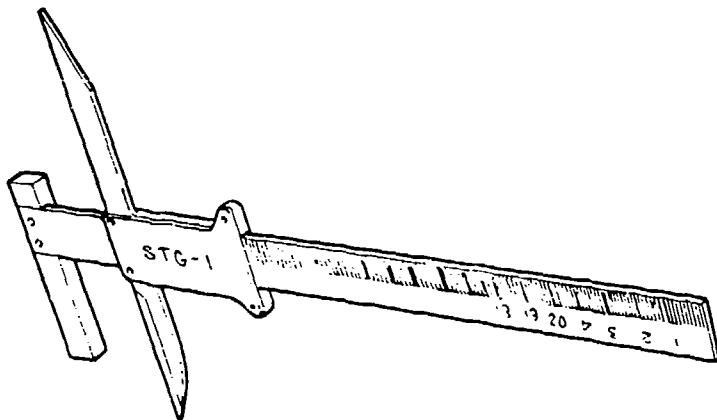


Figure 8. Modified sliding caliper.

The modified tape, used for two posterior crotch length measurements, is made by attaching a dowel to the zero end of a standard tape as a handhold. A triangular plastic pennant is affixed at the zero mark of the tape. The instrument is illustrated in Figure 9.

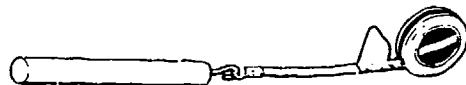


Figure 9. Modified tape.

Several measuring and marking aids were used in this study. They included a landmark transfer rod and a scye marking aid, which were constructed for the purpose. The landmark transfer rod, approximately six feet high, is shown in Figure 10. It consists of a vertical rod mounted on a triangular base. The base has three casters on the bottom which permit the device to be easily rolled around the subject. A slide that can be moved up and down is mounted on the vertical rod. A dowel is mounted at right angles to the slide and rod; a thin horizontal plate is affixed to the end of the dowel. The device is used to transfer landmarks from one side of the body to the same level on another side.

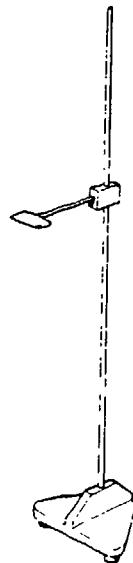


Figure 10. Landmark transfer rod.

The scye marking aid is a rigid plexiglass straightedge with a line level epoxied to the lower left margin of the straightedge. This device, illustrated in Figure 11, was used to establish the anterior and posterior scye marks.

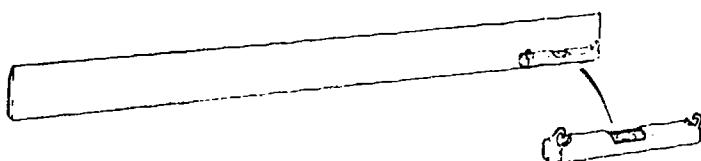


Figure 11. Scye marking aid.

## Automated Headboard Device

The automated headboard device (AHD) was specifically designed and constructed for the measurement of three-dimensional (3-D) coordinates of the head and face. The coordinates are defined in terms of three mutually perpendicular axes (X, Y, and Z) referenced to the intersection of two plane surfaces (headboards) against which a subject's head is positioned for measurement, as shown in Figure 12.

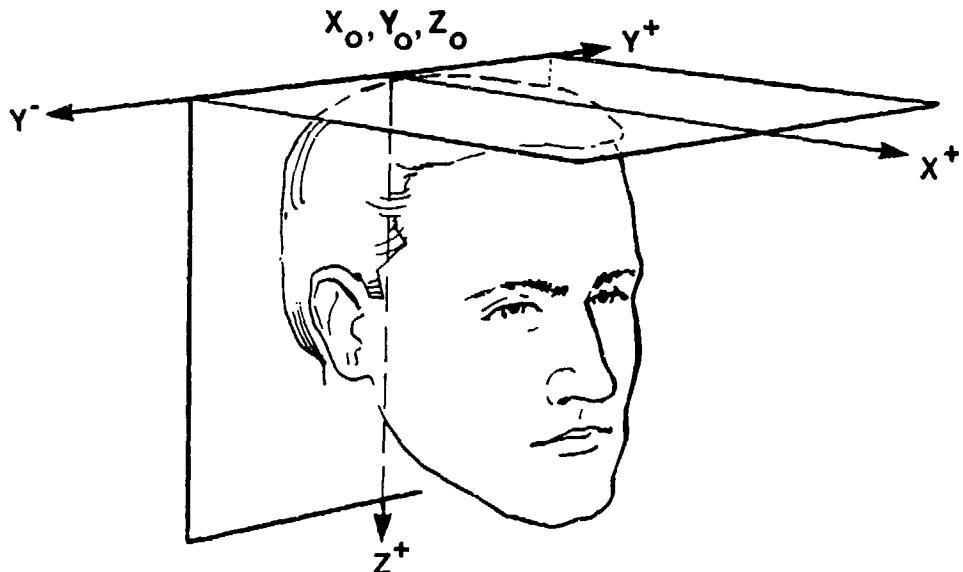


Figure 12. Axis system for headboard measurements.

The AHD is pictured in Figure 13; its basic elements are shown and labeled in Figure 14. The subject positioning system permits the seat to be raised or lowered to bring the subject's head into firm contact with the rear and top headboards (see Figure 15). A head clamp is incorporated to minimize head movement during the approximately 60 seconds required to operate the device. A coordinate measuring system constitutes the measuring elements (see Figure 16). It consists of a movable arm which can be rotated through approximately 200 degrees (rotary bearing), moved in and out 200 mm (horizontal slide), and moved up and down 300 mm (vertical slide). In operation, the objective is to bring a small ruby bead (2-mm diameter) located on a probe on the horizontal slide into light contact with a landmark drawn on the face. The coordinate measuring system is calibrated so that the location of the center of the bead relative to the horizontal and vertical headboard surfaces is known to the nearest 0.1 mm. As the probe is moved around the face from landmark to landmark, their coordinates are entered automatically when the recorder hits a button upon word from the operator that the bead is on the landmark. Encoders attached to each of the movable slides act to convert the movements into electrical pulses that are equivalent to distance. To convert these analog signals into digital coordinate values for three axes, the system is designed to operate with a personal computer programmed to perform the analog-to-digital conversions, total the pulse counts, and perform the necessary trigonometric calculations. A full description of the development, validation, and operation of the AHD may be found in Annis and Gordon, 1988.<sup>8</sup>

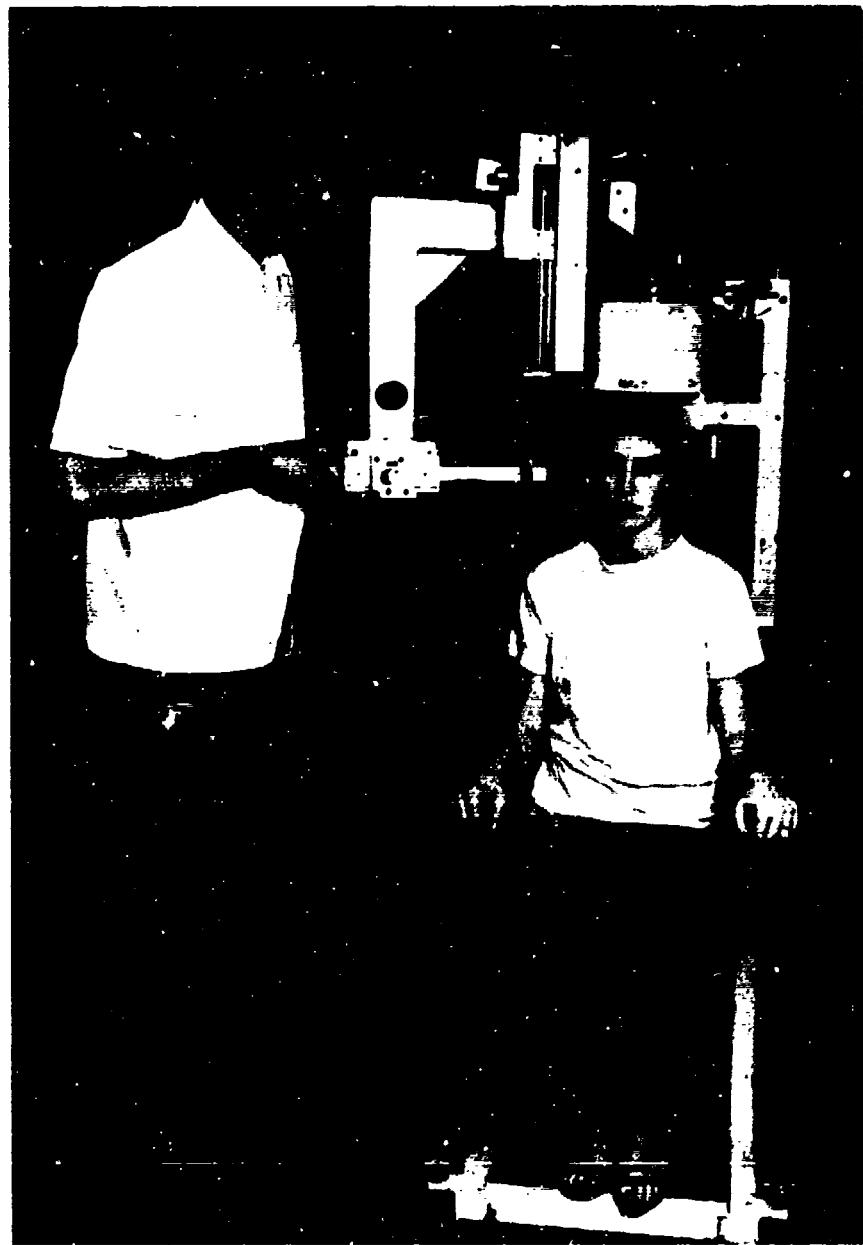


Figure 13. The Automated Headboard Device (AHD).

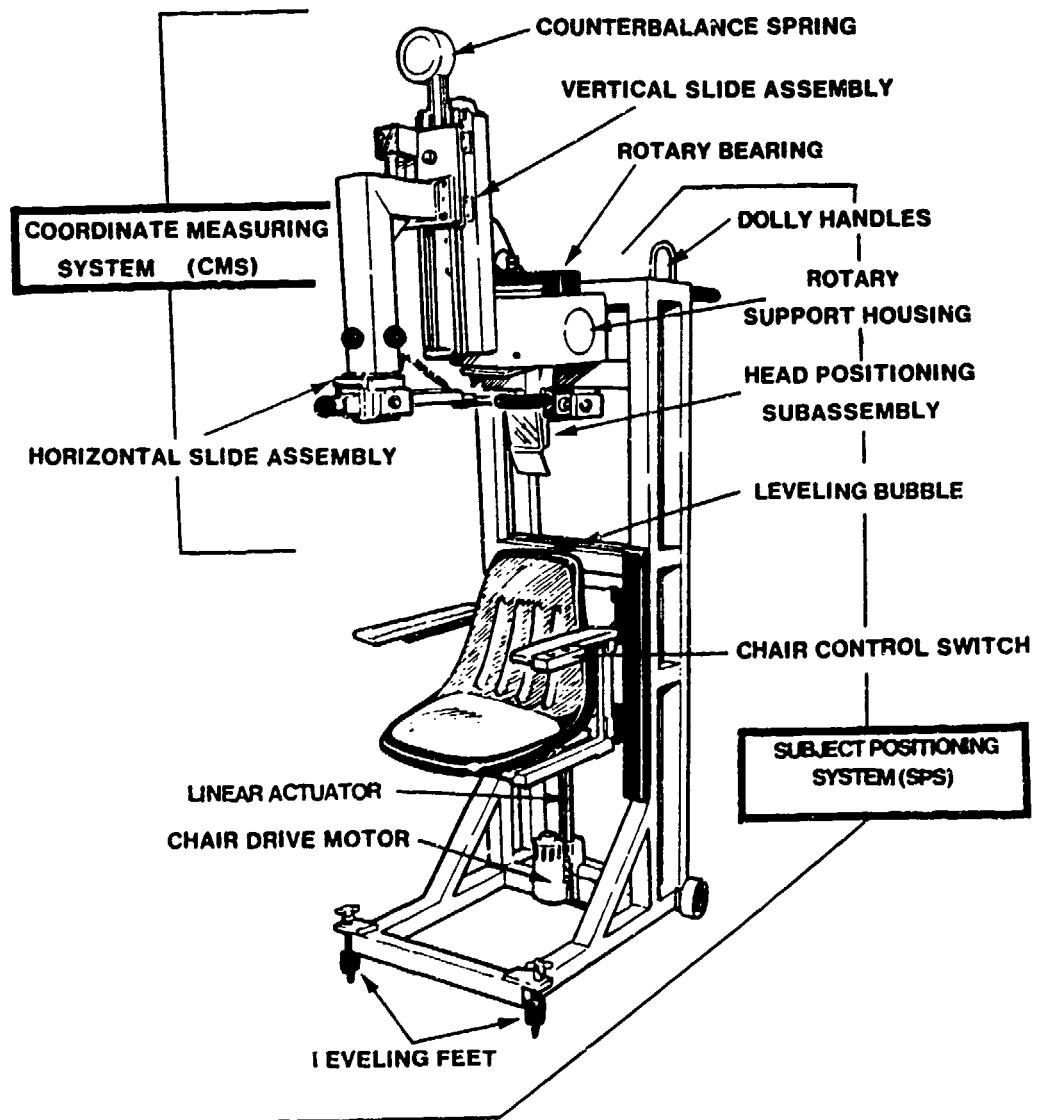


Figure 14. Principal components of the Automated Headboard Device.

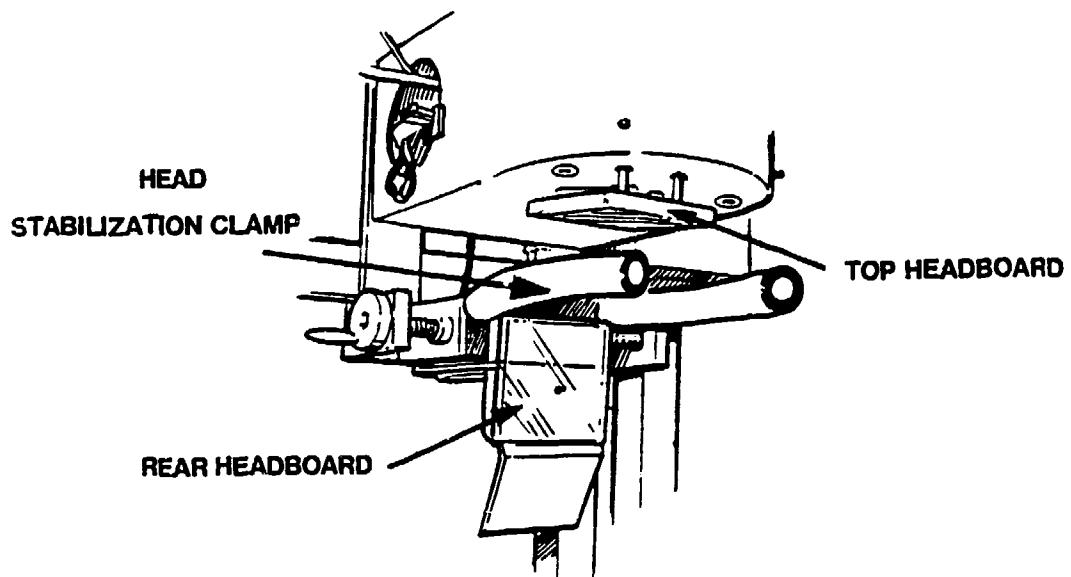


Figure 15. The reference planes (headboards) and head stabilization clamp.

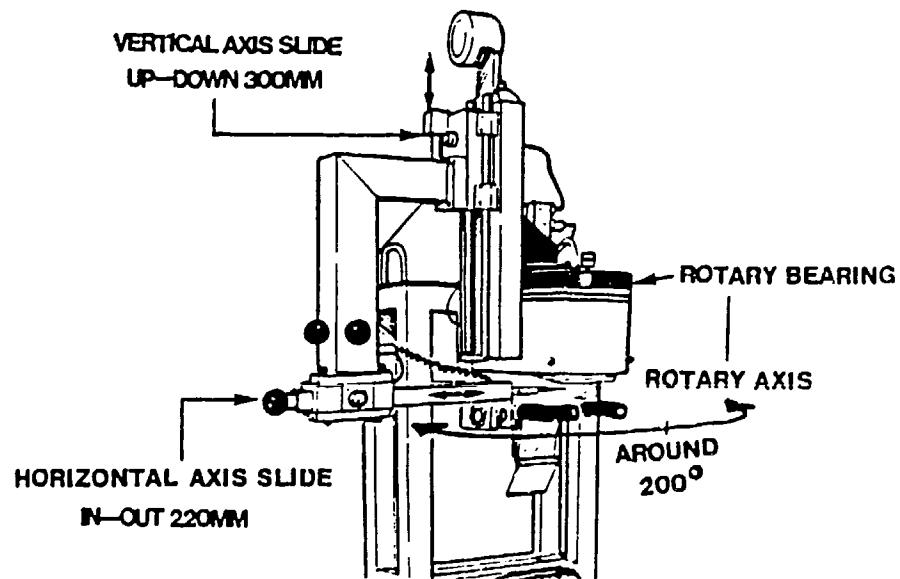


Figure 16. The axis assemblies of the coordinate measuring system and their range of movement.

### Hand Photo Box

Numerous dimensions of the hand and fingers are required for the sizing and design of gloves. Because it was deemed too time-consuming to measure all these variables, a hand photometric system was designed to quickly and accurately capture hand images from which extensive data could be collected at a later time. The device is illustrated in Figure 17.

The system takes two sequential photographs: the first is a photo of the palm, using black-and-white film and flash photography; the second is a silhouette of the hand using a low-wattage bulb for back lighting and a series of lenses which cause the silhouette to be only minimally distorted. It is from the low-distortion silhouette that the measurements are made. The complete system and the optical principles on which it is based are described by Zehner and coworkers.<sup>9</sup>

To collect data from the pairs of photographs, a hand shadowgram data reduction device was developed. This device, specifically designed to accept the photographs from the hand photometric system, superimposes the two images on each other. In this way, the dimensions can be taken from the silhouette image, while using the ordinary palm-and-fingers photograph to identify soft-tissue landmarks. A personal computer and custom-designed software are integral components of the data-reduction device, so the operator can examine the superimposed photographs on the video screen and mark a number of landmarks on the hand using the computer's mouse. The coordinates of the points so identified are automatically read into the computer, which then computes the linear dimensions of the hand from the silhouette image.



Figure 17. Subject seated at photobox.

Additional derived dimensional data on the hand will be available through regression equations. During the course of data collection, finger circumference data were directly measured on 1,190 subjects (620 males and 570 females) for whom hand photographs were also taken. The finger widths and corresponding finger circumferences from those individuals were used to calculate regression equations in which circumference is predicted by finger width. Using those regression equations, finger circumferences can be derived for the remainder of the subjects. Data collection using the hand shadowgram data reduction device is underway as of this writing, and will be reported separately in a NATICK Technical Report.

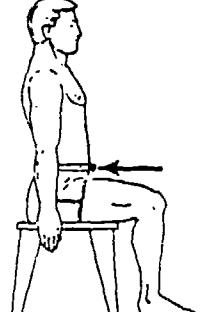
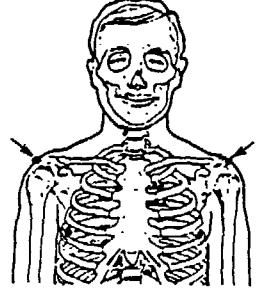
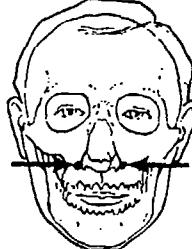
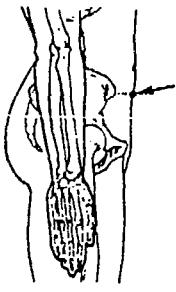
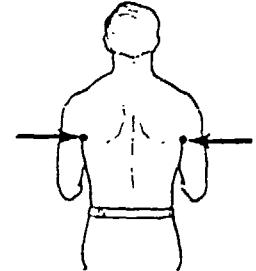
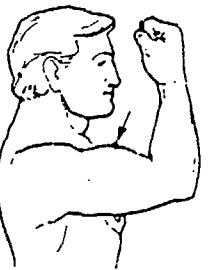
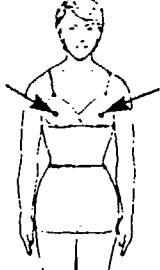
## THE LANDMARKS

Dimensions are measured from one point on the body (or a fixed surface such as the floor) to another or, in the case of circumferences, around a part of the body at a specified level. To ensure that each dimension is measured accurately and consistently from subject to subject, dimensions are defined in terms of body landmarks, which serve as the origin, termination, or level of measurement of a dimension.

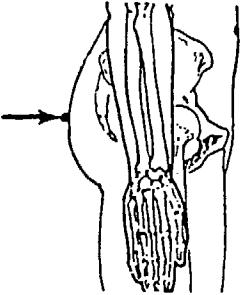
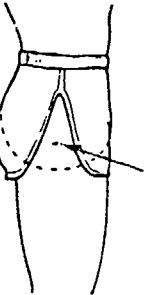
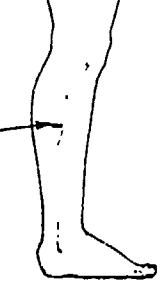
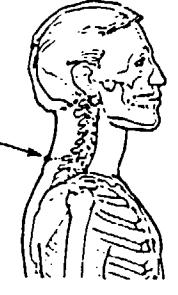
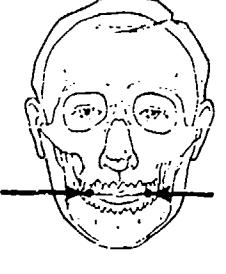
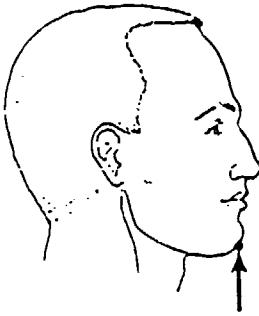
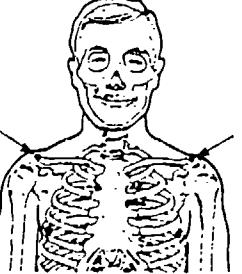
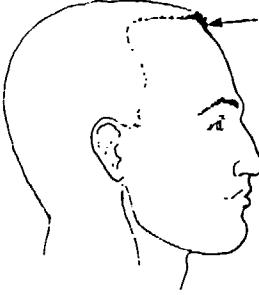
Two men and two women were trained in locating many of these points by palpation or by sight, and placing actual drawn marks on the bodies of all subjects in this survey. Measurers were also trained to recognize other easily located landmarks such as Dactylion II, the tip of the index finger, for which marking was not necessary.

The landmarks used to define the measurements in the survey are listed and briefly described on the following pages. Detailed illustrated instructions for locating these landmarks can be found in the Measurer's Handbook.<sup>10</sup>

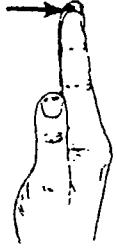
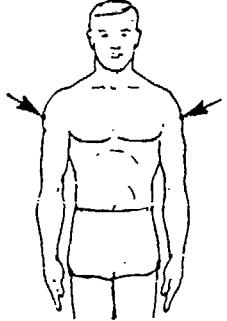
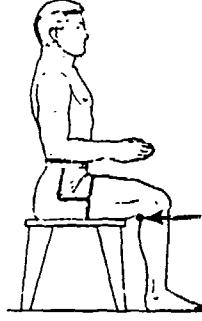
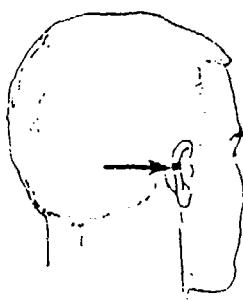
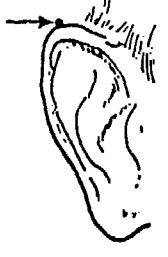
## LANDMARKS

<p><b>Abdominal point, anterior:</b> The most protruding point of the relaxed abdomen of a seated subject.</p> 	<p><b>Acromion, right and left:</b> The point of intersection of the lateral border of the acromial process and a line running down the middle of the shoulder from the neck to the tip of the shoulder.</p> 
<p><b>Acropodium:</b> The tip of the first or second toe of the right foot, whichever is longer.</p> 	<p><b>Alare, right and left:</b> The lateral point on the flare or wing of the nose.</p> 
<p><b>Anterior superior iliac spine, right and left:</b> The anterior points of the right and left iliac crests.</p> 	<p><b>Axillary fold, posterior:</b> right and left: The highest points of the right and left axillary folds on the back.</p> 
<p><b>Biceps point:</b> The highest point of the right flexed biceps as viewed from the subject's right side.</p> 	<p><b>Bustpoint, right and left:</b> The anterior points of the bra cups.</p> 

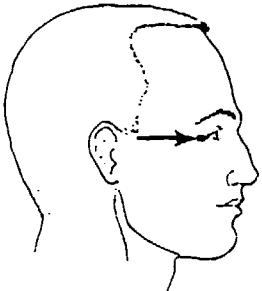
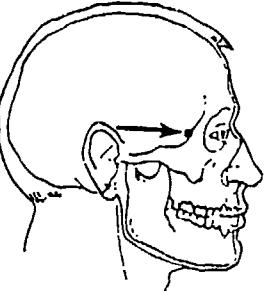
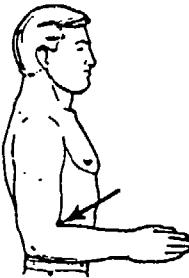
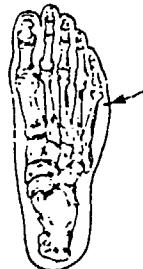
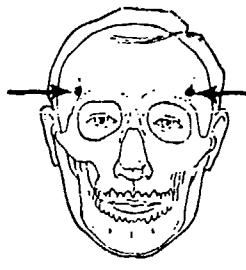
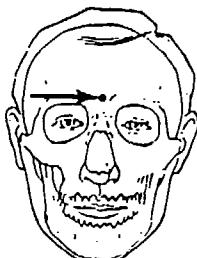
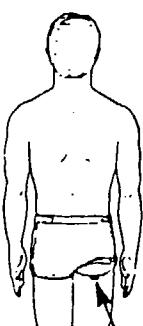
## LANDMARKS (cont'd)

<p><b>Buttock point, posterior:</b> Point of maximum protrusion of the right buttock of a standing subject.</p> 	<p><b>Buttock point, right lateral and left lateral:</b> Points on the thigh or hip at the level of the maximum protrusion of the right buttock.</p> 
<p><b>Calf:</b> A point on the side of the calf at the level of the maximum circumference of the right calf.</p> 	<p><b>Cervicale:</b> The superior palpable point of the spine of the seventh cervical vertebra.</p> 
<p><b>Cheilion, right and left:</b> The lateral point of the juncture of the fleshy tissue of the lips with the facial skin at the corner of the mouth.</p> 	<p><b>Chin:</b> The most protruding point on the bottom edge of the chin, along the jawline.</p> 
<p><b>Clavicle point, right and left:</b> The superior point of the lateral ends of the clavicle.</p> 	<p><b>Crinion:</b> The lowest point of the hairline on the forehead in the midsagittal plane.</p> 

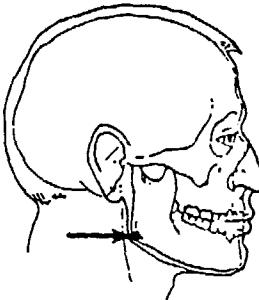
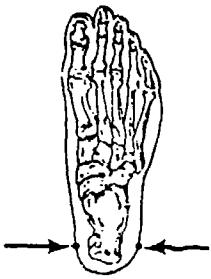
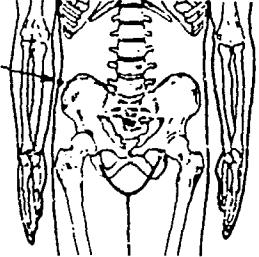
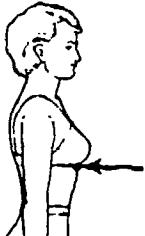
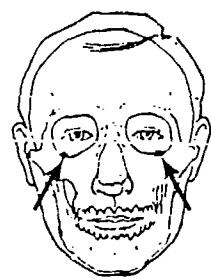
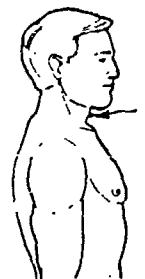
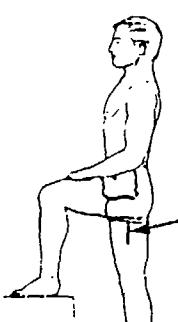
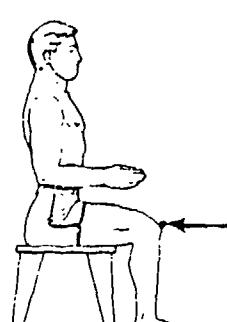
## LANDMARKS (cont'd)

<p><b>Dactylion II:</b> The tip of the right index finger.</p> 	<p><b>Dactylion III, right and left:</b> The tip of the middle finger.</p> 
<p><b>Deltoid point, right and left:</b> The lateral point of the right deltoid muscle, and the margin of the left deltoid muscle at the level of the right deltoid point.</p> 	<p><b>Dorsal juncture of the calf and thigh:</b> The juncture between the right calf and thigh behind the knee of a subject sitting with the knee flexed 90 degrees.</p> 
<p><b>Dorsal juncture of the foot and leg:</b> The top of a skin crease between the right foot and the front of the ankle when the knees and ankles are flexed about 30 degrees.</p> 	<p><b>Ear, bottom:</b> The lowest point of the right ear on its long axis.</p> 
<p><b>Ear point:</b> The lateral point (farthest from the head) of the right ear.</p> 	<p><b>Ear, top:</b> The highest point of the right ear on its long axis.</p> 

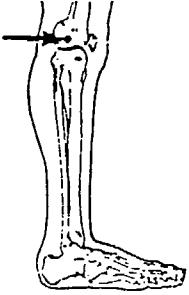
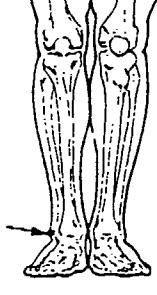
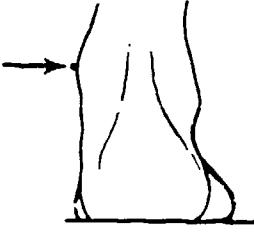
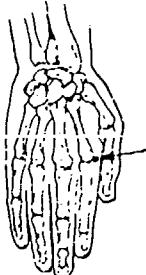
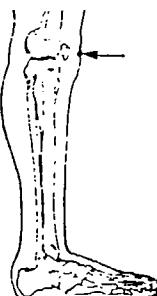
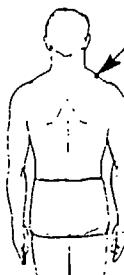
## LANDMARKS (cont'd)

<p><b>Ectocanthus:</b> The outside corner of the right eye formed by the meeting of the upper and lower eyelids.</p> 	<p><b>Ectoorbitale, right and left:</b> The posterior point on the frontal process of the zygomatic bone at the level of the outer corner of the eye.</p> 
<p><b>Elbow crease:</b> The skin crease on the inside of the right elbow joint when the elbow is flexed 90 degrees.</p> 	<p><b>Fifth metatarsophalangeal protrusion:</b> The lateral protrusion of the right foot in the region of the fifth metatarsophalangeal joint.</p> 
<p><b>First metatarsophalangeal protrusion:</b> The medial protrusion of the right foot in the region of the first metatarsophalangeal joint.</p> 	<p><b>Frontotemporale, right and left:</b> The point of deepest indentation of the temporal crest of the frontal bone above the browridges.</p> 
<p><b>Glabella:</b> The anterior point on the frontal bone midway between the bony browridges.</p> 	<p><b>Gluteal furrow point:</b> The lowest point of the lowest furrow or crease at the juncture of the right buttock and the thigh.</p> 

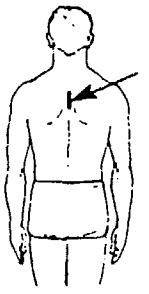
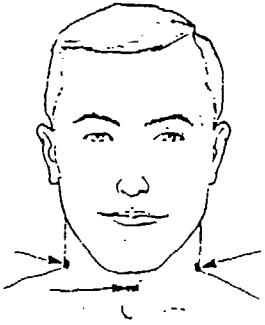
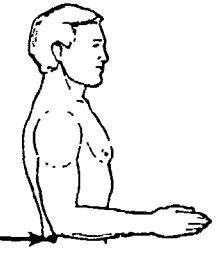
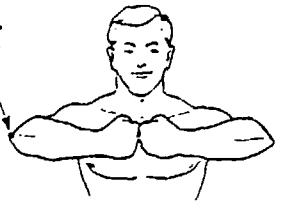
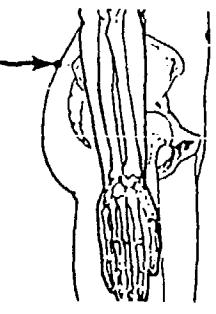
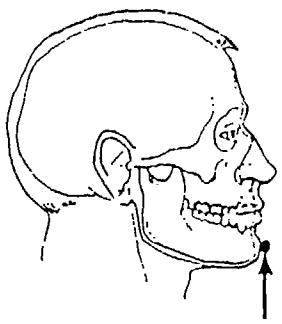
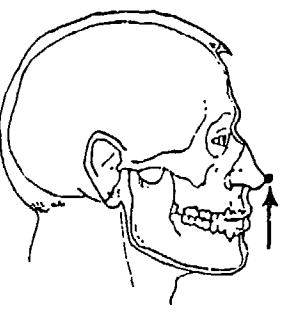
## LANDMARKS (cont'd)

<p><b>Gonion, right and left:</b> The lateral point on the posterior angle of the mandible (jawbone).</p> 	<p><b>Heel point, lateral and medial:</b> The lateral and medial points of the right heel located at or behind the most protruding point of the lateral malleolus (outside ankle bone).</p> 
<p><b>Iliocristale:</b> The highest palpable point of the right iliac crest of the pelvis, one half the distance between the anterior superior iliac and posterior superior iliac spines.</p> 	<p><b>Inferior breast point:</b> The inferior point of the juncture of the lower of the two breasts with the torso.</p> 
<p><b>Infraorbitale, right and left:</b> The lowest point on the anterior border of the bony eye socket.</p> 	<p><b>Infrathyroid:</b> The inferior point in the midsagittal plane of the thyroid cartilage (Adam's apple).</p> 
<p><b>Inner thigh:</b> A vertical line halfway between the front and back of the right inner thigh, and extending downward from the level of the gluteal furrow.</p> 	<p><b>Knee point, anterior:</b> The most protruding point of the right kneecap of a seated subject.</p> 

## LANDMARKS (cont'd)

<p><b>Lateral femoral epicondyle, standing and sitting:</b> Lateral point of the right femoral epicondyle (knee pivot point).</p> 	<p><b>Lateral malleolus:</b> The lateral point of the right lateral malleolus (outside ankle bone).</p> 
<p><b>Medial malleolus:</b> The medial point of the right medial malleolus (inside ankle bone).</p> 	<p><b>Menton:</b> The inferior point of the mandible in the midsagittal plane (bottom of the chin).</p> 
<p><b>Metacarpale II:</b> The lateral point of the right metacarpo-phalangeal joint II (at the base of the index finger on the outer edge of the hand).</p> 	<p><b>Metacarpale V:</b> The medial point of the right metacarpo-phalangeal joint V (at the base of the little finger on the outer edge of the hand).</p> 
<p><b>Midpatella:</b> The anterior point halfway between the top and bottom of the right patella (the kneecap).</p> 	<p><b>Midshoulder:</b> The point on top of the right shoulder midway between the neck (right trapezius point) and the tip of the shoulder (acromion, right).</p> 

## LANDMARKS (cont'd)

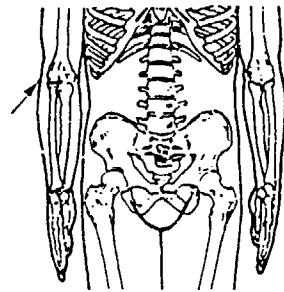
<p><b>Midspine:</b> A line down the center of the back.</p> 	<p><b>Neck:</b> anterior, right lateral, and left lateral: Anterior and lateral points at the base of the neck.</p> 
<p><b>Olecranon, bottom and rear:</b> The lowest and rearmost points of the right elbow with the elbow flexed 90 degrees.</p> 	<p><b>Olecranon, center:</b> A point on the center of the curvature of the right olecranon process with the elbow flexed about 115 degrees.</p> 
<p><b>Otobasion superior:</b> The anterior superior point of the juncture between the right ear and the head.</p> 	<p><b>Posterior superior iliac spine:</b> The posterior point of the crest of the right ilium. A dimple normally overlies this point.</p> 
<p><b>Promenton:</b> The anterior projection of the soft tissue of the chin.</p> 	<p><b>Pronasale:</b> The point of the anterior projection of the tip of the nose.</p> 

## LANDMARKS (cont'd)

**Pterion:** The posterior point of the right heel.

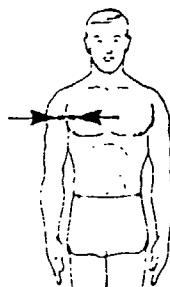


**Radiale:** The highest point on the outside edge of the right radius.



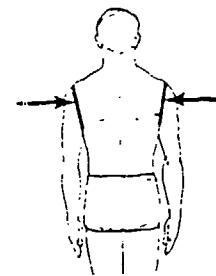
**Scye:** Points on the upper arm and torso associated with the armhole of a garment.

**Anterior scye on the torso:** A short horizontal line on the torso originating at the apex of the right anterior axillary fold.

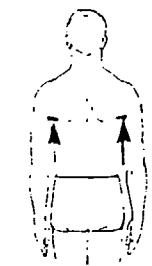


**Anterior scye on the upper arm:** A short horizontal line on the upper arm originating at the apex of the right anterior axillary fold.

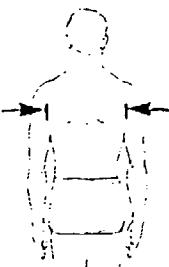
**Posterior diagonal scye, right and left:** A diagonal line connecting the apex of the posterior axillary fold with the acromion landmark on the tip of the shoulder.



**Posterior horizontal scye, right and left:** A short horizontal line on the back originating at the apex of the posterior axillary fold.



**Posterior vertical scye, right and left:** A short vertical line on the back originating at the apex of the posterior axillary fold.



**Midscye, right and left:** A short horizontal line bisecting the Posterior diagonal scye landmark.

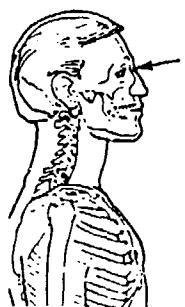


**Scye level at midspine:** A short horizontal line across the spine at the level of the Posterior horizontal scye landmarks.

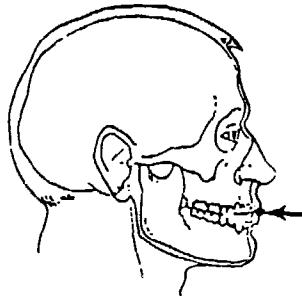


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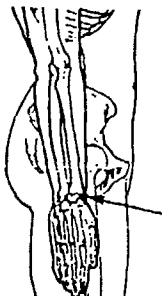
**Sellion:** The point of the deepest depression of the nasal bones at the top of the nose.



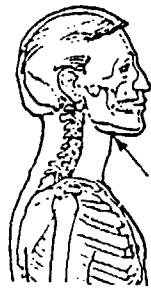
**Stomion:** The point of intersection of the upper and lower lip in the midsagittal plane when the mouth is closed.



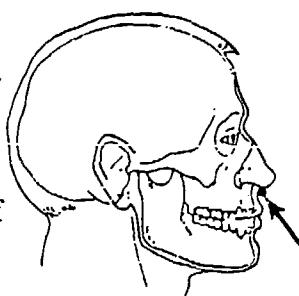
**Stylios:** The lowest point of the bottom of the right radius.



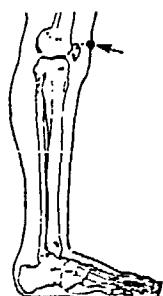
**Submandibular:** The juncture, in the midsagittal plane, of the lower jaw (mandible) and the neck.



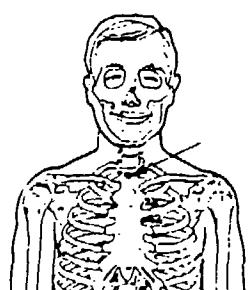
**Subnasale:** The point of intersection of the philtrum (groove of the upper lip) with the inferior surface of the nose, in the midsagittal plane.



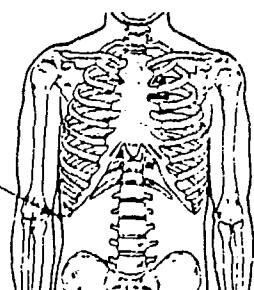
**Suprapatella:** The superior point of the right patella (kneecap).



**Suprasternale:** The inferior point of the jugular notch of the sternum (top of the breastbone).

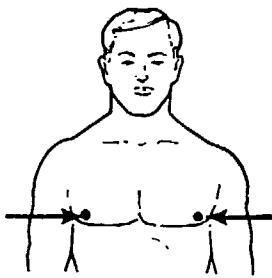


**Tenth rib:** The inferior point of the right tenth rib (bottom of the rib cage).

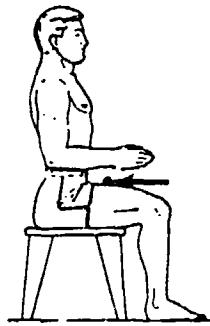


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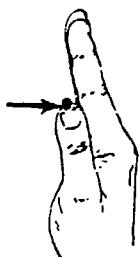
**Thelion, right and left:** Center of the nipple (on males).



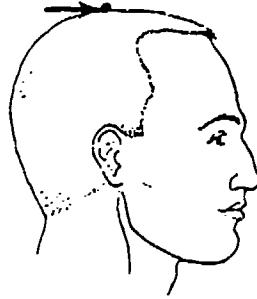
**Thigh point, top:** The highest point of the top of the right thigh of a seated subject.



**Thumbtip:** The tip of the right thumb.



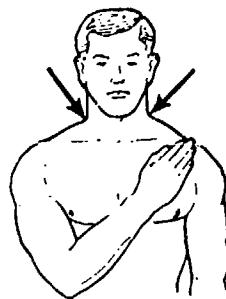
**Top of head:** The highest point on the head when the head is in the Frankfort plane.



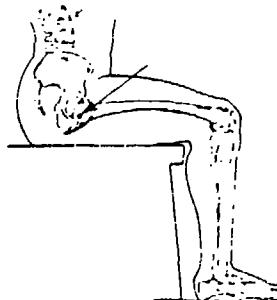
**Tragion, right and left:** The superior point on the juncture of the cartilaginous flap (tragus) of the ear with the head.



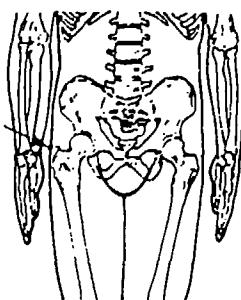
**Trapezius point, right and left:** The point at which the anterior border of the trapezius muscle crosses the lateral neck landmark.



**Trochanter:** A point at the center of the lateral surface of the greater trochanter of the right femur of a sitting subject.

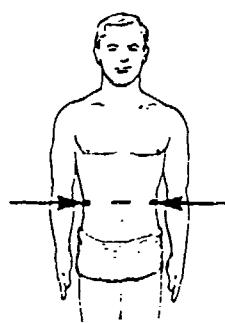


**Trochanterion:** The superior point of the greater trochanter of the right femur of a standing subject.

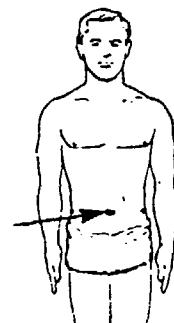


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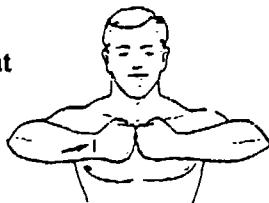
**Waist (natural indentation): right and left; anterior and posterior:**  
 Level of the greatest indentation on the right side of the torso, or half the distance between 10th rib and Iliocristale if no single indentation is clear.



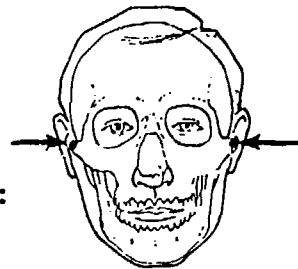
**Waist (omphalion): right and left; anterior and posterior:** Level of the center of the navel.



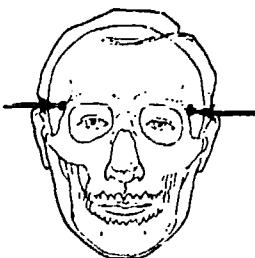
**Wrist, dorsal:** A line across the back of the right wrist originating at the **stylion** landmark and perpendicular to the long axis of the arm.



**Zygion, right and left:** The lateral point on the zygomatic arch.



**Zygofrontale, right and left:** The lateral point of the frontal bone on its zygomatic process.



## CHAPTER III

### THE SAMPLE

In a very important sense, the sampling strategy is the single most critical element of an anthropometric survey. The decision about whom to measure directly affects the mean value, the standard deviation, and all other statistical measures for each dimension measured. Yet the designer of the sampling plan is pulled in many directions by various user groups who need samples specifically drawn for their own research or design needs. Because a major anthropometric survey is such a monumental effort, and therefore conducted only infrequently, the design of the sampling strategy is even more important because many needs must be met with a single survey. The sampling strategy for the ANSUR survey was devised with four not readily compatible objectives in mind. The survey sample must:

- accurately and comprehensively represent the range of body sizes of current U.S. Army personnel;
- accurately and comprehensively represent the body size of the U.S. Army in the year 2000 and beyond;
- contain adequate numbers in various demographic subgroups to answer basic research questions about the nature of human variability by race and age;
- contain adequate numbers in specific occupational subgroups (e.g., armor and aviation) so that end-items of personal protective equipment can be designed around the anthropometry of individuals in those specific groups where meaningful differences between groups are found to exist.

The first three of these goals require the measurement of many anthropometric dimensions, which force limits the number of subjects who can reasonably be measured. The fourth objective can be met by measuring stature and weight only, which together are excellent descriptors of overall body size. This short list of dimensions makes it practical to measure a much larger sample which is needed, in any case, to obtain adequate representation from the many occupational categories that exist in the Army.

Two separate sampling plans were put into operation. The first was designed to obtain a data base that would meet the requirements of the first three objectives. Individuals selected under this sampling strategy were measured for all 132 dimensions; automated headboard data and hand photos were also obtained from these subjects. The second sampling strategy was designed primarily to answer questions about overall body size differences between occupational subgroups. These individuals were measured only for stature and weight. It should be noted that in the plans' implementation, subjects for the first sampling plan were recruited as a subset of those contained in the second sampling plan. This approach eliminated the duplicate effort that would have resulted from two sampling plans operating independently. For ease of reporting, the first sample is termed the measured sample. We refer to the second sample, designed to compare occupational subgroups, as the screened sample. This chapter describes the development and implementation of each of these sampling plans.

## THE MEASURED SAMPLE

The challenge to be met in designing a sampling plan that would produce data suitable for achieving three different objectives was the resolution of several apparently built-in conflicts. One problem, for example, was that a sample representing the body size of the current U.S. Army was unlikely to accurately represent the body size of the Army at points in the future unless the Army itself were to undergo no changes. Each of these goals might also be inconsistent with a sample containing enough men and women in various racial/ethnic/age groups to answer questions of racial/ethnic/age variability. Our solution was to measure more individuals than are needed for any one goal and thereby create a pool of measured individuals. A subset of the pool could then be selected at any time (or at many times) after the survey to address the needs of a particular research question or to represent the Army at that time or in the foreseeable future. The subset drawn to reflect the current (June 1988) Army is termed the working data base. The data summarized in this volume are from that working data base.

### The Sampling Cells

Earlier work had shown that age and race are both extremely important in influencing body size and shape.<sup>4,5,6</sup> Because of this influence, race and age became the cornerstones of a stratified random sampling plan designed to select subjects representative of the Army population. Age was arbitrarily divided into quartiles since research showed that there were no biologically meaningful divisions that would pertain to all the measured variables in this survey. Other considerations which have been used in other surveys, such as military rank or military occupation, were not used for the purpose of constructing sampling cells because much of the body size variability accounted for by those factors is already subsumed under age.

Age is a continuous dimension which means that within the age limits of the Army there are individuals of every age. Race/ethnicity, while not continuous, can be divided into numerous categories. Because the sampling plan had to be functional in the field as well as theoretically sound, both age and race were divided into discrete categories for sampling purposes. Age was divided into four groups:  $\leq 20$ , 21-24, 25-30, and  $\geq 31$  years. The designated racial/ethnic groups were: White, Black, Hispanic, Asian/Pacific Islander, and American Indian/Alaskan Native. The combination of four age groups and five racial/ethnic categories yields a matrix of 20 sampling cells. These are illustrated in Table 4. Identical matrices were created for both males and females.

TABLE 4. Sampling Cells.

White ≤ 20 yrs	Black ≤ 20 yrs	Hispanic ≤ 20 yrs	Asian/ Pac Isl ≤ 20 yrs	Am Ind/ Alas Nat ≤ 20 yrs
White 21-24 yrs	Black 21-24 yrs	Hispanic 21-24 yrs	Asian/ Pac Isl 21-24 yrs	Am Ind/ Alas Nat 21-24 yrs
White 25-30 yrs	Black 25-30 yrs	Hispanic 25-30 yrs	Asian/ Pac Isl 25-30 yrs	Am Ind/ Alas Nat 25-30 yrs
White ≥ 31 yrs	Black ≥ 31 yrs	Hispanic ≥ 31 yrs	Asian/ Pac Isl ≥ 31 yrs	Am Ind/ Alas Nat ≥ 31 yrs

#### The Sample Size

The various goals of the overall sampling plan were considered to be best achieved by assigning an individual sample size to each sampling cell. In a strictly stratified random sample, the number of subjects (*n*) assigned to each cell would be in proportion to that cell's representation in the population as a whole. To use such an approach here, however, would only have achieved the first of the stated goals: to represent the current Army. We sought, therefore, to meet all the stated objectives by establishing cell size with respect to the most stringent goal--that is, in this case assembling a data base sufficient to address fundamental research questions about body size and proportion differences between age/race groups.

Shape and proportion questions are often best answered by various multivariate techniques, as well as by comparisons of means and percentiles. This sampling goal essentially requires an adequate *n* in each cell to examine these issues. Gorsuch<sup>12</sup> suggests that a minimum acceptable *n* for multivariate issues is five times the number of variables included in the analysis. Although 132 dimensions were directly measured in this survey, it is extremely unlikely that any body size or shape question would require consideration of all dimensions at once. Indeed, it is unlikely that an analyst would include more than 50 dimensions in a single analysis. Thus, 250 (5 subjects times 50 variables) could be taken as a minimum number of subjects for each cell in the sampling strategy.

For a number of the age/race categories, however, 250 subjects was an unrealistic goal, because individuals in these categories occur at such low frequency in the current Army. Such categories include Asian/Pacific Islanders and American Indian/Alaskan Natives of both sexes and all age groups, and Hispanic females. For example, the Army's December 1983 census,<sup>13</sup> the most recent data available when the sampling strategy was devised, showed approximately 200 American Indian females in the entire U.S. Army.

Goals for the low frequency racial/ethnic groups were established by taking 10% of the December 1983 census from each of those groups and dividing the number evenly over the four age categories. In the field, of course, every effort was made to increase the sample in those

categories above the minimum level. The final sampling goals for each of the cells are shown in Tables 5 and 6.

TABLE 5. Sampling Goals: Males.

Age	White	Black	Hispanic	Asian/ Paci Isl	Am Ind/ Alas Nat
≤ 20 yrs	250	250	250	50	25
21-24 yrs	250	250	250	50	25
25-30 yrs	250	250	250	50	25
≥ 31 yrs	250	250	250	50	25

TABLE 6. Sampling Goals: Females.

Age	White	Black	Hispanic	Asian/ Paci Isl	Am Ind/ Alas Nat
≤ 20 yrs	250	250	50	5	5
21-24 yrs	250	250	50	5	5
25-30 yrs	250	250	50	5	5
≥ 31 yrs	250	250	50	5	5

### Implementation

Data collection for the anthropometric survey took place over the course of a year. Because of the numerical frequency of Army personnel in certain age/race categories (specifically the younger Whites and Blacks), it would easily have been possible to fill those sampling cells in the first few weeks of measuring. This would have been unwise for two reasons. First, it would not have been possible to sample from a wide variety of occupational groups, and this lack of diversity would have compromised the goals of the screening sample. Second, if the cells had been filled on the basis of available subjects, the most populous cells would have been filled early, making it increasingly difficult to fill the remaining cells. The approach used was a planned, steady filling of each of the cells over the course of the entire year. In this way, individuals from every occupational group sampled can generally be found in each of the sampling cells.

The steady-filling method presupposed certain knowledge of the demographic distribution of individuals within the Army, at the posts where measuring took place, and within specific units on each post. Posts were chosen partly on the basis of their populations of individuals in each of the age/race categories and partly on the basis of particular occupations represented there. At each post, the availability of subjects in particular age/race cells dictated the choice of method for subject recruitment.

The first method, used primarily at Training and Doctrine Command (TRADOC) posts, made use of personnel printouts which contained information on race and age from each unit. In this approach, specific individuals were selected randomly to meet sampling goals and then put on the roster for measuring. Individuals not selected for measuring were not called to the survey at all. This method was undertaken to minimize the impact on training schedules with little flexibility.

A second method, used primarily at U.S. Army Forces Command (FORSCOM) posts, was to screen complete units and select appropriate numbers of individuals to fill each of the cells. This method produced the large screened sample called for in the second sampling plan and provided subjects needed to fill the age/race cells required by the first sampling plan. Group demographic information on the unit was used to determine what proportion of the unit's individuals in each cell would be needed for that session's measuring. A portable personal computer was used to randomly select for full measurement every nth individual in a given category. If, for example, a particular unit had 80 White males between the ages of 21 and 24, and 5 of these individuals were needed to evenly fill that cell, then the computer would select the first White male between 21 and 24 and then every 16th one thereafter, until the 5 individuals were selected. This process was carried out simultaneously for each of the categories. Because it was the goal of the sampling strategy to acquire as many Hispanic females, Asian/Pacific Islanders and American Indian/Alaskan Natives (both sexes) as possible, the computer always selected all subjects from those categories. Even so, because of the low frequency of these individuals in the Army as a whole, sampling at 100% did not often result in large numbers of individuals. In units which had a higher-than-usual frequency of such personnel, the proportion of Whites and Blacks was reduced appropriately to allow the continued selection of the low-frequency groups at 100%.

The final measured sample consisted of 5,506 males and 3,491 females. Tables 7 and 8 show the demographic distribution of males and females, respectively. The percentages of each category relative to the whole sample can be compared to corresponding percentages in the whole 1988 Army population<sup>2</sup> as shown in Tables 9 and 10. Note that all these tables contain a sixth racial/ethnic group labeled "Other." While individuals of groups beyond the five racial/ethnic categories of interest were not specifically sampled, there were, of course, individuals who did not fit into any of the above-named categories. Such individuals might be of mixed parentage, such as Black/White, or of racial groups too infrequent in the U.S. Army to be included in the sampling plan. Examples of such groups would be Arabian or Asian Indian. Although these individuals are too infrequent to consider specifically in a sampling strategy, they are nevertheless in the Army and must be included when designing uniforms, personal protective equipment, and workspaces. Therefore, "Other" individuals were included in the creation of the working data base.

### The Working Data Base

The working data base is a secondary sample, drawn after the data collection was completed, to be demographically representative of the June 1988 U.S. Army in terms of age and racial/ethnic composition. The working data base was constructed so that its proportions in each cell would be equivalent to those of the total Army.

Creating the working data base was a three-step process. First, the total size of the working data base was determined. Then, proportions of that total were taken to reflect Army percentages in each category as shown in Tables 9 and 10. Finally, individuals were selected randomly from each cell of the measured sample to fill the cells of the working data base.

TABLE 7. Demographic Distribution of Measured Males.

<u>Age</u>		<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Pacific Island</u>	<u>American Indian/ Alaskan Native</u>	<u>Other</u>	<u>Row Total</u>
$\leq 20$	Count	406	367	209	50	21	111	1,164
	%	7.4	6.7	3.8	0.9	0.4	2.0	21.2
21-24	Count	418	365	281	96	35	155	1,350
	%	7.6	6.6	5.1	1.7	0.6	2.8	24.5
25-30	Count	516	367	290	122	20	97	1,412
	%	9.4	6.7	5.3	2.2	0.4	1.8	25.6
$\geq 31$	Count	639	367	295	182	12	85	1,580
	%	11.6	6.7	5.4	3.3	.2	1.5	28.7
TOTALS	Count	1,979	1,466	1,075	450	88	448	5,506
	%	35.9	26.6	19.5	8.2	1.6	8.1	100.0

TABLE 8. Demographic Distribution of Measured Females.

<u>Age</u>		<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Pacific Island</u>	<u>American Indian/ Alaskan Native</u>	<u>Other</u>	<u>Row Total</u>
$\leq 20$	Count	322	296	53	23	10	48	752
	%	9.2	8.5	1.5	0.7	0.3	1.4	21.5
21-24	Count	363	338	106	32	20	69	928
	%	10.4	9.7	3.0	0.9	0.6	2.0	26.6
25-30	Count	360	399	107	43	10	54	973
	%	10.3	11.4	3.1	1.2	0.3	1.5	27.9
$\geq 31$	Count	343	330	71	42	8	44	838
	%	9.8	9.5	2.0	1.2	0.2	1.3	24.0
TOTALS	Count	1,388	1,363	337	140	48	215	3,491
	%	39.8	39.0	9.7	4.0	1.4	6.2	100.0

TABLE 9. Demographic Distribution of the U.S. Army, June 1988: Males.

<u>Age</u>		<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Paci Isl</u>	<u>Am Ind/ Alas Nat</u>	<u>Other</u>	<u>Row Total</u>
$\leq 20$	Count	84,420	25,280	3,926	1,374	590	1,951	117,541
	%	12.651	3.788	0.588	0.206	0.088	0.292	17.613
21-24	Count	119,801	46,365	6,056	2,284	916	3,424	178,846
	%	17.953	6.948	0.908	0.342	0.137	0.513	26.801
25-30	Count	103,010	51,420	7,348	2,550	630	4,038	168,996
	%	15.437	7.706	1.101	0.382	0.094	0.605	25.325
$\geq 31$	Count	134,581	49,754	8,632	4,041	884	4,023	201,915
	%	<u>20.168</u>	<u>7.456</u>	<u>1.294</u>	<u>0.606</u>	<u>0.132</u>	<u>0.603</u>	<u>30.259</u>
TOTALS	Count	441,812	172,819	25,962	10,249	3,020	13,436	667,298
	%	66.209	25.898	3.891	1.536	0.451	2.013	99.998*

\* Due to rounding.

TABLE 10. Demographic Distribution of the U.S. Army, June 1988: Females.

<u>Age</u>		<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Paci Isl</u>	<u>Am Ind/ Alas Nat</u>	<u>Other</u>	<u>Row Total</u>
$\leq 20$	Count	7,711	4,785	355	176	98	225	13,350
	%	9.463	5.872	0.436	0.216	0.121	0.276	16.384
21-24	Count	12,607	10,185	578	299	195	479	24,343
	%	15.471	12.499	0.709	0.367	0.239	0.588	29.873
25-30	Count	12,253	12,232	681	347	119	495	26,127
	%	15.040	15.011	0.836	0.426	0.146	0.607	32.066
$\geq 31$	Count	9,530	6,821	503	364	95	353	17,666
	%	<u>11.695</u>	<u>8.371</u>	<u>0.617</u>	<u>0.447</u>	<u>0.117</u>	<u>0.433</u>	<u>21.680</u>
TOTALS	Count	42,101	34,023	2,117	1,186	507	1,552	81,486
	%	51.669	41.753	2.598	1.456	0.623	1.904	100.003*

\* Due to rounding.

The size of the working data base was set by the sample cell with the lowest percentage relative to that cell's percentage in the June 1988 Army. In identifying that lowest cell, the sample cells with low subject frequencies (e.g. American Indian/Alaskan Native) were eliminated from consideration immediately. Although there are relatively few measured subjects in those cells they nevertheless represent larger proportions of the whole than do their counterparts in the Army population. That is, there are only 12 American Indian males over the age of 31 among the measured males (see Table 7). This represents 0.2 percent of the total measured sample. Yet, in the current U.S. Army American Indian males of this age represent only 0.132 percent of the total Army population (see Table 9).

For females, the most divergent proportions show up among White subjects--specifically among White females aged 25-30. That cell was identified by calculating the relative cell frequencies for each cell as shown in Table 11 below:

TABLE 11. Calculation of Relative Cell Frequencies for White Females.

<u>Age</u>	A <u>Measured Sample*</u>	B <u>1988 Army</u>	C <u>A/B</u>
	%	%	
≤ 20	9.265	9.463	97.9
21-24	10.686	15.471	69.1
25-30	10.253	15.040	68.2
≥ 31	9.049	11.695	77.4

Column A indicates the relative frequencies of individuals in these categories in the measured data pool. Column B lists the relative frequency of each cell in the June 1988 Army. Column C is created by dividing the values in Column A by the values in Column B. When these calculations were carried out for all cells, the lowest value thus calculated identified the cell to be used to set the size for the working data base. In the case of the females, the lowest value for Column C was found for White females, aged 25-30.

The size of the working data base for females was calculated using the number of individuals with complete anthropometric data in that cell, 332\*, setting that value equal to 15.04% (from Column B or Table 10) and calculating the 100% value, which is the size of the total working data base. The size of the working data base for females would be approximately 2,207.

Calculating the size of each cell in the working data base was a simple matter of applying the percentages from Table 10 to the total size of 2,207. The resulting cell sizes for females are shown in Table 12.

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\* These figures differ from those found on Table 8 because, for this purpose, subjects who, for one reason or another, were found to have data points (other than crinion and interpupillary dimensions) missing were eliminated from consideration. Subjects with missing crinion and interpupillary data were retained so as not to truncate the distribution (see explanation on page 63).

TABLE 12. Female Working Data Base Cell Size.

<u>Age</u>	(n=2,208)					
	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Paci Isl</u>	<u>Am Ind/ Alas Nat</u>	<u>Other</u>
$\leq 20$	209	130	10	5	3	6
21-24	341	276	16	8	5	13
25-30	332	331	18	9	3	13
$\geq 31$	258	185	14	10	3	10

The total number of individuals in all cells is 2,208, which is different from the projected sample size of 2,207, due to the rounding which is necessary to eliminate "partial" individuals.

When the size of each cell in the working data base was determined, creation of the data base was a simple matter. A computer program was developed to select the required number of individuals with complete anthropometric data from each cell in the measured pool. A random number generator was used, and the program was structured in such a way that each individual in a given cell had an equal probability of being chosen. In the case of the White females aged 25-30, of course, every subject was selected. Because a random selection is made for the other cells, it is always possible, however unlikely, that a single creation of the working data base might contain an unusually large number of heavy or tall subjects. To guard against this possibility, we created seven working data bases and selected the one which had the middle mean for stature (of the seven stature means) and the middle mean for weight (of the seven weight means). Table 13 shows the means for stature and weight for the seven draws. Note that the means used are for the variables field stature and field weight, indicating those dimensions which were measured at the screening session before the subjects were selected for complete measurement. The asterisk indicates the draw which was chosen as the final working data base for females.

TABLE 13. Mean Stature and Weight for Female Working Data Base Selections.

<u>Draw</u>	<u>Stature</u>	<u>Weight</u>
	<u>Mean</u>	<u>Mean</u>
	(cm)	(kg)
A	163.13	62.02
B	163.12	62.13
C	163.11	62.04
D*	163.08	62.08
E	163.07	62.01
F	163.06	62.09
G	163.00	62.16

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\* Selected draw

The final step in creating the working data base was to validate the selection. Validation was possible in the present survey because of the screened sample. One of the goals of the screened sample was that it should represent the total Army population in terms of overall body size, measured by stature and weight. To meet this goal, whole units from FORSCOM posts were screened; types of units were screened in proportion to their frequency in the Army. It was thought that screening entire units would guarantee the demographic representation needed to assure anthropometric representation. Thus, if the working data base were similar to the screening sample in its measures of overall body size, then we might assume that dimensions other than stature and weight would also be representative of the Army as a whole. As it happened, some of the screened units were not complete due to leave, temporary duty, or illness. As a result, the FORSCOM screening sample as a whole was not as demographically representative of the total Army as had been originally hoped for. While this did not compromise the ability of that sample to meet its primary goal, it did complicate efforts to use the screening sample as a gauge against which to measure the effectiveness of the working data base selection process.

The solution to the dilemma was to create a representative screening sample from the total screening sample. Exactly the same procedures as in the creation of the working data base were used, and FORSCOM screened individuals were randomly selected for appropriate cells to equal the demographic distribution of the June 1988 Army. As with the working data base, the sample was drawn seven times, and the middle draw (in terms of stature and weight) was selected as the one against which the working data base was compared. Table 14 shows the mean, standard deviation, and selected percentiles of the female working data base and the female comparison screening sample for stature. Table 15 shows similar values for weight.

TABLE 14. Female Working Data Base Compared to Female Screening Sample: Stature.

	<u>Working Data Base</u>	<u>Screening Sample</u>	
Mean	(cm)	(cm)	
	163.08	163.12	
SD	6.37	6.32	
	148.55	1st %ile	148.59
	150.36	2nd %ile	150.35
	152.91	5th %ile	152.92
	155.08	10th %ile	155.14
	158.69	25th %ile	158.83
	162.86	50th %ile	162.98
	167.28	75th %ile	167.28
	171.45	90th %ile	171.28
	173.94	95th %ile	173.70
	176.67	98th %ile	176.42
	178.39	99th %ile	178.21

TABLE 15. Female Working Data Base Compared to  
Female Screening Sample: Weight.

	<u>Working Data Base</u>	<u>Screening Sample</u>
Mean	(kg) 62.08	(kg) 62.24
SD	8.33	8.28
	45.18	1st %ile
	46.94	2nd %ile
	49.61	5th %ile
	52.03	10th %ile
	56.27	25th %ile
	61.39	50th %ile
	67.13	75th %ile
	73.02	90th %ile
	76.93	95th %ile
	81.73	98th %ile
	85.19	99th %ile

It is clear from comparing the columns in both the stature and weight tables that the selection process for the female working data base worked extremely well. Note that not only are the means and standard deviations almost identical, but even the lowest and highest percentiles are very close. It is therefore quite safe to consider this data base as representative of the females in the Army as a whole.

The same general procedure was followed to create the male working data base, with a single exception. At the special request of the Army's aviation community, Fort Rucker was included among the posts at which data were collected. This resulted in a good set of anthropometric data around which designs for the aviation community can be made. The inclusion of the Fort Rucker subjects, however, increased the proportion of aviators in the measured sample well beyond their proportion in the Army as a whole.

Therefore, when the male working data base was drawn, it was drawn from a pool from which the Fort Rucker aviators were excluded. Similarly, when the working data base was validated against the screening sample, it was validated against a screening sample from which the Fort Rucker aviators were excluded. Aviators are represented in the working data base and in the screening data base without Fort Rucker data because aviation units at other posts were sampled in approximate proportion to their representation in the Army as a whole.

The male working data base size was set by the cell containing Whites whose age was  $\geq$  31 ( $n=357$ ). This figure is considerably smaller than the cell count shown in Table 7 and largely the result of deleting the Fort Rucker aviators. The data base size after rounding was 1,774, demographically distributed as shown in Table 16.

TABLE 16. Male Working Data Base Cell Size.

(n=1,774)

<u>Age</u>	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Pacific Island</u>	<u>American Indian/ Alaskan Native</u>	<u>Other</u>
<u>≤ 20</u>	224	67	10	4	2	5
21-24	318	123	16	6	2	9
25-30	273	136	19	7	2	11
<u>≥ 31</u>	357	132	23	11	6	11

The selection of the male working data base was validated in the same way as that of the female working data base. Table 17 shows selected statistics comparing field stature from the working data base with field stature from the male screening sample which was restructured to reflect June 1988 demographics, and from which the Fort Rucker sample was deleted. Table 18 shows the validation for field weight.

TABLE 17. Male Working Data Base Compared to  
Male Screening Sample: Stature.

	<u>Working Data Base</u>		<u>Screening Sample</u>
Mean	(cm) 175.88		(cm) 175.75
SD	6.73		6.79
	160.57	1st %ile	160.15
	162.30	2nd %ile	162.08
	164.91	5th %ile	164.83
	167.25	10th %ile	167.19
	171.23	25th %ile	171.11
	175.79	50th %ile	175.58
	180.46	75th %ile	180.26
	184.66	90th %ile	184.62
	187.11	95th %ile	187.24
	189.75	98th %ile	190.13
	191.40	99th %ile	191.98

**TABLE 18. Male Working Data Base Compared to  
Male Screening Sample: Weight.**

	<u>Working Data Base</u>	<u>Screening Sample</u>
Mean	(kg) <b>78.75</b>	(kg) <b>78.60</b>
SD	11.00	11.12
	55.46	1st %ile
	58.14	2nd %ile
	61.96	5th %ile
	65.29	10th %ile
	71.02	25th %ile
	77.99	50th %ile
	85.81	75th %ile
	93.52	90th %ile
	98.31	95th %ile
	103.72	98th %ile
	107.24	99th %ile

Note that, as in the case for the females, the working data base is representative of the restructured screening sample and, by extension, the Army as a whole.

#### Characteristics of the Working Data Base

Tables and figures at the end of this chapter (pages 45-52) show a number of characteristics of the working data base. Tables 19 and 20 show the distribution of duty location and military component in the working data base. Tables 21 and 22 show rank and grade, while Table 23 displays years of service. Note that Table 23 is based on complete years. Table 24 is a breakout by branch of service, and Tables 25 through 27 show listings of military occupation specialty (MOS) category, separated into enlisted, warrant officer, and officer groups.

Personal characteristics of the individuals in the working data base are shown beginning with Table 28, which shows a distribution by age at last birthday. Table 29, a listing of racial categories, should be viewed with Table 30, which shows the distribution of all the ethnic groups (self-identified) in the working data base. The birthplace of each individual is summarized in Table 31. Vision correction, and the eye used for sighting a weapon are covered in Tables 32 and 33, respectively. Handedness, as determined by preferred hand for writing or firing a weapon, is shown in Tables 34 and 35.

Each subject, before being measured for any dimension, was asked to estimate his/her height and weight. These data, when combined with measured stature and weight data, are useful in assessing the value of questionnaire surveys of body size. Selected summary statistics and percentiles for height and weight, both estimated and measured, are shown in Tables 36 and 37, respectively.

Both men and women tended to slightly overestimate their own height, judging by the mean values. The estimated male mean is 1.33 cm greater than the measured male mean. For weight, individuals in this survey underestimated their own weight, by 1.02 kg for males, and 1.31 kg for females.

The working data base is described anthropometrically in Chapters IV, V, and VI. The data collected on the entire measured sample remain available to the Army for use when demographic changes suggest the need for creating another working data base. At such time, a new technical report describing that working data base will be issued.

### THE SCREENED SAMPLE

The screened sample was designed to allow assessment of questions about overall body size differences between occupational subgroups within the army. For these questions, stature and weight data provide adequate anthropometric information. The critical aspect of sampling was to obtain access to appropriate groups so that they would be represented in the final screened sample.

The screened sample was acquired using two methods. The primary method, and that generally used at FORSCOM posts, was to call entire units to the survey site. The specific units called were chosen for their ability to furnish individuals in specific age and racial/ethnic categories, but the kinds and numbers of units called were determined by the frequency of that type of unit in the Army as a whole. The secondary method used in acquiring the screening sample was to roster selected individuals on the basis of their attachment to a certain unit and on their age and race. This approach was generally used at TRADOC posts, but was also used to supplement the unit screening at FORSCOM posts when individuals were unable to attend the screening session for their unit.

The result of this screening process was twofold. First, it provided a very broad occupational representation of the entire Army. Second, it contributed markedly to the success of the recruitment for the measured sample since large numbers of individuals were physically accessible at the start of each measuring session. In all, 25,811 subjects--19,214 males and 6,597 females--were screened. The data for these individuals include stature and weight as well as the full set of biographical survey information. A separate technical report on the screening sampling strategy and the sample itself is in preparation.

TABLE 19. Distribution by Duty Location.

Fort	Females		Males	
	Frequency	Percent	Frequency	Percent
McClellan	66	3.0	64	3.6
Campbell	140	6.3	234	13.2
Bragg	270	12.2	266	15.0
Stewart	215	9.7	287	16.2
Ord	181	8.2	245	13.8
Lewis	229	10.4	286	16.1
Hood	417	18.9	369	20.8
Gordon	177	8.0	0	0.0
Jackson	192	8.7	0	0.0
Rucker	67	3.0	0	0.0
Dix	<u>254</u>	<u>11.5</u>	<u>23</u>	<u>1.3</u>
TOTALS	2,208	99.9	1,774	100.0

TABLE 20. Distribution by Military Component.

	Females		Males	
	Frequency	Percent	Frequency	Percent
Regular Army	2,119	96.0	1,741	98.1
Army Reserve	86	3.9	30	1.7
Missing Data	<u>3</u>	<u>.1</u>	<u>3</u>	<u>.2</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 21. Distribution by Rank.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Private 1	84	3.8	49	2.8
Private 2	147	6.7	115	6.5
Private First Class	271	12.3	221	12.5
Specialist 4	686	31.1	455	25.6
Corporal	18	.8	22	1.2
Sergeant	381	17.3	283	16.0
Staff Sergeant	219	9.9	224	12.6
Sergeant First Class	55	2.5	128	7.2
First Sergeant	2	.1	19	1.1
Master Sergeant	6	.3	29	1.6
Sergeant Major	0	.0	6	.3
Command Sergeant Major	0	.0	1	.1
Warrant Officer 1	1	.0	14	.8
Warrant Officer 2	5	.2	39	2.2
Warrant Officer 3	1	.0	14	.8
Warrant Officer 4	0	.0	6	.3
Second Lieutenant	52	2.4	15	.8
First Lieutenant	104	4.7	54	3.0
Captain	112	5.1	49	2.8
Major	47	2.1	15	.8
Lieutenant Colonel	16	.7	10	.6
Colonel	0	.0	1	.1
Missing Data	<u>1</u>	<u>.0</u>	<u>5</u>	<u>.3</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 22. Distribution by Grade.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
E1	82	3.7	50	2.8
E2	149	6.7	114	6.4
E3	271	12.3	221	12.5
E4	705	31.9	482	27.2
E5	382	17.3	283	16.0
E6	218	9.9	225	12.7
E7	55	2.5	127	7.2
E8	8	.4	48	2.7
E9	0	.0	7	.4
WO1	1	.0	14	.8
WO2	5	.2	39	2.2
WO3	1	.0	14	.8
WO4	0	.0	6	.3
O1	53	2.4	15	.8
O2	103	4.7	54	3.0
O3	112	5.1	49	2.8
O4	47	2.1	15	.8
O5	16	.7	10	.6
O6	<u>0</u>	<u>.0</u>	<u>1</u>	<u>.1</u>
TOTALS	2,208	99.9	1,774	100.1

TABLE 23. Distribution by Years of Service.

<u>Years Completed</u>	<b>Females</b>		<b>Males</b>	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
0	331	15.0	179	10.1
1	371	16.8	268	15.1
2	331	15.0	215	12.1
3	213	9.6	206	11.6
4	146	6.6	110	6.2
5	102	4.6	81	4.6
6	109	4.9	71	4.0
7	103	4.7	66	3.7
8	117	5.3	55	3.1
9	92	4.2	41	2.3
10	63	2.9	54	3.0
11	52	2.4	51	2.9
12	37	1.7	49	2.8
13	38	1.7	38	2.1
14	32	1.4	52	2.9
15	16	.7	54	3.0
16	17	.8	39	2.2
17	17	.8	32	1.8
18	15	.7	32	1.8
19	4	.2	38	2.1
20	0	.0	13	.7
21	1	.0	9	.5
22	0	.0	6	.3
23	0	.0	6	.3
24	0	.0	4	.2
25	1	.0	0	.0
26	0	.0	3	.2
29	<u>0</u>	<u>.0</u>	<u>2</u>	<u>.1</u>
<b>TOTALS</b>	<b>2,208</b>	<b>100.0</b>	<b>1,774</b>	<b>99.7</b>

TABLE 24. Distribution by Branch of Service.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
AG	37	1.7	0	.0
Air Defense Artillery	10	.5	65	3.7
Armor	7	.3	66	3.7
Aviation-Other	89	4.0	58	3.3
Aviation-Pilots	47	2.1	90	5.1
Band	6	.3	2	.1
Chemical	11	.5	46	2.6
Defense Language Ins	67	3.0	18	1.0
Dentac	4	.2	0	.0
Engineer	21	1.0	111	6.3
Field Artillery	0	.0	74	4.2
Finance	48	2.2	30	1.7
General Supply	26	1.2	18	1.0
Headquarters and Rep	300	13.6	126	7.1
Infantry	82	3.7	202	11.4
Maintenance	114	5.2	105	5.9
Meddac	406	18.4	22	1.2
Medical	129	5.8	159	9.0
Military Intelligence	90	4.1	91	5.1
Military Police	60	2.7	48	2.7
Ordnance	74	3.4	59	3.3
PSC	69	3.1	39	2.2
Quartermaster	45	2.0	18	1.0
Signal	212	9.6	81	4.6
Supply	63	2.9	41	2.3
Supply and Service	36	1.6	39	2.2
Supply and Transport	9	.4	5	.3
Tenant Units	15	.7	1	.1
Transportation	79	3.6	137	7.7
USAG	<u>52</u>	<u>2.4</u>	<u>23</u>	<u>1.3</u>
<b>TOTALS</b>	<b>2,208</b>	<b>100.2</b>	<b>1,774</b>	<b>100.1</b>

TABLE 25. Distribution by MOS of Enlisted Personnel.

<u>MOS Classification</u>	<u>MOS</u>	<u>Females</u>		<u>Males</u>	
		<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Miscellaneous	0	8	.4	3	.2
Biological Sciences Asst	1	0	.0	1	.1
Band	2	7	.4	1	.1
Physical Activites Spec	3	4	.2	0	.0
Electronic Intelligence-Radio	5	6	.3	0	.0
Not Listed	7	1	.1	0	.0
Infantryman	11	0	.0	195	12.5
Combat Engineer	12	0	.0	47	3.0
Field Artillery	13	0	.0	53	3.4
Air Defense Artillery	16	2	.1	31	2.0
Armor Crew	19	0	.0	69	4.4
Pershing Electronics Repair	21	1	.1	0	.0
Missile Maintenance	24	0	.0	1	.1
Radar Repair	26	1	.1	0	.0
Defense Systems Maintenance	27	4	.2	4	.3
Communications/Electr Maint	29	13	.7	15	1.0
Communications/Electr Operation	31	114	6.1	92	5.9
Communications Equip Repair	32	1	.1	0	.0
Electron Warfare/Intercept Maint	33	1	.1	2	.1
Computer Repair	34	1	.1	0	.0
Electronic Equipment Maint	35	15	.8	11	.7
Telecommunications	36	28	1.5	14	.9
Automatic Test Equip Maint	39	6	.3	3	.2
Office Equip/Instrument Repair	41	1	.1	0	.0
Optical/Dental Lab Spec	42	3	.2	1	.1
Parachute Rigger/Repairer	43	10	.5	11	.7
Metal Worker	44	2	.1	4	.3
Armament Repair	45	6	.3	4	.3
Construction Engineering	51	3	.2	27	1.7
Electric Utility Maint	52	18	1.0	52	3.3
Chemical Operations	54	15	.8	45	2.9
Ordnance	55	8	.4	16	1.0
Miscellaneous	57	7	.4	9	.6
Construction Equipment Operation	62	4	.2	24	1.5
Combat Equipment Repair	63	105	5.6	139	8.9
Transportation	64	8	.4	16	1.0
Aircraft Tech Inspector	66	0	.0	4	.3
Helicopter Repair	67	8	.4	24	1.5
Aircraft Repair	68	8	.4	32	2.1
Misc Clerical	71	297	15.9	30	1.9
Telecommunications Operator	72	22	1.2	17	1.1
Finance	73	59	3.2	26	1.7
Automatic Data Processor	74	8	.4	3	.2
Personnel	75	200	10.7	49	3.1

TABLE 25. Continued

<u>MOS Classification</u>	<u>MOS</u>	<u>Females</u>		<u>Males</u>	
		<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Supply	76	272	14.5	127	8.2
Petroleum and Water	77	28	1.5	30	1.9
Not Listed	78	1	.1	0	.0
Drafting and Illustrating	81	6	.3	1	.1
Surveyor	82	0	.0	1	.1
Photo Layout & Printing	83	1	.1	0	.0
Public Affairs/TV	84	2	.1	0	.0
Motor Transport Operator	88	73	3.9	100	6.4
Medical Specialist	91	257	13.7	93	6.0
Medical Lab Specialist	92	28	1.5	3	.2
Aviation Operation	93	17	.9	2	.1
Food Service	94	62	3.3	18	1.2
Military Police	95	41	2.2	46	3.0
Military Intelligence	96	9	.5	22	1.4
Military Intelligence	97	10	.5	4	.3
Electronic Warfare Operation	98	55	2.9	35	2.2
Missing	-	<u>3</u>	<u>.2</u>	<u>0</u>	<u>.0</u>
<b>TOTALS</b>		<b>1,870</b>	<b>100.0</b>	<b>1,557</b>	<b>100.0</b>

TABLE 26. Distribution by MOS of Warrant Officers.

<u>MOS Classification</u>	<u>MOS</u>	Females		Males	
		<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Physician Asst	11	1	14.3	2	2.7
Health Care Delivery	15	0	.0	1	1.4
Food Service Tech	41	0	.0	1	1.4
Food Inspection Tech	51	1	14.3	0	.0
Helicopter Pilot	100	0	.0	1	1.4
Rotary Wing Pilot	152	0	.0	32	43.8
Rotary Wing Pilot	153	1	14.3	11	15.1
Rotary Wing Pilot	154	1	14.3	0	.0
Field Artillery Elect Maint	213	0	.0	1	1.4
Hawk Missile System Tech	223	0	.0	2	2.7
Communication Equip Rep Tech	286	0	.0	1	1.4
Telecommunication Tech	290	0	.0	1	1.4
Armament Repair Tech	421	0	.0	1	1.4
Engineer Equip Repair Tech	621	0	.0	2	2.7
Maintenance Tech	630	0	.0	6	8.2
Military Personnel Tech	711	0	.0	1	1.4
General Supply Tech	761	1	14.3	2	2.7
Support Supply Tech	762	0	.0	1	1.4
Armored Cavalry System Tech	915	0	.0	1	1.4
Air Drop Equip Tech	921	0	.0	2	2.7
CID Special Agent	951	0	.0	2	2.7
Interrogation Tech	973	0	.0	1	1.4
Traffic Analysis Tech	982	<u>2</u>	<u>28.6</u>	<u>1</u>	<u>1.4</u>
<b>TOTALS</b>		<b>7</b>	<b>100.0</b>	<b>73</b>	<b>100.0</b>

TABLE 27. Distribution by MOS of Commissioned Officers.

<u>MOS Classification</u>	<u>MOS</u>	<u>Females</u>		<u>Males</u>	
		<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Combat Arms Immaterial	2	0	.0	1	.7
Infantry	11	0	.0	22	15.3
Armor	12	0	.0	10	6.9
Field Artillery	13	0	.0	6	4.2
Air Defense Artillery	14	6	1.8	7	4.9
Aviation	15	9	2.7	28	19.4
Corps of Engineer	21	4	1.2	4	2.8
Signal Corps	25	21	6.3	4	2.8
Military Police Corps	31	14	4.2	4	2.8
Military Intelligence	35	15	4.5	7	4.9
Personnel Management	41	2	.6	2	1.4
Adjutant General Corps	42	10	3.0	4	2.8
Finance Corps	44	8	2.4	0	.0
Research & Development	51	1	.3	1	.7
Legal	55	3	.9	1	.7
Chaplain	56	0	.0	1	.7
Medical Corps	60	7	2.1	1	.7
Medical Corps	61	2	.6	1	.7
Dental	63	0	.0	1	.7
Army Medical Specialist Corps	65	15	4.5	0	.0
Army Nurse Corps	66	137	41.4	2	1.4
Medical Service Corps	67	13	3.9	11	7.6
Medical Service Corps	68	6	1.8	2	1.4
Chemical Corps	74	4	1.2	8	5.6
Transportation Officer	88	1	.3	1	.7
Ordnance Corps	91	18	5.4	3	2.1
Quartermaster Corps	92	16	4.8	5	3.5
Transportation Corps	93	17	5.1	5	3.5
Missing	-	<u>2</u>	<u>.6</u>	<u>2</u>	<u>1.4</u>
TOTALS		331	100.0	144	100.0

TABLE 28. Distribution by Age.

<u>Age</u>	<u>Females</u>		<u>Males</u>	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
17	0	.0	1	.1
18	47	2.1	27	1.5
19	132	6.0	128	7.2
20	184	8.3	156	8.8
21	155	7.0	133	7.5
22	149	6.7	141	7.9
23	176	8.0	98	5.5
24	179	8.1	102	5.7
25	151	6.8	100	5.6
26	142	6.4	94	5.3
27	133	6.0	65	3.7
28	103	4.7	70	3.9
29	103	4.7	59	3.3
30	74	3.4	60	3.4
31	64	2.9	61	3.4
32	82	3.7	56	3.2
33	64	2.9	62	3.5
34	62	2.8	42	2.4
35	41	1.9	51	2.9
36	43	1.9	44	2.5
37	33	1.5	42	2.4
38	19	.9	42	2.4
39	13	.6	36	2.0
40	19	.9	29	1.6
41	13	.6	28	1.6
42	5	.2	15	.8
43	4	.2	9	.5
44	5	.2	8	.5
45	4	.2	4	.2
46	4	.2	4	.2
47	2	.1	2	.1
48	1	.0	4	.2
49	1	.0	0	.0
50	1	.0	0	.0
51	<u>0</u>	<u>.0</u>	<u>1</u>	<u>.1</u>
TOTALS	2,208	99.9	1,774	99.9

TABLE 29. Distribution by Race.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
White	1,140	51.6	1,172	66.1
Black	922	41.8	458	25.8
Hispanic	58	2.6	68	3.8
Asian/Pacific Island	32	1.4	28	1.6
American Indian/Alaskan	14	.6	12	.7
Mixed/Other	<u>42</u>	<u>1.9</u>	<u>36</u>	<u>2.0</u>
<b>TOTALS</b>	<b>2,208</b>	<b>99.9</b>	<b>1,774</b>	<b>100.0</b>

TABLE 30. Distribution by Ethnicity.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
<u>ARABIAN</u>				
Arab	0	.0	1	.1
Iranian	1	.0	0	.0
Iraqi	0	.0	1	.1
Jordanian	0	.0	1	.1
Persian	1	.0	0	.0
Syrian	0	.0	1	.1
<u>ASIAN</u>				
Asian American	1	.0	4	.2
Chinese	1	.0	2	.1
East Indian	0	.0	1	.1
Filipino	16	.7	9	.5
Hindu	0	.0	1	.1
Japanese	7	.3	6	.3
Korean	1	.0	3	.2
Vietnamese	1	.0	2	.1
<u>CARIBBEAN ISLANDERS</u>				
Antiguan	0	.0	1	.1
Barbadian	1	.0	2	.1
Cuban	1	.0	2	.1
Dominican	2	.1	0	.0
Jamaican	11	.5	4	.2
Puerto Rican	19	.9	27	1.5
Santo Domingan	1	.0	0	.0
Trinidadian	2	.1	0	.0
Virgin Islander	1	.0	0	.0
West Indian	18	.8	4	.2
<u>CENTRAL AND SOUTH AMERICAN</u>				
Argentinian	1	.0	0	.0
Chicano	0	.0	1	.1
Colombian	2	.1	2	.1
Ecuadoran	1	.0	0	.0
Guyanese	1	.0	1	.1
Hispanic American	9	.4	7	.4
Mexican American	23	1.0	27	1.5
Nicaraguan	0	.0	1	.1
Panamanian	4	.2	1	.1

TABLE 30. Continued

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
<u>EUROPEAN</u>				
Armenian	1	.0	0	.0
Austrian	1	.0	1	.1
Belgian	1	.0	1	.1
Croatian	0	.0	1	.1
Crucian	1	.0	0	.0
Czech	9	.4	2	.1
Danish	3	.1	1	.1
Dutch	9	.4	7	.4
English	31	1.4	61	3.4
European	6	.3	2	.1
Finnish	3	.1	2	.1
French	21	1.0	25	1.4
German	168	7.6	143	8.1
Greek	3	.1	2	.1
Hungarian	3	.1	6	.3
Irish	80	3.6	81	4.6
Italian	34	1.5	24	1.4
Lithuanian	2	.1	0	.0
Norwegian	9	.4	9	.5
Polish	23	1.0	10	.6
Portuguese	1	.0	3	.2
Russian	0	.0	2	.1
Scandinavian	10	.5	5	.3
Scots	6	.3	18	1.0
Scots-Irish	8	.4	10	.6
Sicilian	1	.0	1	.1
Slovak	1	.0	0	.0
Spanish	1	.0	1	.1
Swedish	10	.5	11	.6
Swiss	1	.0	0	.0
Ukrainian	0	.0	1	.1
Welsh	2	.1	2	.1
Yugoslavian	1	.0	1	.1
<u>MIXED/OTHER</u>				
Black English	1	.0	0	.0
Black German	0	.0	1	.1
French Puerto Rican	0	.0	1	.1
German Polynesian	1	.0	0	.0
Jewish	0	.0	1	.1
Portuguese German	1	.0	0	.0

TABLE 30. Continued

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
<u>NATIVE AMERICAN</u>				
Acoma	0	.0	1	.1
American Indian	1	.0	3	.2
Apache	0	.0	1	.1
Blackfoot Cherokee	1	.0	1	.1
Cherokee	1	.0	4	.2
Chippewa	1	.0	0	.0
Crow	1	.0	0	.0
Eskimo	0	.0	1	.1
Iroquois	1	.0	0	.0
Kiowa	0	.0	1	.1
Lumbee	2	.1	0	.0
Minominee	1	.0	0	.0
Native American	0	.0	1	.1
Navajo	3	.1	2	.1
Oneida Otoe	1	.0	0	.0
Pueblo	1	.0	0	.0
Sac and Fox	1	.0	0	.0
Sioux	2	.1	2	.1
<u>NORTH AMERICAN, NOT NATIVE AMERICAN</u>				
American	805	36.5	849	47.9
Black American	761	35.3	342	19.3
Canadian	1	.0	1	.1
Cajun	0	.0	1	.1
French Canadian	8	.4	2	.1
<u>PACIFIC ISLANDERS</u>				
Chomorro	0	.0	1	.1
Guamanian	3	.1	2	.1
Marshallese	0	.0	1	.1
Papago	0	.0	1	.1
Samoan	6	.3	3	.2
Missing	<u>10</u>	<u>.5</u>	<u>6</u>	<u>.3</u>
TOTALS	2,269	100.0	1,774	100.0

TABLE 31. Distribution by Birthplace.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Alabama	71	3.2	62	3.5
Alaska	3	.1	4	.2
Arizona	15	.7	11	.6
Arkansas	24	1.1	20	1.1
California	105	4.8	115	6.5
Colorado	20	.9	17	1.0
Connecticut	20	.9	9	.5
Delaware	7	.3	6	.3
District of Columbia	21	1.0	7	.4
Florida	84	3.8	76	4.3
Georgia	78	3.5	82	4.6
Hawaii	5	.2	12	.7
Idaho	2	.1	7	.4
Illinois	89	4.0	78	4.4
Indiana	47	2.1	41	2.3
Iowa	26	1.2	26	1.5
Kansas	17	.8	12	.7
Kentucky	33	1.5	28	1.6
Louisiana	52	2.4	28	1.6
Maine	17	.8	9	.5
Maryland	43	1.9	29	1.6
Massachusetts	37	1.7	29	1.6
Michigan	89	4.0	78	4.4
Minnesota	37	1.7	37	2.1
Mississippi	69	3.1	23	1.3
Missouri	38	1.7	31	1.7
Montana	10	.5	6	.3
Nebraska	22	1.0	12	.7
Nevada	6	.3	4	.2
New Hampshire	5	.2	5	.3
New Jersey	45	2.0	31	1.7
New Mexico	10	.5	5	.3
New York	139	6.3	112	6.3
North Carolina	109	4.9	73	4.1
North Dakota	9	.4	5	.3
Ohio	99	4.5	83	4.7
Oklahoma	10	.5	14	.8
Oregon	14	.6	16	.9
Pennsylvania	120	5.4	81	4.6
Rhode Island	5	.2	9	.5
South Carolina	71	3.2	41	2.3
South Dakota	15	.7	8	.5
Tennessee	41	1.9	35	2.0
Texas	88	4.0	72	4.1
Utah	6	.3	8	.5

TABLE 31. Continued

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Vermont	4	.2	2	.1
Virginia	83	3.8	66	3.7
Washington	35	1.6	33	1.9
West Virginia	20	.9	20	1.1
Wisconsin	55	2.5	35	2.0
Wyoming	3	.1	2	.1
 Africa	 1	 .0	 1	 .1
Asia	21	1.0	23	1.3
Canada	6	.3	4	.2
Central America	13	.6	9	.5
Europe	34	1.5	37	2.1
Pacific Islands	10	.5	8	.5
South America	5	.2	5	.3
West Indies	40	1.8	31	1.7
Not available	<u>5</u>	<u>.2</u>	<u>1</u>	<u>.1</u>
 TOTALS	 2,208	 100.1	 1,774	 100.2

TABLE 32. Distribution by Vision Correction.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Neither Glasses nor Contacts	1,088	49.3	1,198	67.5
Prescription Glasses	685	31.0	473	26.7
Prescription Contacts	116	5.3	19	1.1
Both	315	14.3	81	4.6
Missing Data	<u>4</u>	<u>.2</u>	<u>3</u>	<u>.2</u>
TOTALS	2,208	100.1	1,774	100.1

TABLE 33. Distribution by Sighting - Weapon.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Right	1,688	76.4	1,467	82.7
Left	410	18.6	245	13.8
Either	103	4.7	60	3.4
Missing Data	<u>7</u>	<u>.3</u>	<u>2</u>	<u>.1</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 34. Distribution by Handedness - Writing.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Right	1,958	88.7	1,560	87.9
Left	226	10.2	202	11.4
Either	21	1.0	11	.6
Missing Data	<u>3</u>	<u>.1</u>	<u>1</u>	<u>.1</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 35. Distribution by Handedness - Weapon.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Right	1,912	86.6	1,524	85.9
Left	258	11.7	192	10.8
Either	35	1.6	57	3.2
Missing Data	<u>3</u>	<u>.1</u>	<u>1</u>	<u>.1</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 36. Comparison of Estimated and Measured Height (in cm).

Females		Males	
<u>Estimated</u>	<u>Measured</u>	<u>Estimated</u>	<u>Measured</u>
164.74	163.08	Mean	177.25
6.69	6.37	Std Dev	7.33
1.24	.01	Kurtosis	.50
.45	.15	Skewness	.30
55.88	44.30	Range	66.04
200.66	187.00	Maximum	210.82
144.78	143.00	Minimum	144.78
149.86	148.60	1st %tile	160.02
149.86	150.30	2nd %tile	162.56
154.94	153.00	5th %tile	165.10
157.48	155.27	10th %tile	167.64
160.02	158.60	25th %tile	172.72
165.10	163.00	50th %tile	177.80
170.18	167.40	75th %tile	180.34
172.72	171.40	90th %tile	187.96
175.26	174.00	95th %tile	190.50
177.80	176.40	98th %tile	193.04
180.34	178.39	99th %tile	195.58
			191.24

TABLE 37. Comparison of Estimated and Measured Weight (in kg).

Females		Males	
<u>Estimated</u>	<u>Measured</u>	<u>Estimated</u>	<u>Measured</u>
60.77	62.08	Mean	77.73
7.96	8.33	Std Dev	10.61
1.32	.57	Kurtosis	.50
.38	.53	Skewness	.40
86.64	55.80	Range	78.02
95.25	97.00	Maximum	126.10
8.62	42.00	Minimum	48.08
44.45	45.20	1st %tile	55.68
46.27	46.78	2nd %tile	57.61
48.99	49.71	5th %tile	61.24
51.26	52.01	10th %tile	64.86
55.34	56.20	25th %tile	70.31
60.33	61.40	50th %tile	77.11
65.77	67.10	75th %tile	83.92
71.49	72.70	90th %tile	91.63
74.84	77.00	95th %tile	97.07
79.38	81.79	98th %tile	101.83
82.55	84.68	99th %tile	104.33
			107.30

## CHAPTER IV

### THE STANDARD MEASUREMENTS

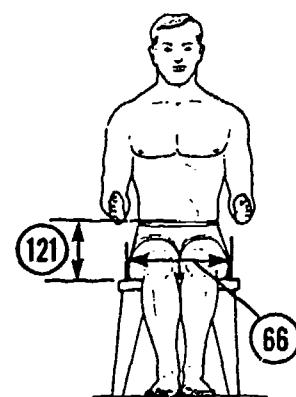
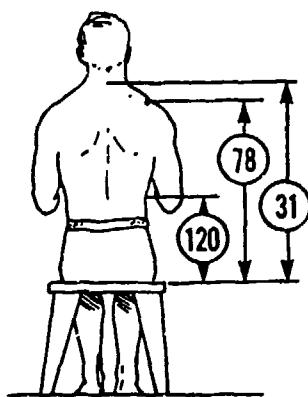
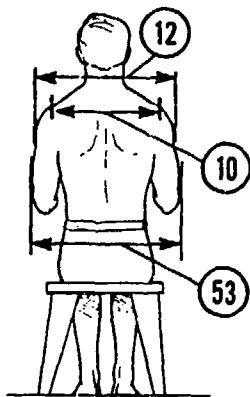
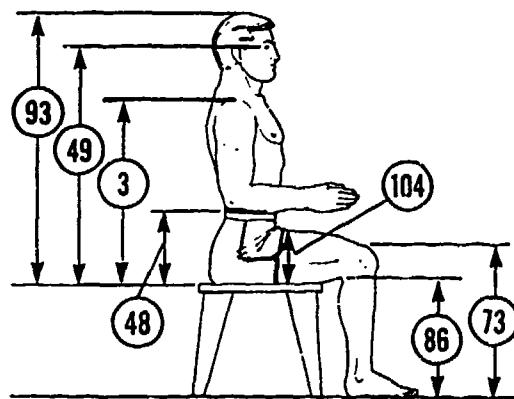
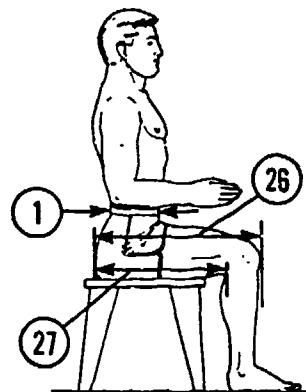
One hundred thirty-two directly measured dimensions were obtained in this survey using traditional measuring instruments and methods. Where there was a choice of right or left, all measurements were taken on the right side unless otherwise specified or in the rare cases where an injury or anatomical abnormality made it necessary to measure on the left side. All measurements were made to the nearest millimeter. Weight was taken to the nearest 0.1 kilogram. Detailed illustrated instructions for making these measurements can be found in the Measurer's Handbook.<sup>10</sup>

Summary statistics, including means, standard deviations, and percentile values for male and female subjects, are tabulated on the ensuing pages. Frequency tables for each dimension are also given. Users of these data will note .00 standard error (SE) values for some means and standard deviations. This occurs because values in these tables are not listed beyond two decimal places. It will also be noted that for crinion and interpupillary measurements the numbers of subjects are slightly below 2,208 females and 1,774 males. Crinion (the widow's peak) cannot be located on bald subjects or those with receding hairlines; thus measurements involving this landmark were not taken on some subjects.

In the case of Interpupillary Breadth, the eyes of a few subjects were too close together or too far apart to be accommodated by the device used to measure this variable. There are four missing values (three male and one female) for Interpupillary Breadth. These result from a limitation in the range of the pupillometer, which was capable of measuring from 52 mm to 76 mm. Two additional females have missing data due to medical conditions which prevented the measurement of Interpupillary Breadth. The three males had an Interpupillary Breadth which was larger than 76 mm, and the female had a value which was smaller than 52 mm. One male had a measured value of 78 mm, but this was measured in the traditional way, using a sliding caliper. This subject's value is recorded as 78 mm and is not considered missing. Nonmeasurable (i.e., missing) values at the ends of the distribution have a predictable effect on the summary statistics. The calculated female mean will be larger than the true mean, while the calculated male mean will be smaller than the true mean. The calculated standard deviation and variance for both sexes will be smaller than the true standard deviation and variance. The calculated female 1st percentile will be greater than the true 1st percentile, and the calculated male 99th percentile will be smaller than the true 99th percentile. Because the number of those missing is so small, however, the magnitude of these differences is quite small. In order to get an estimate of the magnitude, we recalculated the summary statistics after substituting 80 mm (the upper limit of the instrument plus one standard deviation) for the male missing values and 48 mm (the lower limit of the instrument minus one standard deviation) for the female missing value. The male mean increased by 0.02 mm, and the standard deviation by 0.05 mm. The percentiles were unchanged. The female mean decreased by 0.01 mm, while the standard deviation increased by 0.01 mm. The 1st percentile was decreased by 1 mm, but the remaining percentiles were unchanged. The practical effects of the limited range of the pupillometer are thus inconsequential.

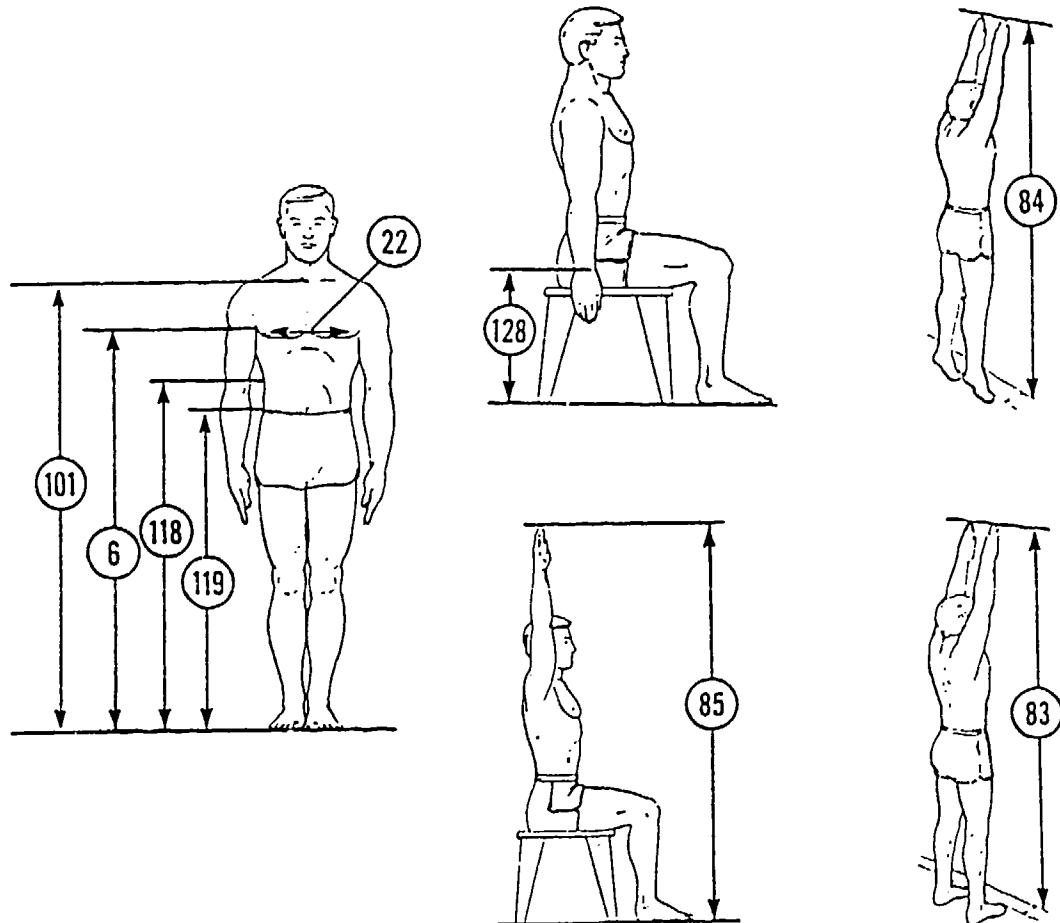
A visual index, designed to assist the reader in locating particular dimensions whose names may be unfamiliar, appears on the following pages. Completing this section are the data pages, which include brief measurement descriptions, percentile tables, summary statistics, and frequency tables.

# VISUAL INDEX - THE STANDARD MEASUREMENTS



- (1) ABDOMINAL EXTENSION DEPTH,  
SITTING
- (3) ACROMIAL HEIGHT, SITTING
- (10) BIACRYONIAL BREADTH
- (12) BIDELTOID BREADTH
- (26) BUTTOCK-KNEE LENGTH
- (27) BUTTOCK-POPLITEAL LENGTH
- (31) CERVICALE HEIGHT, SITTING
- (48) ELBOW REST HEIGHT
- (49) EYE HEIGHT, SITTING
- (53) FOREARM-FOREARM BREADTH
- (66) HIP BREADTH, SITTING
- (73) KNEE HEIGHT, SITTING
- (78) MIDSACRAL HEIGHT, SITTING
- (86) POPLITEAL HEIGHT
- (93) SITTING HEIGHT
- (104) THIGH CLEARANCE
- (120) WAIST HEIGHT, SITTING  
(NATURAL INDENTATION)
- (121) WAIST HEIGHT, SITTING  
(OMPHALION)

## VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



(6) AXILLA HEIGHT

(22) BUSTPOINT/THELION-BUSTPOINT/THELION BREADTH

(83) OVERHEAD FINGERTIP REACH

(84) OVERHEAD FINGERTIP REACH, EXTENDED

(85) OVERHEAD FINGERTIP REACH, SITTING

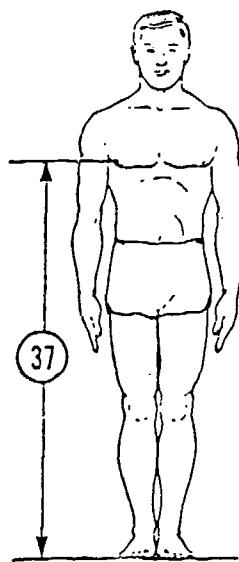
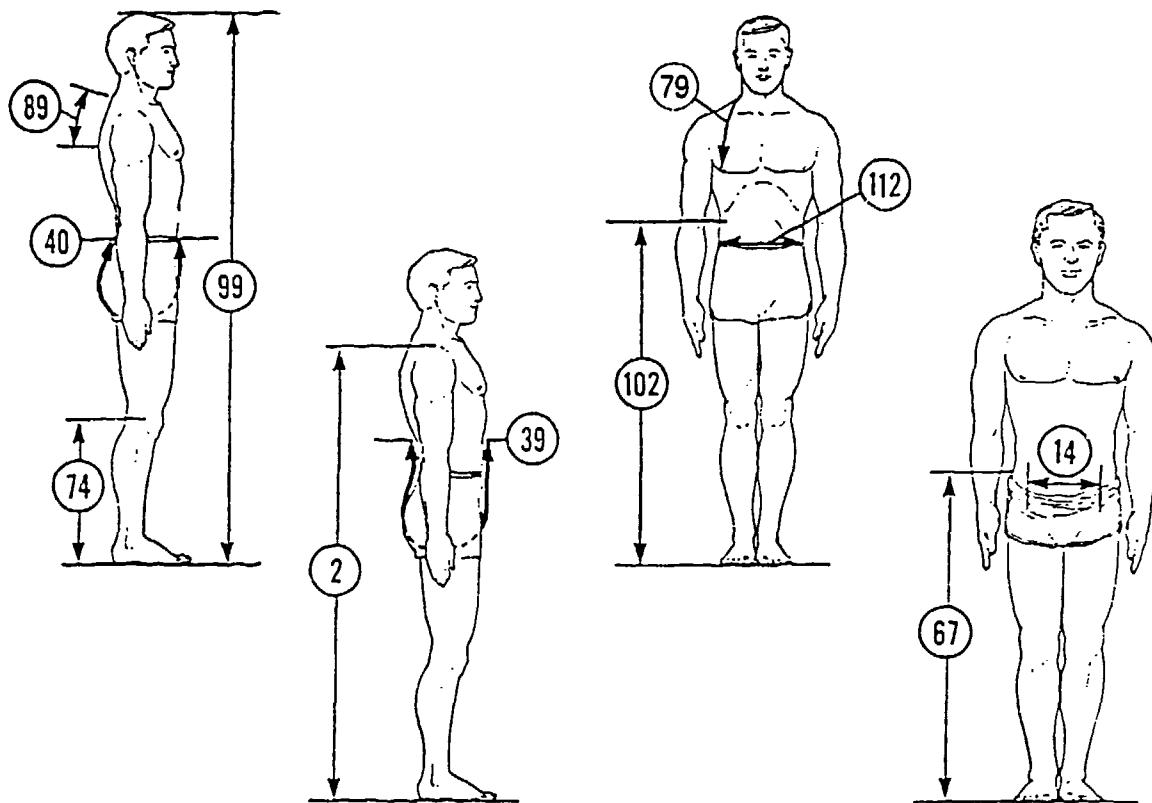
(101) SUPRASTERNALE HEIGHT

(118) WAIST HEIGHT (NATURAL INDENTATION)

(119) WAIST HEIGHT (OMPHALION)

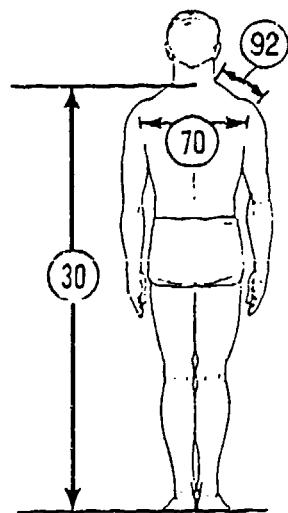
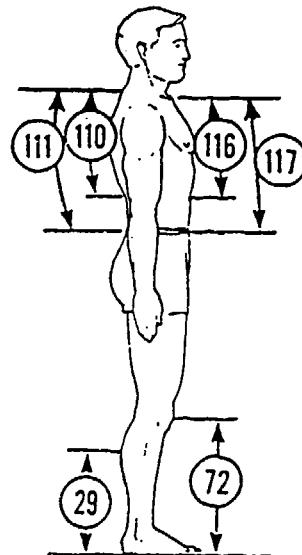
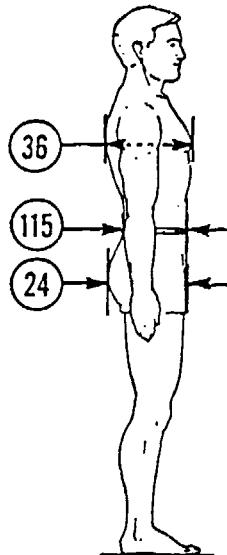
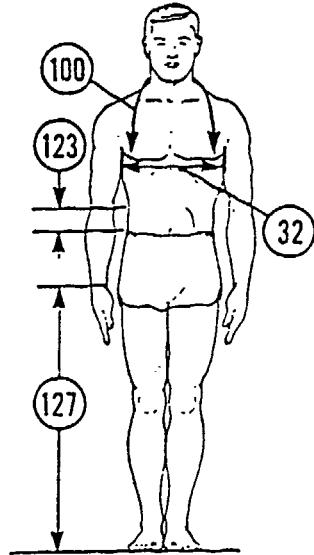
(128) WRIST HEIGHT, SITTING

## VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (2) ACROMIAL HEIGHT
- (14) BISPINOUS BREADTH
- (37) CHEST HEIGHT
- (39) CROTCH LENGTH (NATURAL INDENTATION)
- (40) CROTCH LENGTH (OMPHALION)
- (67) ILOCRISTALE HEIGHT
- (74) LATERAL FEMORAL EPICONDYLE HEIGHT
- (79) NECK-BUSTPOINT/THELION LENGTH
- (89) SCYE DEPTH
- (99) STATURE
- (102) TENTH RIB HEIGHT
- (112) WAIST BREADTH

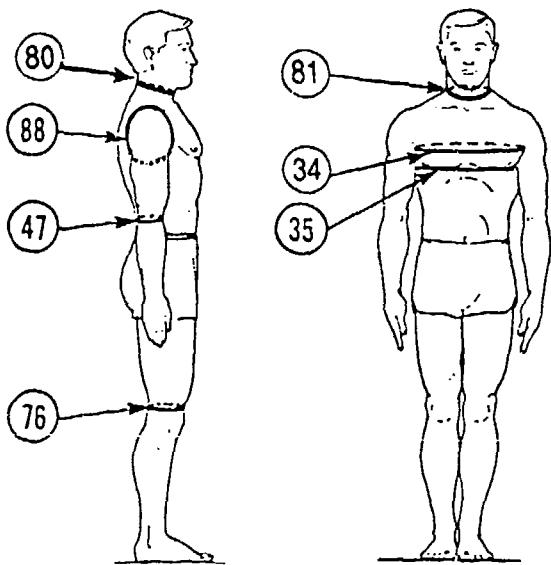
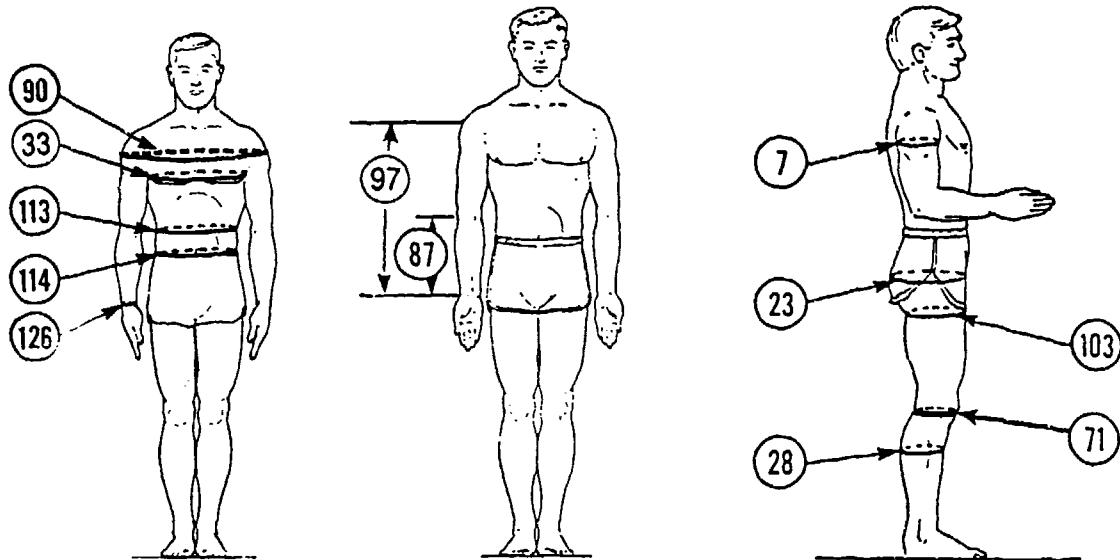
## VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (24) BUTTOCK DEPTH
- (29) CALF HEIGHT
- (30) CERVICALE HEIGHT
- (32) CHEST BREADTH

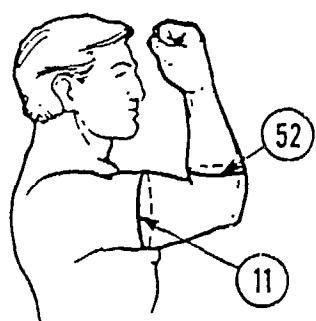
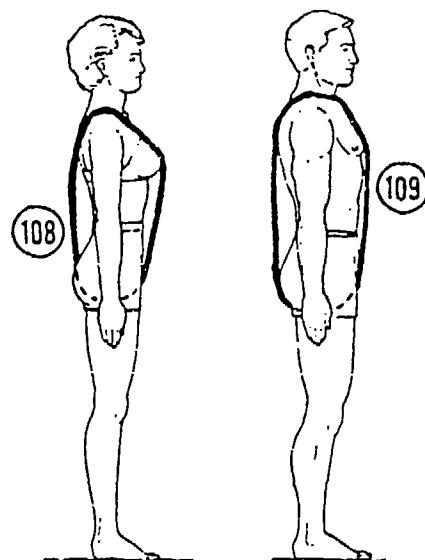
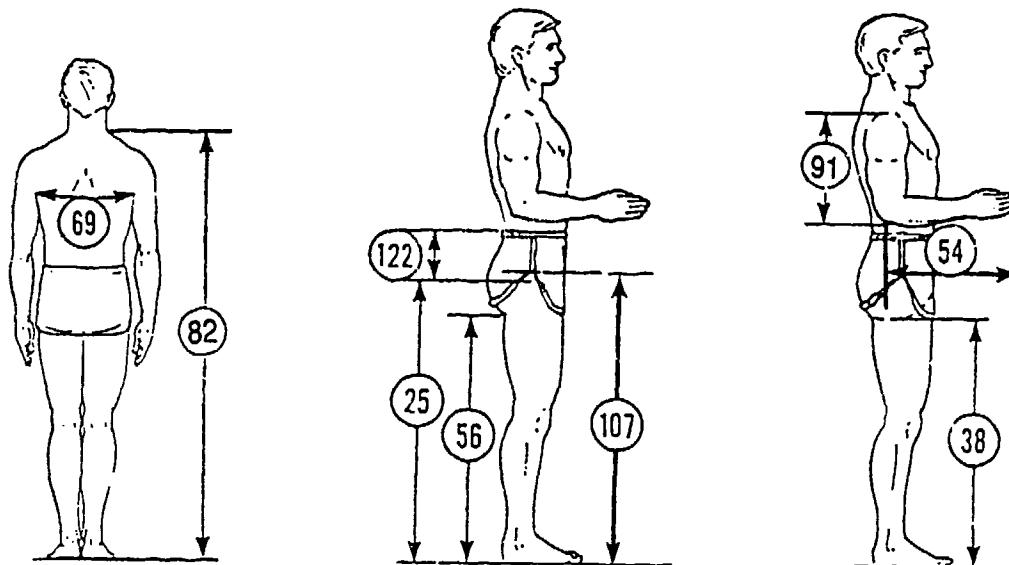
- (36) CHEST DEPTH
- (70) INTERSCYE II
- (72) KNEE HEIGHT, MIDPATELLA
- (92) SHOULDER LENGTH
- (100) STRAP LENGTH
- (110) WAIST BACK LENGTH (NATURAL INDENTATION)
- (111) WAIST BACK LENGTH (OMPHALION)
- (115) WAIST DEPTH
- (116) WAIST FRONT LENGTH (NATURAL INDENTATION)
- (117) WAIST FRONT LENGTH (OMPHALION)
- (123) WAIST (NATURAL INDENTATION) TO WAIST (OMPHALION) LENGTH
- (127) WRIST HEIGHT

## VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



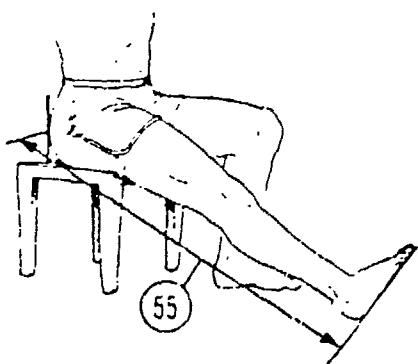
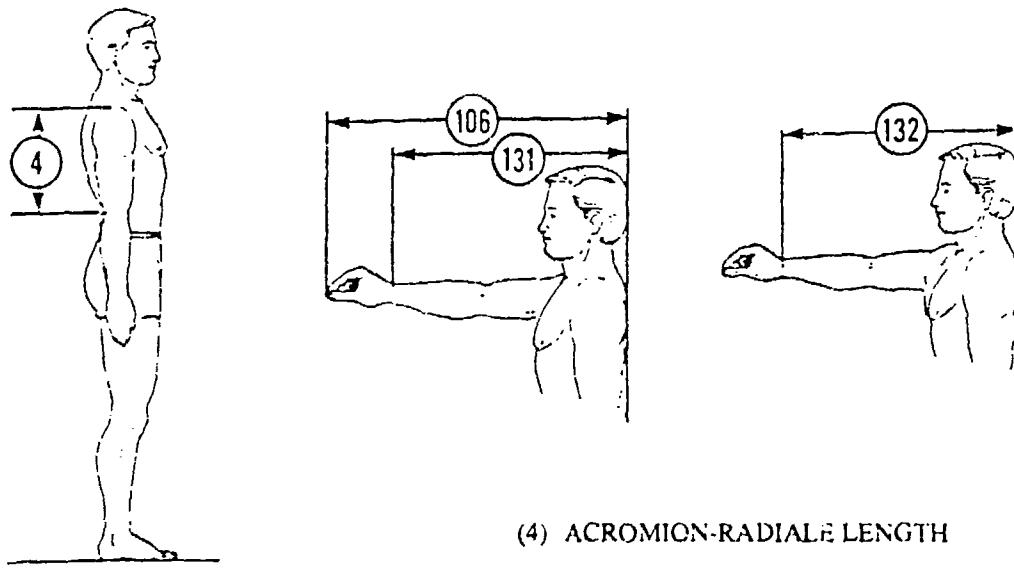
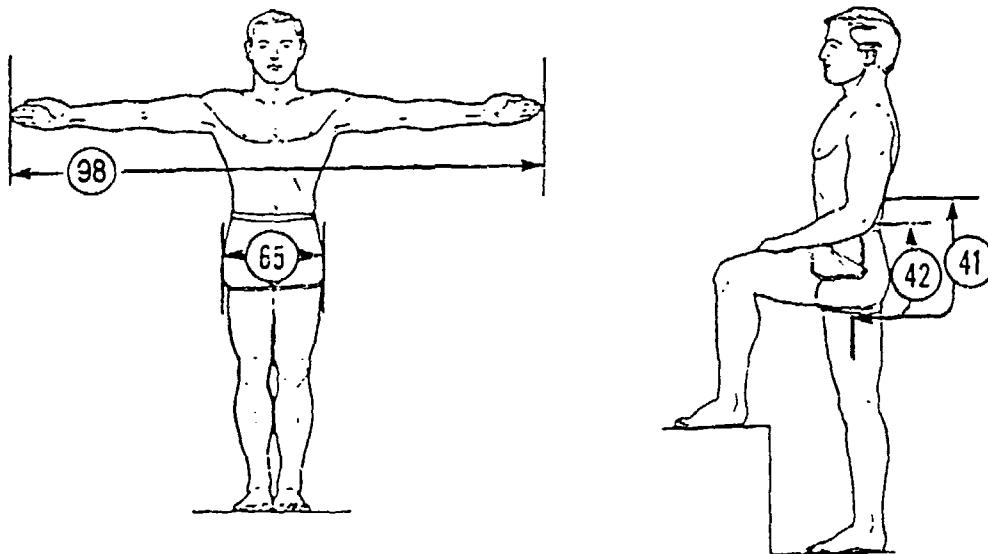
- |                                       |  |
|---------------------------------------|--|
| (7) AXILLARY ARM CIRCUMFERENCE        | (97) SLEEVE OUTSEAM                                |
| (23) BUTTOCK CIRCUMFERENCE            | (103) THIGH CIRCUMFERENCE                          |
| (28) CALF CIRCUMFERENCE               | (113) WAIST CIRCUMFERENCE<br>(NATURAL INDENTATION) |
| (33) CHEST CIRCUMFERENCE              | (114) WAIST CIRCUMFERENCE<br>(OMPHALION)           |
| (34) CHEST CIRCUMFERENCE AT SCYE      |  |
| (35) CHEST CIRCUMFERENCE BELOW BREAST |  |
| (47) ELBOW CIRCUMFERENCE              | (126) WRIST CIRCUMFERENCE                          |

## VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



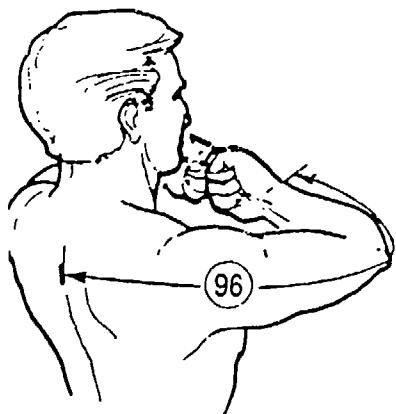
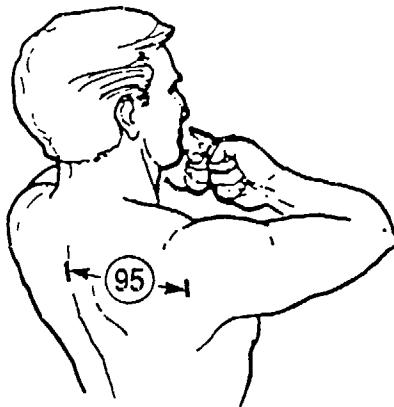
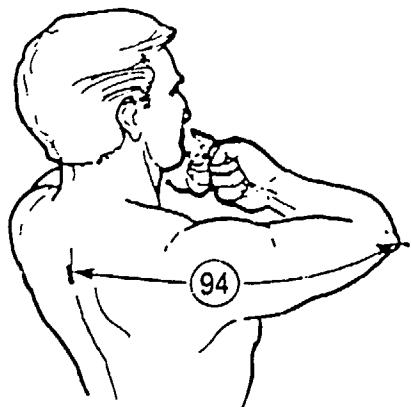
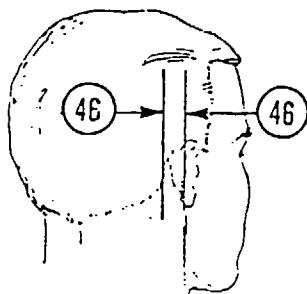
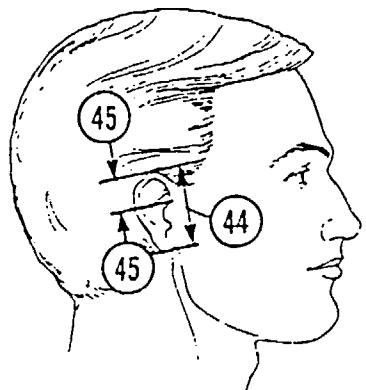
- (11) BICEPS CIRCUMFERENCE, FLEXED
- (25) BUTTOCK HEIGHT
- (38) CROTCH HEIGHT
- (52) FOREARM CIRCUMFERENCE, FLEXED
- (54) FOREARM-HAND LENGTH
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- (82) NECK HEIGHT, LATERAL
- (91) SHOULDER-ELBOW LENGTH
- (107) TROCHANTERION HEIGHT
- (108) VERTICAL TRUNK CIRCUMFERENCE (ASCC)
- (109) VERTICAL TRUNK CIRCUMFERENCE (USA)
- (122) WAIST-HIP LENGTH

VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (4) ACROMION-RADIALE LENGTH
- (41) CROTCH LENGTH, POSTERIOR  
(NAT'. RAL INDENTATION)
- (42) CROTCH LENGTH, POSTERIOR (OMPHALION)
- (55) FUNCTIONAL LEG LENGTH
- (65) HIP BREADTH
- (98) SPAN
- (106) THUMBTIP REACH
- (131) WRIST-WALL LENGTH
- (132) WRIST-WALL LENGTH, EXTENDED

VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



(44) EAR LENGTH

(45) EAR LENGTH ABOVE TRAGION

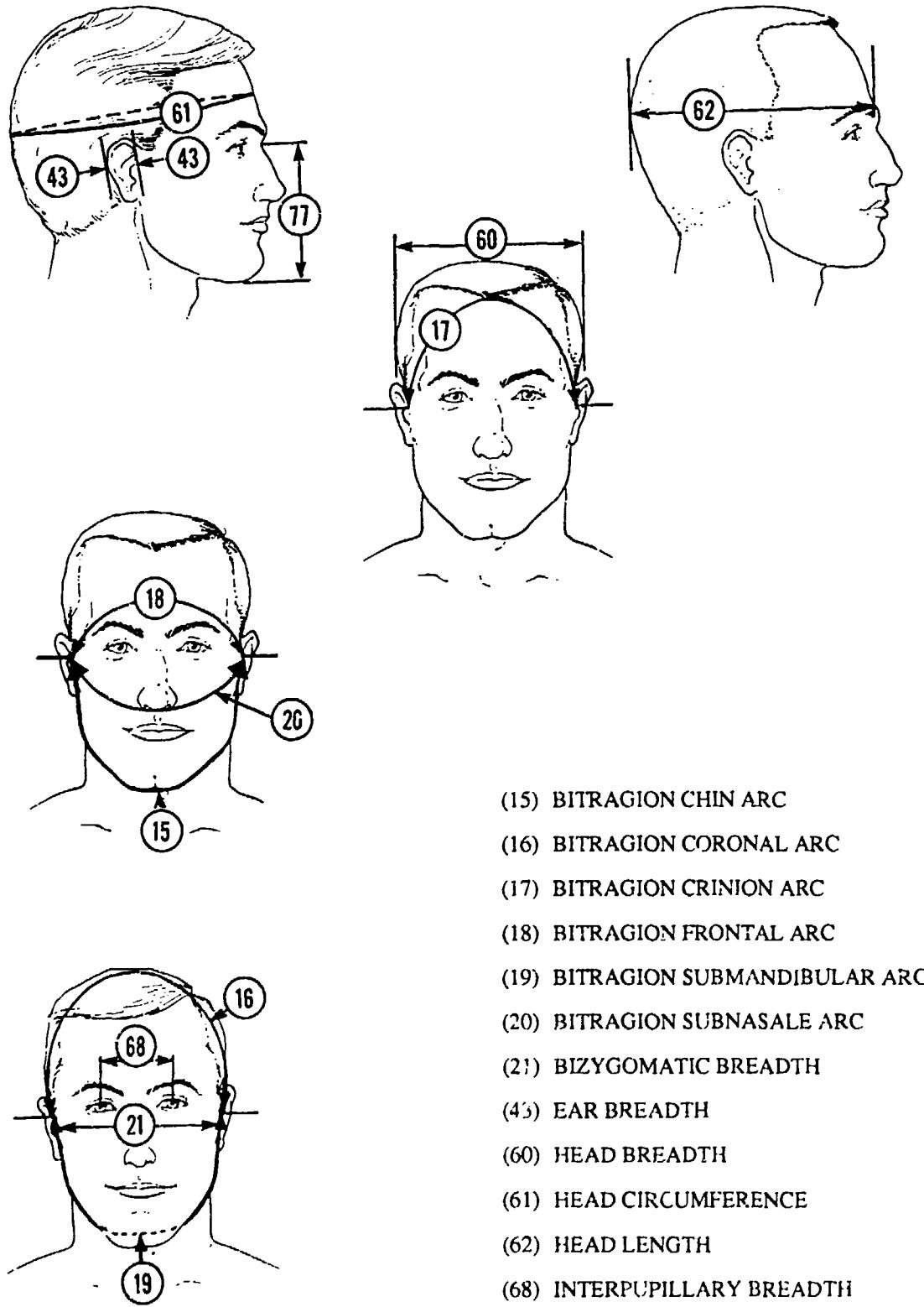
(46) EAR PROTRUSION

(94) SLEEVE LENGTH: SPINE-ELBOW

(95) SLEEVE LENGTH: SPINE-SCYE

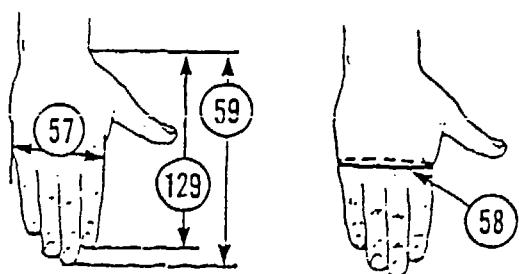
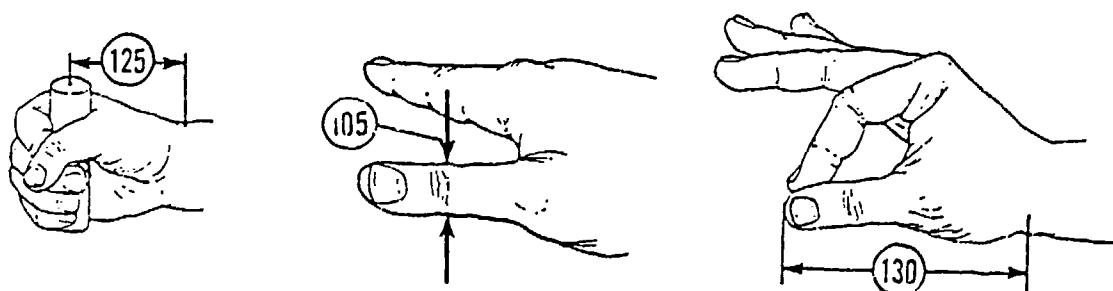
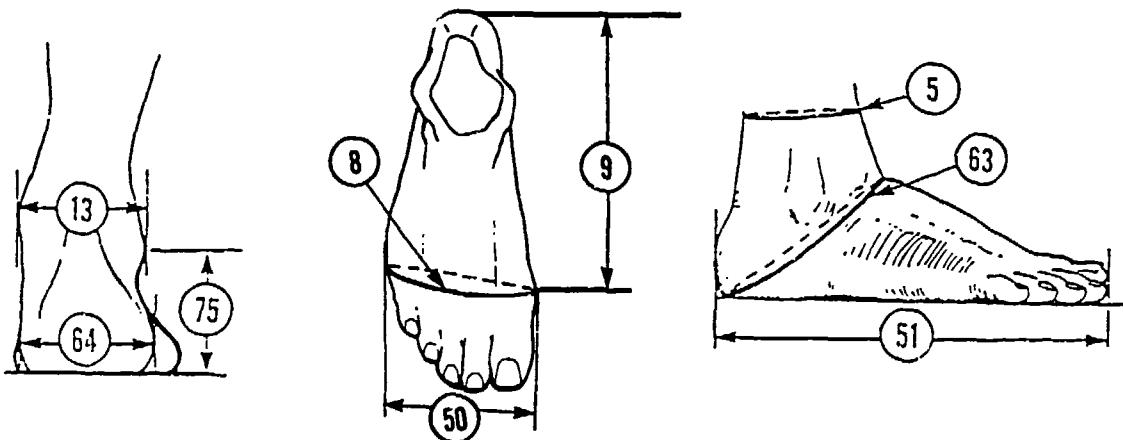
(96) SLEEVE LENGTH: SPINE-WRIST

## VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (15) BITRAGION CHIN ARC
- (16) BITRAGION CORONAL ARC
- (17) BITRAGION CRINION ARC
- (18) BITRAGION FRONTAL ARC
- (19) BITRAGION SUBMANDIBULAR ARC
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- (21) BIZYGMATIC BREADTH
- (43) EAR BREADTH
- (60) HEAD BREADTH
- (61) HEAD CIRCUMFERENCE
- (62) HEAD LENGTH
- (68) INTERPUPILLARY BREADTH
- (77) MENTON-SELLION LENGTH

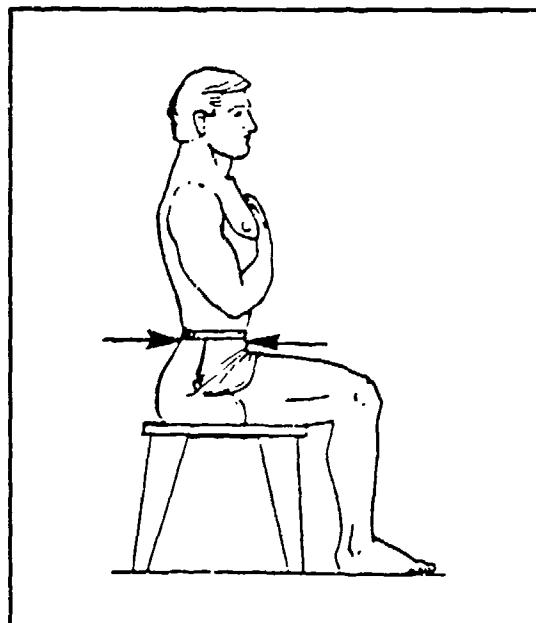
## VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (5) ANKLE CIRCUMFERENCE
- (8) BALL OF FOOT CIRCUMFERENCE
- (9) BALL OF FOOT LENGTH
- (13) BIMALLEOLAR BREADTH
- (50) FOOT BREADTH, HORIZONTAL
- (51) FOOT LENGTH
- (57) HAND BREADTH
- (58) HAND CIRCUMFERENCE
- (59) HAND LENGTH
- (63) HEEL ANKLE CIRCUMFERENCE
- (64) HEEL BREADTH
- (75) LATERAL MALLEOLUS HEIGHT
- (105) THUMB BREADTH
- (125) WRIST-CENTER OF GRIP LENGTH
- (129) WRIST-INDEX FINGER LENGTH
- (130) WRIST-THUMBTIP LENGTH

## (1) ABDOMINAL EXTENSION DEPTH, SITTING

The horizontal distance between the anterior point of the abdomen and the back at the same level is measured with a beam caliper. The subject sits erect looking straight ahead. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
17.31	6.82	18T	18.63 7.33
17.78	7.00	2ND	19.12 7.53
18.07	7.11	3RD	19.43 7.65
18.47	7.27	5TH	19.85 7.82
19.11	7.52	10TH	20.54 8.09
19.58	7.71	15TH	21.03 8.28
19.96	7.86	20TH	21.45 8.45
20.32	8.00	25TH	21.83 8.60
20.65	8.13	30TH	22.19 8.74
20.97	8.26	35TH	22.54 8.87
21.28	8.38	40TH	22.88 9.01
21.60	8.50	45TH	23.23 9.14
21.92	8.63	50TH	23.58 9.28
22.26	8.76	55TH	23.94 9.43
22.61	8.90	60TH	24.33 9.58
22.98	9.05	65TH	24.73 9.74
23.39	9.21	70TH	25.18 9.91
23.85	9.39	75TH	25.67 10.10
24.37	9.59	80TH	26.23 10.33
25.00	9.84	85TH	26.90 10.59
25.81	10.16	90TH	27.76 10.93
27.07	10.66	95TH	29.06 11.44
27.89	10.98	97TH	29.88 11.77
28.50	11.22	98TH	30.48 12.00
29.45	11.59	99TH	31.37 12.35

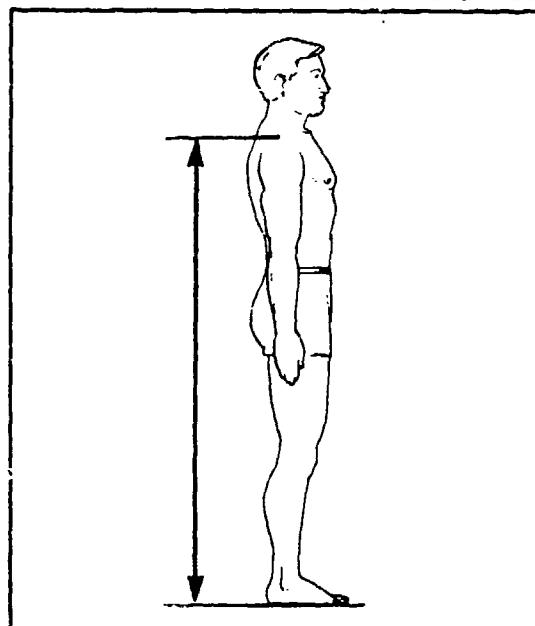
# ABDOMINAL EXTENSION DEPTH, SITTING

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
22.23	MEAN VALUE	8.75	23.91	MEAN VALUE	9.41
.06	SE(MEAN)	.02	.07	SE(MEAN)	.03
2.63	STD DEVIATION	1.04	2.83	STD DEVIATION	1.11
.04	SE(STD DEV)	.02	.05	SE(STD DEV)	.02
15.30	MINIMUM	6.02	16.80	MINIMUM	6.61
31.60	MAXIMUM	12.44	35.00	MAXIMUM	13.78
SYMMETRY---VETA I	=	.61	SYMMETRY---VETA I	=	.57
KURTOSIS---VETA II	=	3.32	KURTOSIS---VETA II	=	3.23
COEF. OF VARIATION	=	11.9%	COEF. OF VARIATION	=	11.8%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	15.25 - 15.75		2	.11
0	.00	1	.05	15.75 - 16.25		1	.06
5	.23	6	.27	15.25 - 16.75		6	.34
11	.50	17	.77	16.75 - 17.25		12	.68
27	1.22	44	1.99	17.25 - 17.75		19	1.07
36	1.63	80	3.62	17.75 - 18.25		33	1.86
72	3.26	152	6.88	18.25 - 18.75		71	4.00
103	4.66	255	11.55	18.75 - 19.25		61	3.44
123	5.57	378	17.12	19.25 - 19.75		102	5.75
144	6.52	522	23.64	19.75 - 20.25		128	7.22
165	7.47	687	31.11	20.25 - 20.75		106	5.98
186	8.42	873	39.54	20.75 - 21.25		131	7.38
166	7.52	1039	47.06	21.25 - 21.75		132	7.44
160	7.25	1199	54.30	21.75 - 22.25		123	6.93
167	7.56	1366	61.87	22.25 - 22.75		126	7.10
145	6.57	1511	68.43	22.75 - 23.25		109	6.14
134	6.07	1645	74.50	23.25 - 23.75		104	5.86
117	5.30	1762	79.80	23.75 - 24.25		73	4.11
88	3.99	1850	83.79	24.25 - 24.75		81	4.57
66	2.99	1916	86.78	24.75 - 25.25		64	3.61
64	2.90	1980	89.67	25.25 - 25.75		58	3.27
44	1.99	2024	91.67	25.75 - 26.25		51	2.67
46	2.08	2070	93.75	26.25 - 26.75		41	2.31
40	1.81	2110	95.56	26.75 - 27.25		36	2.03
19	.86	2129	96.42	27.25 - 27.75		28	1.58
2,	1.22	2156	97.64	27.75 - 28.25		20	1.13
15	.68	2171	98.32	28.25 - 28.75		16	.90
13	.59	2184	98.91	28.75 - 29.25		10	.56
7	.32	2191	99.23	29.25 - 29.75		10	.56
2	.09	2193	99.32	29.75 - 30.25		8	.45
3	.14	2196	99.46	30.25 - 30.75		2	.11
9	.41	2205	99.86	30.75 - 31.25		1	.06
3	.14	2208	100.00	31.25 - 31.75			
				31.75 - 32.25			
				32.25 - 32.75			
				32.75 - 33.25			
				33.25 - 33.75			
				33.75 - 34.25			
				34.25 - 34.75			
				34.75 - 35.25			

## (2) ACROMIAL HEIGHT

The vertical distance between a standing surface and the acromion landmark on the tip of the right shoulder is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
119.82	47.17	1ST	129.86 51.13
121.63	47.89	2ND	131.62 51.82
122.70	48.31	3RD	132.71 52.25
124.09	48.85	5TH	134.16 52.82
126.12	49.65	10TH	136.35 53.68
127.45	50.18	15TH	137.83 54.26
128.49	50.59	20TH	139.00 54.72
129.40	50.95	25TH	140.02 55.13
130.22	51.27	30TH	140.93 55.49
130.99	51.57	35TH	141.78 55.82
131.72	51.86	40TH	142.60 56.14
132.44	52.14	45TH	142.39 56.45
133.16	52.43	50TH	144.18 56.76
133.90	52.72	55TH	144.97 57.07
134.65	53.01	60TH	145.77 57.39
135.43	53.32	65TH	146.61 57.72
136.27	53.65	70TH	147.50 58.07
137.19	54.01	75TH	148.46 58.45
138.23	54.42	80TH	149.53 58.87
139.44	54.90	85TH	150.77 59.36
140.97	55.50	90TH	152.32 59.97
143.20	56.38	95TH	154.56 60.85
144.59	56.93	97TH	155.95 61.40
145.57	57.31	98TH	156.93 61.79
146.99	57.87	99TH	158.38 62.35

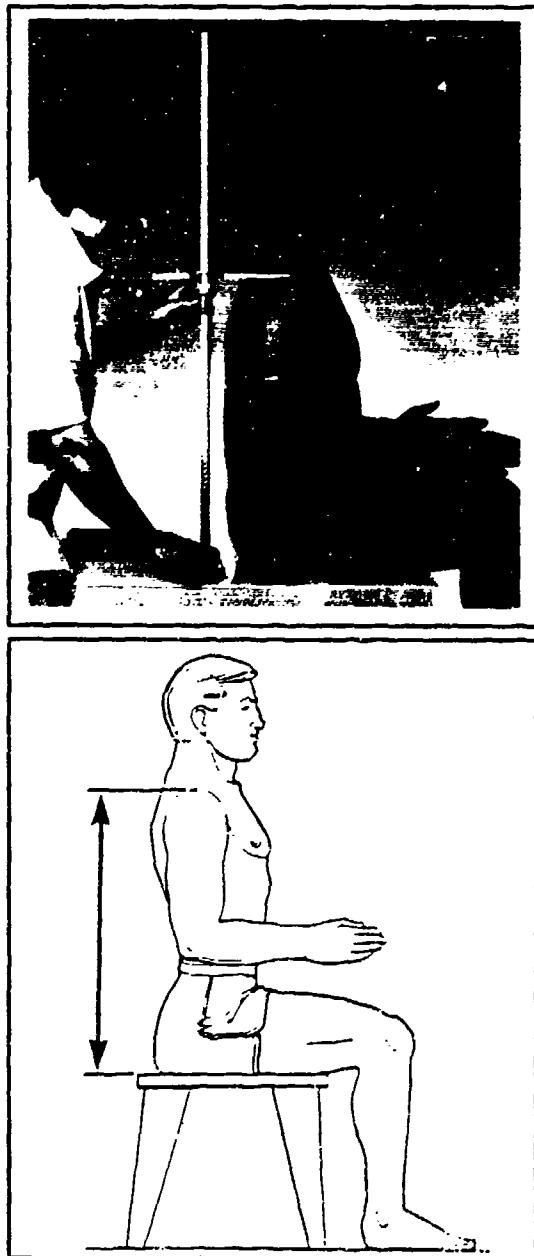
# ACROMIAL HEIGHT

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
133.36	MEAN VALUE	52.50	144.25	MEAN VALUE	56.79
.12	SE(MEAN)	.05	.15	SE(MEAN)	.06
5.79	STD DEVIATION	2.28	6.20	STD DEVIATION	2.44
.09	SE(STD DEV)	.03	.10	SE(STD DEV)	.04
113.90	MINIMUM	44.84	118.20	MINIMUM	46.54
156.50	MAXIMUM	61.61	170.40	MAXIMUM	67.09
SYMMETRY---VETA I	=	.11	SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.01	KURTOSIS---VETA II	=	3.23
COEF. OF VARIATION	=	4.3%	COEF. OF VARIATION	=	4.3%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
1	.05	1	.05	113.75 - 115.25			
2	.09	3	.14	115.25 - 116.75			
6	.27	9	.41	116.75 - 118.25			
13	.59	22	1.00	118.25 - 119.75			
20	.91	42	1.90	119.75 - 121.25			
22	1.00	64	2.90	121.25 - 122.75			
42	1.90	106	4.80	122.75 - 124.25			
81	3.67	187	8.47	124.25 - 125.75			
123	5.57	310	14.04	125.75 - 127.25			
178	8.06	488	22.10	127.25 - 128.75			
183	8.29	671	30.39	128.75 - 130.25			
242	10.96	913	41.35	130.25 - 131.75			
193	8.74	1106	50.09	131.75 - 133.25			
211	9.56	1317	59.65	133.25 - 134.75			
212	9.60	1529	69.25	134.75 - 136.25			
190	8.61	1719	77.85	136.25 - 137.75			
150	6.79	1869	84.65	137.75 - 139.25			
112	5.07	1981	89.72	139.25 - 140.75			
83	3.76	2064	93.48	140.75 - 142.25			
54	2.45	2118	95.92	142.25 - 143.75			
39	1.77	2157	97.69	143.75 - 145.25			
26	1.18	2183	98.87	145.25 - 146.75			
13	.59	2196	99.46	146.75 - 148.25			
6	.27	2202	99.73	148.25 - 149.75			
4	.18	2206	99.91	149.75 - 151.25			
1	.05	2207	99.95	151.25 - 152.75			
0	.00	2207	99.95	152.75 - 154.25			
0	.00	2207	99.95	154.25 - 155.75			
1	.05	2208	100.00	155.75 - 157.25			
				157.25 - 158.75			
				158.75 - 160.25			
				160.25 - 161.75			
				161.75 - 163.25			
				163.25 - 164.75			
				164.75 - 166.25			
				166.25 - 167.75			
				167.75 - 169.25			
				169.25 - 170.75			

### (3) ACROMIAL HEIGHT, SITTING

The vertical distance between a sitting surface and the acromion landmark on the tip of the right shoulder is measured with an anthropometer. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is made at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
49.24	19.38	52.52	20.68
49.88	19.64	53.49	21.06
50.31	19.81	54.08	21.29
50.91	20.04	54.85	21.59
51.87	20.42	55.98	22.04
52.54	20.69	56.73	22.33
53.09	20.90	57.31	22.56
53.56	21.09	57.81	22.76
53.99	21.26	58.25	22.93
54.39	21.41	58.66	23.10
54.77	21.56	59.05	23.25
55.14	21.71	59.43	23.40
55.51	21.85	59.80	23.54
55.88	22.00	60.17	23.69
56.25	22.15	60.55	23.84
56.64	22.30	60.94	23.99
57.05	22.46	61.35	24.15
57.50	22.64	61.79	24.33
57.99	22.83	62.29	24.52
58.57	23.06	62.66	24.75
59.29	23.34	63.58	25.03
60.36	23.76	64.63	25.44
61.05	24.03	65.28	25.70
61.55	24.23	65.75	25.89
62.33	24.54	66.45	26.16

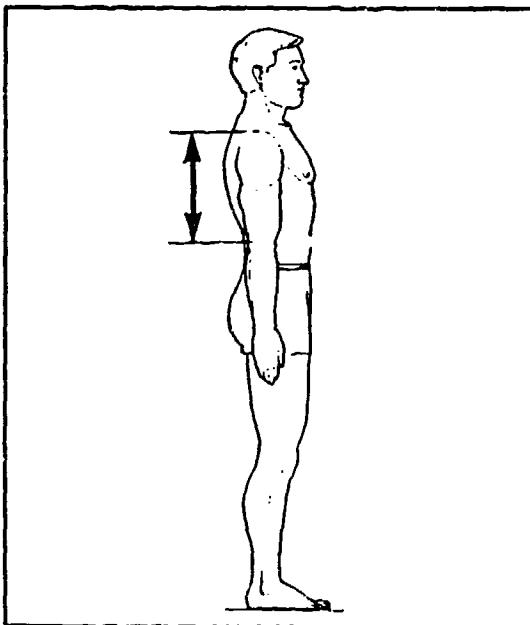
# ACROMIAL HEIGHT, SITTING

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
55.55	MEAN VALUE	21.87	59.78	MEAN VALUE	23.53
.06	SE(MEAN)	.02	.07	SE(MEAN)	.03
2.86	STD DEVIATION	1.13	2.96	STD DEVIATION	1.16
.04	SE(STD DEV)	.02	.05	SE(STD DEV)	.02
46.40	MINIMUM	18.27	50.10	MINIMUM	19.72
66.40	MAXIMUM	26.14	69.50	MAXIMUM	27.36
SYMMETRY---VETA I	=	.07	SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	2.86	KURTOSIS---VETA II	=	2.91
COEF. OF VARIATION	=	5.2%	COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct
2	.09	2	.09	46.25 - 46.75		1	.06	1	.06
0	.00	2	.09	46.75 - 47.25		0	.00	1	.06
3	.14	5	.23	47.25 - 47.75		1	.06	2	.11
3	.14	8	.36	47.75 - 48.25		2	.11	4	.23
7	.32	15	.68	48.25 - 48.75		10	.56	22	1.24
7	.32	22	1.00	48.75 - 49.25		11	.62	45	2.54
13	.59	35	1.59	49.25 - 49.75		8	.45	53	2.99
31	1.40	66	2.99	49.75 - 50.25		27	1.52	80	4.51
29	1.31	95	4.30	50.25 - 50.75		36	2.03	116	6.54
52	2.36	147	6.66	50.75 - 51.25		38	2.14	154	8.68
59	2.67	206	9.33	51.25 - 51.75		52	2.93	206	11.61
70	3.17	276	12.50	51.75 - 52.25		63	3.55	269	15.16
95	4.30	371	16.80	52.25 - 52.75		80	4.51	349	19.67
88	3.99	459	20.79	52.75 - 53.25		88	4.96	437	24.63
130	5.89	589	26.68	53.25 - 53.75		104	5.86	541	30.50
143	6.48	732	33.15	53.75 - 54.25		106	5.98	647	36.47
161	7.29	893	40.44	54.25 - 54.75		106	5.98	753	42.45
132	5.98	1025	46.42	54.75 - 55.25		112	6.31	865	48.76
154	6.97	1179	53.40	55.25 - 55.75		116	6.54	981	55.30
146	6.61	1325	60.01	55.75 - 56.25		125	7.05	1106	62.34
148	6.70	1473	66.71	56.25 - 56.75		121	6.82	1227	69.17
120	5.43	1593	72.15	56.75 - 57.25		105	5.92	1332	75.08
131	5.93	1724	78.08	57.25 - 57.75		83	4.68	1415	79.76
80	3.62	1804	81.70	57.75 - 58.25		76	4.28	1491	84.05
100	4.53	1904	86.23	58.25 - 58.75		63	3.55	1554	87.60
84	3.80	1988	90.04	58.75 - 59.25		121	6.82	1614	90.98
43	1.95	2031	91.98	59.25 - 59.75		105	5.92	1662	93.69
55	2.49	2086	94.47	59.75 - 60.25		34	1.92	1696	95.60
42	1.90	2128	96.38	60.25 - 60.75		26	1.47	1722	97.07
24	1.09	2152	97.46	60.75 - 61.25		14	.79	1736	97.86
19	.86	2171	98.32	61.25 - 61.75		16	.90	1752	98.76
13	.59	2184	98.91	61.75 - 62.25		11	.62	1763	99.38
13	.59	2197	99.50	62.25 - 62.75		5	.28	1768	99.66
6	.27	2203	99.77	62.75 - 63.25		3	.17	1771	99.83
3	.14	2206	99.91	63.25 - 63.75		1	.06	1772	99.89
0	.00	2206	99.91	63.75 - 64.25		68.25 - 68.75	0	1772	99.89
1	.05	2207	99.95	64.25 - 64.75		68.75 - 69.25	0	1772	99.89
0	.00	2207	99.95	64.75 - 65.25		69.25 - 69.75	2	1774	100.00

#### (4) ACROMION-RADIALE LENGTH

The distance between the acromion landmark on the tip of the right shoulder and the radiale landmark on the right elbow is measured with a beam caliper held parallel to the long axis of the arm. The subject stands erect. The shoulders and upper extremities are relaxed with the palms facing the thighs.



##### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
27.37	10.77	1ST	30.23 11.90
27.83	10.95	2ND	30.66 12.07
28.11	11.07	3RD	30.94 12.18
28.49	11.22	5TH	31.32 12.33
29.07	11.44	10TH	31.91 12.56
29.46	11.60	15TH	32.31 12.72
29.77	11.72	20TH	32.63 12.85
30.04	11.83	25TH	32.91 12.96
30.28	11.92	30TH	33.16 13.06
30.50	12.01	35TH	33.40 13.15
30.72	12.09	40TH	33.62 13.24
30.93	12.18	45TH	33.83 13.32
31.14	12.26	50TH	34.05 13.41
31.35	12.34	55TH	34.27 13.49
31.57	12.43	60TH	34.49 13.58
31.79	12.52	65TH	34.72 13.67
32.03	12.61	70TH	34.96 13.76
32.29	12.71	75TH	35.22 13.87
32.59	12.83	80TH	35.52 13.98
32.93	12.96	85TH	35.86 14.12
33.37	13.14	90TH	36.30 14.29
34.02	13.39	95TH	36.95 14.55
34.44	13.56	97TH	37.38 14.72
34.74	13.68	98TH	37.69 14.84
35.21	13.86	99TH	38.18 15.03

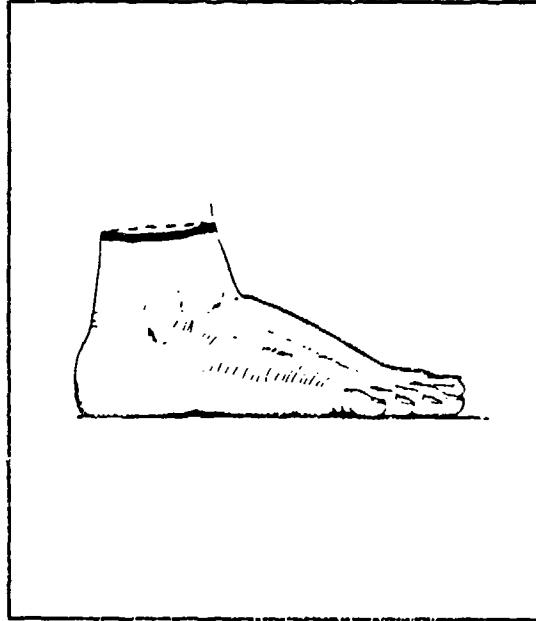
# ACROMION-RADIALE LENGTH

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
31.19	MEAN VALUE	12.28	34.08	MEAN VALUE	13.42
.04	SE(MEAN)	.00	.04	SE(MEAN)	.02
1.67	STD DEVIATION	.66	1.72	STD DEVIATION	.68
.03	SE(STD DEV)	.00	.03	SE(STD DEV)	.00
26.20	MINIMUM	10.31	27.10	MINIMUM	10.67
37.00	MAXIMUM	14.57	41.50	MAXIMUM	16.34
SYMMETRY---VETA I	=	.14	SYMMETRY---VETA I	=	.12
KURTOSIS---VETA II	=	3.02	KURTOSIS---VETA II	=	3.27
COEF. OF VARIATION	=	5.3%	COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	25.75 - 26.25			
4	.18	6	.27	26.25 - 26.75		1	.06
8	.36	14	.63	26.75 - 27.25		0	.00
29	1.31	43	1.95	27.25 - 27.75		0	.00
40	1.81	83	3.76	27.75 - 28.25		0	.00
63	2.85	146	6.61	28.25 - 28.75		1	.06
114	5.16	260	11.78	28.75 - 29.25		4	.23
181	8.20	441	19.97	29.25 - 29.75		2	.11
200	9.06	641	29.03	29.75 - 30.25		8	.45
255	11.59	897	40.63	30.25 - 30.75		28	1.58
268	12.14	1165	52.76	30.75 - 31.25		41	2.31
260	11.78	1425	64.54	31.25 - 31.75		54	3.04
224	10.14	1649	74.68	31.75 - 32.25		106	5.98
184	8.33	1833	83.02	32.25 - 32.75		135	7.61
123	5.57	1956	88.59	32.75 - 33.25		182	10.26
108	4.89	2064	93.48	33.25 - 33.75		215	12.12
60	2.72	2124	96.20	33.75 - 34.25		190	10.71
44	1.99	2168	98.19	34.25 - 34.75		205	11.56
21	.95	2189	99.14	34.75 - 35.25		159	8.96
8	.36	2197	99.50	35.25 - 35.75		145	8.17
5	.23	2202	99.73	35.75 - 36.25		123	6.93
4	.18	2206	99.91	36.25 - 36.75		67	3.78
2	.09	2208	100.00	36.75 - 37.25		47	2.65
				37.25 - 37.75		27	1.52
				37.75 - 38.25		18	1.01
				38.25 - 38.75		11	.62
				38.75 - 39.25		2	.11
				39.25 - 39.75		1	.06
				39.75 - 40.25		0	.00
				40.25 - 40.75		0	.00
				40.75 - 41.25		0	.00
				41.25 - 41.75		2	.11
						1774	100.00

## (5) ANKLE CIRCUMFERENCE

The minimum horizontal circumference of the right ankle is measured with a tape. The subject stands with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
17.99	7.08	19.32	7.61
18.21	7.17	19.57	7.70
18.37	7.23	19.75	7.77
18.60	7.32	20.02	7.88
19.00	7.48	20.47	8.06
19.28	7.59	20.79	8.18
19.50	7.68	21.05	8.29
19.70	7.76	21.28	8.38
19.88	7.83	21.48	8.46
20.05	7.89	21.67	8.53
20.20	7.95	21.85	8.60
20.36	8.01	22.02	8.67
20.51	8.07	22.19	8.73
20.66	8.13	22.35	8.80
20.81	8.19	22.52	8.87
20.96	8.25	22.69	8.93
21.13	8.32	22.87	9.00
21.31	8.39	23.06	9.08
21.52	8.47	23.27	9.16
21.76	8.57	23.52	9.26
22.07	8.69	23.82	9.38
22.56	8.88	24.27	9.56
22.90	9.02	24.57	9.67
23.18	9.12	24.79	9.76
23.64	9.31	25.15	9.90

# ANKLE CIRCUMFERENCE

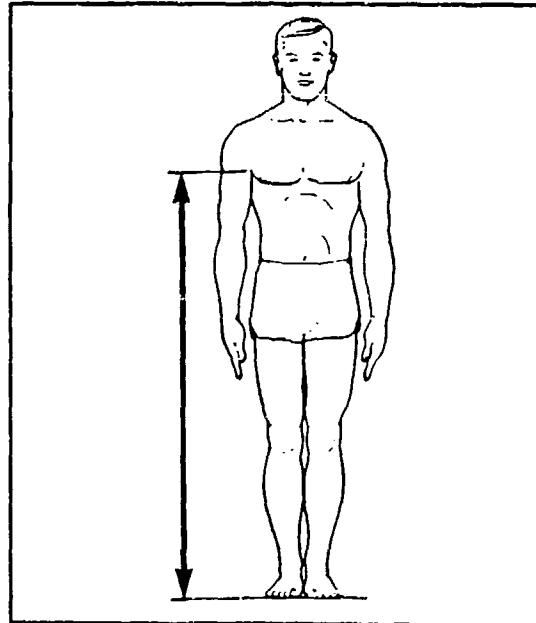
FEMALES		
CM	MEAN VALUE	INCHES
20.53	MEAN VALUE	8.08
.03	SE(MEAN)	.00
1.21	STD DEVIATION	.47
.02	SE(STD DEV)	.00
15.90	MINIMUM	6.26
24.90	MAXIMUM	9.80
SYMMETRY---VETA I	=	.17
KURTOSIS---VETA II	=	3.15
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
22.17	MEAN VALUE	8.73
.03	SE(MEAN)	.00
1.30	STD DEVIATION	.51
.02	SE(STD DEV)	.00
17.70	MINIMUM	6.97
26.70	MAXIMUM	10.51
SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	2.90
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	15.75	-	15.95	
1	.05	2	.09	15.95	-	16.15	
0	.00	2	.09	16.15	-	16.35	
0	.00	2	.09	16.35	-	16.55	
0	.00	2	.09	16.55	-	16.75	
1	.05	3	.14	16.75	-	16.95	
1	.05	4	.18	16.95	-	17.15	
3	.14	7	.32	17.15	-	17.35	
2	.09	9	.41	17.35	-	17.55	
5	.23	14	.63	17.55	-	17.75	
6	.27	20	.91	17.75	-	17.95	
16	.72	36	1.63	17.95	-	18.15	
25	1.13	61	2.76	18.15	-	18.35	
42	1.90	103	4.66	18.35	-	18.55	
43	1.95	146	6.61	18.55	-	18.75	
57	2.58	203	9.19	18.75	-	18.95	
64	2.90	267	12.09	18.95	-	19.15	
94	4.26	361	15.35	19.15	-	19.35	
107	4.85	468	21.20	19.35	-	19.55	
98	4.44	566	25.63	19.55	-	19.75	
144	6.52	710	32.16	19.75	-	19.95	
144	6.52	854	38.68	19.95	-	20.15	
156	7.07	1010	45.74	20.15	-	20.35	
134	6.07	1144	51.81	20.35	-	20.55	
139	6.30	1283	53.11	20.55	-	20.75	
132	5.98	1415	64.09	20.75	-	20.95	
136	6.16	1551	70.24	20.95	-	21.15	
119	5.39	1670	75.63	21.15	-	21.35	
119	5.39	1789	81.02	21.35	-	21.55	
86	3.89	1875	84.92	21.55	-	21.75	
62	2.81	1937	87.73	21.75	-	21.95	
69	3.13	2000	90.85	21.95	-	22.15	
44	1.99	2050	92.84	22.15	-	22.35	
50	2.26	2100	95.11	22.35	-	22.55	
22	1.00	2122	96.11	22.55	-	22.75	
27	1.22	2149	97.33	22.75	-	22.95	
15	.68	2164	98.01	22.95	-	23.15	
11	.50	2175	98.51	23.15	-	23.35	
7	.32	2182	98.32	23.35	-	23.55	
7	.32	2189	99.14	23.55	-	23.75	
13	.59	2202	99.73	23.75	-	23.95	
1	.05	2203	99.77	23.95	-	24.15	
2	.09	2205	99.86	24.15	-	24.35	
0	.00	2205	99.86	24.35	-	24.55	
1	.05	2206	99.91	24.55	-	24.75	
2	.09	2208	100.00	24.75	-	24.95	
				24.95	-	25.15	
				25.15	-	25.35	
				25.35	-	25.55	
				25.55	-	25.75	
				25.75	-	25.95	
				25.95	-	26.15	
				26.15	-	26.35	
				26.35	-	26.55	
				26.55	-	26.75	

## (6) AXILLA HEIGHT

The vertical distance between a standing surface and the right axillary fold, as designated by the anterior-scye-on-the-torso landmark, is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed with the palms facing the thighs. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
110.67	43.57	1ST	118.45 46.64
112.42	44.26	2ND	120.19 47.32
113.44	44.66	3RD	121.25 47.74
114.75	45.18	5TH	122.65 48.29
116.64	45.92	10TH	124.73 49.11
117.88	46.41	15TH	126.12 49.65
118.84	46.79	20TH	127.21 50.08
119.69	47.12	25TH	128.16 50.46
120.45	47.42	30TH	129.00 50.79
121.16	47.70	35TH	129.79 51.10
121.84	47.97	40TH	130.54 51.40
122.51	48.23	45TH	131.27 51.68
123.18	48.50	50TH	132.00 51.97
123.87	48.77	55TH	132.74 52.26
124.57	49.04	60TH	133.48 52.55
125.30	49.33	65TH	134.26 52.86
126.09	49.64	70TH	135.08 53.18
126.96	49.98	75TH	135.98 53.53
127.93	50.37	80TH	136.98 53.93
129.07	50.82	85TH	138.15 54.39
130.52	51.39	90TH	139.62 54.97
132.63	52.22	95TH	141.76 55.81
133.93	52.73	97TH	143.12 56.35
134.85	53.09	98TH	144.08 56.73
136.17	53.61	99TH	145.53 57.30

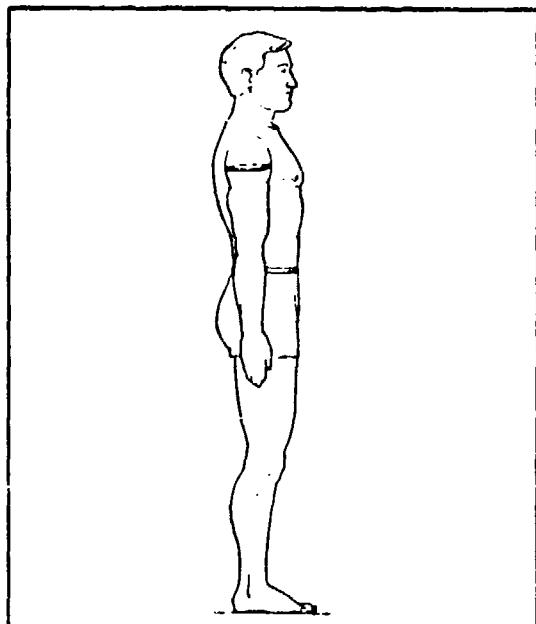
# AXILLA HEIGHT

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
123.36	MEAN VALUE	48.57	132.09	MEAN VALUE	52.00
.12	SE(MEAN)	.05	.14	SE(MEAN)	.05
5.43	STD DEVIATION	2.14	5.80	STD DEVIATION	2.28
.08	SE(STD DEV)	.03	.10	SE(STD DEV)	.04
125.10	MINIMUM	41.38	107.10	MINIMUM	42.17
145.20	MAXIMUM	57.17	157.70	MAXIMUM	62.09
SYMMETRY---VETA I	=	.12	SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.03	KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	4.4%	COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	104.55 - 105.55		1	.06
1	.05	2	.09	105.55 - 106.55		1	.06
0	.06	2	.09	106.55 - 107.55		0	.00
3	.14	5	.23	107.55 - 108.55		0	.00
8	.36	13	.59	108.55 - 109.55		0	.00
8	.36	21	.95	109.55 - 110.55		0	.00
9	.41	30	1.36	110.55 - 111.55		0	.00
18	.82	48	2.17	111.55 - 112.55		0	.00
18	.82	66	2.99	112.55 - 113.55		0	.00
28	1.27	94	4.26	113.55 - 114.55		1	.06
51	2.31	145	6.57	114.55 - 115.55		2	.11
62	2.81	207	9.38	115.55 - 116.55		2	.11
88	3.99	295	13.36	116.55 - 117.55		4	.23
127	5.75	422	19.11	117.55 - 118.55		9	.51
128	5.80	550	24.91	118.55 - 119.55		11	.62
158	7.16	708	32.07	119.55 - 120.55		7	.39
157	7.11	865	39.18	120.55 - 121.55		17	.96
152	6.88	1017	46.06	121.55 - 122.55		33	1.86
131	5.93	1148	51.98	122.55 - 123.55		36	2.03
159	7.20	1307	59.19	123.55 - 124.55		45	2.54
147	6.66	1454	65.85	124.55 - 125.55		52	2.93
136	6.16	1590	72.01	125.55 - 126.55		65	3.66
129	5.84	1719	77.85	126.55 - 127.55		97	5.47
129	5.84	1848	83.70	127.55 - 128.55		91	5.13
73	3.31	1921	87.00	128.55 - 129.55		128	7.22
77	3.49	1998	90.49	129.55 - 130.55		123	6.93
56	2.54	2054	93.03	130.55 - 131.55		117	6.60
49	2.22	2103	95.24	131.55 - 132.55		115	6.48
31	1.54	2137	96.78	132.55 - 133.55		114	6.43
22	1.04	2160	97.83	133.55 - 134.55		102	5.75
19	.82	2178	98.64	134.55 - 135.55		98	5.52
11	.50	2189	99.14	135.55 - 136.55		117	6.60
5	.23	2194	99.37	136.55 - 137.55		87	4.90
7	.32	2201	99.68	137.55 - 138.55		60	3.38
2	.09	2203	99.77	138.55 - 139.55		53	2.99
2	.09	2205	99.86	139.55 - 140.55		58	3.27
2	.09	2207	99.95	140.55 - 141.55		42	2.37
0	.00	2207	99.95	141.55 - 142.55		25	1.41
0	.00	2207	99.95	142.55 - 143.55		21	1.18
0	.00	2207	99.95	143.55 - 144.55		16	.90
1	.05	2208	100.00	144.55 - 145.55		7	.39
				145.55 - 146.55		8	.45
				146.55 - 147.55		4	.23
				147.55 - 148.55		2	.11
				148.55 - 149.55		2	.11
				149.55 - 150.55		0	.00
				150.55 - 151.55		0	.00
				151.55 - 152.55		0	.00
				152.55 - 153.55		0	.00
				153.55 - 154.55		0	.00
				154.55 - 155.55		1	.06
				155.55 - 156.55		0	.00
				156.55 - 157.55		0	.00
				157.55 - 158.55		1	.06
						1774	100.00

## (7) AXILLARY ARM CIRCUMFERENCE

The circumference of the right upper arm perpendicular to its long axis at the level of the anterior-scye-on-the-upper arm landmark is measured with a tape. The subject stands erect looking straight ahead with shoulders and upper extremities relaxed and the palms facing the sides.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
23.89	9.41	1ST	27.55 10.85
24.53	9.66	2ND	28.20 11.10
24.91	9.81	3RD	28.61 11.27
25.41	10.00	5TH	29.19 11.49
26.16	10.30	10TH	30.10 11.85
26.67	10.50	15TH	30.72 12.09
27.08	10.66	20TH	31.21 12.29
27.44	10.80	25TH	31.65 12.46
27.77	10.93	30TH	32.03 12.61
28.08	11.05	35TH	32.40 12.75
28.38	11.17	40TH	32.74 12.89
28.68	11.29	45TH	33.08 13.02
28.98	11.41	50TH	33.41 13.15
29.29	11.53	55TH	33.75 13.29
29.61	11.66	60TH	34.09 13.42
29.95	11.79	65TH	34.45 13.56
30.31	11.93	70TH	34.83 13.71
30.72	12.09	75TH	35.24 13.87
31.18	12.27	80TH	35.71 14.06
31.72	12.49	85TH	36.27 14.28
32.43	12.77	90TH	36.98 14.56
33.49	13.18	95TH	38.08 14.99
34.18	13.46	97TH	38.83 15.29
34.68	13.65	98TH	39.39 15.51
35.45	13.96	99TH	40.32 15.87

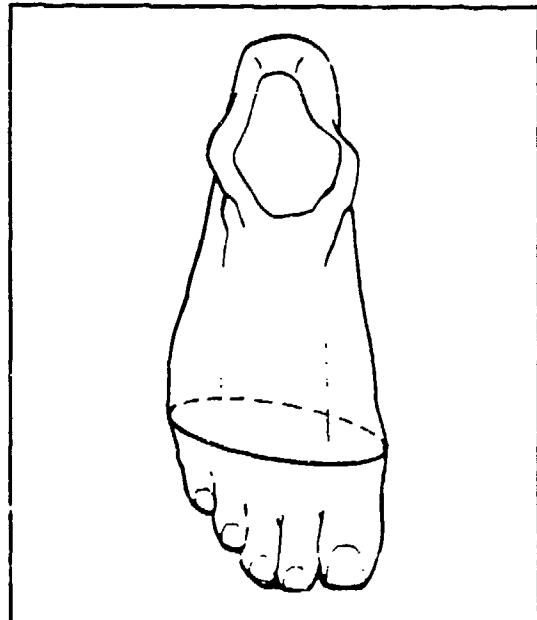
# AXILLARY ARM CIRCUMFERENCE

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
29.16	MEAN VALUE	11.48	33.50	MEAN VALUE	13.19
.05	SE(MEAN)	.02	.06	SE(MEAN)	.03
2.44	STD DEVIATION	.96	2.71	STD DEVIATION	1.07
.04	SE(STD DEV)	.00	.05	SE(STD DEV)	.02
22.30	MINIMUM	8.78	24.50	MINIMUM	9.65
37.70	MAXIMUM	14.84	45.30	MAXIMUM	17.83
SYMMETRY---VETA I	=	.33	SYMMETRY---VETA I	=	.23
KURTOSIS---VETA II	=	3.10	KURTOSIS---VETA II	=	3.20
COEF. OF VARIATION	=	8.4%	COEF. OF VARIATION	=	8.1%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
3	.14	3	.14	22.25 - 22.75		1	.06	1	.06
4	.18	7	.32	22.75 - 23.25		0	.00	1	.06
10	.45	17	.77	23.25 - 23.75		1	.06	2	.11
13	.59	30	1.36	23.75 - 24.25		1	.06	3	.17
26	1.18	56	2.54	24.25 - 24.75		2	.11	5	.28
45	2.04	101	4.57	24.75 - 25.25		8	.45	13	.73
58	2.63	159	7.20	25.25 - 25.75		9	.51	22	1.24
78	3.53	237	10.73	25.75 - 26.25		14	.79	36	2.03
111	5.03	348	15.76	26.25 - 26.75		24	1.35	60	3.38
122	5.53	470	21.29	26.75 - 27.25		28	1.58	88	4.96
169	7.65	639	28.94	27.25 - 27.75		52	2.93	140	7.89
186	8.42	825	37.36	27.75 - 28.25		53	2.99	193	10.88
200	9.06	1025	46.42	28.25 - 28.75		79	4.45	272	15.33
185	8.38	1210	54.80	28.75 - 29.25		101	5.69	373	21.03
170	7.70	1380	62.50	29.25 - 29.75		106	5.98	479	27.00
154	6.97	1534	69.47	29.75 - 30.25		109	6.14	588	33.15
135	6.11	1669	75.59	30.25 - 30.75		117	6.60	705	39.74
124	5.62	1793	81.20	30.75 - 31.25		134	7.55	839	47.29
93	4.21	1886	85.42	31.25 - 31.75		121	6.82	960	54.11
76	3.44	1962	88.86	31.75 - 32.25		146	8.23	1106	62.34
63	2.85	2025	91.71	32.25 - 32.75		126	7.10	1232	69.45
61	2.76	2086	94.47	32.75 - 33.25		98	5.52	1330	74.97
28	1.27	2114	95.74	33.25 - 33.75		110	6.20	1440	81.17
24	1.09	2138	96.83	33.75 - 34.25		70	3.95	1510	85.12
29	1.31	2167	98.14	34.25 - 34.75		53	2.99	1563	88.11
16	.72	2183	98.87	34.75 - 35.25		50	2.82	1613	90.92
11	.50	2194	99.37	35.25 - 35.75		46	2.59	1659	93.52
6	.27	2200	99.64	35.75 - 36.25		34	1.92	1693	95.43
2	.09	2202	99.73	36.25 - 36.75		26	1.47	1719	96.90
3	.14	2205	99.86	36.75 - 37.25		20	1.13	1739	98.03
3	.14	2208	100.00	37.25 - 37.75		9	.51	1748	98.53
				37.75 - 38.25		7	.39	1755	98.93
				38.25 - 38.75		4	.23	1759	99.15
				38.75 - 39.25		7	.39	1766	99.55
				39.25 - 39.75		3	.17	1769	99.72
				39.75 - 40.25		3	.17	1772	99.89
				40.25 - 40.75		0	.00	1772	99.89
				40.75 - 41.25		0	.00	1772	99.89
				41.25 - 41.75		1	.06	1773	99.94
				41.75 - 42.25		1	.06	1773	99.94
				42.25 - 42.75		0	.00	1773	99.94
				42.75 - 43.25		1	.06	1774	100.00

## (8) BALL OF FOOT CIRCUMFERENCE

The circumference of the foot at the first and fifth metatarsophalangeal landmarks on the ball of the right foot is measured with a tape. The subject stands with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
19.76	7.78	1ST	22.04 8.68
20.06	7.90	2ND	22.40 8.82
20.25	7.97	3RD	22.62 8.90
20.51	8.07	5TH	22.90 9.02
20.92	8.23	10TH	23.32 9.18
21.19	8.34	15TH	23.61 9.29
21.40	8.43	20TH	23.83 9.38
21.59	8.50	25TH	24.02 9.46
21.76	8.57	30TH	24.20 9.53
21.91	8.61	35TH	24.36 9.59
22.05	8.68	40TH	24.51 9.65
22.19	8.74	45TH	24.66 9.71
22.33	8.79	50TH	24.82 9.77
22.47	8.85	55TH	24.97 9.83
22.61	8.90	60TH	25.13 9.89
22.76	8.96	65TH	25.29 9.96
22.92	9.02	70TH	25.47 10.03
23.08	9.09	75TH	25.66 10.10
23.28	9.16	80TH	25.87 10.19
23.50	9.25	85TH	26.13 10.29
23.79	9.37	90TH	26.45 10.41
24.23	9.54	95TH	26.92 10.60
24.53	9.66	97TH	27.23 10.72
24.76	9.75	98TH	27.45 10.81
25.13	9.90	99TH	27.75 10.94

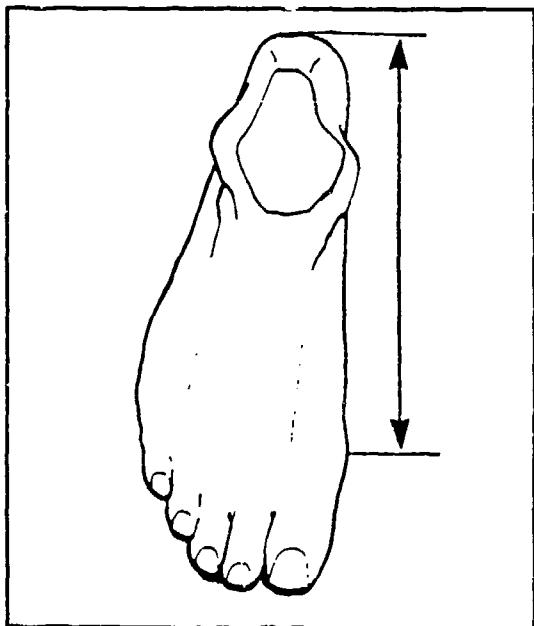
# BALL OF FOOT CIRCUMFERENCE

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
22.35	MEAN VALUE	8.80	24.85	MEAN VALUE	9.79
.02	SE(MEAN)	.00	.03	SE(MEAN)	.00
1.13	STD DEVIATION	.44	1.23	STD DEVIATION	.48
.02	SE(STD DEV)	.00	.02	SE(STD DEV)	.00
18.50	MINIMUM	7.28	21.00	MINIMUM	8.27
26.20	MAXIMUM	10.31	30.00	MAXIMUM	11.81
SYMMETRY---VETA I	=	.09	SYMMETRY---VETA I	=	.16
KURTOSIS---VETA II	=	3.09	KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	5.1%	COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	18.35 - 18.60		1	.06
2	.09	3	.14	18.60 - 18.85		2	.11
1	.05	4	.18	18.85 - 19.10		2	.11
0	.00	4	.18	19.10 - 19.35		8	.45
9	.41	13	.59	19.35 - 19.60		7	.39
14	.63	27	1.22	19.60 - 19.85		12	.68
13	.59	40	1.81	19.85 - 20.10		12	.68
43	1.95	83	3.76	20.10 - 20.35		31	1.75
35	1.59	118	5.34	20.35 - 20.60		44	2.48
87	3.94	205	9.28	20.60 - 20.85		75	4.23
72	3.26	277	12.55	20.85 - 21.10		119	6.71
148	6.70	425	19.25	21.10 - 21.35		195	10.99
115	5.21	540	24.46	21.35 - 21.60		262	14.77
192	8.70	732	33.15	21.60 - 21.85		365	20.57
163	7.38	895	40.53	21.85 - 22.10		454	25.59
226	10.24	1121	50.77	22.10 - 22.35		601	33.88
165	7.47	1286	58.24	22.35 - 22.60		742	41.83
223	10.10	1509	68.34	22.60 - 22.85		906	51.07
130	5.89	1639	74.23	22.85 - 23.10		1033	58.23
164	7.43	1803	81.66	23.10 - 23.35		1187	66.91
103	4.66	1906	86.32	23.35 - 23.60		1294	72.94
98	4.44	2004	90.76	23.60 - 23.85		1407	79.31
53	2.40	2057	93.16	23.85 - 24.10		1475	83.15
63	2.85	2120	96.01	24.10 - 24.35		1569	88.44
32	1.45	2152	97.46	24.35 - 24.60		1617	91.15
18	.82	2170	98.28	24.60 - 24.85		1678	94.59
13	.59	2183	98.87	24.85 - 25.10		1710	96.39
13	.59	2196	99.46	25.10 - 25.35		1734	97.75
3	.14	2199	99.59	25.35 - 25.60		1745	98.37
5	.23	2204	99.82	25.60 - 25.85		1758	99.10
3	.14	2207	99.95	25.85 - 26.10		1762	99.32
1	.05	2208	100.00	26.10 - 26.35		1767	99.61
				26.35 - 26.60		1771	99.83
				26.60 - 26.85		1772	99.89
				26.85 - 27.10		1773	99.94
				27.10 - 27.35		1773	99.94
				27.35 - 27.60		1773	99.94
				27.60 - 27.85		1774	100.00
				27.85 - 28.10			
				28.10 - 28.35			
				28.35 - 28.60			
				28.60 - 28.85			
				28.85 - 29.10			
				29.10 - 29.35			
				29.35 - 29.60			
				29.60 - 29.85			
				29.85 - 30.10			

## (9) BALL OF FOOT LENGTH

The distance from the back of the heel to the landmark at the first metatarsophalangeal protrusion on the ball of the right foot is measured in a footbox. The subject stands erect with each foot in a footbox. The weight is distributed equally on both feet. The medial side of the right foot is parallel with the long axis of the box.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.77	6.21	1ST	17.25 6.79
16.01	6.30	2ND	17.52 6.90
16.16	6.36	3RD	17.69 6.97
16.37	6.45	5TH	17.92 7.06
16.71	6.58	10TH	18.28 7.20
16.94	6.67	15TH	18.52 7.29
17.12	6.74	20TH	18.71 7.37
17.28	6.80	25TH	18.88 7.43
17.42	6.86	30TH	19.03 7.49
17.56	6.91	35TH	19.17 7.55
17.68	6.96	40TH	19.31 7.60
17.81	7.01	45TH	19.44 7.65
17.93	7.06	50TH	19.57 7.70
18.05	7.11	55TH	19.70 7.76
18.17	7.15	60TH	19.83 7.81
18.30	7.21	65TH	19.97 7.86
18.44	7.26	70TH	20.12 7.92
18.58	7.32	75TH	20.29 7.99
18.75	7.38	80TH	20.47 8.06
18.94	7.46	85TH	20.69 8.15
19.18	7.55	90TH	20.97 8.26
19.54	7.69	95TH	21.39 8.42
19.78	7.79	97TH	21.67 8.53
19.95	7.85	98TH	21.88 8.61
20.22	7.96	99TH	22.21 8.74

# BALL OF FOOT LENGTH

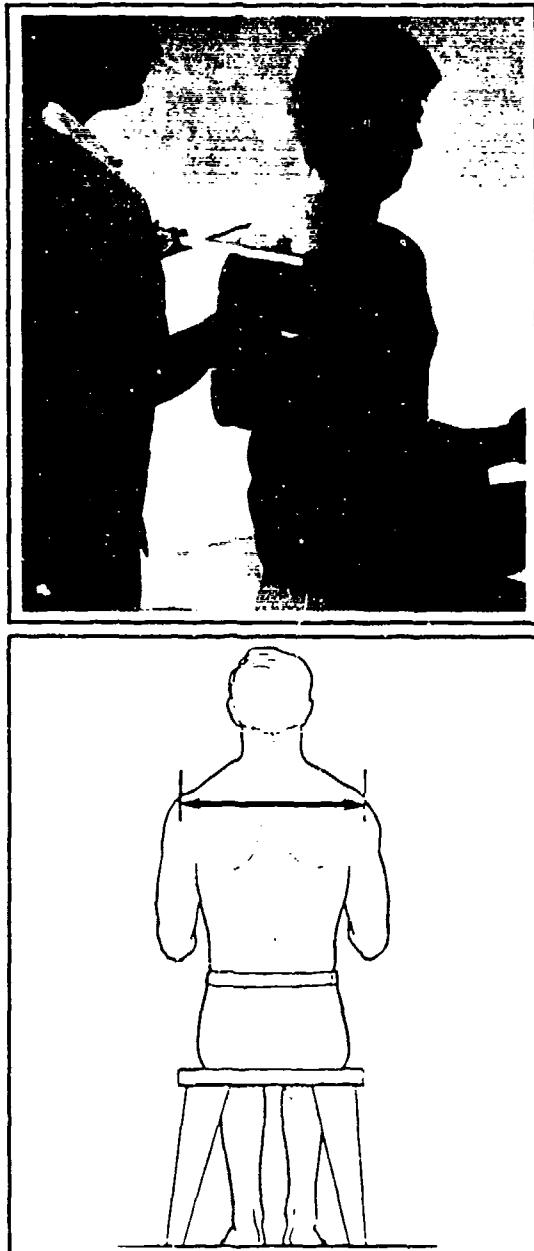
FEMALES		
<u>CM</u>	<u>INCHES</u>	
17.94	MEAN VALUE	7.06
.02	SE(MEAN)	.00
.96	STD DEVIATION	.38
.00	SE(STD DEV)	.00
14.80	MINIMUM	5.83
21.20	MAXIMUM	8.35
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	2.91
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
19.60	MEAN VALUE	7.72
.02	SE(MEAN)	.00
1.05	STD DEVIATION	.41
.02	SE(STD DEV)	.00
16.60	MINIMUM	6.54
23.70	MAXIMUM	9.33
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.03
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	14.75 - 14.95			
2	.09	3	.14	14.95 - 15.15			
3	.14	6	.27	15.15 - 15.35			
4	.18	10	.45	15.35 - 15.55			
11	.50	21	.35	15.55 - 15.75			
16	.72	37	1.68	15.75 - 15.95			
23	1.04	60	2.72	15.95 - 16.15			
50	2.26	110	4.98	16.15 - 16.35			
55	2.49	165	7.47	16.35 - 16.55			
69	3.13	234	10.60	16.55 - 16.75			
93	4.21	327	14.81	16.75 - 16.95			
122	5.53	449	20.34	16.95 - 17.15			
177	8.02	626	28.35	17.15 - 17.35			
141	6.39	767	34.74	17.35 - 17.55			
190	8.61	957	43.34	17.55 - 17.75			
166	7.52	1123	50.86	17.75 - 17.95			
153	6.93	1276	57.79	17.95 - 18.15			
208	9.42	1484	67.21	18.15 - 18.35			
152	6.88	1636	74.09	18.35 - 18.55			
140	6.34	1776	80.43	18.55 - 18.75			
104	4.71	1880	85.14	18.75 - 18.95			
95	4.30	1975	89.45	18.95 - 19.15			
76	3.44	2051	92.89	19.15 - 19.35			
49	2.22	2100	95.11	19.35 - 19.55			
39	1.77	2139	96.88	19.55 - 19.75			
25	1.13	2164	98.01	19.75 - 19.95			
16	.72	2180	98.73	19.95 - 20.15			
16	.72	2196	99.46	20.15 - 20.35			
7	.32	2203	99.77	20.35 - 20.55			
2	.09	2205	99.86	20.55 - 20.75			
1	.05	2206	99.91	20.75 - 20.95			
1	.05	2207	99.95	20.95 - 21.15			
1	.05	2208	100.00	21.15 - 21.35			
				21.35 - 21.55			
				21.55 - 21.75			
				21.75 - 21.95			
				21.95 - 22.15			
				22.15 - 22.35			
				22.35 - 22.55			
				22.55 - 22.75			
				22.75 - 22.95			
				22.95 - 23.15			
				23.15 - 23.35			
				23.35 - 23.55			
				23.55 - 23.75			

## (10) BIACROMIAL BREADTH

The distance between the right and left acromion landmarks at the tips of the shoulders is measured with a beam caliper. The subject sits erect. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
31.82	12.53	1ST	35.59 14.01
32.46	12.78	2ND	36.01 14.18
32.83	12.93	3RD	36.30 14.29
33.32	13.12	5TH	36.70 14.45
34.02	13.40	10TH	37.35 14.70
34.48	13.57	15TH	37.80 14.88
34.83	13.71	20TH	38.16 15.02
35.12	13.83	25TH	38.47 15.15
35.39	13.93	30TH	38.75 15.26
35.63	14.03	35TH	39.01 15.36
35.86	14.12	40TH	39.25 15.45
36.08	14.20	45TH	39.49 15.55
36.30	14.29	50TH	39.72 15.64
36.51	14.38	55TH	39.95 15.73
36.73	14.46	60TH	40.18 15.82
36.96	14.55	65TH	40.42 15.91
37.20	14.65	70TH	40.66 16.01
37.46	14.75	75TH	40.93 16.11
37.75	14.86	80TH	41.23 16.23
38.07	14.99	85TH	41.57 16.37
38.48	15.15	90TH	42.00 16.53
39.06	15.38	95TH	42.63 16.78
39.41	15.52	97TH	43.04 16.95
39.65	15.61	98TH	43.35 17.07
40.00	15.75	99TH	43.85 17.26

## BIACROMIAL BREADTH

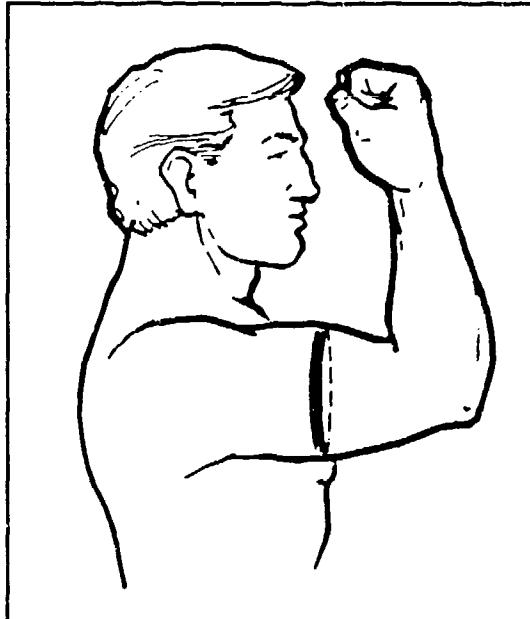
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
36.26	MEAN VALUE	14.28
.04	SE(MEAN)	.00
1.74	STD DEVIATION	.69
.03	SE(STD DEV)	.00
30.10	MINIMUM	11.85
41.70	MAXIMUM	16.42
SYMMETRY---VETA I	=	-.15
KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
39.70	MEAN VALUE	15.63
.04	SE(MEAN)	.02
1.80	STD DEVIATION	.71
.03	SE(STD DEV)	.00
33.00	MINIMUM	12.99
45.10	MAXIMUM	17.76
SYMMETRY---VETA I	=	-.05
KURTOSIS---VETA II	=	2.92
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	29.75 - 30.25			
2	.09	3	.14	30.25 - 30.75			
9	.41	12	.54	30.75 - 31.25			
8	.36	20	.91	31.25 - 31.75			
20	.91	40	1.81	31.75 - 32.25			
18	.82	58	2.63	32.25 - 32.75			
43	1.95	101	4.57	32.75 - 33.25			
60	2.72	161	7.29	33.25 - 33.75			
113	5.12	274	12.41	33.75 - 34.25			
142	6.43	416	18.84	34.25 - 34.75			
187	8.47	603	27.31	34.75 - 35.25			
235	10.64	838	37.95	35.25 - 35.75			
252	11.41	1090	49.37	35.75 - 36.25			
274	12.41	1364	61.78	36.25 - 36.75			
216	9.78	1580	71.56	36.75 - 37.25			
169	7.65	1749	79.21	37.25 - 37.75			
167	7.56	1916	86.78	37.75 - 38.25			
130	5.89	2046	92.66	38.25 - 38.75			
85	3.85	2131	96.51	38.75 - 39.25			
39	1.77	2170	98.28	39.25 - 39.75			
24	1.09	2194	99.37	39.75 - 40.25			
5	.23	2199	99.59	40.25 - 40.75			
6	.27	2205	99.86	40.75 - 41.25			
3	.14	2208	100.00	41.25 - 41.75			
				41.75 - 42.25			
				42.25 - 42.75			
				42.75 - 43.25			
				43.25 - 43.75			
				43.75 - 44.25			
				44.25 - 44.75			
				44.75 - 45.25			

## (11) BICEPS CIRCUMFERENCE, FLEXED

The circumference of the right upper arm around the flexed biceps muscle is measured with a tape held perpendicular to the long axis of the upper arm. The subject stands with the upper arm extended horizontally and the elbow flexed 90 degrees. The fist is clenched and held facing the head, and the subject exerts maximum effort in "making a muscle."



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
23.14	9.11	1ST	27.68 10.90
23.76	9.36	2ND	28.48 11.21
24.13	9.50	3RD	28.95 11.40
24.62	9.69	5TH	29.57 11.64
25.35	9.98	10TH	30.47 11.99
25.83	10.17	15TH	31.05 12.23
26.22	10.32	20TH	31.51 12.41
26.56	10.46	25TH	31.91 12.56
26.86	10.58	30TH	32.27 12.70
27.15	10.69	35TH	32.60 12.84
27.43	10.80	40TH	32.93 12.96
27.71	10.91	45TH	33.24 13.09
27.98	11.02	50TH	33.56 13.21
28.27	11.13	55TH	33.89 13.34
28.56	11.24	60TH	34.23 13.47
28.87	11.36	65TH	34.58 13.62
29.20	11.50	70TH	34.97 13.77
29.56	11.64	75TH	35.40 13.94
29.98	11.80	80TH	35.89 14.13
30.48	12.00	85TH	36.49 14.36
31.13	12.25	90TH	37.27 14.67
32.10	12.64	95TH	38.50 15.16
32.75	12.89	97TH	39.35 15.49
33.22	13.08	98TH	39.99 15.74
33.96	13.37	99TH	41.03 16.15

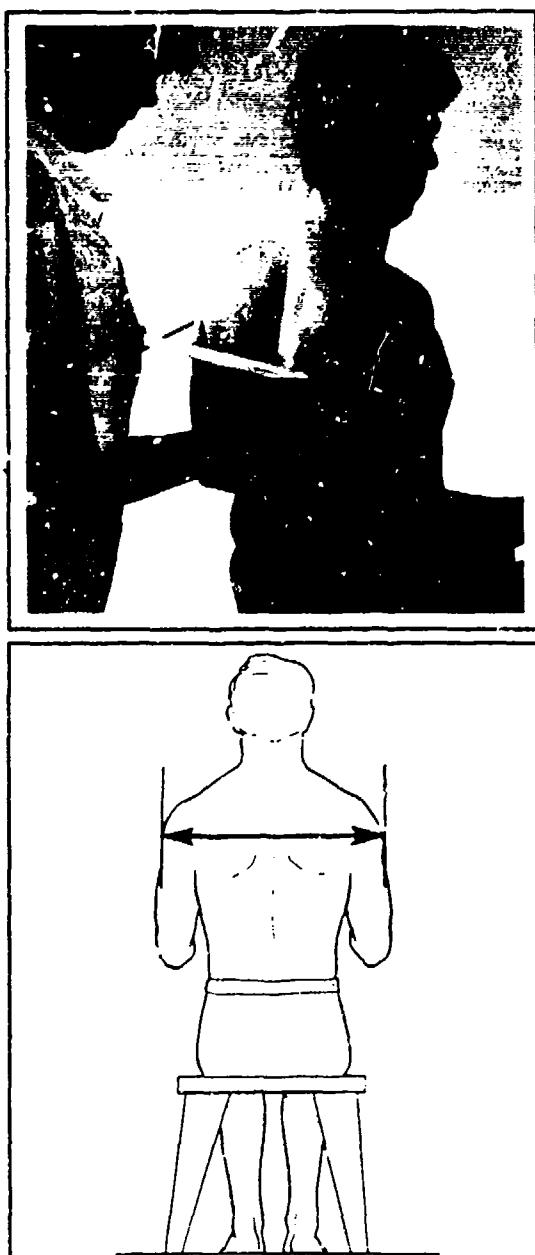
# BICEPS CIRCUMFERENCE, FLEXED

FEMALES			MALES		
	<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>
28.13	MEAN VALUE	11.08	33.75	MEAN VALUE	13.29
.05	SE(MEAN)	.02	.06	SE(MEAN)	.03
2.27	STD DEVIATION	.89	2.71	STD DEVIATION	1.07
.03	SE(STD DEV)	.00	.05	SE(STD DEV)	.02
21.30	MINIMUM	8.39	25.90	MINIMUM	10.20
37.10	MAXIMUM	14.61	43.70	MAXIMUM	17.20
SYMMETRY---VETA I	=	.33	SYMMETRY---VETA I	=	.33
KURTOSIS---VETA II	=	3.23	KURTOSIS---VETA II	=	3.34
COEF. OF VARIATION	=	8.1%	COEF. OF VARIATION	=	8.0%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
3	.14	3	.14	21.25 - 21.75		2	.11
0	.00	3	.14	21.75 - 22.25		2	.11
3	.14	6	.27	22.25 - 22.75		10	.56
19	.86	25	1.13	22.75 - 23.25		5	.28
19	.86	44	1.99	23.25 - 23.75		9	.51
30	1.36	74	3.35	23.75 - 24.25		14	.79
55	2.49	129	5.84	24.25 - 24.75		42	2.37
74	3.35	203	9.19	24.75 - 25.25		24	1.35
107	4.85	310	14.04	25.25 - 25.75		32	1.80
139	6.30	449	20.34	25.75 - 26.25		44	2.48
150	6.79	599	27.13	26.25 - 26.75		2	.11
207	9.38	806	36.50	26.75 - 27.25		10	.56
202	9.15	1008	45.65	27.25 - 27.75		14	.79
194	8.79	1202	54.44	27.75 - 28.25		19	1.07
199	9.01	1401	63.45	28.25 - 28.75		28	1.58
179	8.11	1580	71.56	28.75 - 29.25		42	2.37
142	6.43	1722	77.99	29.25 - 29.75		66	3.72
109	4.94	1831	82.93	29.75 - 30.25		98	5.52
99	4.48	1930	87.41	30.25 - 30.75		142	8.00
84	3.80	2014	91.21	30.75 - 31.25		207	11.67
48	2.17	2062	93.39	31.25 - 31.75		315	17.76
39	1.77	2101	95.15	31.75 - 32.25		405	22.83
36	1.63	2137	96.78	32.25 - 32.75		545	30.72
33	1.49	2170	98.28	32.75 - 33.25		65	3.66
14	.63	2184	98.91	33.25 - 33.75		108	6.09
5	.23	2189	99.14	33.75 - 34.25		114	6.43
8	.36	2197	99.50	34.25 - 34.75		141	7.95
6	.27	2203	99.77	34.75 - 35.25		142	8.00
1	.05	2204	99.82	35.25 - 35.75		800	45.10
2	.09	2206	99.91	35.75 - 36.25		942	53.10
1	.05	2207	99.95	36.25 - 36.75		1082	60.99
1	.05	2208	100.00	36.75 - 37.25		1187	66.91
				37.25 - 37.75		1291	72.77
				37.75 - 38.25		1291	72.77
				38.25 - 38.75		1359	76.61
				38.75 - 39.25		1359	76.61
				39.25 - 39.75		1471	82.92
				39.75 - 40.25		1471	82.92
				40.25 - 40.75		1541	86.87
				40.75 - 41.25		1608	90.64
				41.25 - 41.75		1649	92.95
				41.75 - 42.25		1686	95.04
				42.25 - 42.75		1705	96.11
				42.75 - 43.25		1719	96.90
				43.25 - 43.75		1730	97.52
				43.75 - 44.25		1739	98.03
				44.25 - 44.75		1751	98.70
				44.75 - 45.25		1763	99.38
				45.25 - 45.75		1764	99.44
				45.75 - 46.25		1768	99.66
				46.25 - 46.75		1770	99.77
				46.75 - 47.25		1770	99.77
				47.25 - 47.75		1774	100.00

## (12) BIDELTOID BREADTH

The maximum horizontal distance between the lateral margins of the upper arms on the deltoid muscles is measured with a beam caliper. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
38.03	14.97	1ST	43.40 17.09
38.73	15.25	2ND	44.02 17.33
39.16	15.42	3RD	44.43 17.49
39.70	15.63	5TH	44.99 17.71
40.49	15.94	10TH	45.87 18.06
41.00	16.14	15TH	46.48 18.30
41.40	16.30	20TH	46.96 18.49
41.75	16.44	25TH	47.39 18.56
42.05	16.56	30TH	47.77 18.81
42.34	16.67	35TH	48.13 18.95
42.61	16.78	40TH	48.47 19.08
42.88	16.88	45TH	48.81 19.22
43.14	16.99	50TH	49.14 19.35
43.41	17.09	55TH	49.47 19.48
43.69	17.20	60TH	49.81 19.61
43.99	17.32	65TH	50.16 19.75
44.30	17.44	70TH	50.53 19.89
44.65	17.58	75TH	50.92 20.05
45.06	17.74	80TH	51.37 20.23
45.54	17.93	85TH	51.89 20.43
46.17	18.18	90TH	52.53 20.68
47.17	18.57	95TH	53.48 21.05
47.85	18.84	97TH	54.07 21.29
48.36	19.04	98TH	54.50 21.46
49.21	19.37	99TH	6 21.71

# BIDELTOID BREADTH

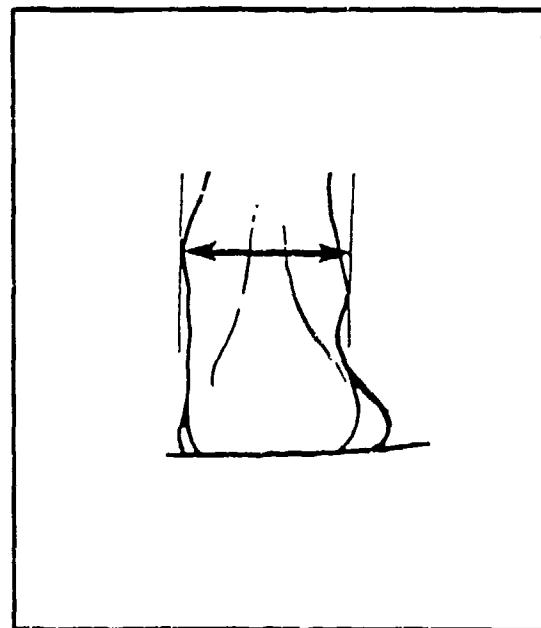
FEMALES		
	CM	INCHES
43.26	MEAN VALUE	17.03
.05	SE(MEAN)	.02
2.26	STD DEVIATION	.89
.03	SE(STD DEV)	.00
36.90	MINIMUM	14.53
53.20	MAXIMUM	20.94
SYMMETRY---VETA I	=	.30
KURTOSIS---VETA II	=	3.46
COEF. OF VARIATION	=	5.2%
NUMBER OF SUBJECTS	=	2208

MALES		
	CM	INCHES
49.18	MEAN VALUE	19.36
.06	SE(MEAN)	.02
2.59	STD DEVIATION	1.02
.04	SE(STD DEV)	.02
41.00	MINIMUM	16.14
59.30	MAXIMUM	23.35
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	3.03
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
4	.18	4	.18	36.75 - 37.25			
10	.45	14	.63	37.25 - 37.75			
14	.63	28	1.27	37.75 - 38.25			
19	.86	47	2.13	38.25 - 38.75			
20	.95	68	3.08	38.75 - 39.25			
45	2.04	113	5.12	39.25 - 39.75			
70	3.17	183	8.29	39.75 - 40.25			
96	4.35	279	12.64	40.25 - 40.75			
112	5.07	391	17.71	40.75 - 41.25			
153	6.93	544	24.64	41.25 - 41.75			
183	8.29	727	32.93	41.75 - 42.25			
216	9.78	943	42.71	42.25 - 42.75			
210	9.51	1153	52.22	42.75 - 43.25			
207	9.38	1360	61.59	43.25 - 43.75			
169	7.65	1529	69.25	43.75 - 44.25			
159	7.20	1688	76.45	44.25 - 44.75			
126	5.71	1814	82.16	44.75 - 45.25			
100	4.53	1914	86.68	45.25 - 45.75			
75	3.40	1989	90.08	45.75 - 46.25			
81	3.67	2070	93.75	46.25 - 46.75			
41	1.86	2111	95.61	46.75 - 47.25			
28	1.27	2139	96.88	47.25 - 47.75			
19	.86	2158	97.74	47.75 - 48.25			
18	.82	2176	98.55	48.25 - 48.75			
11	.50	2187	99.05	48.75 - 49.25			
10	.45	2197	99.50	49.25 - 49.75			
4	.18	2201	99.68	49.75 - 50.25			
1	.05	2202	99.73	50.25 - 50.75			
2	.09	2204	99.82	50.75 - 51.25			
1	.05	2205	99.86	51.25 - 51.75			
2	.09	2207	99.95	51.75 - 52.25			
0	.00	2207	99.95	52.25 - 52.75			
1	.05	2208	100.00	52.75 - 53.25			
				53.25 - 53.75			
				53.75 - 54.25			
				54.25 - 54.75			
				54.75 - 55.25			
				55.25 - 55.75			
				55.75 - 56.25			
				56.25 - 56.75			
				56.75 - 57.25			
				57.25 - 57.75			
				57.75 - 58.25			
				58.25 - 58.75			
				58.75 - 59.25			
				59.25 - 59.75			

### (13) BIMALLEOLAR BREADTH

The horizontal distance between the maximum protrusions of the ankle bones (lateral and medial malleoli) of the right foot is measured with a Holtain caliper. The subject stands with the weight equally distributed on both feet.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
5.72	2.25	6.40	2.52
5.81	2.29	6.50	2.56
5.86	2.31	6.56	2.58
5.94	2.34	6.65	2.62
6.05	2.38	6.78	2.67
6.12	2.41	6.87	2.71
6.18	2.43	6.95	2.73
6.23	2.45	7.01	2.76
6.27	2.47	7.07	2.78
6.32	2.49	7.12	2.80
6.36	2.50	7.17	2.82
6.40	2.52	7.22	2.84
6.43	2.53	7.27	2.86
6.47	2.55	7.32	2.88
6.51	2.56	7.38	2.90
6.55	2.58	7.43	2.92
6.60	2.60	7.49	2.95
6.65	2.62	7.55	2.97
6.70	2.64	7.61	3.00
6.77	2.66	7.69	3.03
6.85	2.70	7.79	3.07
6.97	2.74	7.94	3.13
7.05	2.78	8.03	3.16
7.11	2.80	8.10	3.19
7.20	2.83	8.20	3.23

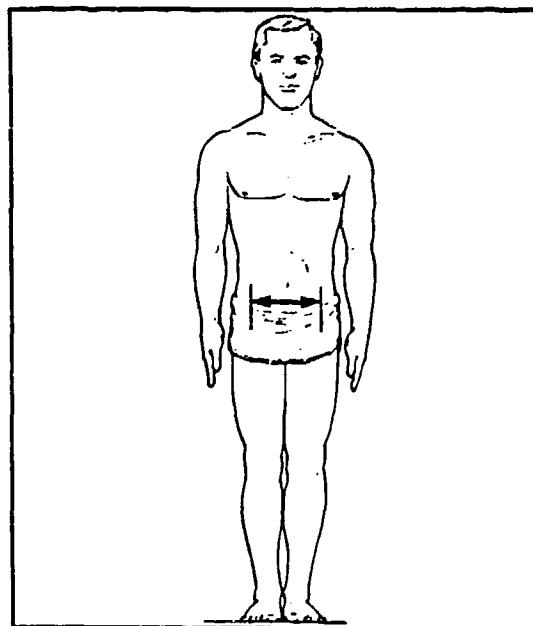
# BIMALLEOLAR BREADTH

FEMALES			MALES		
CM	MEAN VALUE	INCHES	CM	MEAN VALUE	INCHES
6.44	MEAN VALUE	2.54	7.28	MEAN VALUE	2.87
.00	SE(MEAN)	.00	.00	SE(MEAN)	.00
.31	STD DEVIATION	.12	.39	STD DEVIATION	.15
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
5.20	MINIMUM	2.05	6.10	MINIMUM	2.40
7.60	MAXIMUM	2.99	8.60	MAXIMUM	3.39
SYMMETRY---VETA I	=	.08	SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	3.05	KURTOSIS---VETA II	=	2.86
COEF. OF VARIATION	=	4.9%	COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES			MALES					
F	Fpct	CumF	CumFPct	CENTIMETERS	F	Fpct	CumF	CumFPct
1	.05	1	.05	5.15 - 5.25	1	.06	1	.06
0	.00	1	.05	5.25 - 5.35	2	.11	3	.17
1	.05	2	.09	5.35 - 5.45	8	.45	11	.62
1	.05	3	.14	5.45 - 5.55	13	.73	24	1.35
7	.32	10	.45	5.55 - 5.65	29	1.63	53	2.99
23	1.04	33	1.49	5.65 - 5.75	33	1.86	86	4.85
16	.72	49	2.22	5.75 - 5.85	63	3.55	149	8.40
58	2.63	107	4.85	5.85 - 5.95	90	5.07	239	13.47
135	6.11	242	10.96	5.95 - 6.05	104	5.86	343	19.33
155	7.02	397	17.98	6.05 - 6.15	159	8.96	502	28.30
219	9.92	616	27.90	6.15 - 6.25	175	9.86	677	38.16
233	10.55	849	38.45	6.25 - 6.35	171	9.64	848	47.80
292	13.22	1141	51.68	6.35 - 6.45	181	10.20	1029	58.00
269	12.18	1410	63.86	6.45 - 6.55	143	8.06	1172	66.07
236	10.69	1646	74.55	6.55 - 6.65	166	9.36	1338	75.42
242	10.96	1888	85.51	6.65 - 6.75	137	7.72	1475	83.15
103	4.66	1991	90.17	6.75 - 6.85	89	5.02	1564	88.16
83	3.76	2074	93.93	6.85 - 6.95	64	3.61	1628	91.77
74	3.35	2148	97.28	6.95 - 7.05	56	3.16	1684	94.93
29	1.31	2177	98.60	7.05 - 7.15	49	2.76	1733	97.69
16	.72	2193	99.32	7.15 - 7.25	16	.90	1749	98.59
10	.45	2203	99.77	7.25 - 7.35	14	.79	1763	99.38
4	.18	2207	99.95	7.35 - 7.45	4	.23	1767	99.61
0	.00	2207	99.95	7.45 - 7.55	5	.28	1772	99.89
1	.05	2208	100.00	7.55 - 7.65	1	.06	1773	99.94
				7.65 - 7.75			1774	100.00

## (14) BISPINOUS BREADTH

The straight-line distance between the right and left anterior superior iliac spine landmarks is measured with a beam caliper. The subject stands looking straight ahead with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
17.45	6.87	1ST	18.73 7.37
17.93	7.06	2ND	19.25 7.58
18.24	7.18	3RD	19.57 7.70
18.68	7.35	5TH	20.00 7.87
19.37	7.62	10TH	20.65 8.13
19.84	7.81	15TH	21.09 8.30
20.23	7.96	20TH	21.45 8.44
20.57	8.10	25TH	21.76 8.57
20.87	8.22	30TH	22.04 8.68
21.15	8.33	35TH	22.30 8.78
21.42	8.43	40TH	22.55 8.88
21.69	8.54	45TH	22.80 8.98
21.95	8.64	50TH	23.05 9.07
22.22	8.75	55TH	23.30 9.17
22.48	8.85	60TH	23.56 9.27
22.76	8.96	65TH	23.83 9.38
23.06	9.08	70TH	24.12 9.49
23.37	9.20	75TH	24.43 9.62
23.73	9.34	80TH	24.79 9.76
24.14	9.50	85TH	25.21 9.93
24.66	9.71	90TH	25.75 10.14
25.41	10.01	95TH	26.55 10.45
25.89	10.19	97TH	27.07 10.66
26.24	10.33	98TH	27.45 10.81
26.77	10.54	99TH	28.03 11.03

# BISPINOUS BREADTH

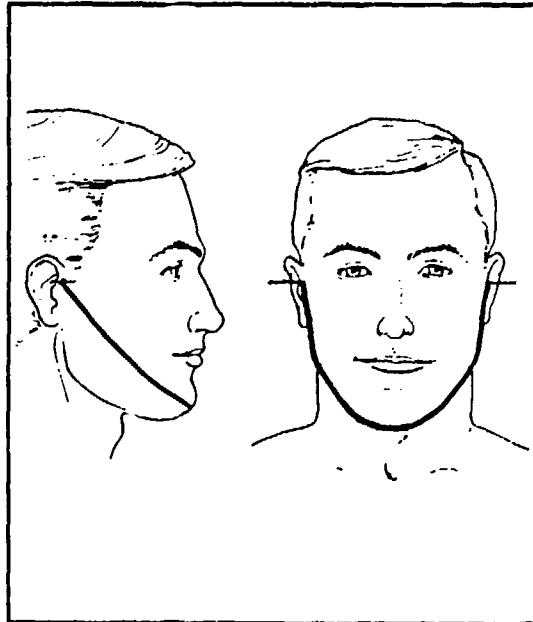
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
21.99	MEAN VALUE	8.66
.04	SE(MEAN)	.02
2.05	STD DEVIATION	.81
.03	SE(STD DEV)	.00
15.10	MINIMUM	5.94
29.30	MAXIMUM	11.54
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	2.92
COEF. OF VARIATION	=	9.38
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
23.13	MEAN VALUE	9.11
.05	SE(MEAN)	.02
1.98	STD DEVIATION	.78
.03	SE(STD DEV)	.00
17.70	MINIMUM	6.97
31.10	MAXIMUM	12.24
SYMMETRY---VETA I	=	.22
KURTOSIS---VETA II	=	3.03
COEF. OF VARIATION	=	8.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
#	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	14.75	-	15.25	
0	.60	1	.05	15.25	-	15.75	
2	.09	3	.14	15.75	-	16.25	
5	.23	8	.36	16.25	-	16.75	
8	.36	16	.72	16.75	-	17.25	
19	.86	35	1.59	17.25	-	17.75	
35	1.59	70	3.17	17.75	-	18.25	
46	2.08	116	5.25	18.25	-	18.75	
81	3.67	197	8.92	18.75	-	19.25	
115	5.21	312	14.13	19.25	-	19.75	
151	6.84	463	20.97	19.75	-	20.25	
158	7.16	621	28.13	20.25	-	20.75	
187	8.47	808	36.59	20.75	-	21.25	
212	9.60	1020	46.20	21.25	-	21.75	
216	9.76	1136	55.98	21.75	-	22.25	
190	8.61	1426	64.58	22.25	-	22.75	
192	8.70	1618	73.28	22.75	-	23.25	
155	7.02	1773	80.30	23.25	-	23.75	
122	5.53	1895	85.82	23.75	-	24.25	
105	4.76	2000	90.58	24.25	-	24.75	
85	3.85	2085	94.43	24.75	-	25.25	
47	2.13	2132	96.56	25.25	-	25.75	
31	1.40	2163	97.96	25.75	-	26.25	
23	1.04	2186	99.00	26.25	-	26.75	
9	.41	2195	99.41	26.75	-	27.25	
5	.23	2200	99.64	27.25	-	27.75	
2	.09	2202	99.73	27.75	-	28.25	
4	.18	2206	99.91	28.25	-	28.75	
1	.05	2207	99.95	28.75	-	29.25	
1	.05	2208	100.00	29.25	-	29.75	
				29.75	-	30.25	
				30.25	-	30.75	
				30.75	-	31.25	

## (15) BITRAGION CHIN ARC

The surface distance between the right and left tragion landmarks across the chin landmark at the tip of the chin is measured with a tape. The teeth are lightly occluded.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
27.37	10.78	1ST	29.54 11.63
27.71	10.91	2ND	29.89 11.77
27.92	10.99	3RD	30.11 11.85
28.19	11.10	5TH	30.42 11.97
28.62	11.27	10TH	30.89 12.16
28.92	11.39	15TH	31.21 12.29
29.16	11.48	20TH	31.46 12.39
29.37	11.56	25TH	31.68 12.47
29.56	11.64	30TH	31.87 12.55
29.74	11.71	35TH	32.06 12.62
29.91	11.78	40TH	32.23 12.69
30.08	11.84	45TH	32.40 12.76
30.25	11.91	50TH	32.57 12.82
30.42	11.98	55TH	32.73 12.89
30.60	12.05	60TH	32.90 12.95
30.78	12.12	65TH	33.08 13.02
30.98	12.20	70TH	33.27 13.10
31.19	12.28	75TH	33.47 13.18
31.43	12.37	80TH	33.70 13.27
31.71	12.48	85TH	33.97 13.37
32.05	12.62	90TH	34.31 13.51
32.55	12.81	95TH	34.83 13.71
32.85	12.93	97TH	35.17 13.85
33.06	13.02	98TH	35.42 13.95
33.37	13.14	99TH	35.83 14.10

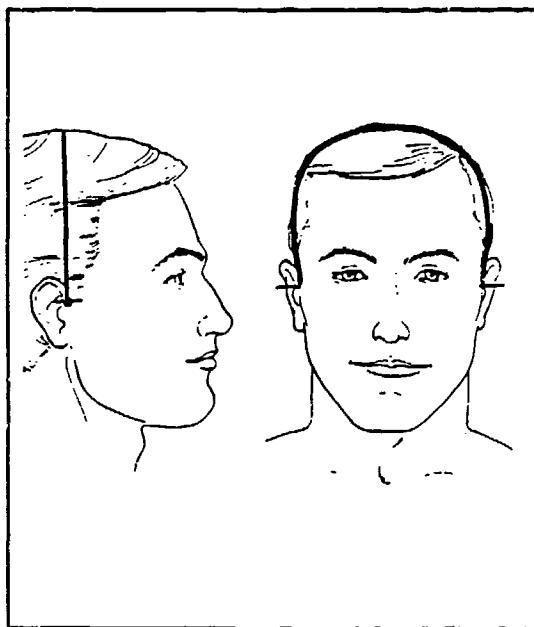
# BITRAGION CHIN ARC

FEMALES			MALES		
	<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>
30.29	MEAN VALUE	11.93	32.58	MEAN VALUE	12.83
.03	SE(MEAN)	.00	.03	SE(MEAN)	.00
1.32	STD DEVIATION	.52	1.34	STD DEVIATION	.53
.02	SE(STD DEV)	.00	.02	SE(STD DEV)	.00
26.10	MINIMUM	10.28	27.80	MINIMUM	10.94
35.00	MAXIMUM	13.78	37.20	MAXIMUM	14.65
SYMMETRY---VETA I	=	.14	SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	2.94	KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	4.4%	COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	26.10 - 26.35		1	.06
0	.00	2	.09	26.35 - 26.60		6	.00
4	.18	6	.27	26.60 - 26.85		2	.06
4	.18	10	.45	26.85 - 27.10		1	.11
8	.36	18	.82	27.10 - 27.35		4	.23
18	.82	36	1.63	27.35 - 27.60		4	.23
28	1.27	64	2.90	27.60 - 27.85		4	.23
24	1.09	88	3.99	27.85 - 28.10		16	.90
58	2.63	146	6.61	28.10 - 28.35		19	1.07
58	2.63	204	9.24	28.35 - 28.60		33	1.86
109	4.94	313	14.18	28.60 - 28.85		29	1.63
73	3.31	386	17.48	28.85 - 29.10		56	3.16
154	6.97	540	24.46	29.10 - 29.35		56	3.16
108	4.89	648	29.35	29.35 - 29.60		52	2.93
192	8.70	840	38.04	29.60 - 29.85		87	4.90
139	6.30	979	44.34	29.85 - 30.10		76	4.26
191	8.65	1170	52.99	30.10 - 30.35		129	7.27
149	6.75	1319	59.74	30.35 - 30.60		105	5.92
165	7.47	1484	67.21	30.60 - 30.85		135	7.61
100	4.53	1584	71.74	30.85 - 31.10		91	5.13
170	7.70	1754	79.44	31.10 - 31.35		111	6.26
84	3.80	1838	83.24	31.35 - 31.60		161	9.08
86	3.89	1924	87.14	31.60 - 31.85		105	5.92
59	2.67	1983	89.81	31.85 - 32.10		52	2.93
80	3.62	2063	93.43	32.10 - 32.35		155	8.74
34	1.54	2097	94.97	32.35 - 32.60		129	7.27
43	1.95	2140	96.92	32.60 - 32.85		105	5.92
19	.86	2159	97.78	32.85 - 33.10		105	5.92
29	1.31	2188	99.09	33.10 - 33.35		135	7.61
9	.41	2197	99.50	33.35 - 33.60		91	5.13
J	.05	2198	99.55	33.60 - 33.85		88	4.96
3	.14	2201	99.68	33.85 - 34.10		58	3.27
1	.05	2202	99.73	34.10 - 34.35		82	4.62
1	.05	2203	99.77	34.35 - 34.60		40	2.25
4	.18	2207	99.95	34.60 - 34.85		52	2.93
1	.05	2208	100.00	34.85 - 35.10		13	.73
				35.10 - 35.35		23	1.30
				35.35 - 35.60		10	.56
				35.60 - 35.85		18	1.01
				35.85 - 36.10		7	.39
				36.10 - 36.35		2	.11
				36.35 - 36.60		2	.11
				36.60 - 36.85		0	.00
				36.85 - 37.10		1	.06
				37.10 - 37.35		1	.06

## (16) BITRAGION CORONAL ARC

The surface distance between the right and left tragion landmarks across the top of the head is measured with a tape. The head is in the Frankfort plane.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
30.78	12.12	1ST	32.29 12.71
31.08	12.24	2ND	32.66 12.86
31.28	12.31	3RD	32.89 12.95
31.56	12.42	5TH	33.20 13.07
32.00	12.60	10TH	33.68 13.26
32.30	12.72	15TH	34.00 13.39
32.54	12.81	20TH	34.26 13.49
32.76	12.90	25TH	34.47 13.57
32.95	12.97	30TH	34.66 13.65
33.12	13.04	35TH	34.84 13.72
33.29	13.11	40TH	35.01 13.78
33.45	13.17	45TH	35.17 13.85
33.61	13.23	50TH	35.33 13.91
33.77	13.30	55TH	35.49 13.97
33.94	13.36	60TH	35.65 14.03
34.11	13.43	65TH	35.81 14.10
34.29	13.50	70TH	35.99 14.17
34.48	13.58	75TH	36.18 14.24
34.70	13.66	80TH	36.40 14.33
34.96	13.76	85TH	36.65 14.43
35.30	13.90	90TH	36.97 14.56
35.81	14.10	95TH	37.47 14.75
36.16	14.24	97TH	37.81 14.88
36.43	14.34	98TH	38.06 14.98
36.87	14.51	99TH	38.48 15.15

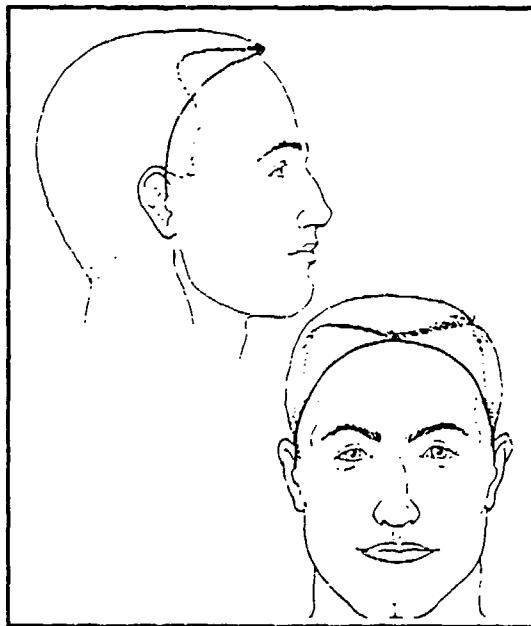
# BITRAGION CORONAL ARC

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
33.64	MEAN VALUE	13.24	35.33	MEAN VALUE	13.91
.03	SE(MEAN)	.00	.03	SE(MEAN)	.00
1.29	STD DEVIATION	.51	1.29	STD DEVIATION	.51
.02	SE(STD DEV)	.00	.02	SE(STD DEV)	.00
29.80	MINIMUM	11.73	29.90	MINIMUM	11.77
39.20	MAXIMUM	15.43	39.50	MAXIMUM	15.55
SYMMETRY---VETA I	=	.19	SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	3.24	KURTOSIS---VETA II	=	3.15
COEF. OF VARIATION	=	3.8%	COEF. OF VARIATION	=	3.7%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	29.75 - 29.95	1	.06	1 .06
2	.09	4	.18	29.95 - 30.15	0	.00	1 .06
5	.23	9	.41	30.15 - 30.35	0	.00	1 .06
4	.18	13	.59	30.35 - 30.55	0	.00	1 .06
6	.27	19	.86	30.55 - 30.75	0	.00	1 .06
7	.32	26	1.18	30.75 - 30.95	0	.00	1 .06
35	1.59	61	2.76	30.95 - 31.15	1	.06	2 .11
28	1.27	89	4.03	31.15 - 31.35	0	.00	2 .11
24	1.09	113	5.12	31.35 - 31.55	1	.06	3 .17
36	1.63	149	6.75	31.55 - 31.75	3	.17	6 .34
37	1.68	186	8.42	31.75 - 31.95	1	.06	7 .39
55	2.49	241	10.91	31.95 - 32.15	7	.39	14 .79
94	4.26	335	15.17	32.15 - 32.35	5	.28	12 .107
119	5.39	454	20.56	32.35 - 32.55	9	.51	28 1.58
93	4.21	547	24.77	32.55 - 32.75	15	.85	43 2.42
106	4.80	653	29.57	32.75 - 32.95	17	.96	60 3.38
127	5.75	780	35.33	32.95 - 33.15	18	1.01	78 4.40
153	6.93	933	42.26	33.15 - 33.35	27	1.52	105 5.92
143	6.48	1076	48.73	33.35 - 33.55	39	2.20	144 8.12
130	5.89	1206	54.62	33.55 - 33.75	44	2.48	188 10.60
127	5.75	1333	60.37	33.75 - 33.95	63	3.55	251 14.15
139	6.30	1472	66.67	33.95 - 34.15	67	3.78	318 17.93
119	5.39	1591	72.06	34.15 - 34.35	85	4.79	403 22.72
110	4.98	1701	77.04	34.35 - 34.55	97	5.47	500 28.18
90	4.08	1791	81.11	34.55 - 34.75	66	3.72	566 31.91
73	3.31	1864	84.42	34.75 - 34.95	99	5.58	665 37.49
78	3.53	1942	87.95	34.95 - 35.15	107	6.03	772 43.52
69	3.13	2011	91.08	35.15 - 35.35	110	6.20	882 49.72
15	2.04	2056	93.12	35.35 - 35.55	138	7.78	1020 57.50
35	1.59	2091	94.70	35.55 - 35.75	113	6.37	1133 63.87
20	.91	2111	95.61	35.75 - 35.95	87	4.90	1220 68.77
29	1.31	2140	96.92	35.95 - 36.15	105	5.92	1325 74.69
13	.59	2153	97.51	36.15 - 36.35	71	4.00	1396 78.69
18	.82	2171	98.32	36.35 - 36.55	80	4.51	1476 83.20
13	.59	2184	98.91	36.55 - 36.75	66	3.72	1542 86.92
5	.23	2189	99.14	36.75 - 36.95	51	2.97	1593 89.80
8	.36	2197	99.50	36.95 - 37.15	40	2.25	1633 92.05
1	.05	2198	99.55	37.15 - 37.35	36	2.03	1669 94.08
4	.18	2202	99.73	37.35 - 37.55	31	1.75	1700 95.83
1	.05	2203	99.77	37.55 - 37.75	14	.79	1714 96.62
1	.05	2204	99.82	37.75 - 37.95	17	.96	1731 97.58
1	.05	2205	99.86	37.95 - 38.15	12	.68	1743 98.25
1	.05	2206	99.91	38.15 - 38.35	8	.45	1751 98.70
0	.00	2206	99.91	38.35 - 38.55	9	.51	1760 99.21
1	.05	2207	99.95	38.55 - 38.75	4	.23	1764 99.44
0	.00	2207	99.95	38.75 - 38.95	5	.28	1769 99.72
0	.00	2207	99.95	38.95 - 39.15	2	.11	1771 99.83
1	.05	2208	100.00	39.15 - 39.35	2	.11	1773 99.94
				39.35 - 39.55	1	.06	1774 100.00

## (17) BITRAGION CRINION ARC

The surface distance between the right and left tragion landmarks across the top of the forehead at the lowest point of the hairline (crinion) is measured with a tape.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
28.24	11.12	1ST	30.07 11.84
28.56	11.24	2ND	30.34 11.95
28.75	11.32	3RD	30.52 12.02
29.01	11.42	5TH	30.77 12.11
29.40	11.58	10TH	31.16 12.27
29.66	11.68	15TH	31.43 12.37
29.86	11.76	20TH	31.65 12.46
30.03	11.82	25TH	31.83 12.53
30.19	11.89	30TH	32.00 12.60
30.33	11.94	35TH	32.16 12.66
30.47	12.00	40TH	32.31 12.72
30.60	12.05	45TH	32.46 12.78
30.73	12.10	50TH	32.60 12.84
30.87	12.15	55TH	32.75 12.89
31.00	12.20	60TH	32.90 12.95
31.14	12.26	65TH	33.06 13.01
31.29	12.32	70TH	33.22 13.08
31.45	12.38	75TH	33.40 13.15
31.64	12.45	80TH	33.60 13.23
31.85	12.54	85TH	33.84 13.32
32.13	12.65	90TH	34.15 13.44
32.55	12.82	95TH	34.61 13.63
32.83	12.93	97TH	34.92 13.75
33.04	13.01	98TH	35.15 13.84
33.38	13.14	99TH	35.52 13.99

# BITRAGION CRINION ARC

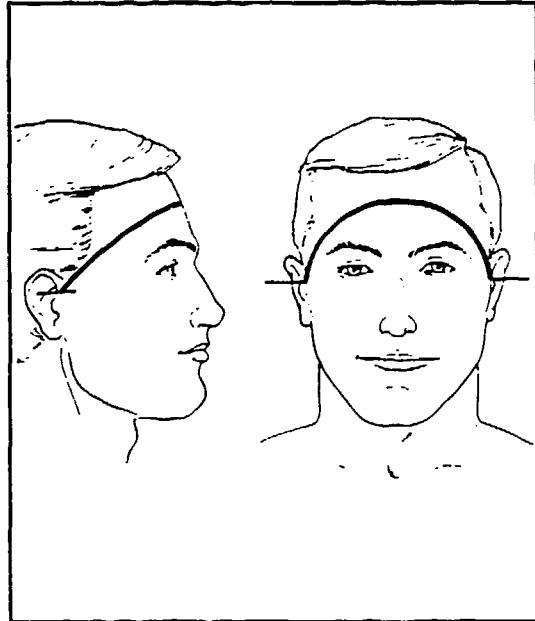
FEMALES		
<u>CM</u>	<u>INCHES</u>	
30.75	MEAN VALUE	12.11
.02	SE(MEAN)	.00
1.07	STD DEVIATION	.42
.02	SE(STD DEV)	.00
26.70	MINIMUM	10.51
34.70	MAXIMUM	13.66
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.20
COEF. OF VARIATION	=	3.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
32.64	MEAN VALUE	12.85
.03	SE(MEAN)	.00
1.16	STD DEVIATION	.46
.02	SE(STD DEV)	.00
29.30	MINIMUM	11.54
37.00	MAXIMUM	14.57
SYMMETRY---VETA I	=	.17
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	3.6%
NUMBER OF SUBJECTS	=	1749

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	26.55 - 26.75		1	.06
1	.05	2	.09	26.75 - 26.95		3	.17
0	.00	2	.09	26.95 - 27.15		1	.06
0	.00	2	.09	27.15 - 27.35		5	.29
2	.09	4	.18	27.35 - 27.55		12	.69
1	.05	5	.23	27.55 - 27.75		20	1.14
2	.09	7	.32	27.75 - 27.95		38	2.17
9	.41	16	.72	27.95 - 28.15		56	3.20
12	.54	28	1.27	28.15 - 28.35		81	4.63
16	.72	44	1.99	28.35 - 28.55		121	6.92
26	1.18	70	3.17	28.55 - 28.75		172	9.83
24	1.09	94	4.26	28.75 - 28.95		234	13.38
36	1.63	130	5.89	28.95 - 29.15		309	17.67
75	3.40	205	9.28	29.15 - 29.35		386	22.07
77	3.49	282	12.77	29.35 - 29.55		487	27.84
96	4.35	378	17.12	29.55 - 29.75		610	34.88
109	4.94	487	22.06	29.75 - 29.95		721	41.22
149	6.75	636	28.80	29.95 - 30.15		844	48.26
139	6.30	775	35.10	30.15 - 30.35		954	54.55
176	7.97	951	43.07	30.35 - 30.55		1075	61.46
159	7.20	1110	50.27	30.55 - 30.75		1198	68.50
161	7.29	1271	57.56	30.75 - 30.95		1300	74.33
182	8.24	1453	65.81	30.95 - 31.15		1382	79.02
157	7.11	1610	72.92	31.15 - 31.35		1458	83.36
129	5.84	1739	78.76	31.35 - 31.55		1523	87.08
92	4.17	1831	82.93	31.55 - 31.75		1571	89.82
83	3.76	1914	86.68	31.75 - 31.95		1608	91.94
70	3.17	1984	89.86	31.95 - 32.15		1652	94.45
64	2.90	2048	92.75	32.15 - 32.35		1679	96.00
46	2.08	2094	94.84	32.35 - 32.55		1698	97.08
37	1.68	2131	96.51	32.55 - 32.75		1715	98.06
25	1.13	2156	97.64	32.75 - 32.95		1729	98.86
22	1.00	2178	98.64	32.95 - 33.15		1732	99.03
6	.27	2184	98.91	33.15 - 33.35		1741	99.54
11	.50	2195	99.41	33.35 - 33.55		1744	99.71
5	.23	2200	99.64	33.55 - 33.75		1746	99.83
4	.18	2204	99.82	33.75 - 33.95		1746	99.83
0	.00	2204	99.82	33.95 - 34.15		1746	99.83
2	.09	2206	99.91	34.15 - 34.35		1747	99.89
0	.00	2206	99.91	34.35 - 34.55		1748	99.94
2	.09	2208	100.00	34.55 - 34.75		1748	99.94
				34.75 - 34.95		1749	100.00

## (18) BITRAGION FRONTAL ARC

The surface distance between the right and left tragion landmarks across the forehead just above the ridges of the eyebrow is measured with a tape.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
26.45	10.41	1ST	28.18 11.09
26.74	10.53	2ND	28.38 11.17
26.93	10.60	3RD	28.52 11.23
27.17	10.70	5TH	28.73 11.31
27.54	10.84	10TH	29.07 11.45
27.78	10.94	15TH	29.31 11.54
27.97	11.01	20TH	29.51 11.62
28.13	11.08	25TH	29.69 11.69
28.28	11.13	30TH	29.85 11.75
28.41	11.18	35TH	29.99 11.81
28.54	11.23	40TH	30.14 11.86
28.66	11.28	45TH	30.27 11.92
28.78	11.33	50TH	30.41 11.97
28.90	11.38	55TH	30.55 12.03
29.02	11.43	60TH	30.69 12.08
29.15	11.48	65TH	30.83 12.14
29.29	11.53	70TH	30.98 12.20
29.43	11.59	75TH	31.15 12.26
29.60	11.65	80TH	31.34 12.34
29.80	11.73	85TH	31.55 12.42
30.06	11.83	90TH	31.82 12.53
30.45	11.99	95TH	32.23 12.69
30.72	12.09	97TH	32.50 12.79
30.92	12.17	98TH	32.69 12.87
31.25	12.30	99TH	33.01 13.00

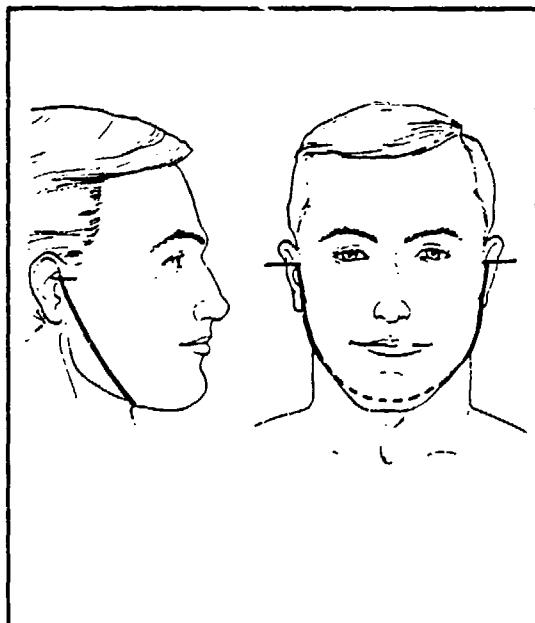
# BITRAGION FRONTAL ARC

FEMALES		MALES	
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>
28.79	MEAN VALUE      11.33	30.43	MEAN VALUE      11.98
.02	SE(MEAN)        .00	.03	SE(MEAN)        .00
.99	STD DEVIATION    .39	1.06	STD DEVIATION    .42
.00	SE(STD DEV)     .00	.02	SE(STD DEV)     .00
25.00	MINIMUM        9.84	27.10	MINIMUM        10.67
32.00	MAXIMUM        12.60	34.80	MAXIMUM        13.70
SYMMETRY---VETA I   = .06		SYMMETRY---VETA I   = .18	
KURTOSIS---VETA II   = 3.22		KURTOSIS---VETA II   = 3.00	
COEF. OF VARIATION   = 3.4%		COEF. OF VARIATION   = 3.5%	
NUMBER OF SUBJECTS   = 2208		NUMBER OF SUBJECTS   = 1774	

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	24.95 - 25.15		1	.06
0	.00			25.15 - 25.35		0	.00
1	.05	2	.09	25.35 - 25.55		2	.11
1	.05	3	.14	25.55 - 25.75		2	.11
3	.14	6	.27	25.75 - 25.95		3	.17
5	.23	11	.50	25.95 - 26.15		5	.28
4	.18	15	.68	26.15 - 26.35		8	.45
12	.54	27	1.22	26.35 - 26.55		17	.96
21	.95	48	2.17	26.55 - 26.75		28	1.58
22	1.00	70	3.17	26.75 - 26.95		56	3.16
33	1.49	103	4.66	26.95 - 27.15		97	5.47
48	2.17	151	6.84	27.15 - 27.35		135	7.61
78	3.53	229	10.37	27.35 - 27.55		200	11.27
80	3.62	309	13.99	27.55 - 27.75		282	15.90
96	4.35	405	18.34	27.75 - 27.95		375	21.14
157	7.11	562	25.45	27.95 - 28.15		477	26.89
174	7.88	736	33.33	28.15 - 28.35		586	33.03
173	7.84	909	41.17	28.35 - 28.55		722	40.70
167	7.56	1076	48.73	28.55 - 28.75		856	48.25
167	7.56	1243	56.30	28.75 - 28.95		975	54.96
197	8.92	1440	65.22	28.95 - 29.15		1104	62.23
158	7.16	1598	72.37	29.15 - 29.35		1213	68.38
148	6.70	1746	79.08	29.35 - 29.55		1325	74.69
104	4.71	1850	83.79	29.55 - 29.75		1428	80.50
92	4.17	1942	87.95	29.75 - 29.95		1514	85.34
80	3.62	2022	91.58	29.95 - 30.15		1586	89.40
61	2.76	2083	94.34	30.15 - 30.35		1630	91.88
38	1.72	2121	96.06	30.35 - 30.55		1674	94.36
25	1.13	2146	97.19	30.55 - 30.75		1700	95.83
16	.72	2162	97.92	30.75 - 30.95		1725	97.24
22	1.00	2184	98.91	30.95 - 31.15		1745	98.37
5	.23	2189	99.14	31.15 - 31.35		1754	98.87
9	.41	2198	99.55	31.35 - 31.55		1762	99.32
6	.27	2204	99.82	31.55 - 31.75		1766	99.55
2	.09	2206	99.91	31.75 - 31.95		1769	99.72
2	.09	2208	100.00	31.95 - 32.15		1769	99.72
				32.15 - 32.35		1772	99.89
				32.35 - 32.55		1773	99.94
				32.55 - 32.75		1773	99.94
				32.75 - 32.95		1773	99.94
				32.95 - 33.15		1773	99.94
				33.15 - 33.35		1773	99.94
				33.35 - 33.55		1773	99.94
				33.55 - 33.75		1773	99.94
				33.75 - 33.95		1773	99.94
				33.95 - 34.15		1773	99.94
				34.15 - 34.35		1773	99.94
				34.35 - 34.55		1773	99.94
				34.55 - 34.75		1773	99.94
				34.75 - 34.95		1774	100.00

## (19) BITRAGION SUBMANDIBULAR ARC

The surface distance between the right and left tragion landmarks across the submandibular landmark at the juncture of the jaw and the neck is measured with a tape. The head is in the Frankfort plane and the teeth are lightly occluded.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
24.78	9.75	1ST	27.15 10.69
25.08	9.87	2ND	27.54 10.84
25.28	9.95	3RD	27.78 10.94
25.55	10.06	5TH	28.11 11.07
25.99	10.23	10TH	28.60 11.26
26.28	10.35	15TH	28.94 11.39
26.52	10.44	20TH	29.20 11.50
26.73	10.52	25TH	29.43 11.59
26.92	10.60	30TH	29.64 11.67
27.09	10.66	35TH	29.83 11.74
27.25	10.73	40TH	30.02 11.82
27.41	10.79	45TH	30.20 11.89
27.57	10.86	50TH	30.38 11.96
27.73	10.92	55TH	30.56 12.03
27.89	10.98	60TH	30.74 12.10
28.06	11.05	65TH	30.94 12.18
28.24	11.12	70TH	31.15 12.26
28.44	11.20	75TH	31.37 12.35
28.66	11.28	80TH	31.63 12.45
28.91	11.38	85TH	31.93 12.57
29.24	11.51	90TH	32.32 12.72
29.74	11.71	95TH	32.90 12.95
30.07	11.84	97TH	33.28 13.10
30.32	11.94	98TH	33.56 13.21
30.73	12.10	99TH	34.01 13.39

# BITRAGION SUBMANDIBULAR ARC

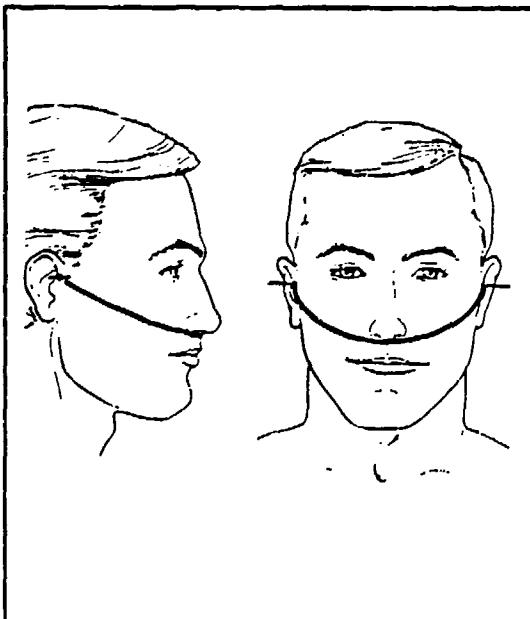
FEMALES		
CM		INCHES
27.60	MEAN VALUE	10.87
.03	SE(MEAN)	.00
1.28	STD DEVIATION	.50
.02	SE(STD DEV)	.00
23.50	MINIMUM	9.25
32.90	MAXIMUM	12.95
SYMMETRY---VETA I	=	.17
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	2208

MALES		
CM		INCHES
30.42	MEAN VALUE	11.98
.03	SE(MEAN)	.00
1.45	STD DEVIATION	.57
.02	SE(STD DEV)	.00
26.10	MINIMUM	10.28
37.30	MAXIMUM	14.69
SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
1	.05	1	.05	23.25	-	23.75		3	.17	3	.17
6	.27	7	.32	23.75	-	24.25		3	.17	6	.34
17	.77	24	1.09	24.25	-	24.75		14	.79	20	1.13
35	1.59	59	2.67	24.75	-	25.25		27	1.52	47	2.65
90	4.08	149	6.75	25.25	-	25.75		62	3.49	109	6.14
178	8.06	327	14.81	25.75	-	26.25		97	5.47	206	11.61
246	11.14	573	25.95	26.25	-	26.75		163	9.19	369	20.80
300	13.59	873	39.54	26.75	-	27.25		206	11.61	575	32.41
344	15.58	1217	55.12	27.25	-	27.75		226	12.74	801	45.15
332	15.04	1549	70.15	27.75	-	28.25		274	15.45	1075	60.60
265	12.00	1614	82.16	28.25	-	28.75		224	12.63	1299	73.22
182	8.24	1996	90.40	28.75	-	29.25		160	9.02	1459	82.24
103	4.66	2099	95.06	29.25	-	29.75		123	6.93	1582	89.18
62	2.81	2161	97.87	29.75	-	30.25		81	4.57	1663	93.74
25	1.13	2186	99.00	30.25	-	30.75		56	3.16	1719	96.90
10	.45	2196	99.46	30.75	-	31.25		31	1.75	1750	98.65
8	.36	2204	99.82	31.25	-	31.75		12	.68	1762	99.32
2	.09	2206	99.91	31.75	-	32.25		8	.45	1770	99.77
1	.05	2207	99.95	32.25	-	32.75		1	.06	1771	99.83
1	.05	2208	100.00	32.75	-	33.25		2	.11	1773	99.94
				33.25	-	33.75		0	.00	1773	99.94
				33.75	-	34.25		0	.00	1773	99.94
				34.25	-	34.75		1	.06	1773	99.94
				34.75	-	35.25		2	.11	1773	99.94
				35.25	-	35.75		0	.00	1773	99.94
				35.75	-	36.25		1	.06	1774	100.00

## (20) BITRAGION SUBNASALE ARC

The surface distance between the right and left tragion landmarks across the subnasale landmark just under the nose is measured with a tape.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
25.11	9.88	1ST	26.72 10.52
25.38	9.99	2ND	26.97 10.62
25.55	10.06	3RD	27.15 10.69
25.78	10.15	5TH	27.39 10.78
26.14	10.29	10TH	27.78 10.94
26.39	10.39	15TH	28.04 11.04
26.60	10.47	20TH	28.26 11.13
26.78	10.54	25TH	28.44 11.20
26.95	10.61	30TH	28.61 11.26
27.11	10.67	35TH	28.77 11.33
27.26	10.73	40TH	28.91 11.38
27.41	10.79	45TH	29.05 11.44
27.57	10.85	50TH	29.19 11.49
27.72	10.91	55TH	29.33 11.55
27.88	10.98	60TH	29.47 11.60
28.05	11.04	65TH	29.62 11.66
28.22	11.11	70TH	29.77 11.72
28.42	11.19	75TH	29.94 11.79
28.63	11.27	80TH	30.13 11.86
28.88	11.37	85TH	30.35 11.95
29.20	11.49	90TH	30.63 12.06
29.64	11.67	95TH	31.06 12.23
29.91	11.78	97TH	31.34 12.34
30.10	11.85	98TH	31.56 12.43
30.36	11.95	99TH	31.92 12.57

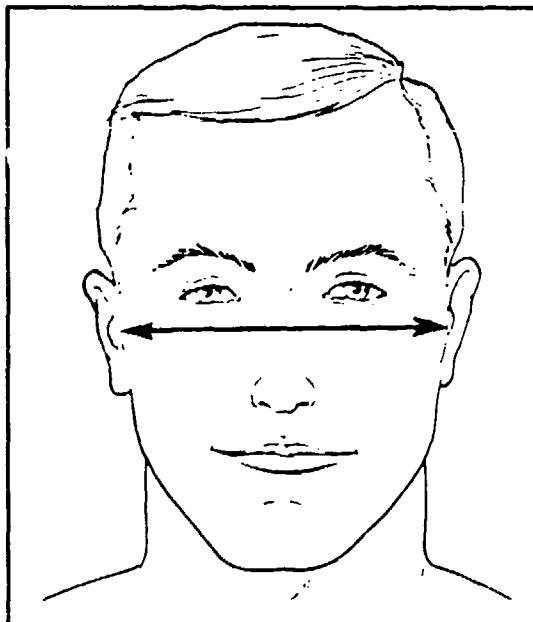
# BITRAGION SUBNASALE ARC

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
27.62	MEAN VALUE	10.87	29.20	MEAN VALUE	11.50
.02	SE(MEAN)	.00	.03	SE(MEAN)	.00
1.17	STD DEVIATION	.46	1.11	STD DEVIATION	.44
.02	SE(STD DEV)	.00	.02	SE(STD DEV)	.00
24.20	MINIMUM	9.53	25.50	MINIMUM	10.04
31.50	MAXIMUM	12.40	32.80	MAXIMUM	12.91
SYMMETRY---VETA I	=	.18	SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	2.84	KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	4.2%	COEF. OF VARIATION	=	3.8%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct
3	.14	3	.14	24.15	- 24.35	1	.06	1	.06
1	.05	4	.18	24.35	- 24.55	1	.06	2	.11
4	.18	8	.36	24.55	- 24.75	1	.06	3	.17
6	.27	14	.63	24.75	- 24.95	1	.06	4	.23
8	.36	22	1.00	24.95	- 25.15	3	.17	7	.39
21	.95	43	1.95	25.15	- 25.35	6	.34	13	.73
30	1.36	73	3.31	25.35	- 25.55	6	.34	19	1.07
43	1.95	116	5.25	25.55	- 25.75	11	.62	30	1.69
35	1.59	111	6.84	25.75	- 25.95	22	1.24	52	2.93
59	2.67	210	9.51	25.95	- 26.15	37	2.09	89	5.02
90	4.08	300	13.59	26.15	- 26.35	38	2.14	127	7.16
111	5.03	411	18.61	26.35	- 26.55	47	2.65	174	9.81
101	4.57	512	23.19	26.55	- 26.75	59	3.33	233	13.13
120	5.43	632	28.62	26.75	- 26.95	75	4.23	308	17.36
173	7.84	805	36.46	26.95	- 27.15	79	4.45	387	21.8?
158	7.16	963	43.61	27.15	- 27.35	103	5.81	490	27.6
143	6.48	1106	50.09	27.35	- 27.55	127	7.16	617	34.1
136	6.16	1242	56.25	27.55	- 27.75	104	5.86	721	40.74
105	4.76	1347	61.01	27.75	- 27.95	132	7.44	853	46.08
165	7.47	1512	68.48	27.95	- 28.15	127	7.16	980	53.74
115	5.21	1627	73.69	28.15	- 28.35	117	6.60	1237	69.73
110	4.98	1737	78.67	28.35	- 28.55	96	5.41	1333	75.14
94	4.26	1831	82.93	28.55	- 28.75	104	5.86	1437	81.00
77	3.49	1908	86.41	28.75	- 28.95	84	4.74	1521	85.74
72	3.26	1980	89.67	28.95	- 29.15	60	3.30	1581	89.12
55	2.49	2035	92.16	29.15	- 29.35	140	7.89	1120	63.1
44	1.99	2079	94.16	29.35	- 29.55	117	6.60	1628	91.7
36	1.63	2115	95.79	29.55	- 29.75	30	1.69	1658	93.46
21	.95	2136	96.74	29.75	- 29.95	33	1.86	1691	95.32
34	1.54	2170	98.28	29.95	- 30.15	2	.11	1774	100.00
19	.86	2189	99.14	30.15	- 30.35	13	.73	1737	97.91
4	.18	2193	99.32	30.35	- 30.55	8	.45	1750	98.65
6	.27	2199	99.59	30.55	- 30.75	5	.28	1758	99.10
4	.18	2203	99.77	30.75	- 30.95	3	.17	1763	99.38
1	.05	2204	99.82	30.95	- 31.15	2	.11	1770	99.77
2	.09	2206	99.91	31.15	- 31.35	2	.11	1772	99.89
2	.09	2208	100.00	31.35	- 31.55				
				31.55	- 31.75				
				31.75	- 31.95				
				31.95	- 32.15				
				32.15	- 32.35				
				32.35	- 32.55				
				32.55	- 32.75				
				32.75	- 32.95				

## (21) BIZYGMATIC BREADTH

The maximum horizontal breadth of the face (between the zygomatic arches) is measured with a spreading caliper.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
12.08	4.75	1ST	12.79 5.03
12.17	4.79	2ND	12.95 5.10
12.23	4.82	3RD	13.04 5.14
12.33	4.85	5TH	13.17 5.19
12.49	4.92	10TH	13.36 5.26
12.61	4.96	15TH	13.48 5.31
12.70	5.00	20TH	13.58 5.35
12.78	5.03	25TH	13.66 5.38
12.86	5.06	30TH	13.74 5.41
12.92	5.09	35TH	13.81 5.44
12.99	5.11	40TH	13.88 5.47
13.05	5.14	45TH	13.95 5.49
13.11	5.16	50TH	14.02 5.52
13.18	5.19	55TH	14.09 5.55
13.24	5.21	60TH	14.16 5.58
13.31	5.24	65TH	14.24 5.61
13.38	5.27	70TH	14.32 5.64
13.45	5.30	75TH	14.41 5.67
13.54	5.33	80TH	14.51 5.71
13.64	5.37	85TH	14.63 5.76
13.77	5.42	90TH	14.78 5.82
13.98	5.50	95TH	15.01 5.91
14.12	5.56	97TH	15.15 5.97
14.24	5.61	98TH	15.26 6.01
14.43	5.68	99TH	15.42 6.07

# BIZYGOMATIC BREADTH

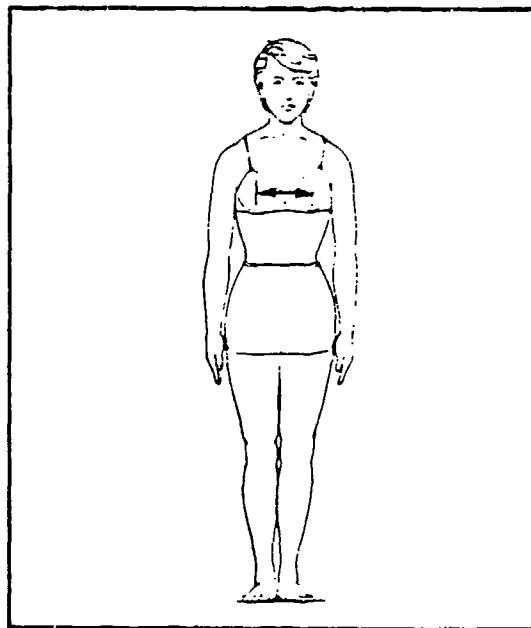
FEMALES		
<u>CM</u>	<u>INCHES</u>	
13.13	MEAN VALUE	5.17
.00	SE(MEAN)	.00
.50	STD DEVIATION	.20
.00	SE(STD DEV)	.00
11.70	MINIMUM	4.61
15.00	MAXIMUM	5.91
SYMMETRY---VETA I	=	.26
KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	3.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
14.05	MEAN VALUE	5.53
.00	SE(MEAN)	.00
.56	STD DEVIATION	.22
.00	SE(STD DEV)	.00
11.80	MINIMUM	4.65
16.10	MAXIMUM	6.34
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.15
COEF. OF VARIATION	=	4.0%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
4	.18	4	.18	11.65 - 11.75			
4	.18	8	.36	11.75 - 11.85		1	.06
5	.23	13	.59	11.85 - 11.95		0	.00
5	.23	18	.82	11.95 - 12.05		0	.00
18	.82	36	1.63	12.05 - 12.15		0	.00
34	1.54	70	3.17	12.15 - 12.25		1	.06
53	2.40	123	5.57	12.25 - 12.35		0	.00
69	3.13	192	8.70	12.35 - 12.45		0	.00
67	3.03	259	11.73	12.45 - 12.55		1	.06
117	5.30	376	17.03	12.55 - 12.65		4	.23
136	6.16	512	23.19	12.65 - 12.75		9	.51
156	7.07	668	30.25	12.75 - 12.85		6	.34
141	6.39	809	36.64	12.85 - 12.95		14	.79
180	8.15	989	44.79	12.95 - 13.05		11	.62
153	7.38	1152	52.17	13.05 - 13.15		36	2.03
178	8.06	1330	60.24	13.15 - 13.25		40	2.25
179	8.11	1509	68.34	13.25 - 13.35		56	3.16
147	6.66	1656	75.00	13.35 - 13.45		53	2.99
122	5.53	1778	80.53	13.45 - 13.55		80	4.51
110	4.28	1888	85.51	13.55 - 13.65		116	6.54
88	3.99	1976	89.49	13.65 - 13.75		132	7.44
61	2.85	2039	92.35	13.75 - 13.85		121	6.82
50	2.26	2089	94.61	13.85 - 13.95		116	6.54
36	1.63	2125	96.24	13.95 - 14.05		121	6.82
21	.95	2146	97.19	14.05 - 14.15		121	6.82
18	.82	2164	98.01	14.15 - 14.25		123	6.93
17	.77	2181	98.78	14.25 - 14.35		111	6.26
7	.32	2188	99.09	14.35 - 14.45		95	5.36
4	.18	2192	99.28	14.45 - 14.55		79	4.45
5	.23	2197	99.50	14.55 - 14.65		66	3.72
2	.09	2199	99.59	14.65 - 14.75		72	4.06
5	.23	2204	99.82	14.75 - 14.85		51	2.87
2	.09	2206	99.91	14.85 - 14.95		30	1.69
2	.09	2208	100.00	14.95 - 15.05		33	1.86
				15.05 - 15.15		25	1.41
				15.15 - 15.25		14	.79
				15.25 - 15.35		10	.56
				15.35 - 15.45		10	.56
				15.45 - 15.55		8	.45
				15.55 - 15.65		0	.00
				15.65 - 15.75		5	.28
				15.75 - 15.85		1	.06
				15.85 - 15.95		0	.00
				15.95 - 16.05		0	.00
				16.05 - 16.15		2	.11

## (22) BUSTPOINT/THELION-BUSTPOINT/THELION BREADTH

The distance between the right and left bustpoint landmarks on women and the center of the nipples (thelion) on men is measured with a beam caliper. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
14.88	5.86	1ST	17.39 6.85
15.25	6.01	2ND	17.83 7.02
15.50	6.10	3RD	18.13 7.14
15.85	6.24	5TH	18.54 7.30
16.41	6.46	10TH	19.18 7.55
16.80	6.61	15TH	19.63 7.73
17.11	6.74	20TH	19.98 7.87
17.38	6.84	25TH	20.29 7.99
17.62	6.94	30TH	20.57 8.10
17.84	7.02	35TH	20.82 8.20
18.05	7.11	40TH	21.07 8.29
18.26	7.19	45TH	21.30 8.39
18.46	7.27	50TH	21.54 8.48
10.66	7.35	55TH	21.77 8.57
18.87	7.43	60TH	22.01 8.67
19.08	7.51	65TH	22.26 8.76
19.31	7.60	70TH	22.52 8.87
19.55	7.70	75TH	22.81 8.98
19.83	7.81	80TH	23.14 9.11
20.15	7.93	85TH	23.53 9.26
20.55	8.09	90TH	24.03 9.46
21.18	8.34	95TH	24.82 9.77
21.59	8.50	97TH	25.36 9.99
21.91	8.63	98TH	25.79 10.15
22.43	8.83	99TH	26.49 10.43

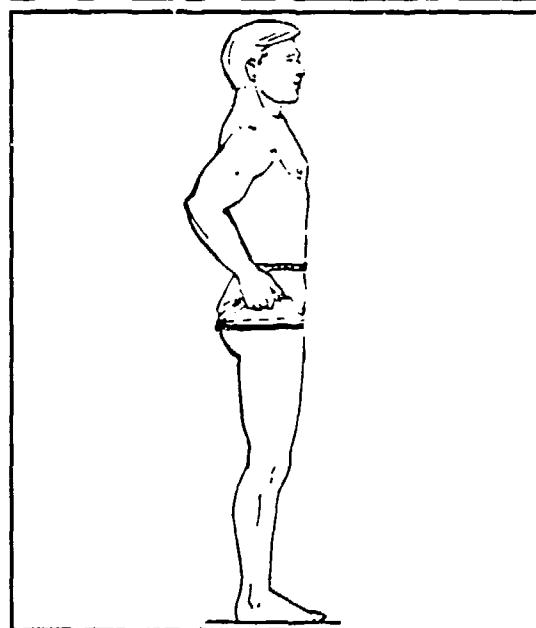
# BUSTPOINT/THELION-BUSTPOINT/THELION BREADTH

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
18.48	MEAN VALUE	7.28	21.59	MEAN VALUE	8.50
.03	SE(MEAN)	.00	.04	SE(MEAN)	.02
1.62	STD DEVIATION	.64	1.89	STD DEVIATION	.74
.02	SE(STD DEV)	.00	.03	SE(STD DEV)	.00
12.80	MINIMUM	5.04	16.50	MINIMUM	6.50
24.10	MAXIMUM	9.49	28.50	MAXIMUM	11.22
SYMMETRY---VETA I	=	.11	SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.05	KURTOSIS---VETA II	=	3.05
COEF. OF VARIATION	=	8.8%	COEF. OF VARIATION	=	8.8%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	12.75 - 13.25			
1	.05	3	.14	13.25 - 13.75			
2	.09	5	.23	13.75 - 14.25			
12	.54	17	.77	14.25 - 14.75			
23	1.04	40	1.81	14.75 - 15.25			
51	2.31	91	4.12	15.25 - 15.75			
89	4.03	180	8.15	15.75 - 16.25			
131	5.93	311	14.09	16.25 - 16.75			
171	7.74	482	21.83	16.75 - 17.25			
250	11.32	732	33.15	17.25 - 17.75			
253	11.46	985	44.61	17.75 - 18.25			
281	12.73	1266	57.34	18.25 - 18.75			
254	11.50	1520	68.84	18.75 - 19.25			
218	9.87	1738	78.71	19.25 - 19.75			
164	7.43	1902	86.14	19.75 - 20.25			
131	5.93	2033	92.07	20.25 - 20.75			
72	3.26	2105	95.34	20.75 - 21.25			
47	2.13	2152	97.46	21.25 - 21.75			
27	1.22	2179	98.69	21.75 - 22.25			
13	.59	2192	99.28	22.25 - 22.75			
11	.50	2203	99.77	22.75 - 23.25			
3	.14	2206	99.91	23.25 - 23.75			
2	.09	2208	100.00	23.75 - 24.25			
				24.25 - 24.75	55	3.10	1685 94.9
				24.75 - 25.25	33	1.86	1718 96.84
				25.25 - 25.75	18	1.01	1736 97.86
				25.75 - 26.25	14	.79	1750 98.65
				26.25 - 26.75	16	.90	1766 99.55
				26.75 - 27.25	6	.34	1772 99.89
				27.25 - 27.75	0	.00	1772 99.89
				27.75 - 28.25	0	.00	1772 99.89
				28.25 - 28.75	2	.11	1774 100.00

## (23) BUTTOCK CIRCUMFERENCE

The horizontal circumference of the trunk at the level of the maximum protrusion of the right buttock is measured with a tape. The subject stands erect with the heels together and the weight equally distributed on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
84.14	33.13	84.76	33.37
85.25	33.56	86.34	33.99
86.04	33.87	87.31	34.38
87.18	34.32	88.63	34.89
89.09	35.08	90.64	35.69
90.45	35.61	92.02	36.23
91.55	36.04	93.12	36.66
92.51	36.42	94.08	37.04
93.38	36.77	94.96	37.38
94.20	37.08	95.78	37.71
94.97	37.39	96.57	38.02
95.72	37.69	97.34	38.32
96.47	37.98	98.12	38.63
97.23	38.28	98.91	38.94
97.99	38.58	99.71	39.26
98.79	38.89	100.56	39.59
99.63	39.23	101.46	39.94
100.56	39.59	102.45	40.33
101.61	40.00	103.56	40.77
102.85	40.49	104.87	41.29
104.47	41.13	106.54	41.95
107.00	42.13	109.03	42.92
108.76	42.82	110.63	43.55
110.13	43.36	111.79	44.01
112.45	44.27	113.57	44.71

# BUTTOCK CIRCUMFERENCE

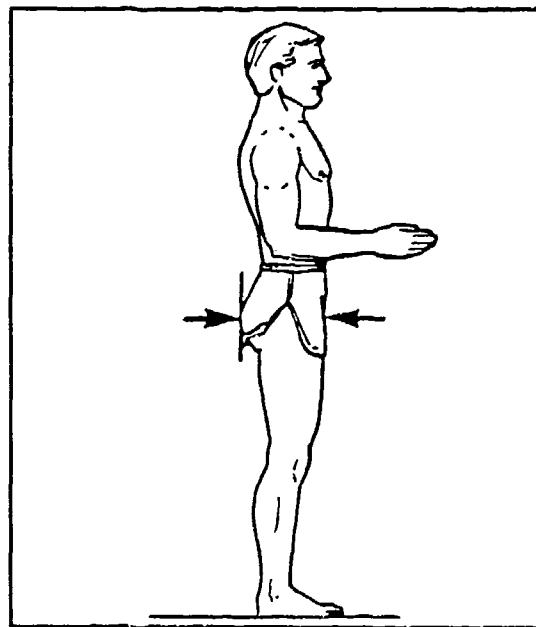
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
96.69	MEAN VALUE	38.07
.13	SE(MEAN)	.05
6.02	STD DEVIATION	2.37
.09	SE(STD DEV)	.04
78.70	MINIMUM	30.98
118.90	MAXIMUM	46.81
SYMMETRY---VETA I	=	.28
KURTOSIS---VETA II	=	3.08
COEF. OF VARIATION	=	6.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
98.37	MEAN VALUE	38.73
.15	SE(MEAN)	.06
6.22	STD DEVIATION	2.45
.10	SE(STD DEV)	.04
80.50	MINIMUM	31.69
123.90	MAXIMUM	48.78
SYMMETRY---VETA I	=	.23
KURTOSIS---VETA II	=	3.10
COEF. OF VARIATION	=	6.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	78.55 - 79.55		1	.06
1	.05	2	.09	79.55 - 80.55		2	.11
3	.14	5	.23	80.55 - 81.55		3	.17
3	.14	8	.36	81.55 - 82.55		4	.23
8	.36	16	.72	82.55 - 83.55		3	.17
13	.59	29	1.31	83.55 - 84.55		14	.79
20	.91	49	2.22	84.55 - 85.55		13	.73
24	1.09	73	3.31	85.55 - 86.55		18	1.01
51	2.31	124	5.62	86.55 - 87.55		22	1.24
61	2.76	185	8.38	87.55 - 88.55		38	2.14
73	3.31	258	11.68	88.55 - 89.55		47	2.65
92	4.17	350	15.85	89.55 - 90.55		63	3.55
100	4.53	450	20.38	90.55 - 91.55		101	5.69
102	4.62	552	25.00	91.55 - 92.55		80	4.51
140	6.34	692	31.34	92.55 - 93.55		91	5.13
139	6.30	831	37.64	93.55 - 94.55		108	6.09
154	6.97	985	44.61	94.55 - 95.55		108	6.09
136	6.16	1121	50.77	95.55 - 96.55		108	6.09
144	6.52	1265	57.29	96.55 - 97.55		105	5.92
143	6.48	1408	63.77	97.55 - 98.55		111	6.26
116	5.25	1524	69.02	98.55 - 99.55		106	5.98
118	5.34	1642	74.37	99.55 - 100.55		103	5.81
97	4.39	1739	78.76	100.55 - 101.55		100	5.64
112	5.07	1851	83.83	101.55 - 102.55		97	5.47
73	3.31	1924	87.14	102.55 - 103.55		82	4.62
75	3.40	1999	90.53	103.55 - 104.55		74	4.17
50	2.26	2049	92.80	104.55 - 105.55		52	2.93
39	1.77	2088	94.57	105.55 - 106.55		56	3.16
30	1.36	2118	95.92	106.55 - 107.55		37	2.09
29	1.31	2147	97.24	107.55 - 108.55		42	2.37
7	.32	2154	97.55	108.55 - 109.55		21	1.18
14	.63	2168	98.19	109.55 - 110.55		18	1.01
8	.36	2176	98.55	110.55 - 111.55		16	.90
9	.41	2185	98.96	111.55 - 112.55		9	.51
7	.32	2192	99.28	112.55 - 113.55		14	.79
7	.32	2199	99.59	113.55 - 114.55		7	.39
4	.18	2203	99.77	114.55 - 115.55		2	.11
0	.00	2203	99.77	115.55 - 116.55		1	.06
4	.18	2207	99.95	116.55 - 117.55		2	.11
0	.00	2207	99.95	117.55 - 118.55		0	.00
1	.05	2208	100.00	118.55 - 119.55		0	.00
				119.55 - 120.55		0	.00
				120.55 - 121.55		0	.00
				121.55 - 122.55		1	.06
				122.55 - 123.55		1	.06
				123.55 - 124.55		1	.06
						1774	100.00

## (24) BUTTOCK DEPTH

The horizontal depth of the torso at the level of the maximum protrusion of the right buttock is measured using a beam caliper with a fixed paddle blade. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
18.52	7.29	1ST	20.43 8.04
18.93	7.45	2ND	20.90 8.23
19.21	7.56	3RD	21.20 8.35
19.59	7.71	5TH	21.62 8.51
20.21	7.96	10TH	22.27 8.77
20.64	8.13	15TH	22.72 8.95
20.99	8.26	20TH	23.09 9.09
21.29	8.38	25TH	23.41 9.22
21.56	8.49	30TH	23.71 9.33
21.81	8.59	35TH	23.98 9.44
22.05	8.68	40TH	24.25 9.55
22.29	8.78	45TH	24.51 9.65
22.53	8.87	50TH	24.77 9.75
22.77	8.97	55TH	25.04 9.86
23.03	9.07	60TH	25.31 9.96
23.29	9.17	65TH	25.59 10.08
23.58	9.28	70TH	25.90 10.20
23.91	9.41	75TH	26.23 10.33
24.29	9.56	80TH	26.61 10.48
24.75	9.74	85TH	27.05 10.65
25.39	10.00	90TH	27.61 10.87
26.45	10.41	95TH	28.43 11.19
27.24	10.72	97TH	28.97 11.40
27.87	10.97	98TH	29.36 11.56
28.98	11.41	99TH	29.95 11.79

# BUTTOCK DEPTH

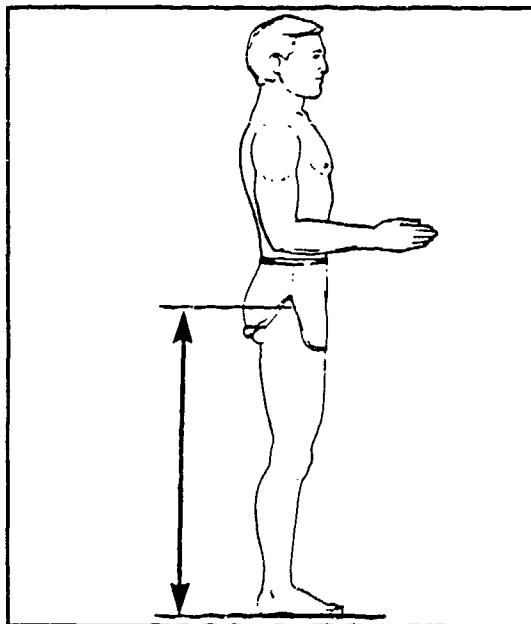
FEMALES		
<u>CM</u>	<u>INCHES</u>	
22.71	MEAN VALUE	8.94
.04	SE(MEAN)	.02
2.10	STD DEVIATION	.83
.03	SE(STD DEV)	.00
16.90	MINIMUM	6.65
33.40	MAXIMUM	13.15
SYMMETRY---VETA I	=	.62
KURTOSIS---VETA II	=	3.99
COEF. OF VARIATION	=	9.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
24.86	MEAN VALUE	9.79
.05	SE(MEAN)	.02
2.07	STD DEVIATION	.82
.03	SE(STD DEV)	.00
19.30	MINIMUM	7.60
35.60	MAXIMUM	14.02
SYMMETRY---VETA I	=	.32
KURTOSIS---VETA II	=	3.35
COEF. OF VARIATION	=	8.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
3	.14	3	.14	16.75 - 17.25			
5	.23	8	.36	17.25 - 17.75			
6	.27	14	.63	17.75 - 18.25			
15	.68	29	1.31	18.25 - 18.75			
40	1.81	59	3.13	18.75 - 19.25			
64	2.90	133	6.02	19.25 - 19.75			
100	4.53	233	10.55	19.75 - 20.25			
136	6.16	369	16.71	20.25 - 20.75			
159	7.20	528	23.91	20.75 - 21.25			
203	9.19	731	33.11	21.25 - 21.75			
240	10.87	971	43.98	21.75 - 22.25			
225	10.19	1196	54.17	22.25 - 22.75			
222	10.05	1418	64.22	22.75 - 23.25			
198	8.97	1616	73.19	23.25 - 23.75			
166	7.52	1782	80.71	23.75 - 24.25			
103	4.66	1885	85.37	24.25 - 24.75			
78	3.53	1963	88.90	24.75 - 25.25			
63	2.85	2026	91.76	25.25 - 25.75			
58	2.63	2084	94.38	25.75 - 26.25			
29	1.31	2113	95.70	26.25 - 26.75			
31	1.40	2144	97.10	26.75 - 27.25			
15	.68	2159	97.78	27.25 - 27.75			
12	.54	2171	98.32	27.75 - 28.25			
11	.50	2182	98.82	28.25 - 28.75			
11	.50	2193	99.32	28.75 - 29.25			
4	.18	2197	99.50	29.25 - 29.75			
5	.23	2202	99.73	29.75 - 30.25			
5	.23	2207	99.95	30.25 - 30.75			
0	.00	2207	99.95	30.75 - 31.25			
0	.00	2207	99.95	31.25 - 31.75			
0	.00	2207	99.95	31.75 - 32.25			
0	.00	2207	99.95	32.25 - 32.75			
0	.00	2207	99.95	32.75 - 33.25			
1	.05	2208	100.00	33.25 - 33.75			
				33.75 - 34.25			
				34.25 - 34.75			
				34.75 - 35.25			
				35.25 - 35.75			

## (25) BUTTOCK HEIGHT

The vertical distance between a standing surface and the level of the maximum protrusion of the right buttock is measured with an anthropometer at the right side of the thigh. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
73.89	29.09	1ST	78.43 30.88
75.02	29.53	2ND	79.71 31.38
75.73	29.81	3RD	80.48 31.68
76.69	30.19	5TH	81.48 32.08
78.18	30.78	10TH	82.98 32.67
79.20	31.18	15TH	83.99 33.07
80.01	31.50	20TH	84.79 33.38
80.72	31.78	25TH	85.49 33.66
81.36	32.03	30TH	86.13 33.91
81.96	32.27	35TH	86.74 34.15
82.54	32.50	40TH	87.32 34.38
83.10	32.72	45TH	87.89 34.60
83.66	32.94	50TH	88.47 34.83
84.23	33.16	55TH	89.06 35.06
84.81	33.39	60TH	89.66 35.30
85.42	33.63	65TH	90.30 35.55
86.07	33.88	70TH	90.99 35.82
86.77	34.16	75TH	91.75 36.12
87.57	34.48	80TH	92.61 36.46
88.51	34.85	85TH	93.62 36.86
89.71	35.32	90TH	94.93 37.37
91.50	36.02	95TH	96.89 38.14
92.67	36.48	97TH	98.15 38.64
93.53	36.82	98TH	99.06 39.00
94.86	37.35	99TH	100.46 39.55

# BUTTOCK HEIGHT

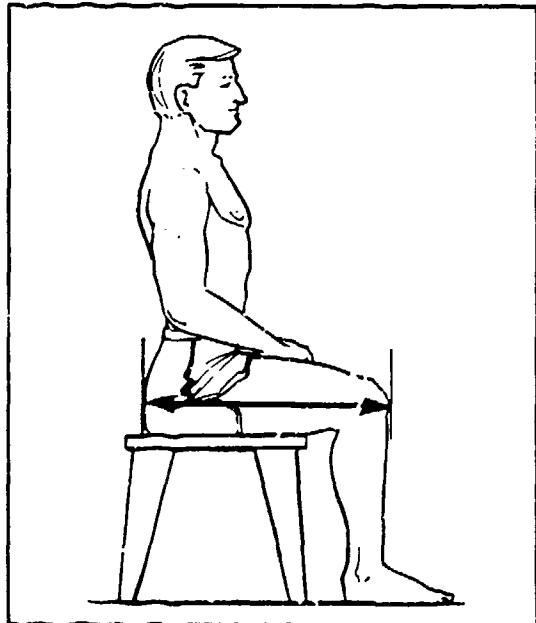
FEMALES		
CM	MEAN VALUE	INCHES
83.83	.10	33.01
	SE(MEAN)	.04
4.52	STD DEVIATION	1.78
.07	SE(STD DEV)	.03
65.30	MINIMUM	25.71
102.20	MAXIMUM	40.24
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2209

MALES		
CM	MEAN VALUE	INCHES
88.74	.11	34.94
	SE(MEAN)	.04
4.71	STD DEVIATION	1.85
.08	SE(STD DEV)	.03
71.50	MINIMUM	28.15
111.40	MAXIMUM	43.86
SYMMETRY---VETA I	=	.31
KURTOSIS---VETA II	=	3.46
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	64.55 - 65.55		1	.06
0	.00	1	.05	65.55 - 66.55		0	.00
0	.00	1	.05	66.55 - 67.55		0	.00
0	.00	1	.05	67.55 - 68.55		1	.06
1	.05	2	.09	68.55 - 69.55		0	.00
0	.00	2	.09	69.55 - 70.55		0	.00
3	.14	5	.23	70.55 - 71.55		1	.06
4	.18	9	.41	71.55 - 72.55		0	.00
10	.45	19	.86	72.55 - 73.55		0	.00
16	.72	35	1.59	73.55 - 74.55		1	.06
26	1.18	61	2.76	74.55 - 75.55		0	.00
39	1.77	100	4.53	75.55 - 76.55		3	.17
63	2.85	163	7.38	76.55 - 77.55		6	.34
85	3.85	248	11.23	77.55 - 78.55		8	.45
127	5.75	375	16.98	78.55 - 79.55		14	.79
139	6.30	514	23.28	79.55 - 80.55		19	1.07
196	8.88	710	32.16	80.55 - 81.55		33	1.86
187	8.47	897	40.63	81.55 - 82.55		51	2.87
181	8.20	1078	48.82	82.55 - 83.55		83	4.68
199	9.01	1277	57.84	83.55 - 84.55		106	5.98
176	7.97	1453	65.81	84.55 - 85.55		140	7.89
170	7.70	1623	73.51	85.55 - 86.55		145	8.17
153	6.93	1776	80.43	86.55 - 87.55		146	8.23
101	4.57	1877	85.01	87.55 - 88.55		139	7.84
94	4.26	1971	89.27	88.55 - 89.55		143	8.06
71	3.22	2042	92.48	89.55 - 90.55		144	8.12
58	2.63	2100	95.11	90.55 - 91.55		120	6.76
43	1.95	2143	97.06	91.55 - 92.55		101	5.69
21	.95	2164	98.01	92.55 - 93.55		89	5.02
17	.77	2181	98.78	93.55 - 94.55		84	4.74
10	.45	2191	99.23	94.55 - 95.55		55	3.16
4	.18	2195	99.41	95.55 - 96.55		51	2.87
6	.27	2201	99.68	96.55 - 97.55		25	1.41
2	.09	2203	99.77	97.55 - 98.55		20	1.13
2	.09	2205	99.86	98.55 - 99.55		16	.90
2	.09	2207	99.95	99.55 - 100.55		14	.79
0	.00	2207	99.95	100.55 - 101.55		7	.39
1	.05	2208	100.00	101.55 - 102.55		1	.06
				102.55 - 103.55		3	.17
				103.55 - 104.55		1	.06
				104.55 - 105.55		1	.06
				105.55 - 106.55		1	.06
				106.55 - 107.55		0	.00
				107.55 - 108.55		0	.00
				108.55 - 109.55		1	.06
				109.55 - 110.55		0	.00
				110.55 - 111.55		1	.06

## (26) BUTTOCK-KNEE LENGTH

The horizontal distance between a buttock plate placed at the most posterior point on either buttock and the anterior point of the right knee is measured with an anthropometer. The subject sits erect. The thighs are parallel and the knees flexed 90 degrees with the feet in line with the thighs.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
52.13	20.54	55.07	21.68
53.03	20.88	55.81	21.97
53.54	21.08	56.28	22.16
54.21	21.34	56.90	22.40
55.20	21.73	57.87	22.78
55.87	22.00	58.54	23.05
56.39	22.20	59.08	23.26
56.85	22.38	59.55	23.45
57.27	22.55	59.98	23.62
57.66	22.70	60.39	23.77
58.04	22.85	60.78	23.93
58.41	23.00	61.16	24.08
58.78	23.14	61.54	24.23
59.15	23.29	61.93	24.38
59.54	23.44	62.32	24.54
59.95	23.60	62.73	24.70
60.38	23.77	63.17	24.87
60.85	23.96	63.65	25.06
61.39	24.17	64.19	25.27
62.01	24.41	64.81	25.52
62.81	24.73	65.60	25.83
63.98	25.19	66.74	26.28
64.72	25.48	67.45	26.56
65.24	25.69	67.95	26.75
66.02	25.99	68.69	27.04

# BUTTOCK-KNEE LENGTH

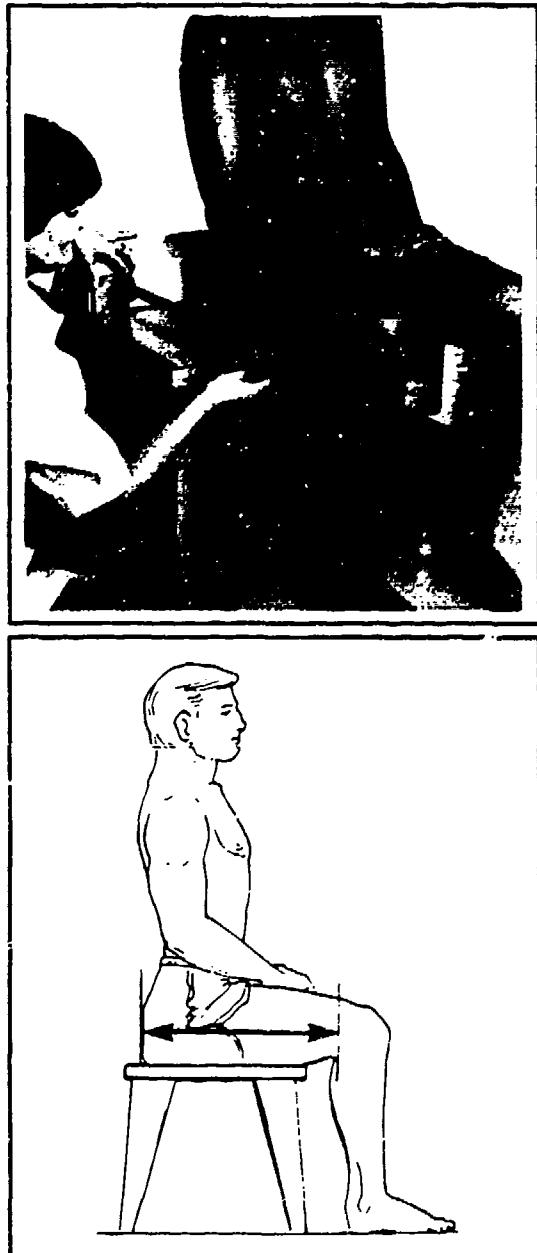
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
58.89	MEAN VALUE	23.19
.06	SE(MEAN)	.02
2.96	STD DEVIATION	1.17
.04	SE(STD DEV)	.02
49.10	MINIMUM	19.33
69.10	MAXIMUM	27.20
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	2.99
COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
61.64	MEAN VALUE	24.27
.07	SE(MEAN)	.03
2.99	STD DEVIATION	1.18
.05	SE(STD DEV)	.02
50.60	MINIMUM	19.92
72.30	MAXIMUM	28.46
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	2.97
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	48.75 - 49.25		1	.06
1	.05	2	.09	49.25 - 49.75		1	.06
0	.00	2	.09	49.75 - 50.25			
3	.14	5	.23	50.25 - 50.75			
3	.14	8	.36	50.75 - 51.25			
7	.32	15	.68	51.25 - 51.75			
7	.32	22	1.00	51.75 - 52.25			
14	.63	36	1.63	52.25 - 52.75			
19	.86	55	2.49	52.75 - 53.25			
27	1.22	82	3.71	53.25 - 53.75			
28	1.27	110	4.98	53.75 - 54.25			
49	2.22	159	7.20	54.25 - 54.75			
65	2.94	224	10.14	54.75 - 55.25			
83	3.76	307	13.90	55.25 - 55.75			
112	5.07	419	18.98	55.75 - 56.25			
93	4.21	512	23.19	56.25 - 56.75			
133	6.02	645	29.21	56.75 - 57.25			
141	6.39	786	35.60	57.25 - 57.75			
145	6.57	931	42.16	57.75 - 58.25			
184	8.33	1115	50.50	58.25 - 58.75			
141	6.39	1256	56.88	58.75 - 59.25			
139	6.30	1395	63.18	59.25 - 59.75			
118	5.34	1513	68.52	59.75 - 60.25			
130	5.89	1643	74.41	60.25 - 60.75			
96	4.35	1739	78.76	60.75 - 61.25			
88	3.99	1827	82.74	61.25 - 61.75			
87	3.94	1914	86.68	61.75 - 62.25			
64	2.90	1978	89.58	61.75 - 62.25			
53	2.40	2031	91.98	62.25 - 62.75			
46	2.08	2077	94.07	62.75 - 63.25			
39	1.77	2116	95.83	63.25 - 63.75			
27	1.22	2143	97.06	63.75 - 64.25			
23	1.04	2166	98.10	64.25 - 64.75			
15	.68	2181	98.78	64.75 - 65.25			
9	.41	2190	99.18	65.25 - 66.25			
8	.36	2198	99.55	66.25 - 66.75			
2	.09	2200	99.64	66.75 - 67.25			
3	.14	2203	99.77	67.25 - 67.75			
4	.18	2207	99.95	67.75 - 68.25			
0	.00	2207	99.95	68.25 - 68.75			
1	.05	2208	100.00	68.75 - 69.25			
				69.25 - 69.75			
				69.75 - 70.25			
				70.25 - 70.75			
				70.75 - 71.25			
				71.25 - 71.75			
				71.75 - 72.25			
				72.25 - 72.75			

## (27) BUTTOCK-POPLITEAL LENGTH

The horizontal distance between a buttock plate placed at the most postero point on either buttock and the back of the right knee (the popliteal fossa at the dorsal juncture of the calf and thigh) is measured with an anthropometer. The subject sits erect. The thighs are parallel and the knees flexed 90 degrees with the feet in line with the thighs.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
42.10	16.57	44.13	17.37
42.91	16.89	44.81	17.64
43.39	17.03	45.24	17.81
44.00	17.32	45.81	18.04
44.89	17.67	46.70	18.39
45.47	17.90	47.30	18.62
45.93	18.08	47.79	18.81
46.34	18.24	48.21	18.98
46.71	18.39	48.59	19.13
47.05	18.52	48.95	19.27
47.39	18.66	49.29	19.41
47.72	18.79	49.63	19.54
48.05	18.92	49.96	19.67
48.39	19.05	50.30	19.80
48.73	19.19	50.65	19.94
49.10	19.33	51.01	20.08
49.49	19.49	51.39	20.23
49.93	19.66	51.81	20.40
50.42	19.85	52.28	20.58
50.99	20.07	52.83	20.80
51.72	20.36	53.53	21.07
52.77	20.78	54.55	21.46
53.43	21.03	55.21	21.74
53.88	21.21	55.68	21.92
54.54	21.47	56.40	22.21

# BUTTOCK-POPLITEAL LENGTH

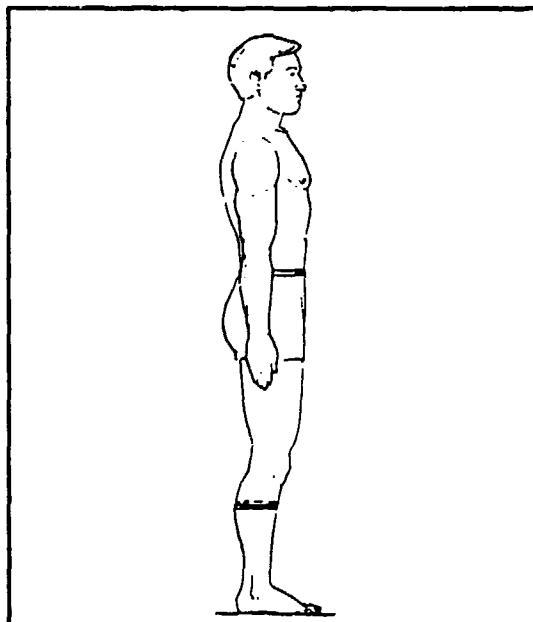
FEMALES		
<u>CM</u>	<u>INCHES</u>	
48.17	MEAN VALUE	18.96
.06	SE(MEAN)	.02
2.66	STD DEVIATION	1.05
.04	SE(STD DEV)	.02
39.40	MINIMUM	15.51
57.80	MAXIMUM	22.76
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	2.96
COEF. OF VARIATION	=	5.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
50.04	MEAN VALUE	19.70
.06	SE(MEAN)	.02
2.66	STD DEVIATION	1.05
.04	SE(STD DEV)	.02
40.10	MINIMUM	15.79
59.70	MAXIMUM	23.50
SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	39.25	-	39.75	
1	.05	2	.09	39.75	-	40.25	1
3	.14	5	.23	40.25	-	40.75	1
5	.23	10	.45	40.75	-	41.25	0
4	.18	14	.63	41.25	-	41.75	1
13	.59	27	1.22	41.75	-	42.25	1
14	.63	41	1.86	42.25	-	42.75	0
13	.59	54	2.45	42.75	-	43.25	2
24	1.09	78	3.53	43.25	-	43.75	4
51	2.31	129	5.84	43.75	-	44.25	9
77	3.49	206	9.33	44.25	-	44.75	14
96	4.35	302	13.68	44.75	-	45.25	24
96	4.35	398	18.03	45.25	-	45.75	27
134	6.07	532	24.09	45.75	-	46.25	39
142	6.43	674	30.53	46.25	-	46.75	70
158	7.16	832	37.68	46.75	-	47.25	62
168	7.61	1000	45.29	47.25	-	47.75	80
173	7.84	1173	53.13	47.75	-	48.25	112
166	7.52	1339	60.64	48.25	-	48.75	118
121	5.48	1460	66.12	48.75	-	49.25	123
148	6.70	1608	72.83	49.25	-	49.75	137
124	5.62	1732	78.44	49.75	-	50.25	138
112	5.07	1844	83.51	50.25	-	50.75	135
81	3.67	1925	87.18	50.75	-	51.25	127
68	3.08	1993	90.26	51.25	-	51.75	107
58	2.63	2051	92.89	51.75	-	52.25	80
43	1.95	2094	94.84	52.25	-	52.75	84
37	1.68	2131	96.51	52.75	-	53.25	77
30	1.36	2161	97.87	53.25	-	53.75	44
21	.95	2182	98.82	53.75	-	54.25	45
6	.27	2188	99.09	54.25	-	54.75	30
11	.50	2199	99.59	54.75	-	55.25	28
3	.14	2202	99.73	55.25	-	55.75	24
4	.18	2206	99.91	55.75	-	56.25	10
0	.00	2206	99.91	56.25	-	56.75	9
1	.05	2207	99.95	56.75	-	57.25	7
0	.00	2207	99.95	57.25	-	57.75	1
1	.05	2208	100.00	57.75	-	58.25	1
				58.25	-	58.75	0
				58.75	-	59.25	0
				59.25	-	59.75	2

## (28) CALF CIRCUMFERENCE

The maximum horizontal circumference of the right calf is measured with a tape. The subject stands erect with the heels approximately 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
30.12	11.86	1ST	32.13 12.65
30.62	12.05	2ND	32.71 12.88
30.97	12.19	3RD	33.10 13.03
31.46	12.39	5TH	33.64 13.25
32.27	12.70	10TH	34.52 13.59
32.83	12.92	15TH	35.13 13.83
33.28	13.10	20TH	35.62 14.03
33.67	13.25	25TH	36.05 14.19
34.02	13.39	30TH	36.43 14.34
34.34	13.52	35TH	36.79 14.48
34.64	13.64	40TH	37.13 14.62
34.93	13.75	45TH	37.46 14.75
35.22	13.87	50TH	37.78 14.87
35.51	13.98	55TH	38.11 15.00
35.80	14.10	60TH	38.43 15.13
36.10	14.21	65TH	38.77 15.26
36.42	14.34	70TH	39.13 15.41
36.77	14.47	75TH	39.52 15.56
37.15	14.63	80TH	39.95 15.73
37.60	14.80	85TH	40.46 15.93
38.19	15.03	90TH	41.10 16.18
39.09	15.39	95TH	42.07 16.56
39.72	15.64	97TH	42.71 16.82
40.21	15.83	98TH	43.19 17.01
41.03	16.15	99TH	43.97 17.31

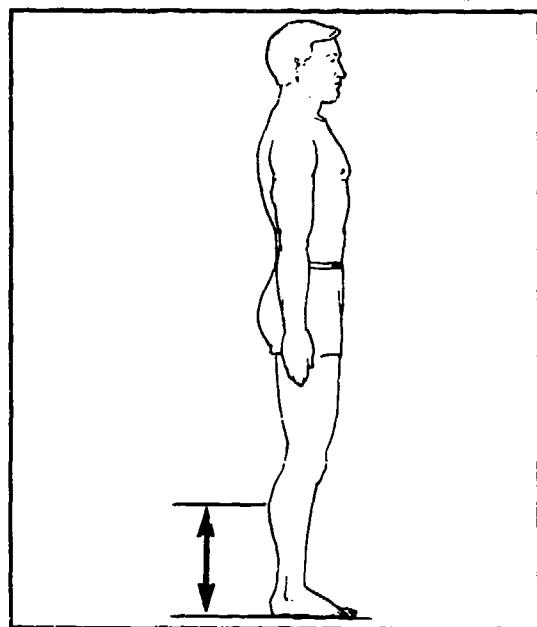
# CALF CIRCUMFERENCE

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
35.24	MEAN VALUE	13.87	37.81	MEAN VALUE	14.88
.05	SE(MEAN)	.02	.06	SE(MEAN)	.02
2.32	STD DEVIATION	.91	2.54	STD DEVIATION	1.00
.03	SE(STD DEV)	.00	.04	SE(STD DEV)	.02
28.50	MINIMUM	11.22	30.40	MINIMUM	11.97
45.90	MAXIMUM	18.07	47.00	MAXIMUM	18.50
SYMMETRY---VETA I	=	.19	SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	3.26	KURTOSIS---VETA II	=	2.96
COEF. OF VARIATION	=	6.6%	COEF. OF VARIATION	=	6.7%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct
1	.05	1	.05	28.25	-	28.75			
4	.18	5	.23	28.75	-	29.25			
6	.27	11	.50	29.25	-	29.75			
14	.63	25	1.13	29.75	-	30.25			
31	1.40	56	2.54	30.25	-	30.75	4	.23	.23
26	1.18	82	3.71	30.75	-	31.25	2	.11	.34
52	2.36	134	6.07	31.25	-	31.75	3	.17	.51
75	3.40	209	9.47	31.75	-	32.25	13	.73	1.24
101	4.57	310	14.04	32.25	-	32.75	13	.73	1.97
134	6.07	444	20.11	32.75	-	33.25	25	1.41	3.38
139	6.30	583	26.40	33.25	-	33.75	37	2.09	5.47
173	7.84	756	34.24	33.75	-	34.25	40	2.25	7.72
161	7.29	917	41.53	34.25	-	34.75	75	4.23	11.95
177	8.02	1094	49.55	34.75	-	35.25	71	4.00	15.95
205	9.28	1299	58.83	35.25	-	35.75	97	5.47	21.42
193	8.74	1492	67.57	35.75	-	36.25	113	6.37	27.79
155	7.02	1647	74.59	36.25	-	36.75	120	6.76	34.55
159	7.20	1806	81.79	36.75	-	37.25	135	7.61	42.16
111	5.03	1917	86.82	37.25	-	37.75	119	6.71	48.87
87	3.94	2004	90.76	37.75	-	38.25	146	8.23	57.10
56	2.54	2060	93.30	38.25	-	38.75	135	7.61	64.71
52	2.36	2112	95.65	38.75	-	39.25	125	7.05	71.76
31	1.40	2143	97.06	39.25	-	39.75	101	5.69	77.45
21	.95	2164	98.01	39.75	-	40.25	97	5.47	82.92
17	.77	2181	98.78	40.25	-	40.75	87	4.90	87.82
10	.45	2191	99.23	40.75	-	41.25	60	3.38	91.21
8	.36	2199	99.59	41.25	-	41.75	50	2.82	94.02
3	.14	2202	99.73	41.75	-	42.25	31	1.75	95.77
2	.09	2204	99.82	42.25	-	42.75	22	1.24	97.01
2	.09	2206	99.91	42.75	-	43.25	20	1.13	98.14
0	.00	2206	99.91	43.25	-	43.75	13	.73	98.87
0	.00	2206	99.91	43.75	-	44.25	5	.28	99.15
0	.00	2206	99.91	44.25	-	44.75	9	.51	99.66
0	.00	2206	99.91	44.75	-	45.25	3	.17	99.83
1	.05	2207	99.95	45.25	-	45.75	0	.00	99.83
1	.05	2208	100.00	45.75	-	46.25	1	.06	99.89
				46.25	-	46.75	1	.06	99.94
				46.75	-	47.25	1	.06	100.00

## (29) CALF HEIGHT

The vertical distance between a standing surface and the level of the maximum circumference of the right calf is measured with an anthropometer. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
26.48	10.42	1ST	30.24 11.91
26.99	10.63	2ND	30.75 12.11
27.33	10.76	3RD	31.09 12.24
27.82	10.95	5TH	31.57 12.43
28.60	11.26	10TH	32.33 12.73
29.15	11.47	15TH	32.87 12.94
29.58	11.65	20TH	33.31 13.11
29.97	11.80	25TH	33.69 13.26
30.31	11.93	30TH	34.03 13.40
30.63	12.06	35TH	34.36 13.53
30.94	12.18	40TH	34.67 13.65
31.24	12.30	45TH	34.97 13.77
31.54	12.42	50TH	35.27 13.89
31.83	12.53	55TH	35.58 14.01
32.14	12.65	60TH	35.89 14.13
32.46	12.78	65TH	36.21 14.26
32.79	12.91	70TH	36.55 14.39
33.16	13.06	75TH	36.93 14.54
33.58	13.22	80TH	37.35 14.70
34.07	13.41	85TH	37.83 14.90
34.71	13.67	90TH	38.46 15.14
35.71	14.06	95TH	39.39 15.51
36.40	14.33	97TH	40.00 15.75
36.92	14.54	98TH	40.45 15.92
37.80	14.88	99TH	41.16 16.20

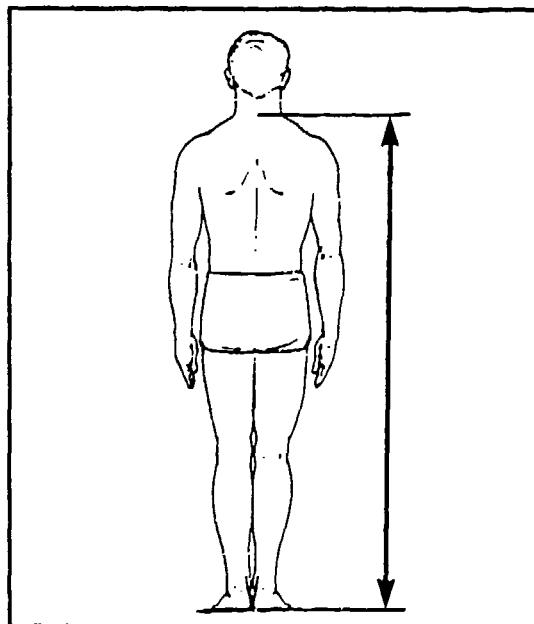
# CALF HEIGHT

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
31.61	MEAN VALUE	12.45	35.34	MEAN VALUE	13.91
.05	SE(MEAN)	.02	.06	SE(MEAN)	.02
2.40	STD DEVIATION	.94	2.37	STD DEVIATION	.93
.04	SE(STD DEV)	.00	.04	SE(STD DEV)	.02
23.60	MINIMUM	9.29	27.10	MINIMUM	10.67
41.30	MAXIMUM	16.26	44.20	MAXIMUM	17.40
SYMMETRY---VETA I	=	.26	SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.19	KURTOSIS---VETA II	=	3.09
COEF. OF VARIATION	=	7.64	COEF. OF VARIATION	=	6.7%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct
1	.05	1	.05	23.25 - 23.75		1	.06	1	.06
0	.00	1	.05	23.75 - 24.25		1	.06	2	.11
0	.00	1	.05	24.25 - 24.75		1	.06	3	.17
2	.09	3	.14	24.75 - 25.25		0	.00	3	.17
5	.23	8	.36	25.25 - 25.75		0	.00	3	.17
6	.27	14	.63	25.75 - 26.25		4	.23	7	.39
19	.86	33	1.49	26.25 - 26.75		8	.45	15	.85
20	.91	53	2.40	26.75 - 27.25		24	1.35	39	2.20
57	2.58	110	4.98	27.25 - 27.75		27	1.52	66	3.72
55	2.49	165	7.47	27.75 - 28.25		33	1.86	99	5.58
91	4.12	256	11.59	28.25 - 28.75		60	3.38	159	8.96
94	4.26	350	15.85	28.75 - 29.25		77	4.34	236	13.30
146	6.61	496	22.46	29.25 - 29.75		93	5.24	329	18.55
129	5.84	625	28.31	29.75 - 30.25		132	7.44	461	25.99
181	8.20	806	36.50	30.25 - 30.75		133	7.50	594	33.48
180	8.15	986	44.66	30.75 - 31.25		143	8.06	737	41.54
199	9.01	1185	53.67	31.25 - 31.75		151	8.51	888	50.06
173	7.84	1358	61.50	31.75 - 32.25		136	7.67	1024	57.72
188	8.51	1546	70.02	32.25 - 32.75		138	7.78	1162	65.50
147	6.66	1693	76.68	32.75 - 33.25		120	6.76	1282	72.27
123	5.57	1816	82.25	33.25 - 33.75		118	6.65	1400	78.92
97	4.39	1913	86.64	33.75 - 34.25		104	5.86	1504	84.78
82	3.71	1995	90.35	34.25 - 34.75		67	3.78	1571	88.56
54	2.45	2049	92.80	34.75 - 35.25		59	3.33	1630	91.98
54	2.45	2103	95.24	35.25 - 35.75		48	2.71	1678	94.59
29	1.31	2132	96.56	35.75 - 36.25		31	1.75	1709	96.34
23	1.04	2155	97.60	36.25 - 36.75		22	1.24	1731	97.58
20	.91	2175	98.51	36.75 - 37.25		15	.85	1746	98.42
11	.50	2186	99.00	37.25 - 37.75		14	.79	1760	99.21
7	.32	2193	99.32	37.75 - 38.25		6	.34	1766	99.55
3	.14	2196	99.46	38.25 - 38.75		0	.00	1766	99.55
8	.36	2204	99.82	38.75 - 39.25		3	.17	1769	99.72
1	.05	2205	99.86	39.25 - 39.75		2	.11	1771	99.83
1	.05	2206	99.91	39.75 - 40.25		2	.11	1773	99.94
1	.05	2207	99.95	40.25 - 40.75		1	.06	1774	100.00

## (30) CERVICALE HEIGHT

The vertical distance between a standing surface and the cervicale landmark on the spine at the base of the neck is measured with an anthropometer. The subject stands erect with the head in the Frankfort plane. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
127.32	50.13	1ST	137.38 54.09
128.99	50.78	2ND	139.24 54.82
130.01	51.18	3RD	140.36 55.26
131.35	51.71	5TH	141.83 55.84
133.37	52.51	10TH	144.01 56.70
134.72	53.04	15TH	145.47 57.27
135.80	53.46	20TH	146.62 57.72
136.73	53.83	25TH	147.62 58.12
137.58	54.16	30TH	148.53 58.48
138.37	54.48	35TH	149.38 58.81
139.13	54.77	40TH	150.19 59.13
139.87	55.07	45TH	150.99 59.44
140.61	55.36	50TH	151.78 59.76
141.36	55.65	55TH	152.59 60.07
142.12	55.95	60TH	153.41 60.40
142.93	56.27	65TH	154.26 60.73
143.78	56.61	70TH	155.17 61.09
144.71	56.97	75TH	156.16 61.48
145.76	57.39	80TH	157.27 61.92
146.98	57.87	85TH	158.55 62.42
148.53	58.48	90TH	160.15 63.05
150.80	59.37	95TH	162.43 63.95
152.23	59.93	97TH	163.81 64.49
153.25	60.33	98TH	164.76 64.87
154.77	60.93	99TH	166.10 65.40

# CERVICALE HEIGHT

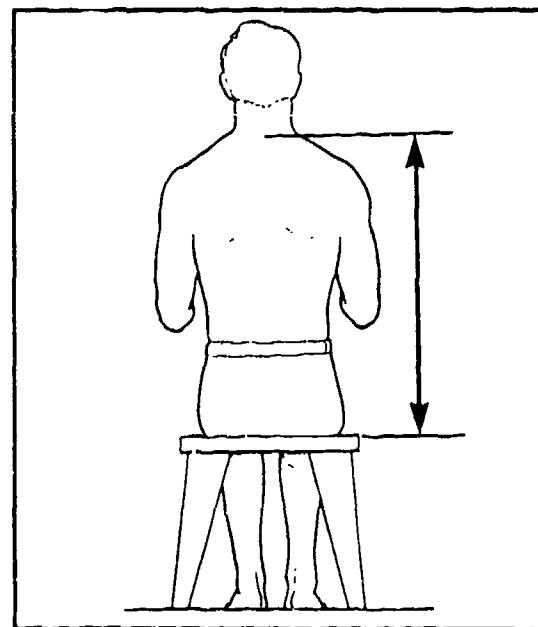
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
140.80	MEAN VALUE	55.43
.13	SE(MEAN)	.05
5.92	STD DEVIATION	2.33
.09	SE(STD DEV)	.04
121.20	MINIMUM	47.72
164.30	MAXIMUM	64.69
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	4.28
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
151.94	MEAN VALUE	59.82
.15	SE(MEAN)	.06
6.27	STD DEVIATION	2.47
.11	SE(STD DEV)	.04
126.70	MINIMUM	49.88
177.60	MAXIMUM	69.92
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	120.75 - 122.25			
1	.05	2	.09	122.25 - 123.75			
5	.23	7	.32	123.75 - 125.25			
10	.45	17	.77	125.25 - 126.75			
18	.82	35	1.59	126.75 - 128.25			
21	.95	56	2.54	128.25 - 129.75			
43	1.95	99	4.48	129.75 - 131.25			
85	3.85	184	8.33	131.25 - 132.75			
99	4.48	283	12.82	132.75 - 134.25			
149	6.75	432	19.57	134.25 - 135.75			
198	8.97	630	28.53	135.75 - 137.25			
216	9.78	846	30.32	137.25 - 138.75			
205	9.28	1051	47.60	138.75 - 140.25			
214	9.69	1265	57.29	140.25 - 141.75			
211	9.56	1476	66.85	141.75 - 143.25			
178	8.06	1654	74.91	143.25 - 144.75			
165	7.47	1819	82.38	144.75 - 146.25			
119	5.39	1938	87.77	146.25 - 147.75			
82	3.71	2020	91.49	147.75 - 149.25			
77	3.49	2097	94.97	149.25 - 150.75			
47	2.13	2144	97.10	150.75 - 152.25			
29	1.31	2173	98.41	152.25 - 153.75			
15	.68	2188	99.09	153.75 - 155.25			
9	.41	2197	99.50	155.25 - 156.75			
5	.23	2202	99.73	156.75 - 158.25			
3	.14	2205	99.86	158.25 - 159.75			
2	.09	2207	99.95	159.75 - 161.25			
0	.00	2207	99.95	161.25 - 162.75			
0	.00	2207	99.95	162.75 - 164.25			
1	.05	2208	100.00	164.25 - 165.75			
				165.75 - 167.25			
				167.25 - 168.75			
				168.75 - 170.25			
				170.25 - 171.75			
				171.75 - 173.25			
				173.25 - 174.75			
				174.75 - 176.25			
				176.25 - 177.75			

### (31) CERVICALE HEIGHT, SITTING

The vertical distance between a sitting surface and the cervicale landmark on the spine at the base of the neck is measured with an anthropometer. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The thighs are parallel and the knees are flexed 90 degrees. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
56.36	22.19	1ST	60.22 23.71
57.06	22.46	2ND	61.15 24.07
57.51	22.64	3RD	61.73 24.30
58.12	22.88	5TH	62.51 24.61
59.10	23.27	10TH	63.68 25.07
59.78	23.54	15TH	64.46 25.38
60.33	23.75	20TH	65.07 25.62
60.82	23.94	25TH	65.60 25.83
61.26	24.12	30TH	66.06 26.01
61.67	24.28	35TH	66.49 26.18
62.07	24.44	40TH	66.89 26.34
62.46	24.59	45TH	67.28 26.49
62.85	24.74	50TH	67.66 26.64
63.24	24.90	55TH	68.05 26.79
63.63	25.05	60TH	68.43 26.94
64.05	25.22	65TH	68.83 27.10
64.49	25.39	70TH	69.25 27.26
64.96	25.58	75TH	69.70 27.44
65.49	25.78	80TH	70.20 27.64
66.10	26.02	85TH	70.78 27.87
66.86	26.32	90TH	71.51 28.15
67.95	26.75	95TH	72.58 28.58
68.61	27.01	97TH	73.27 28.85
69.08	27.20	98TH	73.77 29.04
69.76	27.46	99TH	74.55 29.35

# CERVICALE HEIGHT, SITTING

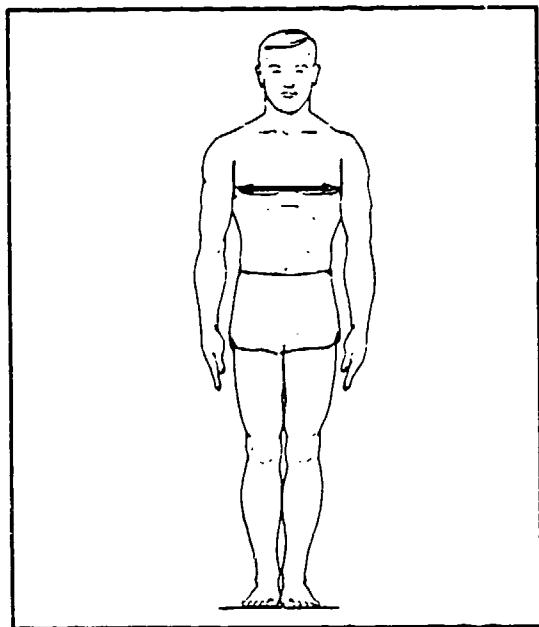
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
62.91	MEAN VALUE	24.77
.06	SE(MEAN)	.02
2.98	STD DEVIATION	1.17
.04	SE(STD DEV)	.02
53.60	MINIMUM	21.10
74.10	MAXIMUM	29.17
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	2.81
COEF. OF VARIATION	=	4.7%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
67.63	MEAN VALUE	26.62
.07	SE(MEAN)	.03
3.05	STD DEVIATION	1.20
.05	SE(STD DEV)	.02
58.00	MINIMUM	22.83
77.50	MAXIMUM	30.51
SYMMETRY---VETA I	=	-.07
KURTOSIS---VETA II	=	2.95
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	53.25 - 53.75			
1	.05	2	.09	53.75 - 54.25			
1	.05	3	.14	54.25 - 54.75			
5	.23	8	.36	54.75 - 55.25			
8	.36	16	.72	55.25 - 55.75			
3	.14	19	.86	55.75 - 56.25			
13	.59	32	1.45	56.25 - 56.75			
20	.91	52	2.36	56.75 - 57.25			
28	1.27	80	3.62	57.25 - 57.75			
42	1.90	122	5.53	57.75 - 58.25		2	.11
54	2.45	176	7.97	58.25 - 58.75		2	.11
59	2.67	235	10.64	58.75 - 59.25		2	.11
94	4.26	329	14.90	59.25 - 59.75		8	.45
105	4.76	434	19.66	59.75 - 60.25		5	.28
97	4.39	531	24.05	60.25 - 60.75		12	.68
127	5.75	658	29.80	60.75 - 61.25		10	.56
130	5.89	788	35.69	61.25 - 61.75		18	1.01
152	6.88	940	42.57	61.75 - 62.25		14	.79
137	6.20	1077	48.78	62.25 - 62.75		27	1.52
133	6.02	1210	54.80	62.75 - 63.25		37	2.09
141	6.39	1351	61.19	63.25 - 63.75		43	2.42
133	6.02	1484	67.21	63.75 - 64.25		64	3.61
135	6.11	1619	73.32	64.25 - 64.75		63	3.55
100	4.53	1719	77.85	64.75 - 65.25		77	4.34
98	4.44	1817	82.29	65.25 - 65.75		88	4.96
91	4.12	1908	86.41	65.75 - 66.25		96	5.41
72	3.26	1980	89.67	66.25 - 66.75		101	5.69
59	2.67	2039	92.35	66.75 - 67.25		128	7.22
45	2.04	2084	94.38	67.25 - 67.75		116	6.54
33	1.49	2117	95.88	67.75 - 68.25		117	6.60
30	1.36	2147	97.24	68.25 - 68.75		117	6.60
23	1.04	2170	98.28	68.75 - 69.25		108	6.09
17	.77	2187	99.05	69.25 - 69.75		84	4.74
6	.27	2193	99.32	69.75 - 70.25		91	5.13
10	.45	2203	99.77	70.25 - 70.75		71	4.00
2	.09	2205	99.86	70.75 - 71.25		58	3.27
0	.00	2205	99.86	71.25 - 71.75		51	2.87
2	.09	2207	99.95	71.75 - 72.25		52	2.93
0	.00	2207	99.95	72.25 - 72.75		41	2.31
0	.00	2207	99.95	72.75 - 73.25		23	1.30
0	.00	2207	99.95	73.25 - 73.75		14	.79
1	.05	2208	100.00	73.75 - 74.25		13	.73
				74.25 - 74.75		8	.45
				74.75 - 75.25		4	.23
				75.25 - 75.75		8	.45
				75.75 - 76.25		1	.06
				76.25 - 76.75		0	.00
				76.75 - 77.25		0	.00
				77.25 - 77.75		2	.11
						1774	100.00

## (32) CHEST BREADTH

The maximum horizontal breadth of the chest at the level of the right bust point on women or the nipple on men is measured with a beam caliper. The subject stands erect looking straight ahead with the heels together, the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration. Note: Breast tissue and latissimus dorsi muscle tissue are NOT included in this measurement if they extend beyond the rib cage.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
24.01	9.45	1ST	27.06 10.65
24.43	9.62	2ND	27.55 10.85
24.69	9.72	3RD	27.87 10.97
25.04	9.86	5TH	28.31 11.15
25.60	10.08	10TH	29.02 11.43
25.99	10.23	15TH	29.53 11.63
26.30	10.36	20TH	29.94 11.79
26.58	10.47	25TH	30.32 11.94
26.84	10.57	30TH	30.66 12.07
27.08	10.66	35TH	30.99 12.20
27.32	10.76	40TH	31.30 12.32
27.55	10.85	45TH	31.62 12.45
27.79	10.94	50TH	31.94 12.57
28.03	11.04	55TH	32.26 12.70
28.29	11.14	60TH	32.60 12.83
28.56	11.24	65TH	32.95 12.97
28.85	11.36	70TH	33.34 13.12
29.17	11.48	75TH	33.76 13.29
29.54	11.63	80TH	34.24 13.48
29.99	11.81	85TH	34.81 13.71
30.59	12.04	90TH	35.55 14.00
31.51	12.41	95TH	36.67 14.44
32.15	12.66	97TH	37.41 14.73
32.63	12.85	98TH	37.95 14.94
33.41	13.15	99TH	38.81 15.28

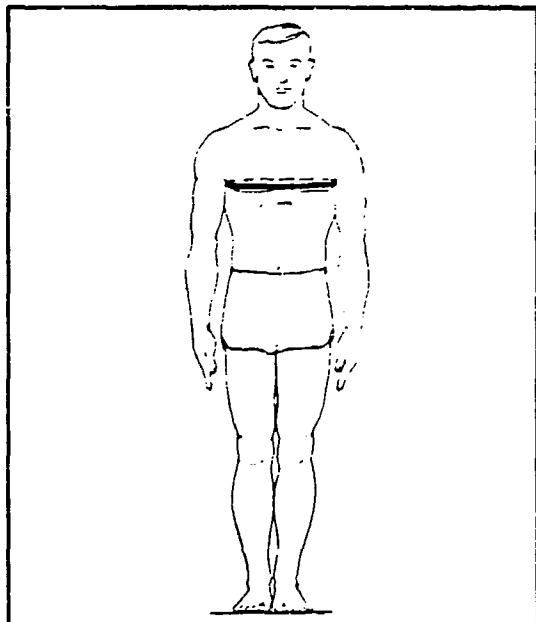
# CHEST BREADTH

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
27.96	SE(MEAN)	.02	32.15	SE(MEAN)	.02
.04	STD DEVIATION	.78	.06	STD DEVIATION	1.01
1.97	SE(STD DEV)	.00	2.55	SE(STD DEV)	.02
.03	MINIMUM	8.74	25.70	MINIMUM	10.12
22.20	MAXIMUM	14.76	42.20	MAXIMUM	16.61
37.50					
SYMMETRY---VETA I	=	.56	SYMMETRY---VETA I	=	.44
KURTOSIS---VETA II	=	3.61	KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	7.1%	COEF. OF VARIATION	=	7.9%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	21.75 - 22.25		2	.11
1	.05	2	.09	22.25 - 22.75		6	.34
1	.05	3	.14	22.75 - 23.25		10	.56
7	.32	10	.45	23.25 - 23.75		15	.85
23	1.04	33	1.49	23.75 - 24.25		18	1.01
35	1.59	68	3.08	24.25 - 24.75		43	2.42
78	3.53	146	6.61	24.75 - 25.25		71	4.00
115	5.21	261	11.82	25.25 - 25.75		134	7.55
147	6.66	408	18.48	25.75 - 26.25		207	11.67
222	10.05	630	28.53	26.25 - 26.75		316	17.81
214	9.69	844	38.22	26.75 - 27.25		445	25.08
234	10.60	1078	48.82	27.25 - 27.75		566	31.91
228	10.33	1306	59.15	27.75 - 28.25		710	40.02
219	9.92	1525	69.07	28.25 - 28.75		831	46.84
155	7.02	1680	76.09	28.75 - 29.25		954	53.78
148	6.70	1828	82.79	29.25 - 29.75		1098	61.89
107	4.85	1935	87.64	29.75 - 30.25		1206	67.38
83	3.76	2018	91.39	30.25 - 30.75		1331	75.03
61	2.76	2079	94.16	30.75 - 31.25		1426	80.38
38	1.72	2117	95.88	31.25 - 31.75		1499	84.50
28	1.27	2145	97.15	31.75 - 32.25		1558	87.82
22	1.00	2167	98.14	32.25 - 32.75		1615	91.04
17	.77	2184	98.91	32.75 - 33.25		1659	93.52
8	.36	2192	99.28	33.25 - 33.75		1695	95.55
7	.32	2199	99.59	33.75 - 34.25		1717	96.79
4	.18	2203	99.77	34.25 - 34.75		1734	97.75
1	.05	2204	99.82	34.75 - 35.25		1748	98.53
1	.05	2205	99.86	35.25 - 35.75		1754	98.87
2	.09	2207	99.95	35.75 - 36.25		1763	99.38
0	.00	2207	99.95	36.25 - 36.75		1766	99.55
0	.00	2207	99.95	36.75 - 37.25		1769	99.72
1	.05	2208	100.00	37.25 - 37.75		1770	99.77
				37.75 - 38.25		1771	99.83
				38.25 - 38.75		1771	99.83
				38.75 - 39.25		1771	99.83
				39.25 - 39.75		1771	99.83
				39.75 - 40.25		1771	99.83
				40.25 - 40.75		1771	99.83
				40.75 - 41.25		1771	99.83
				41.25 - 41.75		1771	99.83
				41.75 - 42.25		1774	100.00

### (33) CHEST CIRCUMFERENCE

The maximum horizontal circumference of the chest at the fullest part of the breast is measured with a tape. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
78.14	30.76	1ST	84.50 33.27
79.49	31.29	2ND	86.16 33.92
80.31	31.62	3RD	87.18 34.32
81.41	32.05	5TH	88.55 34.86
83.12	32.72	10TH	90.66 35.69
84.31	33.19	15TH	92.10 36.26
85.29	33.58	20TH	93.27 36.72
86.18	33.93	25TH	94.29 37.12
86.99	34.25	30TH	95.23 37.49
87.78	34.56	35TH	96.12 37.84
88.55	34.86	40TH	96.98 38.18
89.31	35.16	45TH	97.63 38.52
90.09	35.47	50TH	98.69 38.85
90.90	35.79	55TH	99.56 39.20
91.74	36.12	60TH	100.46 39.55
92.63	36.47	65TH	101.41 39.93
93.60	36.85	70TH	102.43 40.33
94.68	37.28	75TH	103.56 40.77
95.92	37.77	80TH	104.85 41.28
97.40	38.35	85TH	106.36 41.88
99.32	39.10	90TH	108.33 42.65
102.24	40.25	95TH	111.28 43.81
104.14	41.00	97TH	112.21 44.57
105.54	41.55	98TH	114.63 45.13
107.69	42.40	99TH	116.82 45.99

# CHEST CIRCUMFERENCE

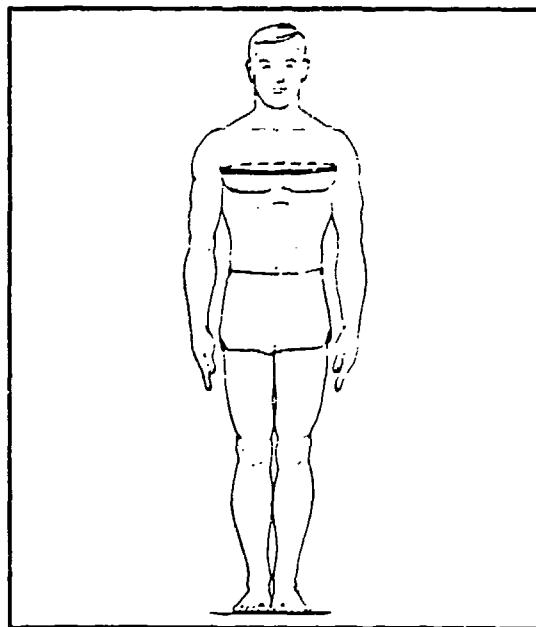
FEMALES			
	CM	MEAN VALUE	INCHES
90.71	.14	SE(MEAN)	.05
6.35	6.10	STD DEVIATION	2.50
71.10	7.10	SE(STD DEV)	.04
117.60	MINIMUM	27.99	
	MAXIMUM	46.30	
SYMMETRY---VETA I	=	.50	
KURTOSIS---VETA II	=	3.32	
COEF. OF VARIATION	=	7.0%	
NUMBER OF SUBJECTS	=	2208	

MALES			
	CM	MEAN VALUE	INCHES
99.14	.16	SE(MEAN)	.06
6.90	6.12	STD DEVIATION	2.72
77.50	7.12	SE(STD DEV)	.05
128.10	MINIMUM	30.51	
	MAXIMUM	50.43	
SYMMETRY---VETA I	=	.36	
KURTOSIS---VETA II	=	3.28	
COEF. OF VARIATION	=	7.0%	
NUMBER OF SUBJECTS	=	1774	

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
1	.05	1	.05	70.75	-	72.25		1	.06	1	.06
0	.00	1	.05	72.25	-	73.75		1	.06	2	.11
5	.23	6	.27	73.75	-	75.25		1	.06	3	.17
4	.18	10	.45	75.25	-	76.75		3	.17	6	.34
9	.41	19	.86	76.75	-	78.25		7	.39	13	.73
33	1.49	52	2.36	78.25	-	79.75		18	1.01	31	1.75
50	2.26	102	4.62	79.75	-	81.25		21	1.18	52	2.93
84	3.80	186	8.42	81.25	-	82.75		42	2.37	94	5.30
150	6.79	336	15.22	82.75	-	84.25		58	3.27	152	8.57
162	7.34	498	22.55	84.25	-	85.75		89	5.02	241	13.59
176	7.97	674	30.53	85.75	-	87.25		114	6.43	355	20.01
227	10.28	901	40.81	87.25	-	88.75		129	7.27	484	27.28
232	10.51	1133	51.31	88.75	-	90.25		144	8.12	628	35.40
206	9.33	1339	60.64	90.25	-	91.75		169	9.53	797	44.93
178	8.06	1517	68.70	91.75	-	93.25		148	8.34	945	53.27
135	6.11	1652	74.82	93.25	-	94.75		155	8.74	1100	62.01
149	6.75	1801	81.57	94.75	-	96.25		123	6.93	1223	66.94
99	4.48	1900	86.05	96.25	-	97.75		121	6.82	1344	75.76
82	3.71	1982	89.76	97.75	-	99.25		106	5.98	1450	81.74
75	3.40	2057	93.16	99.25	-	100.75		86	4.85	1536	86.58
42	1.90	2099	95.06	100.75	-	102.25		63	3.55	1599	90.14
37	1.68	2136	96.74	102.25	-	103.75		51	2.87	1650	93.01
24	1.09	2160	97.83	103.75	-	105.25		32	1.80	1682	94.81
18	.82	2178	98.64	105.25	-	106.75		31	1.75	1713	96.56
14	.63	2192	99.28	106.75	-	108.25		19	1.07	1732	97.63
7	.32	2199	99.59	108.25	-	109.75		21	1.18	1753	98.82
3	.14	2202	99.73	109.75	-	111.25		8	.45	1761	99.27
0	.00	2202	99.73	111.25	-	112.75		4	.23	1765	99.49
3	.14	2205	99.86	112.75	-	114.25		4	.23	1769	99.72
1	.05	2206	99.91	114.25	-	115.75		1	.06	1770	99.77
1	.05	2207	99.95	115.75	-	117.25		1	.06	1771	99.83
1	.05	2208	100.00	117.25	-	118.75		2	.11	1773	99.94
				118.75	-	120.25		2	.11	1774	100.00
				120.25	-	121.75		4	.23		
				121.75	-	123.25		1	.06		
				123.25	-	124.75		0	.00		
				124.75	-	126.25		0	.00		
				126.25	-	127.75		2	.11		
				127.75	-	129.25		1	.06		

### (34) CHEST CIRCUMFERENCE AT SCYE

The horizontal circumference of the chest at the level of the scye-at-midspine landmark is measured with a tape. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
77.61	30.55	1ST	88.54 34.86
78.97	31.09	2ND	89.93 35.40
79.78	31.41	3RD	90.83 35.76
80.82	31.82	5TH	92.09 36.26
82.38	32.43	10TH	94.12 37.05
83.43	32.84	15TH	95.54 37.61
84.26	33.17	20TH	96.69 38.07
85.00	33.47	25TH	97.72 38.47
85.68	33.73	30TH	98.65 38.84
86.33	33.99	35TH	99.52 39.18
86.96	34.24	40TH	100.37 39.51
87.58	34.48	45TH	101.19 39.84
88.22	34.73	50TH	102.02 40.17
88.88	34.99	55TH	102.86 40.50
89.56	35.26	60TH	103.71 40.83
90.29	35.55	65TH	104.61 41.18
91.08	35.86	70TH	105.56 41.56
91.96	36.20	75TH	106.60 41.97
92.98	36.61	80TH	107.77 42.43
94.20	37.09	85TH	109.13 42.96
95.80	37.72	90TH	110.86 43.64
98.28	38.69	95TH	113.42 44.65
99.93	39.34	97TH	115.06 45.30
101.16	39.83	98TH	116.25 45.77
103.09	40.59	99TH	118.09 46.49

# CHEST CIRCUMFERENCE AT SCYE

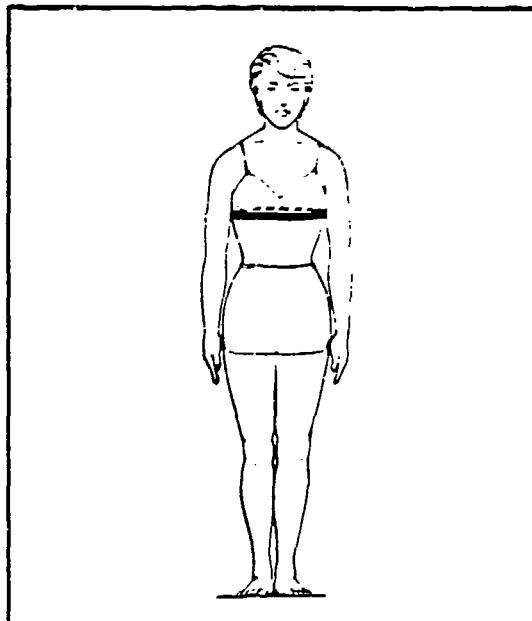
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
88.70	MEAN VALUE	34.92
.11	SE(MEAN)	.04
5.32	STD DEVIATION	2.10
.08	SE(STD DEV)	.03
75.30	MINIMUM	29.65
112.10	MAXIMUM	44.13
SYMMETRY---VETA I	=	.51
KURTOSIS---VETA II	=	3.51
COEF. OF VARIATION	=	6.0%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
102.32	MEAN VALUE	40.28
.16	SE(MEAN)	.06
6.53	STD DEVIATION	2.57
.11	SE(STD DEV)	.04
80.70	MINIMUM	31.77
129.80	MAXIMUM	51.10
SYMMETRY---VETA I	=	.27
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	6.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct		
2	.09	2	.09	74.55 - 75.55		1	.06		
7	.32	9	.41	75.55 - 76.55		0	.00		
12	.54	21	.95	76.55 - 77.55		0	.00		
17	.77	38	1.72	77.55 - 78.55		1	.06		
22	1.00	60	2.72	78.55 - 79.55		3	.17		
42	1.90	102	4.62	79.55 - 80.55		5	.28		
54	2.45	156	7.07	80.55 - 81.55		2	.11		
86	3.89	242	10.96	81.55 - 82.55		6	.34		
114	5.16	356	16.12	82.55 - 83.55		9	.51		
123	5.57	479	21.69	83.55 - 84.55		21	1.18		
145	6.57	624	28.26	84.55 - 85.55		22	1.24		
185	8.38	809	36.64	85.55 - 86.55		33	1.86		
168	7.61	977	44.25	86.55 - 87.55		42	2.37		
202	9.15	1179	53.40	87.55 - 88.55		56	3.16		
160	7.25	1339	60.64	88.55 - 89.55		73	4.11		
152	6.88	1491	67.53	89.55 - 90.55		65	3.66		
119	5.39	1610	72.92	90.55 - 91.55		94	5.30		
110	4.98	1720	77.90	91.55 - 92.55		85	4.79		
102	4.62	1822	82.52	92.55 - 93.55		99	6.37		
92	4.17	1914	86.68	93.55 - 94.55		101	5.58		
66	2.99	1980	89.67	94.55 - 95.55		103	5.69		
42	1.90	2022	91.58	95.55 - 96.55		87	4.90		
50	2.26	2072	93.84	96.55 - 97.55		84	4.74		
43	1.95	2115	95.79	97.55 - 98.55		58	3.27		
17	.77	2132	96.56	98.55 - 99.55		59	3.33		
21	.95	2153	97.51	99.55 - 100.55		50	2.82		
16	.72	2169	98.23	100.55 - 101.55		32	1.80		
14	.63	2183	98.87	101.55 - 102.55		33	1.86		
9	.41	2192	99.28	102.55 - 103.55		33	1.86		
3	.14	2195	99.41	103.55 - 104.55		25	1.41		
3	.14	2198	99.55	104.55 - 105.55		21	1.18		
5	.23	2203	99.77	105.55 - 106.55		15	.85		
1	.05	2204	99.82	106.55 - 107.55		8	.45		
0	.00	2204	99.82	107.55 - 108.55		5	.28		
1	.05	2205	99.86	108.55 - 109.55		3	.17		
1	.05	2206	99.91	109.55 - 110.55		2	.11		
1	.05	2207	99.95	110.55 - 111.55		1	.06		
1	.05	2208	100.00	111.55 - 112.55		1	.06		
				112.55 - 113.55					
				113.55 - 114.55					
				114.55 - 115.55					
				115.55 - 116.55					
				116.55 - 117.55					
				117.55 - 118.55					
				118.55 - 119.55					
				119.55 - 120.55					
				120.55 - 121.55					
				121.55 - 122.55					
				122.55 - 123.55					
				123.55 - 124.55					
				124.55 - 125.55					
				125.55 - 126.55					
				126.55 - 127.55					
				127.55 - 128.55					
				128.55 - 129.55					
				129.55 - 130.55					

### (35) CHEST CIRCUMFERENCE BELOW BREAST

The horizontal circumference of the chest at the level of the inferior juncture of the lowest breast with the rib cage is measured with a tape. On women, the tape may lie on the bra. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
67.09	26.41	78.91	31.07
68.10	26.81	80.42	31.66
68.74	27.06	81.36	32.03
69.60	27.40	82.63	32.53
70.95	27.93	84.59	33.30
71.90	28.31	85.95	33.84
72.67	28.61	87.05	34.27
73.37	28.88	88.02	34.65
74.01	29.14	88.91	35.00
74.62	29.38	89.75	35.33
75.22	29.61	90.56	35.65
75.82	29.85	91.36	35.97
76.43	30.09	92.17	36.29
77.06	30.34	93.00	36.61
77.72	30.60	93.85	36.95
78.42	30.87	94.75	37.30
79.18	31.17	95.72	37.68
80.03	31.51	96.78	38.10
81.02	31.90	98.00	38.58
82.21	32.37	99.44	39.15
83.79	32.99	101.29	39.88
86.27	33.96	104.10	40.98
87.96	34.63	105.93	41.71
89.25	35.14	107.28	42.24
91.33	35.96	109.38	43.06

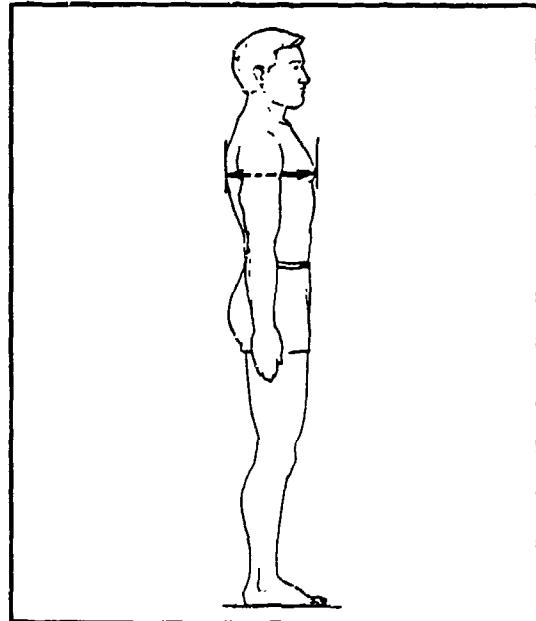
# CHEST CIRCUMFERENCE BELOW BREAST

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
76.97	.11	30.30	92.61	.16	36.46
	SE(MEAN)	.04		SE(MEAN)	.06
5.10	STD DEVIATION	2.01	6.54	STD DEVIATION	2.58
.08	SE(STD DEV)	.03	.11	SE(STD DEV)	.04
64.00	MINIMUM	25.20	72.30	MINIMUM	28.46
98.80	MAXIMUM	38.90	121.10	MAXIMUM	47.68
SYMMETRY---VETA I	=	.62	SYMMETRY---VETA I	=	.36
KURTOSIS---VETA II	=	3.61	KURTOSIS---VETA II	=	3.26
COEF. OF VARIATION	=	6.6%	COEF. OF VARIATION	=	7.1%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
4	.18	4	.18	63.75 - 65.25		1	.06
9	.41	13	.59	65.25 - 66.75		0	.00
38	1.72	51	2.31	66.75 - 68.25		3	.17
69	3.13	120	5.43	68.25 - 69.75		5	.28
130	5.89	250	11.32	69.75 - 71.25		6	.34
179	8.11	429	19.43	71.25 - 72.75		20	1.13
280	12.68	709	32.11	72.75 - 74.25		31	1.75
289	13.09	998	45.20	74.25 - 75.75		92	5.19
255	11.55	1253	56.75	75.75 - 77.25		99	5.58
229	10.37	1482	67.12	77.25 - 78.75		116	6.54
188	8.51	1670	75.63	78.75 - 80.25		149	8.40
169	7.65	1839	83.29	80.25 - 81.75		167	9.41
114	5.16	1953	88.45	81.75 - 83.25		176	9.92
90	4.08	2043	92.53	83.25 - 84.75		176	9.92
56	2.54	2099	95.06	84.75 - 86.25		147	8.29
35	1.59	2134	98.65	86.25 - 87.75		152	8.57
33	1.49	2167	98.14	87.75 - 89.25		126	7.10
13	.59	2180	98.73	89.25 - 90.75		100	5.64
16	.72	2196	99.46	90.75 - 92.25		101	5.69
5	.23	2201	99.68	92.25 - 93.75		73	4.11
2	.09	2203	99.77	93.75 - 95.25		48	2.71
0	.00	2203	99.77	95.25 - 96.75		37	2.09
2	.09	2205	99.86	96.75 - 98.25		30	1.69
3	.14	2208	100.00	98.25 - 99.75		24	1.35
				99.75 - 101.25		13	.73
				101.25 - 102.75			
				102.75 - 104.25			
				104.25 - 105.75			
				105.75 - 107.25			
				107.25 - 108.75			
				108.75 - 110.25			
				110.25 - 111.75			
				111.75 - 113.25			
				113.25 - 114.75			
				114.75 - 116.25			
				116.25 - 117.75			
				117.75 - 119.25			
				119.25 - 120.75			
				120.75 - 122.25			

## (36) CHEST DEPTH

The horizontal distance between the chest, at the level of the right bustpoint on women or the nipple on men, and the back at the same level is measured with a beam caliper. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
19.71	7.76	1ST	19.67 7.74
20.20	7.95	2ND	20.20 7.95
20.48	8.06	3RD	20.52 8.08
20.86	8.21	5TH	20.96 8.25
21.43	8.44	10TH	21.64 8.52
21.83	8.59	15TH	22.11 8.71
22.15	8.72	20TH	22.49 8.85
22.44	8.84	25TH	22.82 8.98
22.71	8.94	30TH	23.12 9.10
22.97	9.04	35TH	23.40 9.21
23.22	9.14	40TH	23.68 9.32
23.48	9.24	45TH	23.95 9.43
23.74	9.35	50TH	24.22 9.53
24.00	9.45	55TH	24.49 9.64
24.28	9.56	60TH	24.78 9.75
24.58	9.68	65TH	25.07 9.87
24.90	9.80	70TH	25.39 10.00
25.26	9.95	75TH	25.73 10.13
25.68	10.11	80TH	26.13 10.29
26.17	10.30	85TH	26.59 10.47
26.81	10.56	90TH	27.17 10.70
27.78	10.94	95TH	28.04 11.04
28.41	11.18	97TH	28.59 11.26
28.86	11.36	98TH	28.99 11.41
29.54	11.63	99TH	29.60 11.65

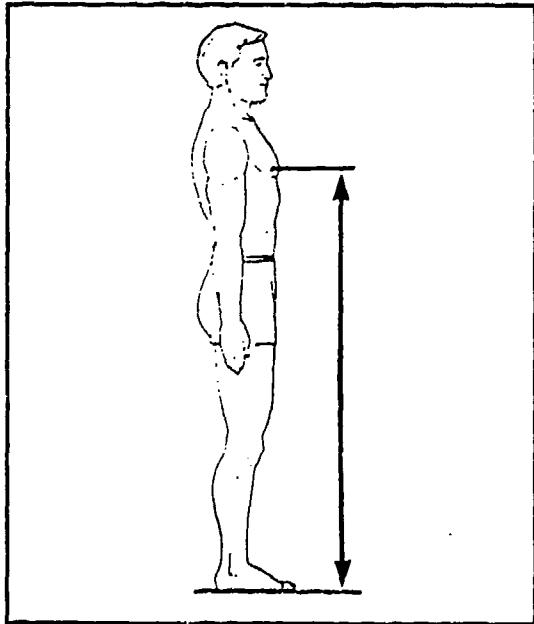
# CHEST DEPTH

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
23.94	MEAN VALUE	9.43	24.32	MEAN VALUE	9.58
.04	SE(MEAN)	.02	.05	SE(MEAN)	.02
2.11	STD DEVIATION	.83	2.15	STD DEVIATION	.85
.03	SE(STD DEV)	.00	.04	SE(STD DEV)	.00
17.00	MINIMUM	6.69	18.50	MINIMUM	7.28
32.50	MAXIMUM	12.80	32.20	MAXIMUM	12.68
SYMMETRY---VETA I	=	.44	SYMMETRY---VETA I	=	.26
KURTOSIS---VETA II	=	3.24	KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	8.8%	COEF. OF VARIATION	=	8.8%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	16.75	-	17.25	
1	.05	2	.09	17.25	-	17.75	
1	.05	3	.14	17.75	-	18.25	
2	.09	5	.23	18.25	-	18.75	2
6	.27	11	.50	18.75	-	19.25	5
13	.59	24	1.09	19.25	-	19.75	12
19	.86	43	1.95	19.75	-	20.25	19
46	2.08	89	4.03	20.25	-	20.75	36
106	4.80	195	8.83	20.75	-	21.25	42
123	5.57	318	14.40	21.25	-	21.75	83
153	6.93	471	21.33	21.75	-	22.25	108
201	9.10	672	30.43	22.25	-	22.75	120
203	9.19	875	39.63	22.75	-	23.25	129
229	10.37	1104	50.00	23.25	-	23.75	169
212	9.60	1316	59.60	23.75	-	24.25	168
184	8.33	1500	67.93	24.25	-	24.75	161
164	7.43	1664	75.36	24.75	-	25.25	153
123	5.57	1787	80.93	25.25	-	25.75	133
111	5.03	1898	85.96	25.75	-	26.25	119
81	3.67	1979	89.63	26.25	-	26.75	83
82	3.71	2061	93.34	26.75	-	27.25	76
36	1.63	2097	94.97	27.25	-	27.75	45
32	1.45	2129	96.42	27.75	-	28.25	34
28	1.27	2157	97.69	28.25	-	28.75	31
24	1.09	2181	98.78	28.75	-	29.25	16
10	.45	2191	99.23	29.25	-	29.75	19
8	.36	2199	99.59	29.75	-	30.25	4
6	.27	2205	99.86	30.25	-	30.75	0
0	.00	2205	99.86	30.75	-	31.25	2
1	.05	2206	99.91	31.25	-	31.75	2
1	.05	2207	99.95	31.75	-	32.25	3
1	.05	2208	100.00	32.25	-	32.75	17

### (37) CHEST HEIGHT

The vertical distance between a standing surface and the right bustpoint on women or the nipple on men is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

##### FEMALES

CM	INCHES		1ST	CM	INCHES
105.13	41.39			114.72	45.17
106.70	42.01		2ND	116.34	45.80
107.64	42.38		3RD	117.32	46.19
108.85	42.86		5TH	118.61	46.70
110.66	43.56		10TH	120.54	47.46
111.86	44.04		15TH	121.84	47.97
112.81	44.42		20TH	122.86	48.37
113.65	44.75		25TH	123.76	48.72
114.42	45.05		30TH	124.57	49.04
115.13	45.33		35TH	125.32	49.34
115.83	45.60		40TH	126.04	49.62
116.51	45.87		45TH	126.75	49.90
117.20	46.14		50TH	127.46	50.18
117.90	46.42		55TH	128.17	50.46
118.61	46.70		60TH	128.90	50.75
119.37	47.00		65TH	129.66	51.05
120.18	47.31		70TH	130.46	51.36
121.07	47.66		75TH	131.34	51.71
122.07	48.06		80TH	132.33	52.10
123.24	48.52		85TH	133.47	52.55
124.73	49.10		90TH	134.91	53.11
126.89	49.96		95TH	136.98	53.93
128.23	50.48		97TH	138.26	54.43
129.17	50.85		98TH	139.15	54.78
130.53	51.39		99TH	140.45	55.30

##### MALES

CM	INCHES		1ST	CM	INCHES
114.72	45.17			114.72	45.17
116.34	45.80		2ND	116.34	45.80
117.32	46.19		3RD	117.32	46.19
118.61	46.70		5TH	118.61	46.70
120.54	47.46		10TH	120.54	47.46
121.84	47.97		15TH	121.84	47.97
122.86	48.37		20TH	122.86	48.37
123.76	48.72		25TH	123.76	48.72
124.57	49.04		30TH	124.57	49.04
125.32	49.34		35TH	125.32	49.34
126.04	49.62		40TH	126.04	49.62
126.75	49.90		45TH	126.75	49.90
127.46	50.18		50TH	127.46	50.18
128.17	50.46		55TH	128.17	50.46
128.90	50.75		60TH	128.90	50.75
129.66	51.05		65TH	129.66	51.05
130.46	51.36		70TH	130.46	51.36
131.34	51.71		75TH	131.34	51.71
132.33	52.10		80TH	132.33	52.10
133.47	52.55		85TH	133.47	52.55
134.91	53.11		90TH	134.91	53.11
136.98	53.93		95TH	136.98	53.93
138.26	54.43		97TH	138.26	54.43
139.15	54.78		98TH	139.15	54.78
140.45	55.30		99TH	140.45	55.30

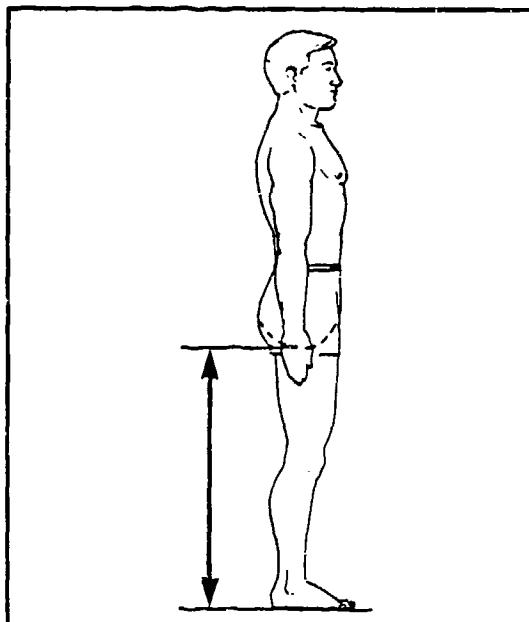
# CHEST HEIGHT

FEMALES			MALES		
	CM	INCHES		CM	INCHES
117.44	MEAN VALUE	46.24	127.59	MEAN VALUE	50.23
.12	SE(MEAN)	.05	.13	SE(MEAN)	.05
5.50	STD DEVIATION	2.17	5.61	STD DEVIATION	2.21
.08	SE(STD DEV)	.03	.09	SE(STD DEV)	.04
99.60	MINIMUM	39.21	103.50	MINIMUM	40.75
140.20	MAXIMUM	55.20	151.20	MAXIMUM	59.53
SYMMETRY---VETA I	=	.19	SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.14	KURTOSIS---VETA II	=	3.23
COEF. OF VARIATION	=	4.7%	COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	99.55 - 100.55		1	.06
1	.05	2	.09	100.55 - 101.55		1	.06
5	.23	7	.32	101.55 - 102.55		1	.06
4	.18	11	.50	102.55 - 103.55		1	.06
6	.27	17	.77	103.55 - 104.55		0	.00
8	.36	25	1.13	104.55 - 105.55		0	.00
16	.72	41	1.86	105.55 - 106.55		0	.00
23	1.04	64	2.90	106.55 - 107.55		0	.00
35	1.59	99	4.48	107.55 - 108.55		0	.00
46	2.08	145	6.57	108.55 - 109.55		0	.00
76	3.44	221	10.01	109.55 - 110.55		0	.00
97	4.39	318	14.40	110.55 - 111.55		0	.00
91	4.12	409	18.52	111.55 - 112.55		5	.28
112	5.07	521	23.60	112.55 - 113.55		2	.11
162	7.34	683	30.93	113.55 - 114.55		7	.39
172	7.79	855	38.72	114.55 - 115.55		8	.45
147	6.66	1002	45.38	115.55 - 116.55		10	.56
153	6.93	1155	52.31	116.55 - 117.55		28	1.58
163	7.38	1318	59.69	117.55 - 118.55		27	1.52
140	6.34	1458	66.03	118.55 - 119.55		32	1.80
143	6.48	1601	72.51	119.55 - 120.55		53	2.99
125	5.66	1726	78.17	120.55 - 121.55		71	4.00
102	4.62	1828	82.79	121.55 - 122.55		80	4.51
87	3.94	1915	86.73	122.55 - 123.55		89	5.02
70	3.17	1985	89.90	123.55 - 124.55		110	6.20
48	2.17	2033	92.07	124.55 - 125.55		133	7.50
45	2.04	2078	94.11	125.55 - 126.55		129	7.27
41	1.86	2119	95.97	126.55 - 127.55		140	7.89
34	1.54	2153	97.51	127.55 - 128.55		103	5.81
21	.95	2174	98.46	128.55 - 129.55		96	5.41
12	.54	2186	99.00	129.55 - 130.55		108	6.09
8	.36	2194	99.37	130.55 - 131.55		104	5.86
7	.32	2201	99.68	131.55 - 132.55		95	5.36
2	.09	2203	99.77	132.55 - 133.55		88	4.96
0	.00	2203	99.77	133.55 - 134.55		64	3.61
1	.05	2204	99.82	134.55 - 135.55		47	2.65
1	.05	2205	99.86	135.55 - 136.55		47	2.65
0	.00	2205	99.86	136.55 - 137.55		25	1.41
1	.05	2206	99.91	137.55 - 138.55		25	1.41
1	.05	2207	99.95	138.55 - 139.55		16	.90
1	.05	2208	100.00	139.55 - 140.55		15	.85
				140.55 - 141.55		7	.39
				141.55 - 142.55		1	.06
				142.55 - 143.55		2	.11
				143.55 - 144.55		0	.00
				144.55 - 145.55		3	.17
				145.55 - 146.55		0	.00
				146.55 - 147.55		0	.00
				147.55 - 148.55		0	.00
				148.55 - 149.55		0	.00
				149.55 - 150.55		0	.00
				150.55 - 151.55		2	.11
						1774	100.00

## (38) CROTCH HEIGHT

The vertical distance between the standing surface and the crotch is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together and the weight is distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
67.00	26.38	1ST	73.16 28.80
68.23	26.86	2ND	74.56 29.35
68.99	27.16	3RD	75.38 29.68
70.02	27.57	5TH	76.44 30.09
71.58	28.18	10TH	77.99 30.70
72.62	28.59	15TH	79.01 31.11
73.44	28.91	20TH	79.82 31.43
74.15	29.19	25TH	80.53 31.70
74.78	29.44	30TH	81.17 31.96
75.37	29.67	35TH	81.77 32.19
75.93	29.89	40TH	82.35 32.42
76.47	30.11	45TH	82.93 32.65
77.01	30.32	50TH	83.50 32.88
77.56	30.53	55TH	84.09 33.11
78.11	30.75	60TH	84.69 33.34
78.69	30.98	65TH	85.33 33.59
79.30	31.22	70TH	86.01 33.86
79.98	31.49	75TH	86.75 34.16
80.74	31.79	80TH	87.60 34.49
81.64	32.14	85TH	88.58 34.87
82.80	32.60	90TH	89.83 35.37
84.58	33.30	95TH	91.64 36.08
85.77	33.77	97TH	92.75 36.52
86.68	34.12	98TH	93.53 36.82
88.14	34.70	99TH	94.64 37.26

# CROTCH HEIGHT

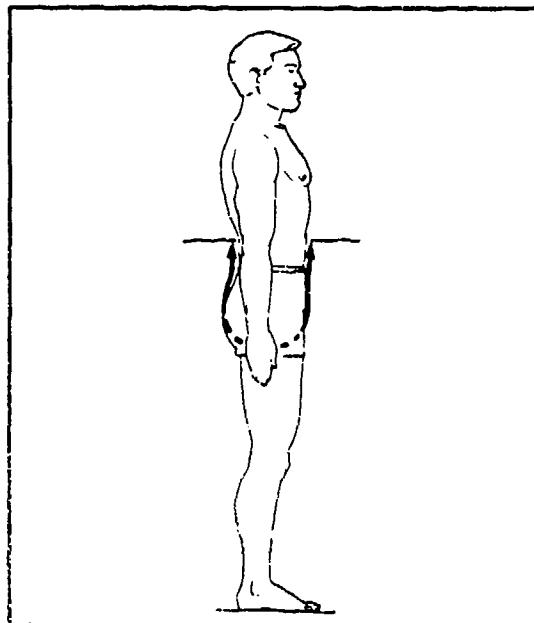
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
77.14	MEAN VALUE	30.37
.09	SE(MEAN)	.04
4.41	STD DEVIATION	1.74
.07	SE(STD DEV)	.03
59.40	MINIMUM	23.39
94.80	MAXIMUM	37.32
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	5.7%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
83.72	MEAN VALUE	32.96
.11	SE(MEAN)	.04
4.62	STD DEVIATION	1.82
.08	SE(STD DEV)	.03
67.50	MINIMUM	26.57
106.70	MAXIMUM	42.01
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.30
COEF. OF VARIATION	=	5.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	58.55 - 59.55		1	.06
0	.00	1	.05	59.55 - 60.55		0	.00
0	.00	1	.05	60.55 - 61.55		0	.00
0	.00	1	.05	61.55 - 62.55		0	.00
0	.00	1	.05	62.55 - 63.55		0	.00
1	.05	2	.09	63.55 - 64.55		1	.06
4	.18	6	.27	64.55 - 65.55		6	.34
9	.41	15	.68	65.55 - 66.55		13	.73
16	.72	31	1.40	66.55 - 67.55		19	1.07
22	1.00	53	2.40	67.55 - 68.55		21	.06
29	1.31	82	3.71	68.55 - 69.55		36	2.03
50	2.26	132	5.98	69.55 - 70.55		56	3.16
74	3.35	206	9.33	70.55 - 71.55		87	4.90
118	5.34	324	14.67	71.55 - 72.55		143	8.06
137	6.20	461	20.88	72.55 - 73.55		221	12.46
167	7.56	628	28.44	73.55 - 74.55		333	18.77
190	8.61	818	37.05	74.55 - 75.55		445	25.08
197	8.92	1015	45.97	75.55 - 76.55		572	32.24
197	8.92	1212	54.89	76.55 - 77.55		744	41.94
200	9.06	1412	63.95	77.55 - 78.55		900	50.73
167	7.56	1579	71.51	78.55 - 79.55		1039	58.57
153	6.93	1732	78.44	79.55 - 80.55		1192	67.19
133	6.02	1865	84.47	80.55 - 81.55		1312	73.96
101	4.57	1966	89.04	81.55 - 82.55		1424	80.27
75	3.40	2041	92.44	82.55 - 83.55		1505	84.84
60	2.72	2101	95.15	83.55 - 84.55		156	50.73
41	1.86	2142	97.01	84.55 - 85.55		159	7.84
21	.95	2163	97.96	85.55 - 86.55		153	8.62
16	.72	2179	98.69	86.55 - 87.55		120	6.76
12	.54	2191	99.23	87.55 - 88.55		112	6.31
8	.36	2199	99.59	88.55 - 89.55		81	4.57
5	.23	2204	99.82	89.55 - 90.55		156	8.79
1	.05	2205	99.86	90.55 - 91.55		79	4.45
1	.05	2206	99.91	91.55 - 92.55		53	2.99
1	.05	2207	99.95	92.55 - 93.55		45	2.54
0	.00	2207	99.95	93.55 - 94.55		32	1.80
1	.05	2208	100.00	94.55 - 95.55		29	1.63
				95.55 - 96.55		11	.62
				96.55 - 97.55		2	.11
				97.55 - 98.55		3	.17
				98.55 - 99.55		2	.11
				99.55 - 100.55		0	.00
				100.55 - 101.55		0	.00
				101.55 - 102.55		1	.06
				102.55 - 103.55		0	.00
				103.55 - 104.55		0	.00
				104.55 - 105.55		0	.00
				105.55 - 106.55		0	.00
				106.55 - 107.55		1	.06

### (39) CROTCH LENGTH (NATURAL INDENTATION)

The distance between the abdomen at the level of the natural indentation of the waist to the same level on the back is measured with a tape passing through the crotch to the right of the genitalia. The tape is held vertically both in front and in back. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
63.47	24.99	15 <sup>1</sup>	64.98 25.58
64.78	25.50	2ND	66.22 26.07
65.61	25.83	3RD	67.01 26.38
66.72	26.27	5TH	68.10 26.81
68.46	26.95	10TH	69.80 27.48
69.67	27.43	15TH	70.98 27.94
70.64	27.81	20TH	71.93 28.32
71.50	28.15	25TH	72.78 28.65
72.28	28.46	30TH	73.55 28.96
73.02	28.75	35TH	74.27 29.24
73.74	29.33	40TH	74.97 29.52
74.44	29.31	45TH	75.65 29.79
75.14	29.58	50TH	76.34 30.06
75.86	29.87	55TH	77.05 30.33
76.59	30.15	60TH	77.77 30.62
77.36	30.46	65TH	78.52 30.91
78.19	30.78	70TH	79.33 31.23
79.09	31.14	75TH	80.22 31.58
80.12	31.54	80TH	81.24 31.98
81.32	32.02	85TH	82.43 32.45
82.86	32.62	90TH	83.97 33.06
85.14	33.52	95TH	86.29 33.97
86.61	34.10	97TH	87.82 34.58
87.68	34.52	98TH	88.95 35.02
89.31	35.16	99TH	90.73 35.72

# CROTCH LENGTH (NATURAL INDENTATION)

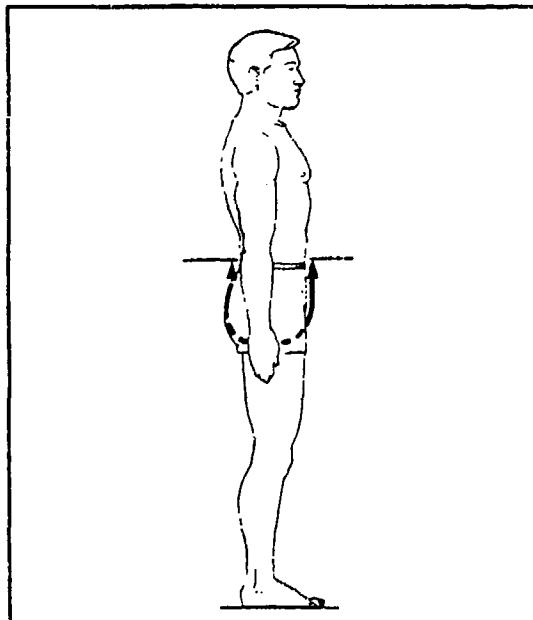
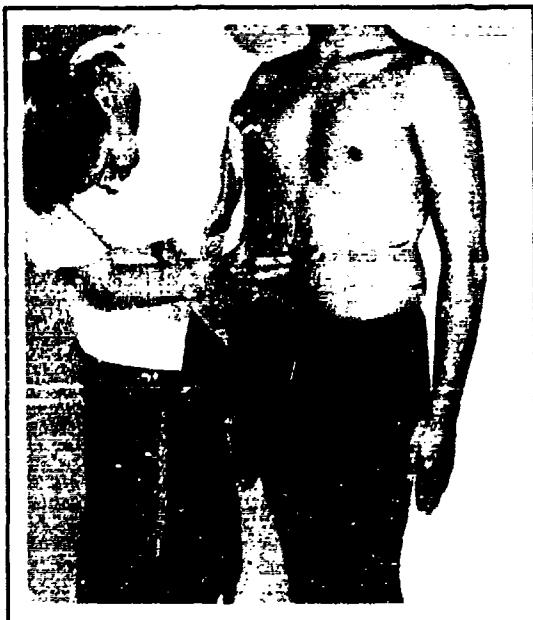
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
75.43	MEAN VALUE	29.70
.12	SE(MEAN)	.05
5.57	STD DEVIATION	2.19
.08	SE(STD DEV)	.03
59.00	MINIMUM	23.23
95.30	MAXIMUM	37.52
SYMMETRY---VETA I	=	.24
KURTOSIS---VETA II	=	2.90
COEF. OF VARIATION	=	7.4%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
76.67	MEAN VALUE	30.18
.13	SE(MEAN)	.05
5.55	STD DEVIATION	2.19
.09	SE(STD DEV)	.04
60.10	MINIMUM	23.66
98.20	MAXIMUM	38.66
SYMMETRY---VETA I	=	.34
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	7.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	58.55 - 59.55		1	.06
0	.00	1	.05	59.55 - 60.55		1	.06
5	.23	6	.27	60.55 - 61.55		1	.06
7	.32	13	.59	61.55 - 62.55		1	.06
11	.50	24	1.09	62.55 - 63.55		4	.23
8	.36	32	1.45	63.55 - 64.55		4	.23
38	1.72	70	3.17	64.55 - 65.55		15	.85
43	1.95	113	5.12	65.55 - 66.55		16	.90
48	2.17	161	7.29	66.55 - 67.55		22	1.24
66	2.99	227	10.28	67.55 - 68.55		42	2.37
98	4.44	325	14.72	68.55 - 69.55		49	2.76
96	4.35	421	19.07	69.55 - 70.55		63	3.55
137	6.20	558	25.27	70.55 - 71.55		100	5.64
142	6.43	700	31.70	71.55 - 72.55		108	6.09
145	6.57	845	38.27	72.55 - 73.55		116	6.54
152	6.88	997	45.15	73.55 - 74.55		114	6.43
165	7.47	1162	52.63	74.55 - 75.55		140	7.89
157	7.11	1319	59.74	75.55 - 76.55		127	7.16
165	7.47	1484	67.21	76.55 - 77.55		130	7.33
129	5.84	1613	73.05	77.55 - 78.55		109	6.14
111	5.02	1724	78.08	78.55 - 79.55		98	5.52
88	3.99	1812	82.07	79.55 - 80.55		97	5.47
70	3.17	1882	85.24	80.55 - 81.55		79	4.45
81	3.67	1963	88.90	81.55 - 82.55		67	3.78
61	2.76	2024	91.67	82.55 - 83.55		65	3.66
48	2.17	2072	93.84	83.55 - 84.55		49	2.76
36	1.63	2108	95.47	84.55 - 85.55		44	2.48
35	1.59	2143	97.06	85.55 - 86.55		34	1.92
15	.68	2158	97.74	86.55 - 87.55		28	1.58
23	1.04	2181	98.78	87.55 - 88.55		15	.85
9	.41	2190	99.18	88.55 - 89.55		8	.45
8	.36	2198	99.55	89.55 - 90.55		9	.51
5	.23	2203	99.77	90.55 - 91.55		5	.28
4	.18	2207	99.95	91.55 - 92.55		3	.17
0	.00	2207	99.95	92.55 - 93.55		3	.17
0	.00	2207	99.95	93.55 - 94.55		3	.17
1	.05	2208	100.00	94.55 - 95.55		2	.11
				95.55 - 96.55		1	.06
				96.55 - 97.55		1	.06
				97.55 - 98.55		1	.06

## (40) CROTCH LENGTH (OMPHALION)

The distance between the abdomen at the level of the center of the navel (omphalion) to the same level on the back is measured with a tape passing through the crotch to the right of the genitalia. The tape is held vertically both in front and in back. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
51.60	20.31	1ST	54.34 21.39
52.78	20.78	2ND	55.43 21.82
53.49	21.06	3RD	56.13 22.10
54.41	21.42	5TH	57.06 22.47
55.77	21.96	10TH	58.56 23.05
56.67	22.31	15TH	59.56 23.45
57.38	22.59	20TH	60.36 23.76
57.99	22.83	25TH	61.05 24.04
58.55	23.05	30TH	61.68 24.28
59.06	23.25	35TH	62.26 24.51
59.56	23.45	40TH	62.81 24.73
60.05	23.64	45TH	63.35 24.94
60.54	23.83	50TH	63.89 25.15
61.03	24.03	55TH	64.43 25.37
61.54	24.23	60TH	64.98 25.58
62.07	24.44	65TH	65.55 25.81
62.64	24.66	70TH	66.16 26.05
63.27	24.91	75TH	66.83 26.31
63.98	25.19	80TH	67.59 26.61
64.61	25.52	85TH	68.48 26.96
65.87	25.93	90TH	69.63 27.41
67.46	26.56	95TH	71.40 28.11
68.18	26.96	97TH	72.60 28.56
69.22	27.25	98TH	73.50 28.94
70.34	27.69	99TH	74.97 29.52

# CROTCH LENGTH (OMPHALION)

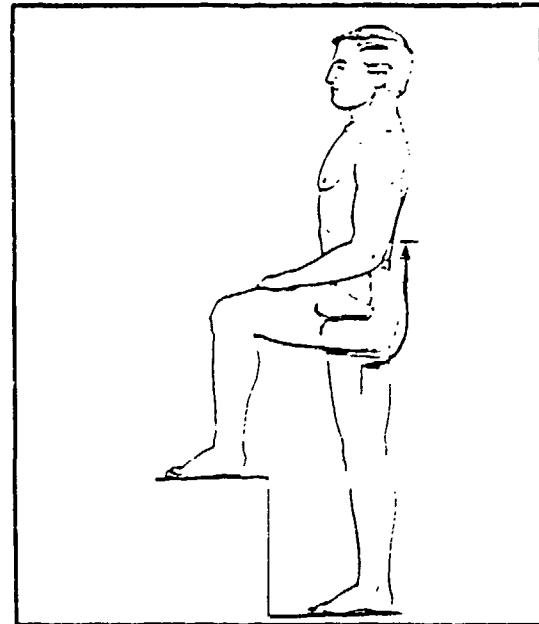
FEMALES		
CM	MEAN VALUE	INCHES
60.67	MEAN VALUE	23.89
.08	SE(MEAN)	.03
3.94	STD DEVIATION	1.55
.06	SE(STD DEV)	.02
48.70	MINIMUM	19.17
76.30	MAXIMUM	30.04
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.04
COEF. OF VARIATION	=	6.5%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
64.01	MEAN VALUE	25.20
.10	SE(MEAN)	.04
4.32	STD DEVIATION	1.70
.07	SE(STD DEV)	.03
51.10	MINIMUM	20.12
79.10	MAXIMUM	31.14
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	6.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
				48.55 - 49.55	50.55 - 51.55	52.55 - 53.55	54.55 - 55.55
2	.09	2	.09	49.55 - 50.55	51.55 - 52.55	53.55 - 54.55	55.55 - 56.55
11	.50	13	.59	50.55 - 51.55	51.55 - 52.55	52.55 - 53.55	53.55 - 54.55
10	.45	23	1.04	51.55 - 52.55	52.55 - 53.55	53.55 - 54.55	54.55 - 55.55
19	.86	42	1.90	52.55 - 53.55	53.55 - 54.55	54.55 - 55.55	55.55 - 56.55
23	1.04	65	2.94	53.55 - 54.55	54.55 - 55.55	55.55 - 56.55	56.55 - 57.55
50	2.26	115	5.21	54.55 - 55.55	55.55 - 56.55	56.55 - 57.55	57.55 - 58.55
83	3.76	198	8.57	55.55 - 56.55	56.55 - 57.55	57.55 - 58.55	58.55 - 59.55
116	5.25	314	14.22	56.55 - 57.55	57.55 - 58.55	58.55 - 59.55	59.55 - 60.55
176	7.97	490	22.19	57.55 - 58.55	58.55 - 59.55	59.55 - 60.55	60.55 - 61.55
193	8.74	683	30.93	58.55 - 59.55	59.55 - 60.55	60.55 - 61.55	61.55 - 62.55
213	9.65	896	40.58	59.55 - 60.55	60.55 - 61.55	61.55 - 62.55	62.55 - 63.55
223	10.10	1119	50.68	60.55 - 61.55	61.55 - 62.55	62.55 - 63.55	63.55 - 64.55
211	9.56	1330	60.24	61.55 - 62.55	62.55 - 63.55	63.55 - 64.55	64.55 - 65.55
208	9.42	1538	69.66	62.55 - 63.55	63.55 - 64.55	64.55 - 65.55	65.55 - 66.55
180	8.15	1718	77.81	63.55 - 64.55	64.55 - 65.55	65.55 - 66.55	66.55 - 67.55
134	6.07	1852	83.88	64.55 - 65.55	65.55 - 66.55	66.55 - 67.55	67.55 - 68.55
107	4.85	1959	88.72	65.55 - 66.55	66.55 - 67.55	67.55 - 68.55	68.55 - 69.55
88	3.99	2047	92.71	66.55 - 67.55	67.55 - 68.55	68.55 - 69.55	69.55 - 70.55
61	2.76	2108	95.47	67.55 - 68.55	68.55 - 69.55	69.55 - 70.55	70.55 - 71.55
42	1.90	2150	97.37	68.55 - 69.55	69.55 - 70.55	70.55 - 71.55	71.55 - 72.55
26	1.18	2176	98.55	69.55 - 70.55	70.55 - 71.55	71.55 - 72.55	72.55 - 73.55
13	.59	2189	99.14	70.55 - 71.55	71.55 - 72.55	72.55 - 73.55	73.55 - 74.55
11	.50	2200	99.64	71.55 - 72.55	72.55 - 73.55	73.55 - 74.55	74.55 - 75.55
5	.23	2205	99.86	72.55 - 73.55	73.55 - 74.55	74.55 - 75.55	75.55 - 76.55
2	.09	2207	99.95	73.55 - 74.55	74.55 - 75.55	75.55 - 76.55	76.55 - 77.55
0	.00	2207	99.95	74.55 - 75.55	75.55 - 76.55	76.55 - 77.55	77.55 - 78.55
1	.05	2208	100.00	75.55 - 76.55	76.55 - 77.55	77.55 - 78.55	78.55 - 79.55

#### (41) CROTCH LENGTH, POSTERIOR (NATURAL INDENTATION)

The surface distance from the crotch at the inner thigh landmark to the back of the waist at the posterior natural-indentation landmark is measured with a tape. The tape passes between the buttocks to the back of the waist. The subject stands with the left foot on a platform so that the knee is flexed.



##### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
31.46	12.39	1ST	32.64 12.85
32.41	12.76	2ND	33.31 13.11
32.98	12.98	3RD	33.74 13.28
33.70	13.27	5TH	34.32 13.51
34.77	13.69	10TH	35.22 13.87
35.48	13.87	15TH	35.85 14.11
36.04	14.19	20TH	36.36 14.31
36.52	14.39	25TH	36.80 14.49
36.95	14.55	30TH	37.21 14.65
37.36	14.71	35TH	37.59 14.80
37.75	14.86	40TH	37.96 14.94
38.14	15.01	45TH	38.32 15.09
38.52	15.17	50TH	38.68 15.23
38.91	15.32	55TH	39.05 15.37
39.32	15.48	60TH	39.42 15.52
39.74	15.64	65TH	39.81 15.67
40.19	15.82	70TH	40.23 15.84
40.68	16.02	75TH	40.68 16.02
41.24	16.24	80TH	41.20 16.22
41.90	16.49	85TH	41.79 16.45
42.73	16.82	90TH	42.55 16.75
43.97	17.31	95TH	43.67 17.19
44.75	17.62	97TH	44.39 17.48
45.31	17.84	98TH	44.90 17.68
46.14	18.17	99TH	45.69 17.99

# CROTCH LENGTH, POSTERIOR (NATURAL INDENTATION)

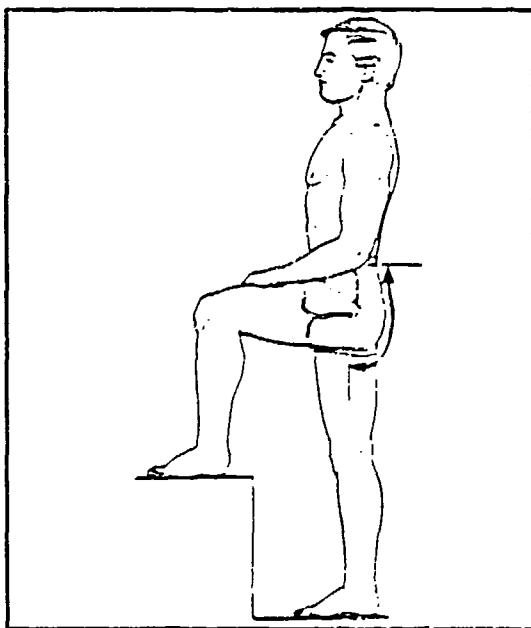
FEMALES		
	CM	INCHES
38.64	MEAN VALUE	15.21
.07	SE(MEAN)	.03
3.10	STD DEVIATION	1.22
.05	SE(STD DEV)	.02
28.90	MINIMUM	11.38
49.50	MAXIMUM	19.49
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.00
COEF. OF VARIATION	=	8.0%
NUMBER OF SUBJECTS	=	2208

MALES		
	CM	INCHES
38.80	MEAN VALUE	15.27
.07	SE(MEAN)	.03
2.85	STD DEVIATION	1.12
.05	SE(STD DEV)	.02
29.60	MINIMUM	11.65
48.70	MAXIMUM	19.17
SYMMETRY---VETA I	=	.23
KURTOSIS---VETA II	=	3.00
COEF. OF VARIATION	=	7.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	28.75 - 29.25		1	.06
0	.00	2	.09	29.25 - 29.75		0	.00
1	.05	3	.14	29.75 - 30.25			
4	.18	7	.32	30.25 - 30.75		0	.00
11	.50	18	.82	30.75 - 31.25		2	.11
8	.36	26	1.18	31.25 - 31.75		1	.06
14	.63	40	1.81	31.75 - 32.25		7	.39
20	.91	60	2.72	32.25 - 32.75		9	.51
15	.68	75	3.40	32.75 - 33.25		12	.68
37	1.68	112	5.07	33.25 - 33.75		22	1.24
45	2.04	157	7.11	33.75 - 34.25		31	1.75
62	2.81	219	9.92	34.25 - 34.75		38	2.14
72	3.26	291	13.18	34.75 - 35.25		43	2.42
87	3.94	378	17.12	35.25 - 35.75		85	4.79
104	4.71	482	21.83	35.75 - 36.25		87	4.90
119	5.39	601	27.22	36.25 - 36.75		103	5.81
140	6.34	741	33.56	36.75 - 37.25		105	5.92
141	6.39	882	39.95	37.25 - 37.75		119	6.71
156	7.07	1038	47.01	37.75 - 38.25		118	6.65
144	6.52	1182	53.53	38.25 - 38.75		116	6.54
130	5.89	1312	59.42	38.75 - 39.25		118	6.65
103	4.66	1415	64.09	39.25 - 39.75		119	6.71
128	5.80	1543	69.88	39.75 - 40.25		109	6.14
135	6.11	1678	76.00	40.25 - 40.75		96	5.41
96	4.35	1774	80.34	40.75 - 41.25		85	4.79
90	4.08	1864	84.42	41.25 - 41.75		75	4.23
67	3.03	1931	87.45	41.75 - 42.25		78	4.40
67	3.03	1998	90.49	42.25 - 42.75		37	2.09
44	1.99	2042	92.48	42.75 - 43.25		34	1.92
41	1.86	2083	94.34	43.25 - 43.75		41	2.31
33	1.49	2116	95.83	43.75 - 44.25		23	1.30
22	1.00	2138	96.83	44.25 - 44.75		21	1.18
23	1.04	2161	97.87	44.75 - 45.25		14	.79
16	.72	2177	98.60	45.25 - 45.75		8	.45
13	.59	2190	99.18	45.75 - 46.25		3	.17
6	.27	2196	99.46	46.25 - 46.75		2	.11
4	.18	2200	99.64	46.75 - 47.25		3	.17
1	.05	2201	99.68	47.25 - 47.75		5	.28
5	.23	2206	99.91	47.75 - 48.25		3	.17
0	.00	2206	99.91	48.25 - 48.75		1	.06
0	.00	2206	99.91	48.75 - 49.25		1774	100.00
2	.09	2208	100.00	49.25 - 49.75			

## (42) CROTCH LENGTH, POSTERIOR (OMPHALION)

The surface distance from the crotch at the inner thigh landmark to the back of the waist at the level of the center of the navel (omphalion) is measured with a tape. The tape passes between the buttocks to the back of the waist. The subject stands with the left foot on a platform so that the knee is flexed.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
24.71	9.73	1ST	25.97 10.22
25.46	10.02	2ND	26.58 10.46
25.92	10.21	3RD	26.97 10.62
26.54	10.45	5TH	27.53 10.84
27.46	10.81	10TH	28.40 11.18
28.07	11.05	15TH	29.01 11.42
28.55	11.24	20TH	29.49 11.61
29.96	11.40	25TH	29.91 11.77
29.33	11.55	30TH	30.28 11.92
29.66	11.68	35TH	30.63 12.06
29.98	11.80	40TH	30.96 12.19
30.29	11.92	45TH	31.28 12.32
30.59	12.04	50TH	31.60 12.44
30.90	12.17	55TH	31.92 12.57
31.21	12.29	60TH	32.24 12.69
31.54	12.42	65TH	32.57 12.82
31.88	12.55	70TH	32.91 12.96
32.26	12.70	75TH	33.29 13.11
32.68	12.87	80TH	33.71 13.27
33.18	13.06	85TH	34.18 13.46
33.83	13.32	90TH	34.78 13.69
34.83	13.71	95TH	35.66 14.04
35.50	13.98	97TH	36.22 14.26
36.01	14.18	98TH	36.63 14.42
36.83	14.50	99TH	37.27 14.67

# CROTCH LENGTH, POSTERIOR (OMPHALION)

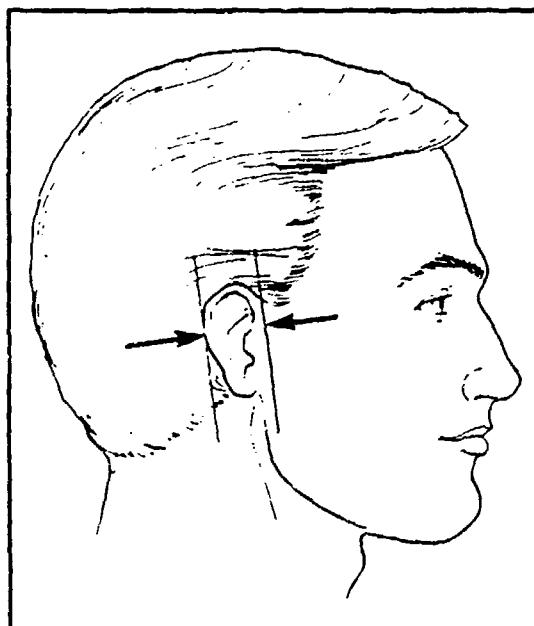
FEMALES		
<u>CM</u>	<u>INCHES</u>	
30.62	MEAN VALUE	12.05
.05	SE(MEAN)	.02
2.52	STD DEVIATION	.99
.04	SE(STD DEV)	.00
20.70	MINIMUM	8.15
41.30	MAXIMUM	16.26
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.33
COEF. OF VARIATION	=	8.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
31.60	MEAN VALUE	12.44
.06	SE(MEAN)	.02
2.47	STD DEVIATION	.97
.04	SE(STD DEV)	.02
23.30	MINIMUM	9.17
40.30	MAXIMUM	15.87
SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.00
COEF. OF VARIATION	=	7.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	20.25 - 20.75		1	.06
0	.00	1	.05	20.75 - 21.25		0	
1	.05	2	.09	21.25 - 21.75		1	.06
0	.00	2	.09	21.75 - 22.25		1	.06
1	.05	3	.14	22.25 - 22.75		4	.23
1	.05	4	.18	22.75 - 23.25			
5	.23	9	.41	23.25 - 23.75		1	.06
4	.18	13	.59	23.75 - 24.25		1	.06
10	.45	23	1.04	24.25 - 24.75		1	.06
9	.41	32	1.45	24.75 - 25.25		4	.23
25	1.13	57	2.58	25.25 - 25.75		5	.28
30	1.36	87	3.94	25.75 - 26.25		11	.62
43	1.95	130	5.89	26.25 - 26.75		20	1.13
62	2.81	192	8.70	26.75 - 27.25		25	1.41
78	3.53	270	12.23	27.25 - 27.75		49	2.76
83	3.76	353	15.99	27.75 - 28.25		44	2.48
145	6.57	498	22.55	28.25 - 28.75		58	3.27
141	6.39	639	28.94	28.75 - 29.25		82	4.62
154	6.97	793	35.91	29.25 - 29.75		97	5.47
191	8.65	984	44.57	29.75 - 30.25		128	7.22
182	8.24	1166	52.81	30.25 - 30.75		123	6.93
173	7.84	1339	60.64	30.75 - 31.25		139	7.84
156	7.07	1495	67.71	31.25 - 31.75		127	7.16
164	7.43	1659	75.14	31.75 - 32.25		155	8.74
128	5.80	1787	80.93	32.25 - 32.75		127	7.16
100	4.53	1887	85.46	32.75 - 33.25		137	7.72
91	4.12	1978	89.58	33.25 - 33.75		112	6.31
64	2.90	2042	92.48	33.75 - 34.25		89	5.02
54	2.45	2096	94.93	34.25 - 34.75		56	3.16
37	1.68	2133	96.60	34.75 - 35.25		62	3.49
18	.82	2151	97.42	35.25 - 35.75		32	1.80
18	.82	2169	98.23	35.75 - 36.25		32	1.80
16	.72	2185	98.96	36.25 - 36.75		30	1.69
12	.54	2197	99.50	36.75 - 37.25		10	.56
3	.14	2200	99.64	37.25 - 37.75		3	.17
4	.18	2204	99.82	37.75 - 38.25		5	.28
1	.05	2205	99.86	38.25 - 38.75		4	.23
1	.05	2206	99.91	38.75 - 39.25		2	.11
0	.00	2206	99.91	39.25 - 39.75		1	.06
1	.05	2207	99.95	39.75 - 40.25		1	.06
0	.00	2207	99.95	40.25 - 40.75		1	.06
0	.00	2207	99.95	40.75 - 41.25		1	.06
1	.05	2208	100.00	41.25 - 41.75		1774	100.00

### (43) EAR BREADTH

The maximum breadth of the right ear perpendicular to its long axis is measured with a sliding caliper.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
2.93	1.15	1ST	3.15 1.24
2.98	1.17	2ND	3.22 1.27
3.02	1.19	3RD	3.27 1.29
3.07	1.21	5TH	3.33 1.31
3.15	1.24	10TH	3.43 1.35
3.21	1.26	15TH	3.49 1.38
3.26	1.28	20TH	3.54 1.40
3.30	1.30	25TH	3.59 1.41
3.34	1.31	30TH	3.63 1.43
3.37	1.33	35TH	3.66 1.44
3.41	1.34	40TH	3.70 1.46
3.44	1.35	45TH	3.73 1.47
3.47	1.37	50TH	3.76 1.48
3.50	1.38	55TH	3.80 1.49
3.54	1.39	60TH	3.83 1.51
3.57	1.41	65TH	3.86 1.52
3.61	1.42	70TH	3.90 1.54
3.65	1.44	75TH	3.94 1.55
3.69	1.45	80TH	3.98 1.57
3.74	1.47	85TH	4.04 1.59
3.81	1.50	90TH	4.11 1.62
3.90	1.54	95TH	4.22 1.66
3.96	1.56	97TH	4.30 1.69
4.01	1.58	98TH	4.36 1.72
4.07	1.60	99TH	4.47 1.76

# EAR BREADTH

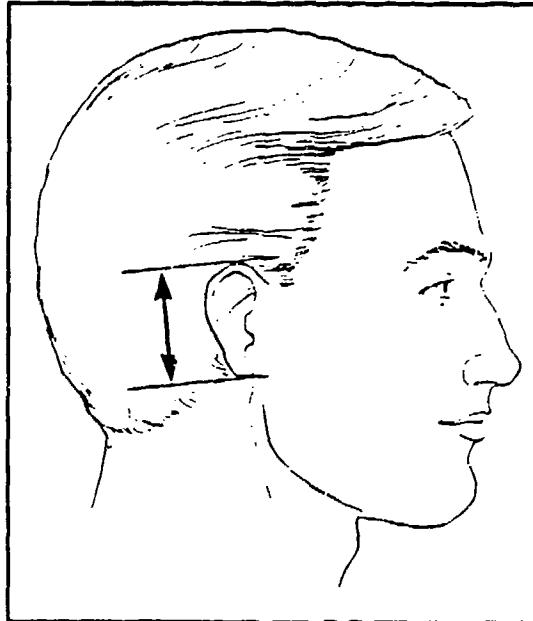
FEMALES		
<u>CM</u>	<u>INCHES</u>	
3.48	MEAN VALUE	1.37
.00	SE(MEAN)	.00
.25	STD DEVIATION	.10
.00	SE(STD DEV)	.00
2.70	MINIMUM	1.06
4.40	MAXIMUM	1.73
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	2.91
COEF. OF VARIATION	=	7.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
3.77	MEAN VALUE	1.48
.00	SE(MEAN)	.00
.27	STD DEVIATION	.11
.00	SE(STD DEV)	.00
2.70	MINIMUM	1.06
5.10	MAXIMUM	2.01
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.61
COEF. OF VARIATION	=	7.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	2.65	-	2.75	
8	.36	9	.41	2.75	-	2.85	
15	.68	24	1.09	2.85	-	2.95	
66	2.39	90	4.08	2.95	-	3.05	
112	5.07	202	9.15	3.05	-	3.15	
205	9.28	407	18.43	3.15	-	3.25	
300	13.59	707	32.02	3.25	-	3.35	
311	14.09	1018	46.11	3.35	-	3.45	
358	16.21	1376	62.32	3.45	-	3.55	
296	13.41	1672	75.72	3.55	-	3.65	
225	10.19	1897	85.91	3.65	-	3.75	
137	6.20	2034	92.12	3.75	-	3.85	
109	4.94	2143	97.06	3.85	-	3.95	
38	1.72	2181	98.78	3.95	-	4.05	
18	.82	2199	99.59	4.05	-	4.15	
5	.23	2204	99.82	4.15	-	4.25	
2	.09	2206	99.91	4.25	-	4.35	
2	.09	2208	100.00	4.35	-	4.45	
				4.45	-	4.55	
				4.55	-	4.65	
				4.65	-	4.75	
				4.75	-	4.85	
				4.85	-	4.95	
				4.95	-	5.05	
				5.05	-	5.15	

## (44) EAR LENGTH

The length of the right ear from its highest to lowest points on a line parallel to the long axis of the ear is measured with a sliding caliper.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
5.11	2.01	1ST	5.44 2.14
5.21	2.05	2ND	5.59 2.20
5.27	2.08	3RD	5.68 2.23
5.36	2.11	5TH	5.78 2.28
5.50	2.16	10TH	5.94 2.34
5.59	2.20	15TH	6.04 2.38
5.66	2.23	20TH	6.11 2.41
5.72	2.25	25TH	6.18 2.43
5.78	2.28	30TH	6.24 2.46
5.83	2.30	35TH	6.29 2.48
5.88	2.32	40TH	6.35 2.50
5.93	2.33	45TH	6.40 2.52
5.97	2.35	50TH	6.45 2.54
6.02	2.37	55TH	6.50 2.56
6.07	2.39	60TH	6.55 2.58
6.12	2.41	65TH	6.61 2.60
6.17	2.43	70TH	6.67 2.63
6.23	2.45	75TH	6.74 2.65
6.29	2.48	80TH	6.82 2.68
6.37	2.51	85TH	6.91 2.72
6.46	2.54	90TH	7.03 2.77
6.60	2.60	95TH	7.21 2.84
6.69	2.64	97TH	7.34 2.89
6.76	2.66	98TH	7.43 2.92
6.87	2.71	99TH	7.57 2.98

## EAR LENGTH

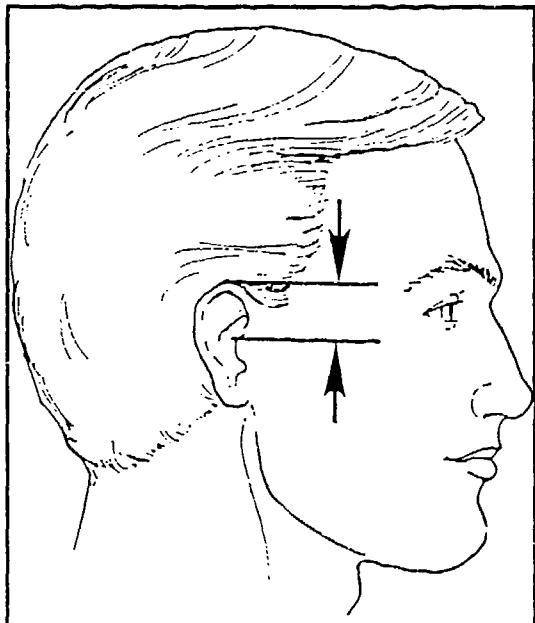
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
5.98	MEAN VALUE	2.35
.00	SE(MEAN)	.00
.38	STD DEVIATION	.15
.00	SE(STD DEV)	.00
4.50	MINIMUM	1.77
7.20	MAXIMUM	2.83
SYMMETRY---VETA I	=	.02
KURTOSIS---VETA II	=	3.08
COEF. OF VARIATION	=	6.3%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
6.47	MEAN VALUE	2.55
.00	SE(MEAN)	.00
.43	STD DEVIATION	.17
.00	SE(STD DEV)	.00
5.10	MINIMUM	2.01
8.00	MAXIMUM	3.15
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.23
COEF. OF VARIATION	=	6.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	4.45 - 4.55			
2	.09	3	.14	4.55 - 4.65			
0	.00	3	.14	4.65 - 4.75			
0	.00	3	.14	4.75 - 4.85			
1	.05	4	.18	4.85 - 4.95			
11	.50	15	.68	4.95 - 5.05			
15	.68	30	1.36	5.05 - 5.15			
21	.95	51	2.31	5.15 - 5.25			
51	2.31	102	4.62	5.25 - 5.35			
67	3.03	169	7.65	5.35 - 5.45			
102	4.62	271	12.27	5.45 - 5.55			
155	7.02	426	19.29	5.55 - 5.65			
186	8.42	612	27.72	5.65 - 5.75			
220	9.96	832	37.68	5.75 - 5.85			
193	8.74	1025	46.42	5.85 - 5.95			
246	11.14	1271	57.56	5.95 - 6.05			
219	9.92	1490	67.48	6.05 - 6.15			
207	9.38	1697	76.86	6.15 - 6.25			
169	7.65	1866	84.51	6.25 - 6.35			
120	5.43	1986	89.95	6.35 - 6.45			
78	3.53	2064	93.48	6.45 - 6.55			
62	2.81	2126	96.29	6.55 - 6.65			
34	1.54	2160	97.83	6.65 - 6.75			
24	1.09	2184	98.91	6.75 - 6.85			
9	.41	2193	99.32	6.85 - 6.95			
9	.41	2202	99.73	6.95 - 7.05			
5	.23	2207	99.95	7.05 - 7.15			
1	.05	2208	100.00	7.15 - 7.25			
				7.25 - 7.35			
				7.35 - 7.45			
				7.45 - 7.55			
				7.55 - 7.65			
				7.65 - 7.75			
				7.75 - 7.85			
				7.85 - 7.95			
				7.95 - 8.05			
					8.05 - 8.15		
					8.15 - 8.25		
					8.25 - 8.35		
					8.35 - 8.45		
					8.45 - 8.55		
					8.55 - 8.65		
					8.65 - 8.75		
					8.75 - 8.85		
					8.85 - 8.95		
					8.95 - 9.05		
					9.05 - 9.15		
					9.15 - 9.25		
					9.25 - 9.35		
					9.35 - 9.45		
					9.45 - 9.55		
					9.55 - 9.65		
					9.65 - 9.75		
					9.75 - 9.85		
					9.85 - 9.95		
					9.95 - 10.05		

## (45) EAR LENGTH ABOVE TRAGION

The distance from the right tragion landmark to the top of the right ear on a line parallel to the long axis of the ear is measured with a sliding caliper.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
2.31	.91	1ST	2.57 1.01
2.38	.94	2ND	2.65 1.04
2.43	.96	3RD	2.70 1.06
2.49	.98	5TH	2.77 1.09
2.58	1.02	10TH	2.87 1.13
2.64	1.04	15TH	2.94 1.16
2.68	1.06	20TH	2.99 1.18
2.72	1.07	25TH	3.03 1.19
2.76	1.09	30TH	3.06 1.21
2.79	1.10	35TH	3.10 1.22
2.82	1.11	40TH	3.13 1.23
2.85	1.12	45TH	3.16 1.24
2.87	1.13	50TH	3.19 1.26
2.90	1.14	55TH	3.22 1.27
2.93	1.15	60TH	3.25 1.28
2.96	1.17	65TH	3.28 1.29
2.99	1.18	70TH	3.31 1.30
3.03	1.19	75TH	3.35 1.32
3.07	1.21	80TH	3.39 1.33
3.11	1.22	85TH	3.44 1.35
3.17	1.25	90TH	3.50 1.38
3.26	1.28	95TH	3.60 1.42
3.32	1.31	97TH	3.67 1.44
3.36	1.32	98TH	3.73 1.47
3.44	1.35	99TH	3.82 1.50

# EAR LENGTH ABOVE TRAGION

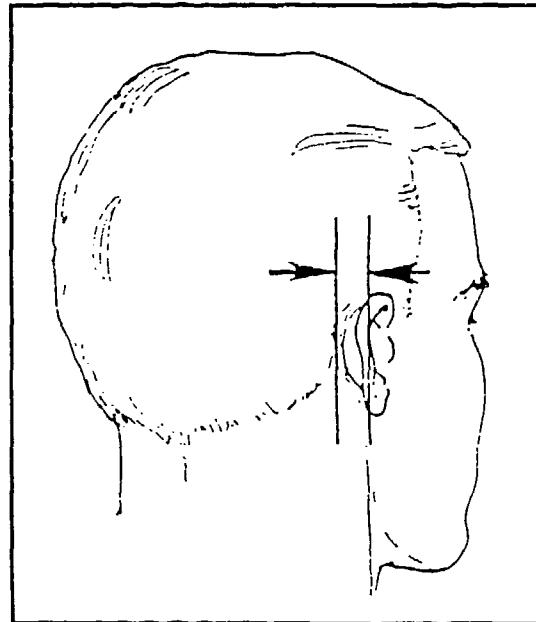
FEMALES		
<u>CM</u>	<u>INCHES</u>	
2.87	MEAN VALUE	1.13
.00	SE(MEAN)	.00
.23	STD DEVIATION	.09
.00	SE(STD DEV)	.00
2.00	MINIMUM	.79
3.80	MAXIMUM	1.50
SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.39
COEF. OF VARIATION	=	8.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
3.19	MEAN VALUE	1.25
.00	SE(MEAN)	.00
.25	STD DEVIATION	.10
.00	SE(STD DEV)	.00
2.40	MINIMUM	.94
4.20	MAXIMUM	1.65
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.46
COEF. OF VARIATION	=	7.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	1.95 - 2.05			
1	.05	2	.09	2.05 - 2.15			
11	.50	13	.59	2.15 - 2.25			
18	.82	31	1.40	2.25 - 2.35			
39	1.77	70	3.17	2.35 - 2.45	2	.11	2 .11
103	4.66	173	7.84	2.45 - 2.55	10	.56	12 .68
171	7.74	344	15.58	2.55 - 2.65	23	1.30	35 1.97
299	13.54	643	29.12	2.65 - 2.75	37	2.09	72 4.06
369	16.71	1012	45.83	2.75 - 2.85	84	4.74	156 8.79
374	16.94	1386	62.77	2.85 - 2.95	125	7.05	281 15.84
351	15.90	1737	78.67	2.95 - 3.05	208	11.72	489 27.56
221	10.01	1958	88.68	3.05 - 3.15	275	15.50	764 43.07
135	6.11	2093	94.79	3.15 - 3.25	296	16.69	1060 59.75
72	3.26	2165	98.05	3.25 - 3.35	295	16.63	1355 76.38
22	1.00	2187	99.05	3.35 - 3.45	194	10.94	1549 87.32
14	.63	2201	99.68	3.45 - 3.55	106	5.98	1655 93.29
2	.09	2203	99.77	3.55 - 3.65	58	3.27	1713 96.56
3	.14	2206	99.91	3.65 - 3.75	31	1.75	1744 98.31
2	.09	2208	100.00	3.75 - 3.85	19	1.07	1763 99.38
				3.85 - 3.95	6	.34	1769 99.72
				3.95 - 4.05	2	.11	1771 99.83
				4.05 - 4.15	2	.11	1773 99.94
				4.15 - 4.25	1	.06	1774 100.00

## (46) EAR PROTRUSION

The horizontal distance between the mastoid process (the bony area behind the bottom of the ear) and the outside edge of the right ear at its most lateral point is measured using a sliding caliper with its slide reversed.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
1.56	.61	1ST	1.66 .66
1.62	.64	2ND	1.74 .69
1.66	.66	3RD	1.79 .71
1.72	.68	5TH	1.86 .73
1.81	.71	10TH	1.98 .78
1.87	.74	15TH	2.06 .81
1.92	.76	20TH	2.12 .83
1.96	.77	25TH	2.17 .86
2.01	.79	30TH	2.22 .88
2.05	.81	35TH	2.27 .89
2.08	.82	40TH	2.32 .91
2.12	.84	45TH	2.36 .93
2.16	.85	50TH	2.40 .95
2.20	.87	55TH	2.45 .96
2.24	.88	60TH	2.49 .98
2.28	.90	65TH	2.54 1.00
2.33	.92	70TH	2.59 1.02
2.38	.94	75TH	2.65 1.04
2.44	.96	80TH	2.71 1.07
2.51	.99	85TH	2.79 1.10
2.59	1.02	90TH	2.88 1.13
2.72	1.07	95TH	3.03 1.19
2.81	1.11	97TH	3.13 1.23
2.87	1.13	98TH	3.21 1.26
2.97	1.17	99TH	3.33 1.31

# EAR PROTRUSION

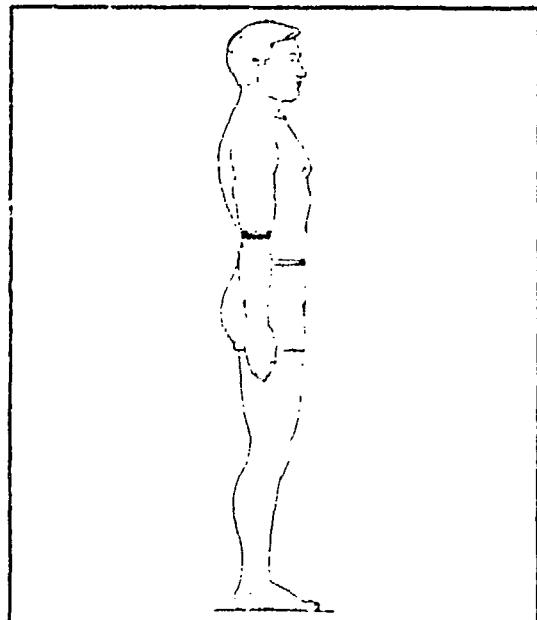
FEMALES		
	<u>CM</u>	<u>INCHES</u>
2.18	MEAN VALUE	.86
.00	SE(MEAN)	.00
.30	STD DEVIATION	.12
.00	SE(STD DEV)	.00
1.40	MINIMUM	.55
3.30	MAXIMUM	1.30
SYMMETRY---VETA I	=	.37
KURTOSIS---VETA II	=	3.05
COEF. OF VARIATION	=	13.9%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
2.42	MEAN VALUE	.95
.00	SE(MEAN)	.00
.36	STD DEVIATION	.14
.00	SE(STD DEV)	.00
1.30	MINIMUM	.51
4.00	MAXIMUM	1.57
SYMMETRY---VETA I	=	.31
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	14.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
3	.14	3	.14	1.25 -	1.35	1	.06
16	.72	19	.86	1.35 -	1.45	0	.00
34	1.54	53	2.40	1.45 -	1.55	2	.11
79	3.58	132	5.98	1.55 -	1.65	14	.79
167	7.56	299	13.54	1.65 -	1.75	16	.90
218	9.87	517	23.41	1.75 -	1.85	44	2.48
270	12.23	787	35.64	1.85 -	1.95	73	4.11
259	11.73	1046	47.37	1.95 -	2.05	107	6.03
312	14.13	1358	61.50	2.05 -	2.15	139	7.84
239	10.82	1597	72.33	2.15 -	2.25	191	10.77
214	9.69	1811	82.02	2.25 -	2.35	206	11.61
123	6.02	1944	88.04	2.35 -	2.45	188	10.60
104	4.71	2048	92.75	2.45 -	2.55	181	10.20
67	3.03	2115	95.79	2.55 -	2.65	167	9.41
40	1.81	2155	97.60	2.65 -	2.75	132	7.44
29	1.31	2184	98.91	2.75 -	2.85	104	5.86
15	.68	2199	99.59	2.85 -	2.95	83	4.68
5	.23	2204	99.82	2.95 -	3.05	58	3.27
1	.05	2205	99.86	3.05 -	3.15	22	1.24
3	.14	2208	100.00	3.15 -	3.25	17	.96
				3.25 -	3.35	13	.73
				3.35 -	3.45	7	.39
				3.45 -	3.55	5	.28
				3.55 -	3.65	0	.00
				3.65 -	3.75	2	.11
				3.75 -	3.85	1	.06
				3.85 -	3.95	0	.00
				3.95 -	4.05	1	.06

## (47) ELBOW CIRCUMFERENCE

The circumference of the right elbow in a plane perpendicular to the long axis of the arm is measured with a tape passing around the elbow at the level of the olecranon-center landmark. The subject stands with the arm straight and slightly away from the side.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
20.96	8.25	1ST	24.28 9.56
21.27	8.37	2ND	24.71 9.73
21.47	8.45	3RD	24.96 9.83
21.75	8.56	5TH	25.30 9.96
22.18	8.73	10TH	25.81 10.16
22.47	8.85	15TH	26.16 10.30
22.71	8.94	20TH	26.43 10.40
22.91	9.02	25TH	26.66 10.50
23.10	9.09	30TH	26.88 10.58
23.27	9.16	35TH	27.08 10.66
23.44	9.23	40TH	27.27 10.74
23.60	9.29	45TH	27.46 10.81
23.76	9.35	50TH	27.65 10.88
23.92	9.42	55TH	27.84 10.96
24.09	9.49	60TH	28.03 11.04
24.27	9.55	65TH	28.24 11.12
24.46	9.63	70TH	28.46 11.20
24.67	9.71	75TH	28.70 11.30
24.91	9.81	80TH	28.97 11.41
25.19	9.92	85TH	29.29 11.53
25.57	10.07	90TH	29.70 11.69
26.17	10.30	95TH	30.32 11.94
26.58	10.46	97TH	30.72 12.09
26.90	10.59	98TH	31.01 12.21
27.43	10.80	99TH	31.46 12.39

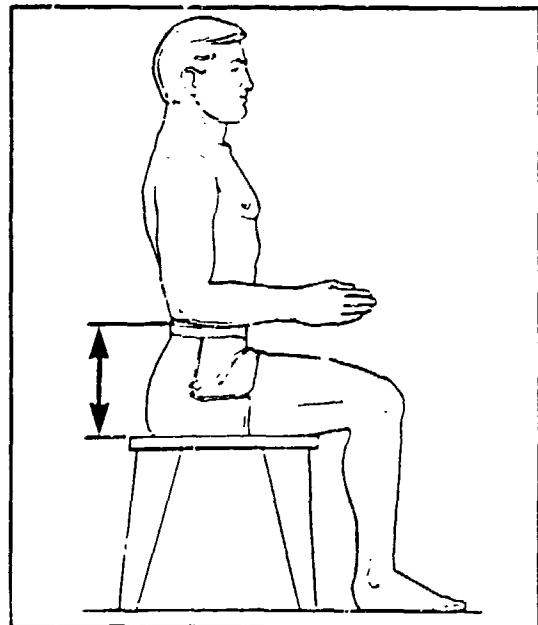
# ELBOW CIRCUMFERENCE

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
23.83	MEAN VALUE	9.38	27.71	MEAN VALUE	10.91
.03	SE(MEAN)	.00	.04	SE(MEAN)	.00
1.34	STD DEVIATION	.53	1.53	STD DEVIATION	.60
.02	SE(STD DEV)	.00	.03	SE(STD DEV)	.00
20.10	MINIMUM	7.91	21.90	MINIMUM	8.62
29.20	MAXIMUM	11.50	33.90	MAXIMUM	13.35
SYMMETRY---VETA I	=	.36	SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.41	KURTOSIS---VETA II	=	3.37
COEF. OF VARIATION	=	5.6%	COEF. OF VARIATION	=	5.5%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
3	.14	3	.14	19.75 - 20.25		1	.06
11	.50	14	.63	20.25 - 20.75		1	.06
26	1.18	40	1.81	20.75 - 21.25		3	.17
79	3.58	119	5.39	21.25 - 21.75		4	.23
131	5.93	250	11.32	21.75 - 22.25		4	.23
201	9.10	451	20.43	22.25 - 22.75		28	1.58
277	12.55	728	32.97	22.75 - 23.25		30	1.69
372	16.85	1100	49.82	23.25 - 23.75		32	1.30
335	15.17	1435	64.99	23.75 - 24.25		33	.93
267	12.09	1702	77.08	24.25 - 24.75		41	2.31
213	9.65	1915	86.73	24.75 - 25.25		71	4.00
117	5.30	2032	92.03	25.25 - 25.75		91	5.13
78	3.53	2110	95.56	25.75 - 26.25		122	6.88
36	1.63	2146	97.19	26.25 - 26.75		198	11.16
36	1.63	2182	98.82	26.75 - 27.25		223	12.57
14	.63	2196	99.46	27.25 - 27.75		232	13.08
7	.32	2203	99.77	27.75 - 28.25		226	12.74
1	.05	2201	99.82	28.25 - 28.75		177	10.03
4	.18	2208	100.00	28.75 - 29.25		161	9.08
				29.25 - 29.75		114	6.43
				29.75 - 30.25		62	3.49
				30.25 - 30.75		41	2.31
				30.75 - 31.25		33	1.86
				31.25 - 31.75		10	.56
				31.75 - 32.25		6	.34
				32.25 - 32.75		2	.11
				32.75 - 33.25		2	.11
				33.25 - 33.75		1	.06
				33.75 - 34.25		1	.06

## (48) ELBOW REST HEIGHT

The vertical distance between a sitting surface and the olecranon landmark on the bottom of the flexed right elbow is measured with an anthropometer. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.80	6.22	1ST	16.75 6.60
16.49	6.49	2ND	17.35 6.83
16.94	6.67	3RD	17.78 7.00
17.57	6.92	5TH	18.41 7.25
18.56	7.31	10TH	19.44 7.65
19.24	7.57	15TH	20.17 7.94
19.77	7.78	20TH	20.74 8.17
20.24	7.97	25TH	21.24 8.36
20.65	8.13	30TH	21.69 8.54
21.03	8.28	35TH	22.09 8.70
21.39	8.42	40TH	22.47 8.85
21.74	8.56	45TH	22.83 8.99
22.08	8.69	50TH	23.19 9.13
22.42	8.83	55TH	23.53 9.27
22.77	8.96	60TH	23.88 9.40
23.12	9.10	65TH	24.23 9.54
23.49	9.25	70TH	24.59 9.68
23.89	9.41	75TH	24.98 9.83
24.33	9.58	80TH	25.40 10.00
24.84	9.78	85TH	25.88 10.19
25.49	10.03	90TH	26.48 10.43
26.44	10.41	95TH	27.37 10.78
27.06	10.65	97TH	27.96 11.01
27.52	10.83	98TH	28.41 11.19
28.24	11.12	99TH	29.16 11.48

# ELBOW REST HEIGHT

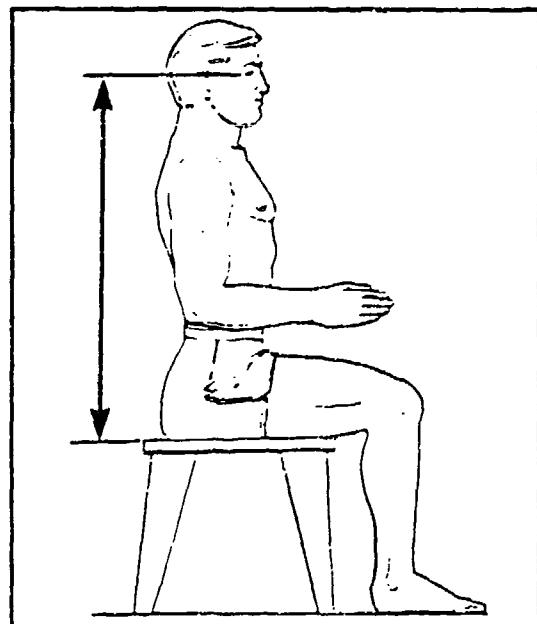
FEMALES		
<u>CM</u>	<u>INCHES</u>	
22.05	MEAN VALUE	8.68
.06	SE(MEAN)	.02
2.68	STD DEVIATION	1.05
.04	SE(STD DEV)	.02
12.40	MINIMUM	4.88
30.20	MAXIMUM	11.89
SYMMETRY---VETA I	=	-.04
KURTOSIS---VETA II	=	2.88
COEF. OF VARIATION	=	12.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
23.06	MEAN VALUE	9.08
.06	SE(MEAN)	.03
2.72	STD DEVIATION	1.07
.05	SE(STD DEV)	.02
14.00	MINIMUM	5.51
31.10	MAXIMUM	12.24
SYMMETRY---VETA I	=	-.15
KURTOSIS---VETA II	=	2.82
COEF. OF VARIATION	=	11.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	12.25 - 12.75		1	.06
0	.00	1	.05	12.75 - 13.25		2	.11
1	.05	2	.09	13.25 - 13.75		3	.17
0	.00	2	.09	13.75 - 14.25		4	.17
7	.32	9	.41	14.25 - 14.75		14	.23
3	.14	12	.54	14.75 - 15.25		17	.96
9	.41	21	.95	15.25 - 15.75		23	1.30
14	.63	35	1.59	15.75 - 16.25		23	1.30
21	.95	56	2.54	16.25 - 16.75		18	1.01
26	1.18	82	3.71	16.75 - 17.25		32	1.80
40	1.81	122	5.53	17.25 - 17.75		49	2.76
47	2.13	169	7.65	17.75 - 18.25		72	4.06
73	3.31	242	10.96	18.25 - 18.75		113	6.37
83	3.76	325	14.72	18.75 - 19.25		159	8.96
120	5.43	445	20.15	19.25 - 19.75		229	12.91
118	5.34	563	25.50	19.75 - 20.25		282	15.90
137	6.20	700	31.70	20.25 - 20.75		356	20.07
153	5.93	853	38.63	20.75 - 21.25		446	25.14
144	6.52	997	45.15	21.25 - 21.75		545	30.72
154	6.97	1151	52.13	21.75 - 22.25		646	36.41
147	6.66	1298	58.79	22.25 - 22.75		782	44.08
178	8.06	1476	66.85	22.75 - 23.25		907	51.13
146	6.61	1622	73.46	23.25 - 23.75		1026	57.84
138	6.25	1760	79.71	23.75 - 24.25		1148	64.71
87	3.94	1847	83.65	24.25 - 24.75		1277	71.98
98	4.44	1945	88.09	24.75 - 25.25		1395	78.64
81	3.67	2026	91.76	25.25 - 25.75		1487	83.82
58	2.63	2084	94.38	25.75 - 26.25		1573	88.67
38	1.72	2122	96.11	26.25 - 26.75		1632	92.00
33	1.49	2155	97.60	26.75 - 27.25		1683	94.87
24	1.09	2179	98.69	27.25 - 27.75		1711	96.45
6	.27	2185	98.96	27.75 - 28.25		1731	97.58
9	.41	2194	99.37	28.25 - 28.75		1746	98.12
9	.41	2203	99.77	28.75 - 29.25		1760	99.21
3	.14	2206	99.91	29.25 - 29.75		1769	99.72
2	.09	2208	100.00	29.75 - 30.25		1774	100.00
				30.25 - 30.75			
				30.75 - 31.25			

## (49) EYE HEIGHT, SITTING

The vertical distance between a sitting surface and the ectocanthus landmark on the outer corner of the right eye is measured with an anthropometer. The subject sits erect with the head in the Frankfort plane. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The thighs are parallel and the knees are flexed 90 degrees with the feet in line with the thighs. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
66.40	26.14	1ST	71.18 28.02
67.21	26.46	2ND	72.11 28.39
67.74	26.67	3RD	72.70 28.62
68.46	26.95	5TH	73.50 28.94
69.60	27.40	10TH	74.76 29.43
70.38	27.71	15TH	75.61 29.77
71.01	27.96	20TH	76.29 30.04
71.56	28.17	25TH	76.88 30.27
72.06	28.37	30TH	77.40 30.47
72.52	28.55	35TH	77.88 30.66
72.96	28.72	40TH	78.34 30.84
73.39	28.89	45TH	78.79 31.02
73.82	29.06	50TH	79.23 31.19
74.25	29.23	55TH	79.66 31.36
74.68	29.40	60TH	80.10 31.54
75.13	29.58	65TH	80.56 31.72
75.61	29.77	70TH	81.04 31.90
76.13	29.97	75TH	81.55 32.11
76.71	30.20	80TH	82.13 32.31
77.37	30.46	85TH	82.78 32.59
78.21	30.79	90TH	83.61 32.92
79.43	31.27	95TH	84.80 33.39
80.20	31.57	97TH	85.56 33.68
80.75	31.79	98TH	86.10 33.90
81.59	32.12	99TH	86.93 34.23

# EYE HEIGHT, SITTING

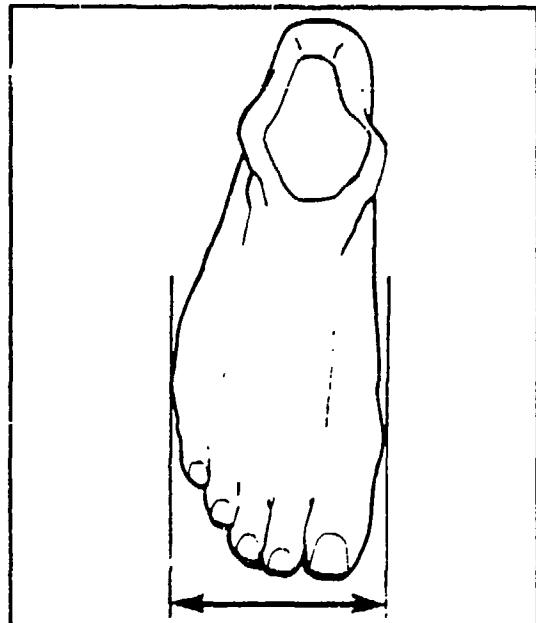
FEMALES		
<u>CM</u>	<u>INCHES</u>	
73.87	MEAN VALUE	29.08
.07	SE(MEAN)	.03
3.32	STD DEVIATION	1.31
.05	SE(STD DEV)	.02
64.00	MINIMUM	25.20
86.40	MAXIMUM	34.02
SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	2.87
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
79.20	MEAN VALUE	31.18
.08	SE(MEAN)	.03
3.42	STD DEVIATION	1.35
.06	SE(STD DEV)	.02
67.30	MINIMUM	26.50
90.30	MAXIMUM	35.55
SYMMETRY---VETA I	=	-.04
KURTOSIS---VETA II	=	2.92
COEF. OF VARIATION	=	4.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
1	.05	1	.05	63.75 - 64.25			
2	.09	3	.14	64.25 - 64.75			
4	.18	7	.32	64.75 - 65.25			
6	.27	13	.59	65.25 - 65.75			
4	.18	17	.77	65.75 - 66.25			
13	.59	30	1.36	66.25 - 66.75			
18	.82	48	2.17	66.75 - 67.25			
23	1.04	71	3.22	67.25 - 67.75	1	.06	1
22	1.00	93	4.21	67.75 - 68.25	2	.06	.11
30	1.36	123	5.57	68.25 - 68.75	0	.00	.11
59	2.67	182	8.24	68.75 - 69.25	1	.06	.17
48	2.17	230	10.42	69.25 - 69.75	2	.11	.28
63	2.85	293	13.27	69.75 - 70.25	2	.11	.39
88	3.99	381	17.26	70.25 - 70.75	8	.45	.85
98	4.44	479	21.69	70.75 - 71.25	3	.17	1.01
118	5.34	597	27.04	71.25 - 71.75	11	.62	1.63
122	5.53	719	32.56	71.75 - 72.25	12	.68	2.31
119	5.39	838	37.95	72.25 - 72.75	14	.79	3.10
138	6.25	976	44.20	72.75 - 73.25	16	.90	4.00
130	5.89	1106	50.09	73.25 - 73.75	23	1.30	5.30
121	5.48	1227	55.57	73.75 - 74.25	25	1.41	6.71
115	5.21	1342	60.78	74.25 - 74.75	51	2.87	9.58
112	5.07	1454	65.85	74.75 - 75.25	67	3.78	13.36
116	5.25	1570	71.11	75.25 - 75.75	65	3.66	30.02
102	4.62	1672	75.72	75.75 - 76.25	53	2.99	20.01
83	3.76	1755	79.48	76.25 - 76.75	70	3.95	23.96
91	4.12	1846	83.61	76.75 - 77.25	77	4.34	28.30
84	3.80	1930	87.41	77.25 - 77.75	78	4.40	32.69
61	2.76	1991	90.17	77.75 - 78.25	111	6.26	38.95
56	2.54	2047	92.71	78.25 - 78.75	102	5.75	44.70
38	1.72	2085	94.43	78.75 - 79.25	106	5.98	50.68
38	.72	2123	96.15	79.25 - 79.75	97	5.47	56.14
25	1.13	2148	97.28	79.75 - 80.25	83	4.68	60.82
21	.95	2169	98.23	80.25 - 80.75	101	5.69	66.52
8	.36	2177	98.60	80.75 - 81.25	103	5.81	72.32
10	.45	2187	99.05	81.25 - 81.75	92	5.19	77.51
8	.36	2195	99.41	81.75 - 82.25	71	4.00	81.51
5	.23	2200	99.64	82.25 - 82.75	49	2.76	1495
3	.14	2203	99.77	82.75 - 83.25	70	3.95	1565
0	.00	2203	99.77	83.25 - 83.75	50	2.82	1615
2	.09	2205	99.86	83.75 - 84.25	37	2.09	1652
1	.05	2206	99.91	84.25 - 84.75	29	1.63	1681
0	.00	2206	99.91	84.75 - 85.25	29	1.63	1710
1	.05	2207	99.95	85.25 - 85.75	21	1.18	1731
0	.00	2207	99.95	85.75 - 86.25	9	.51	1740
1	.05	2208	100.00	86.25 - 86.75	14	.79	1754
							98.87
							99.27
							1761
							99.61
							1767
							99.72
							1769
							99.77
							1770
							99.83
							1771
							99.83
							1773
							99.94
							1774
							100.00

## (50) FOOT BREADTH, HORIZONTAL

The maximum breadth of the right foot is measured on a footbox scale. The subject stands with each foot in a footbox and the weight distributed equally on both feet. The heel of the right foot lightly touches the back of the box, and the side of the foot at the fifth-metatarsophalangeal-protrusion landmark lightly touches the side of the box. The medial side of the foot is parallel to the long axis of the box. A block is placed against the landmark at the first metatarsophalangeal protrusion to establish the measurement on the scale.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
7.87	3.10	1ST	8.90 3.51
7.98	3.14	2ND	9.03 3.56
8.06	3.17	3RD	9.11 3.59
8.16	3.21	5TH	9.23 3.63
8.34	3.28	10TH	9.41 3.70
8.46	3.33	15TH	9.53 3.75
8.55	3.37	20TH	9.62 3.79
8.63	3.40	25TH	9.71 3.82
8.71	3.43	30TH	9.78 3.85
8.78	3.46	35TH	9.85 3.88
8.84	3.48	40TH	9.92 3.90
8.90	3.50	45TH	9.98 3.93
8.96	3.53	50TH	10.05 3.96
9.02	3.55	55TH	10.11 3.98
9.08	3.58	60TH	10.18 4.01
9.15	3.60	65TH	10.25 4.03
9.21	3.63	70TH	10.32 4.06
9.29	3.66	75TH	10.40 4.09
9.37	3.69	80TH	10.49 4.13
9.46	3.73	85TH	10.60 4.17
9.59	3.77	90TH	10.74 4.23
9.78	3.85	95TH	10.95 4.31
9.91	3.90	97TH	11.10 4.37
10.02	3.94	98TH	11.21 4.41
10.20	4.02	99TH	11.40 4.49

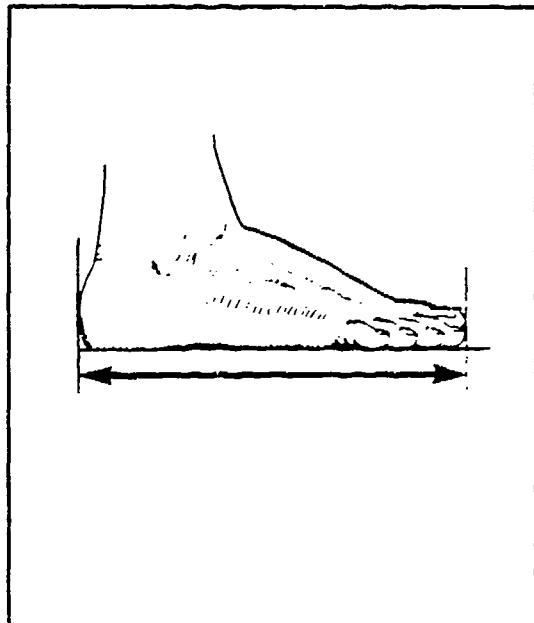
# FOOT BREADTH, HORIZONTAL

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
8.97	MEAN VALUE	3.53	10.06	MEAN VALUE	3.96
.00	SE(MEAN)	.00	.00	SE(MEAN)	.00
.49	STD DEVIATION	.19	.53	STD DEVIATION	.21
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
7.30	MINIMUM	2.87	8.00	MINIMUM	3.15
10.90	MAXIMUM	4.29	12.20	MAXIMUM	4.80
SYMMETRY---VETA I	=	.13	SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.18	KURTOSIS---VETA II	=	3.36
COEF. OF VARIATION	=	5.5%	COEF. OF VARIATION	=	5.2%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	7.25 - 7.35		1	.06
2	.09	3	.14	7.35 - 7.45		1	.06
1	.05	4	.18	7.45 - 7.55		1	.06
3	.14	7	.32	7.55 - 7.65		1	.06
5	.23	12	.54	7.65 - 7.75		1	.06
7	.32	19	.86	7.75 - 7.85		1	.06
19	.86	38	1.72	7.85 - 7.95		1	.06
28	1.27	66	2.99	7.95 - 8.05		1	.06
26	1.18	92	4.17	8.05 - 8.15		1	.06
54	2.45	146	6.61	8.15 - 8.25		1	.06
73	3.31	219	9.92	8.25 - 8.35		1	.06
95	4.30	314	14.22	8.35 - 8.45		1	.06
156	7.07	470	21.29	8.45 - 8.55		1	.06
105	4.76	575	26.04	8.55 - 8.65		1	.06
159	7.20	734	33.24	8.65 - 8.75		1	.06
171	7.74	905	40.99	8.75 - 8.85		1	.06
174	7.88	1079	48.87	8.85 - 8.95		1	.06
210	9.51	1289	58.38	8.95 - 9.05		1	.06
139	6.30	1428	64.67	9.05 - 9.15		1	.06
166	7.52	1594	72.19	9.15 - 9.25		1	.06
139	6.30	1733	78.49	9.25 - 9.35		1	.06
114	5.16	1847	83.65	9.35 - 9.45		1	.06
125	5.66	1972	89.31	9.45 - 9.55		1	.06
39	1.77	2011	91.08	9.55 - 9.65		1	.06
69	3.13	2080	94.20	9.65 - 9.75		1	.06
57	2.58	2137	96.78	9.75 - 9.85		1	.06
14	.63	2151	97.42	9.85 - 9.95		1	.06
23	1.04	2174	98.46	9.95 - 10.05		1	.06
9	.41	2183	98.87	10.05 - 10.15		1	.06
4	.18	2187	99.05	10.15 - 10.25		1	.06
8	.36	2195	99.41	10.25 - 10.35		1	.06
5	.23	2200	99.64	10.35 - 10.45		1	.06
4	.18	2204	99.82	10.45 - 10.55		1	.06
2	.09	2206	99.91	10.55 - 10.55		1	.06
1	.05	2207	99.95	10.65 - 10.75		1	.06
0	.00	2207	99.95	10.75 - 10.85		1	.06
1	.05	2208	100.00	10.85 - 10.95		1	.06
				10.95 - 11.05		1	.06
				11.05 - 11.15		1	.06
				11.15 - 11.25		1	.06
				11.25 - 11.35		1	.06
				11.35 - 11.45		1	.06
				11.45 - 11.55		1	.06
				11.55 - 11.65		1	.06
				11.65 - 11.75		1	.06
				11.75 - 11.85		1	.06
				11.85 - 11.95		1	.06
				11.95 - 12.05		1	.06
				12.05 - 12.15		1	.06
				12.15 - 12.25		1	.06

## (51) FOOT LENGTH

The maximum length of the right foot is measured on a footbox scale. The subject stands with each foot in a footbox and the weight distributed equally on both feet. The heel of the right foot lightly touches the back of the box, and the side of the foot at the fifth-metatarsophalangeal-protrusion landmark lightly touches the side of the box. The medial side of the foot is parallel to the long axis of the box. A block is placed against the tip of the longest toe to establish the measurement on the scale.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
21.69	8.54	23.99	9.44
21.98	8.66	24.35	9.59
22.17	8.73	24.58	9.68
22.44	8.83	24.88	9.79
22.86	9.00	25.33	9.97
23.15	9.12	25.63	10.09
23.39	9.21	25.87	10.19
23.60	9.29	26.08	10.27
23.78	9.36	26.27	10.34
23.95	9.43	26.44	10.41
24.12	9.50	26.60	10.47
24.28	9.56	26.77	10.54
24.43	9.62	26.93	10.60
24.59	9.68	27.09	10.67
24.75	9.75	27.26	10.73
24.92	9.81	27.43	10.80
25.09	9.88	27.62	10.87
25.28	9.95	27.82	10.95
25.49	10.03	28.05	11.04
25.73	10.13	28.32	11.15
26.03	10.25	28.67	11.29
26.46	10.42	29.20	11.50
26.73	10.52	29.55	11.63
26.92	10.60	29.81	11.73
27.22	10.72	30.21	11.90

# FOOT LENGTH

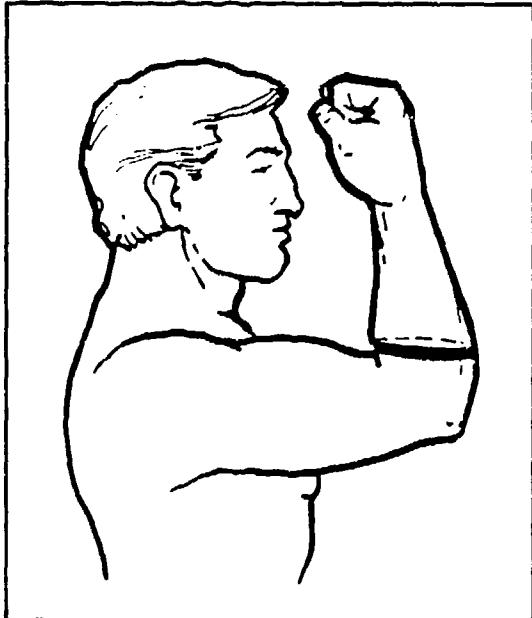
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
24.44	MEAN VALUE	9.62
.03	SE(MEAN)	.00
1.22	STD DEVIATION	.48
.02	SE(STD DEV)	.00
20.30	MINIMUM	7.99
29.00	MAXIMUM	11.42
SYMMETRY---VETA I	=	.03
KURTOSIS---VETA II	=	2.89
COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
26.97	MEAN VALUE	10.62
.03	SE(MEAN)	.00
1.31	STD DEVIATION	.52
.02	SE(STD DEV)	.00
22.80	MINIMUM	8.98
31.00	MAXIMUM	12.20
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.03
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	20.15 - 20.35		1	.06
0	.00	1	.05	20.35 - 20.55		0	.00
1	.05	2	.09	20.55 - 20.75		1	.06
1	.05	3	.14	20.75 - 20.95		3	.17
5	.23	8	.36	20.95 - 21.15		5	.28
3	.14	11	.50	21.15 - 21.35		5	.28
5	.23	16	.72	21.35 - 21.55		10	.56
7	.32	23	1.04	21.55 - 21.75		14	.79
23	1.04	46	2.08	21.75 - 21.95		29	1.63
16	.72	62	2.81	21.95 - 22.15		1	.06
32	1.45	94	4.26	22.15 - 22.35		2	.11
41	1.86	135	6.11	22.35 - 22.55		5	.28
43	1.95	178	8.06	22.55 - 22.75		10	.56
60	2.72	238	10.78	22.75 - 22.95		15	.85
84	3.80	322	14.58	22.95 - 23.15		14	.79
96	4.35	418	18.93	23.15 - 23.35		19	1.07
111	5.03	529	23.96	23.35 - 23.55		24	1.35
107	4.85	636	28.80	23.55 - 23.75		39	2.20
149	6.75	785	35.55	23.75 - 23.95		60	3.38
118	5.34	903	40.90	23.95 - 24.15		49	2.76
145	6.57	1048	47.46	24.15 - 24.35		72	4.06
135	6.11	1183	53.58	24.35 - 24.55		69	3.89
139	6.30	1322	59.87	24.55 - 24.75		313	17.64
143	6.48	1465	66.35	24.75 - 24.95		382	21.53
117	5.30	1582	71.65	24.95 - 25.15		468	26.38
99	4.48	1681	76.13	25.15 - 25.35		132	7.44
120	5.43	1801	81.57	25.35 - 25.55		192	10.82
95	4.30	1896	85.87	25.55 - 25.75		241	13.59
69	3.13	1965	68.99	25.75 - 25.95		313	17.64
57	2.58	2022	91.58	25.95 - 26.15		382	21.53
54	2.45	2076	94.02	26.15 - 26.35		468	26.38
39	1.77	2115	95.79	26.35 - 26.55		572	32.24
28	1.27	2143	97.06	26.55 - 26.75		687	38.73
24	1.09	2167	98.14	26.75 - 26.95		792	44.64
17	.77	2184	98.91	26.95 - 27.15		897	50.56
6	.27	2190	99.18	27.15 - 27.35		1002	56.48
6	.27	2196	99.46	27.35 - 27.55		1120	63.13
6	.27	2202	99.73	27.55 - 27.75		1205	67.93
2	.09	2204	99.82	27.75 - 27.95		1297	73.11
1	.05	2205	99.86	27.95 - 28.15		1377	77.62
2	.09	2207	99.95	28.15 - 28.35		1463	82.47
0	.00	2207	99.95	28.35 - 28.55		1526	86.02
0	.00	2207	99.95	28.55 - 28.75		1563	88.11
0	.00	2207	99.95	28.75 - 28.95		1616	91.09
1	.05	2208	100.00	28.95 - 29.15		1652	93.12
				29.15 - 29.35		1682	94.81
				29.35 - 29.55		1701	95.89
				29.55 - 29.75		1718	96.84
				29.75 - 29.95		1737	97.91
				29.95 - 30.15		1744	98.31
				30.15 - 30.35		1755	98.93
				30.35 - 30.55		1759	99.15
				30.55 - 30.75		1766	99.55
				30.75 - 30.95		1767	99.61
				30.95 - 31.15		1770	99.77
						1774	100.00

## (52) FOREARM CIRCUMFERENCE, FLEXED

The circumference of the flexed right forearm is measured with a tape passing across the crease at the juncture between the upper arm and the forearm. The measurement is made in a plane perpendicular to the long axis of the forearm. The subject stands with the upper arm extended forward horizontally, the elbow flexed 90 degrees, and the fist tightly clenched and held facing the head.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
21.99	8.66	1ST	26.29 10.35
22.40	8.82	2ND	26.78 10.54
22.65	8.92	3RD	27.08 10.66
22.99	9.05	5TH	27.47 10.81
23.51	9.26	10TH	28.06 11.05
23.85	9.39	15TH	28.45 11.20
24.13	9.50	20TH	28.77 11.33
24.36	9.59	25TH	29.05 11.44
24.57	9.67	30TH	29.31 11.54
24.77	9.75	35TH	29.55 11.63
24.95	9.82	40TH	29.78 11.72
25.13	9.89	45TH	30.01 11.82
25.31	9.97	50TH	30.24 11.91
25.50	10.04	55TH	30.48 12.00
25.68	10.11	60TH	30.72 12.10
25.87	10.19	65TH	30.98 12.20
26.08	10.27	70TH	31.25 12.30
26.31	10.36	75TH	31.56 12.42
26.57	10.46	80TH	31.90 12.56
26.88	10.58	85TH	32.31 12.72
27.29	10.75	90TH	32.83 12.93
27.94	11.00	95TH	33.61 13.23
28.38	11.17	97TH	34.11 13.43
28.73	11.31	98TH	34.47 13.57
29.30	11.54	99TH	35.02 13.79

# FOREARM CIRCUMFERENCE, FLEXED

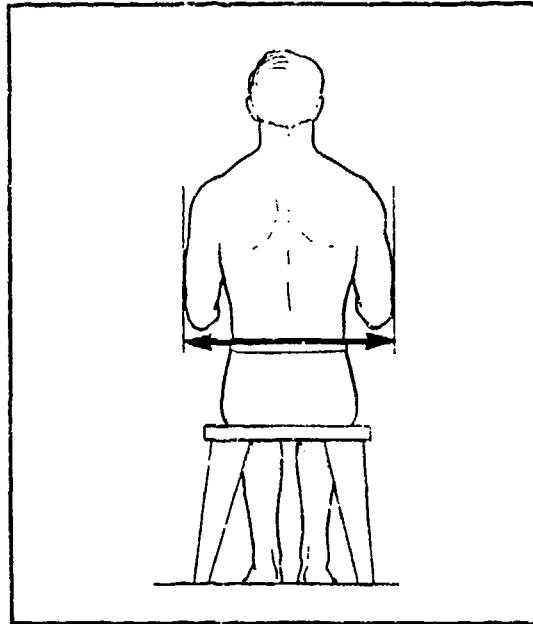
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
25.37	MEAN VALUE	9.99
.03	SE(MEAN)	.00
1.51	STD DEVIATION	.59
.02	SE(STD DEV)	.00
21.00	MINIMUM	8.27
32.50	MAXIMUM	12.80
SYMMETRY---VETA I	=	.30
KURTOSIS---VETA II	=	3.54
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
30.35	MEAN VALUE	11.95
.04	SE(MEAN)	.02
1.88	STD DEVIATION	.74
.03	SE(STD DEV)	.00
23.30	MINIMUM	9.17
37.20	MAXIMUM	14.65
SYMMETRY---VETA I	=	.24
KURTOSIS---VETA II	=	3.29
COEF. OF VARIATION	=	6.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
5	.23	5	.23	20.75 - 21.25			
8	.36	13	.59	21.25 - 21.75			
25	1.13	38	1.72	21.75 - 22.25			
34	1.54	72	3.26	22.25 - 22.75			
79	3.58	151	6.84	22.75 - 23.25			
142	6.43	293	13.27	23.25 - 23.75			
205	9.28	498	22.55	23.75 - 24.25			
263	11.91	761	34.47	24.25 - 24.75			
299	13.54	1060	48.01	24.75 - 25.25			
301	13.63	1361	61.64	25.25 - 25.75			
263	11.91	1624	73.55	25.75 - 26.25			
211	9.56	1835	83.11	26.25 - 26.75			
141	6.39	1976	89.49	26.75 - 27.25			
101	4.57	2077	94.07	27.25 - 27.75			
65	2.94	2142	97.01	27.75 - 28.25			
22	1.00	2164	98.01	28.25 - 28.75			
21	.95	2185	98.96	28.75 - 29.25			
10	.45	2195	99.41	29.25 - 29.75			
7	.32	2202	99.73	29.75 - 30.25			
1	.05	2203	99.77	30.25 - 30.75			
3	.14	2206	99.91	30.75 - 31.25			
1	.05	2207	99.95	31.25 - 31.75			
0	.00	2207	99.95	31.75 - 32.25			
1	.05	2208	100.00	32.25 - 32.75			
				32.75 - 33.25			
				33.25 - 33.75			
				33.75 - 34.25			
				34.25 - 34.75			
				34.75 - 35.25			
				35.25 - 35.75			
				35.75 - 36.25			
				36.25 - 36.75			
				36.75 - 37.25			

### (53) FOREARM-FOREARM BREADTH

The maximum horizontal distance across the upper body between the outer sides of the forearms is measured with a beam caliper. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
39.42	15.52	1ST	45.12 17.76
40.24	15.84	2ND	46.17 18.18
40.76	16.05	3RD	46.84 18.44
41.47	16.33	5TH	47.74 18.80
42.58	16.76	10TH	49.16 19.35
43.33	17.06	15TH	50.13 19.74
43.94	17.30	20TH	50.91 20.04
44.47	17.51	25TH	51.59 20.31
44.94	17.69	30TH	52.21 20.56
45.39	17.87	35TH	52.79 20.79
45.82	18.04	40TH	53.35 21.00
46.24	18.20	45TH	53.90 21.22
46.66	18.37	50TH	54.45 21.44
47.08	18.54	55TH	55.00 21.65
47.52	18.71	60TH	55.56 21.88
47.98	18.89	65TH	56.16 22.11
48.47	19.08	70TH	56.79 22.36
49.01	19.30	75TH	57.47 22.63
49.63	19.54	80TH	58.25 22.93
50.37	19.83	85TH	59.16 23.29
51.33	20.21	90TH	60.32 23.75
52.84	20.80	95TH	62.06 24.43
53.87	21.21	97TH	63.18 24.87
54.66	21.52	98TH	64.00 25.20
55.95	22.03	99TH	65.27 25.70

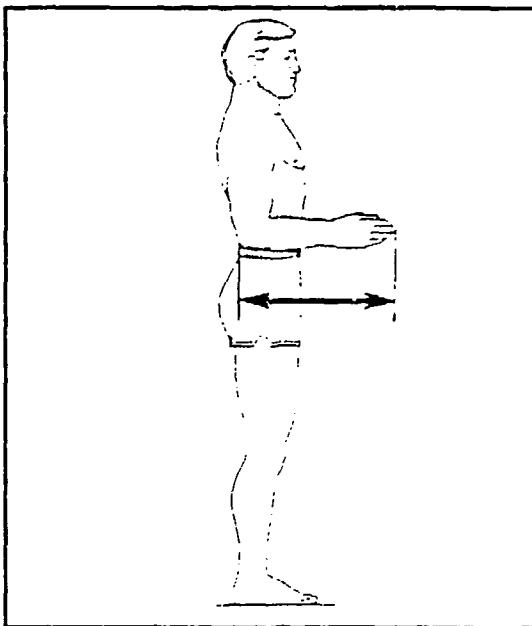
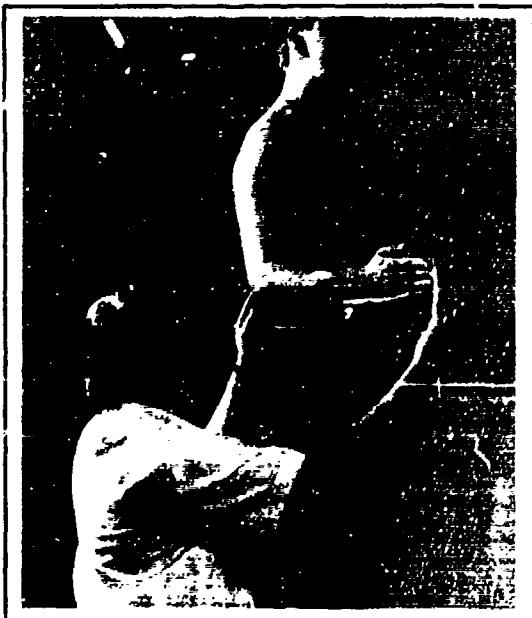
# FOREARM-FOREARM BREADTH

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
46.85	MEAN VALUE	18.44	54.61	MEAN VALUE	21.50
.07	SE(MEAN)	.03	.10	SE(MEAN)	.04
3.47	STD DEVIATION	1.36	4.36	STD DEVIATION	1.72
.05	SE(STD DEV)	.02	.07	SE(STD DEV)	.03
37.30	MINIMUM	14.69	39.90	MINIMUM	15.71
60.90	MAXIMUM	23.98	72.50	MAXIMUM	28.54
SYMMETRY---VETA I	=	.34	SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.26	KURTOSIS---VETA II	=	3.13
COEF. OF VARIATION	=	7.4%	COEF. OF VARIATION	=	8.0%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	36.55 - 37.55		1	.06
5	.23	6	.27	37.55 - 38.55		1	.06
19	.86	25	1.13	38.55 - 39.55		2	.11
27	1.22	52	2.36	39.55 - 40.55		3	.17
72	3.26	124	5.62	40.55 - 41.55		7	.39
109	4.94	233	10.55	41.55 - 42.55		14	.79
126	5.71	359	16.26	42.55 - 43.55		17	.96
201	9.10	560	25.36	43.55 - 44.55		35	1.97
251	11.37	811	36.73	44.55 - 45.55		71	4.00
277	12.55	1088	49.28	45.55 - 46.55		102	5.75
260	11.78	1348	61.05	46.55 - 47.55		124	6.99
208	9.42	1556	70.47	47.55 - 48.55		151	8.51
188	8.51	1744	78.99	48.55 - 49.55		136	7.67
147	6.66	1891	85.64	49.55 - 50.55		177	9.98
114	5.16	2005	90.81	50.55 - 51.55		154	8.68
79	3.58	2084	94.38	51.55 - 52.55		144	8.12
47	2.13	2131	96.51	52.55 - 53.55		156	8.79
33	1.49	2164	98.01	53.55 - 54.55		102	5.75
15	.68	2179	98.69	54.55 - 55.55		170	9.04
11	.50	2190	99.18	55.55 - 56.55		161	9.18
12	.54	2202	99.73	56.55 - 57.55		164	9.30
1	.05	2203	99.77	57.55 - 58.55		171	9.54
2	.09	2205	99.86	58.55 - 59.55		174	9.74
1	.05	2206	99.91	59.55 - 60.55		177	9.97
2	.09	2208	100.00	60.55 - 61.55		180	100.00
				61.55 - 62.55		183	95.89
				62.55 - 63.55		186	97.58
				63.55 - 64.55		189	98.53
				64.55 - 65.55		192	99.27
				65.55 - 66.55		195	99.55
				66.55 - 67.55		198	99.77
				67.55 - 68.55		201	99.83
				68.55 - 69.55		204	99.89
				69.55 - 70.55		207	99.89
				70.55 - 71.55		210	99.89
				71.55 - 72.55		213	100.00

## (54) FOREARM-HAND LENGTH

The horizontal distance between the back of the tip of the right elbow to the tip of the right middle finger is measured with a beam caliper. The subject stands erect with the upper arms hanging at the sides and the right elbow flexed 90 degrees. The hand is held out straight with the palm facing inward.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
39.14	15.41	1ST	43.43 17.10
39.74	15.65	2ND	43.98 17.31
40.12	15.79	3RD	44.32 17.45
40.62	15.99	5TH	44.79 17.63
41.38	16.29	10TH	45.52 17.92
41.91	16.50	15TH	46.02 18.12
42.32	16.66	20TH	46.42 18.28
42.69	16.81	25TH	46.78 18.42
43.02	16.94	30TH	47.10 18.54
43.33	17.06	35TH	47.41 18.66
43.63	17.18	40TH	47.70 18.78
43.92	17.29	45TH	47.99 18.89
44.21	17.41	50TH	48.28 19.01
44.51	17.52	55TH	48.58 19.12
44.81	17.64	60TH	48.88 19.24
45.13	17.77	65TH	49.20 19.37
45.47	17.90	70TH	49.53 19.50
45.84	18.05	75TH	49.91 19.65
46.26	18.21	80TH	50.33 19.82
46.74	18.40	85TH	50.83 20.01
47.35	18.64	90TH	51.46 20.26
48.25	18.99	95TH	52.42 20.64
48.81	19.22	97TH	53.04 20.88
49.21	19.38	98TH	53.49 21.06
49.81	19.61	99TH	54.20 21.34

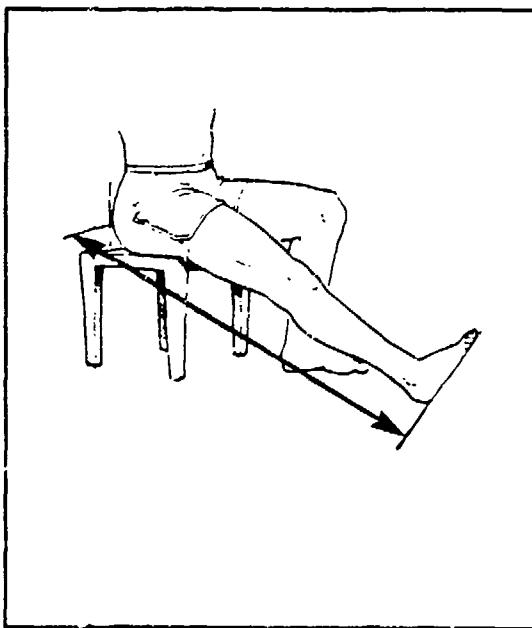
# FOREARM-HAND LENGTH

FEMALES			MALES		
CM	MEAN VALUE	INCHES	CM	MEAN VALUE	INCHES
44.29	MEAN VALUE	17.44	48.40	MEAN VALUE	19.06
.05	SE(MEAN)	.02	.05	SE(MEAN)	.02
2.34	STD DEVIATION	.92	2.33	STD DEVIATION	.92
.04	SE(STD DEV)	.00	.04	SE(STD DEV)	.02
32.40	MINIMUM	12.76	38.60	MINIMUM	15.20
54.60	MAXIMUM	21.50	57.80	MAXIMUM	22.76
SYMMETRY---VETA I	=	.11	SYMMETRY---VETA I	=	.23
KURTOSIS---VETA II	=	3.29	KURTOSIS---VETA II	=	3.43
COEF. OF VARIATION	=	5.3%	COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE					
FEMALES				MALES	
F	FPct	CumF	CumFPct	CENTIMETERS	
1	.05	1	.05	32.25	- 32.75
0	.00	1	.05	32.75	- 33.25
0	.00	1	.05	33.25	- 33.75
0	.00	1	.05	33.75	- 34.25
0	.00	1	.05	34.25	- 34.75
0	.00	1	.05	34.75	- 35.25
0	.00	1	.05	35.25	- 35.75
0	.00	1	.05	35.75	- 36.25
0	.00	1	.05	36.25	- 36.75
0	.00	1	.05	36.75	- 37.25
2	.09	3	.14	37.25	- 37.75
4	.18	7	.32	37.75	- 38.25
10	.45	17	.77	38.25	- 38.75
10	.45	27	1.22	38.75	- 39.25
11	.50	38	1.72	39.25	- 39.75
28	1.27	66	2.99	39.75	- 40.25
61	2.76	127	5.75	40.25	- 40.75
76	3.44	203	9.19	40.75	- 41.25
98	4.44	301	13.63	41.25	- 41.75
142	6.43	443	20.06	41.75	- 42.25
144	6.52	587	26.59	42.25	- 42.75
154	6.97	741	33.56	42.75	- 43.25
184	8.33	925	41.89	43.25	- 43.75
174	7.88	1099	49.77	43.75	- 44.25
198	8.97	1297	58.74	44.25	- 44.75
170	7.70	1467	66.44	44.75	- 45.25
162	7.34	1629	73.78	45.25	- 45.75
139	6.30	1768	80.07	45.75	- 46.25
107	4.85	1875	84.92	46.25	- 46.75
103	4.46	1978	89.58	46.75	- 47.25
77	3.43	2055	93.07	47.25	- 47.75
43	1.95	2098	95.02	47.75	- 48.25
48	2.17	2146	97.19	48.25	- 48.75
17	.77	2163	97.96	48.75	- 49.25
21	.95	2184	98.91	49.25	- 49.75
11	.50	2195	99.41	49.75	- 50.25
5	.23	2200	99.64	50.25	- 50.75
3	.14	2203	99.77	50.75	- 51.25
1	.05	2204	99.82	51.25	- 51.75
2	.09	2206	99.91	51.75	- 52.25
0	.00	2206	99.91	52.25	- 52.75
0	.00	2206	99.91	52.75	- 53.25
1	.05	2207	99.95	53.25	- 53.75
0	.00	2207	99.95	53.75	- 54.25
1	.05	2208	100.00	54.25	- 54.75

## (55) FUNCTIONAL LEG LENGTH

The straight-line distance between the plane of the bottom of the right foot with the leg extended and the back of the body of a seated subject is measured with an anthropometer passing over the trochanter landmark on the side of the hip. The subject sits erect on a stool 40.8 cm high. The right leg is extended and the foot is on the base plate of the anthropometer, which rests on the floor. The measurement is made from the footrest surface of the base plate.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
89.76	35.34	1ST	96.90 38.15
91.20	35.91	2ND	98.26 38.69
92.09	36.25	3RD	99.09 39.01
93.25	36.71	5TH	100.19 39.44
94.99	37.40	10TH	101.85 40.10
96.15	37.86	15TH	102.98 40.54
97.07	38.21	20TH	103.88 40.90
97.86	38.53	25TH	104.67 41.21
98.57	38.81	30TH	105.39 41.49
99.22	39.06	35TH	106.06 41.76
99.85	39.31	40TH	106.71 42.01
100.47	39.55	45TH	107.35 42.26
101.08	39.79	50TH	107.99 42.52
101.70	40.04	55TH	108.64 42.77
102.32	40.28	60TH	109.30 43.03
102.98	40.54	65TH	110.00 43.31
103.67	40.82	70TH	110.75 43.60
104.43	41.12	75TH	111.56 43.92
105.29	41.45	80TH	112.48 44.28
106.28	41.84	85TH	113.55 44.71
107.55	42.34	90TH	114.91 45.24
109.42	43.08	95TH	116.89 46.02
110.62	43.55	97TH	118.14 46.51
111.49	43.89	98TH	119.02 46.86
112.82	44.42	99TH	120.33 47.38

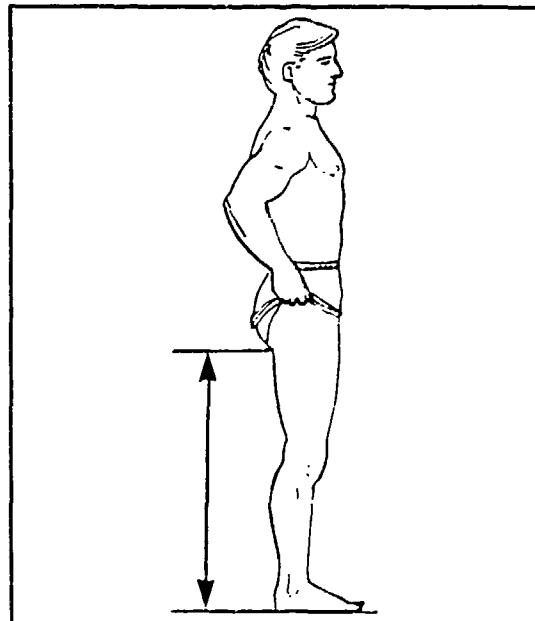
## FUNCTIONAL LEG LENGTH

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
101.20	MEAN VALUE	39.84	108.21	MEAN VALUE	42.60
.10	SE(MEAN)	.04	.12	SE(MEAN)	.05
4.91	STD DEVIATION	1.93	5.10	STD DEVIATION	2.01
.07	SE(STD DEV)	.03	.09	SE(STD DEV)	.03
81.90	MINIMUM	32.24	88.10	MINIMUM	34.69
118.00	MAXIMUM	46.46	129.10	MAXIMUM	50.83
SYMMETRY---VETA I	=	.06	SYMMETRY---VETA I	=	.17
KURTOSIS---VETA II	=	3.10	KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	4.9%	COEF. OF VARIATION	=	4.7%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct
1	.05	1	.05	81.55 - 82.55		1	.06	1	.06
0	.00	1	.05	82.55 - 83.55		0	.00	1	.06
1	.05	2	.09	83.55 - 84.55		0	.00	1	.06
0	.00	2	.09	84.55 - 85.55		0	.00	1	.06
1	.05	3	.14	85.55 - 86.55		0	.00	1	.06
2	.09	5	.23	86.55 - 87.55		0	.00	1	.06
6	.27	11	.50	87.55 - 88.55		1	.17	4	.23
5	.23	16	.72	88.55 - 89.55		2	.11	6	.34
14	.63	30	1.36	89.55 - 90.55		3	.17	8	.45
16	.72	46	2.08	90.55 - 91.55		4	.11	14	.79
30	1.36	76	3.44	91.55 - 92.55		5	.34	26	1.47
48	2.17	124	5.62	92.55 - 93.55		6	.68	43	2.42
75	3.40	199	9.01	93.55 - 94.55		7	.96	67	3.78
77	3.49	276	12.50	94.55 - 95.55		8	1.35	98	5.52
110	4.98	386	17.48	95.55 - 96.55		9	1.75	156	8.79
117	5.30	503	22.78	96.55 - 97.55		10	2.27	222	12.51
145	6.57	648	29.35	97.55 - 98.55		11	3.72	303	17.08
155	7.02	803	36.37	98.55 - 99.55		12	4.57	426	24.01
146	6.61	949	42.98	99.55 - 100.55		13	6.93	558	31.45
258	11.68	1207	54.66	100.55 - 101.55		14	8.23	677	38.16
166	7.52	1373	62.18	101.55 - 102.55		15	9.67	823	46.39
155	7.02	1528	69.20	102.55 - 103.55		16	10.77	959	54.06
153	6.93	1681	76.13	103.55 - 104.55		17	11.87	1109	62.51
125	5.66	1806	81.79	104.55 - 105.55		18	12.97	1215	68.49
96	4.35	1902	86.14	105.55 - 106.55		19	14.07	1343	75.70
80	3.62	1982	99.76	106.55 - 107.55		20	15.17	1419	79.99
61	2.76	2043	92.53	107.55 - 108.55		21	16.27	1499	84.50
56	2.54	2099	95.06	108.55 - 109.55		22	17.37	1575	88.78
41	1.86	2140	96.92	109.55 - 110.55		23	18.47	1632	92.00
21	.95	2161	97.87	110.55 - 111.55		24	19.57	1669	94.08
22	1.00	2183	98.87	111.55 - 112.55		25	20.67	1710	96.39
10	.45	2193	99.32	112.55 - 113.55		26	21.77	1732	97.63
3	.14	2196	99.46	113.55 - 114.55		27	22.87	1748	98.53
7	.32	2203	99.77	114.55 - 115.55		28	23.97	1757	99.04
1	.05	2204	99.82	115.55 - 116.55		29	25.07	1762	99.32
3	.14	2207	99.95	116.55 - 117.55		30	26.17	1765	99.49
1	.05	2208	100.00	117.55 - 118.55		31	27.27	1769	99.72
				118.55 - 119.55		32	28.37	1770	99.77
				119.55 - 120.55		33	29.47	1772	99.89
				120.55 - 121.55		34	30.57	1772	99.89
				121.55 - 122.55		35	31.67	1772	99.89
				122.55 - 123.55		36	32.77	1772	99.89
				123.55 - 124.55		37	33.87	1772	99.89
				124.55 - 125.55		38	34.97	1772	99.89
				125.55 - 126.55		39	36.07	1772	99.89
				126.55 - 127.55		40	37.17	1772	99.89
				127.55 - 128.55		41	38.27	1773	99.94
				128.55 - 129.55		42	39.37	1774	100.00

## (56) GLUTEAL FURROW HEIGHT

The vertical distance between a standing surface and the lowest point of the gluteal furrow(s) under the right buttock is measured with an anthropometer. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
64.79	25.51	1ST	71.32 28.08
65.89	25.94	2ND	72.54 28.56
66.59	26.22	3RD	73.29 28.85
67.54	26.59	5TH	74.26 29.24
69.01	27.17	10TH	75.75 29.82
70.01	27.56	15TH	76.75 30.22
70.81	27.88	20TH	77.55 30.53
71.50	28.15	25TH	78.26 30.81
72.12	28.39	30TH	78.90 31.06
72.70	28.62	35TH	79.51 31.30
73.25	28.84	40TH	80.09 31.53
73.79	29.05	45TH	80.66 31.76
74.33	29.26	50TH	81.24 31.98
74.87	29.48	55TH	81.82 32.21
75.42	29.69	60TH	82.42 32.45
75.99	29.92	65TH	83.05 32.70
76.60	30.16	70TH	83.72 32.96
77.27	30.42	75TH	84.46 33.25
78.02	30.72	80TH	85.28 33.58
78.90	31.06	85TH	86.24 33.95
80.03	31.51	90TH	87.46 34.43
81.74	32.18	95TH	89.21 35.12
82.87	32.62	97TH	90.30 35.55
83.71	32.96	98TH	91.06 35.85
85.04	33.48	99TH	92.16 36.28

# GLUTEAL FURROW HEIGHT

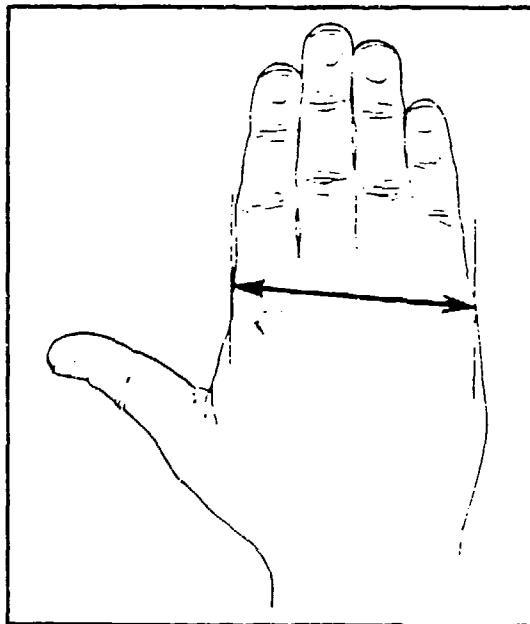
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
74.43	MEAN VALUE	29.30
.09	SE(MEAN)	.04
4.30	STD DEVIATION	1.69
.06	SE(STD DEV)	.03
56.80	MINIMUM	22.36
91.60	MAXIMUM	36.06
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.10
COEF. OF VARIATION	=	5.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
81.44	MEAN VALUE	32.06
.11	SE(MEAN)	.04
4.56	STD DEVIATION	1.80
.08	SE(STD DEV)	.03
64.90	MINIMUM	25.55
102.50	MAXIMUM	40.35
SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.20
COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	56.55 - 57.55		1	.06
0	.00	1	.05	57.55 - 58.55		0	.00
0	.00	1	.05	58.55 - 59.55		1	.06
0	.00	1	.05	59.55 - 60.55		2	.11
0	.00	1	.05	60.55 - 61.55		3	.17
2	.09	3	.14	61.55 - 62.55		4	.23
6	.27	9	.41	62.55 - 63.55		5	.31
8	.36	17	.77	63.55 - 64.55		6	.41
18	.82	35	1.59	64.55 - 65.55		7	.62
27	1.22	62	2.81	65.55 - 66.55		8	1.07
43	1.95	105	4.76	66.55 - 67.55		9	1.45
75	3.40	180	8.15	67.55 - 68.55		10	1.90
99	4.48	279	12.64	68.55 - 69.55		11	2.38
129	5.84	408	18.48	69.55 - 70.55		12	2.84
164	7.43	572	25.91	70.55 - 71.55		13	3.21
167	7.56	739	33.47	71.55 - 72.55		14	3.64
203	9.19	942	42.66	72.55 - 73.55		15	4.08
210	9.51	1152	52.17	73.55 - 74.55		16	4.51
209	9.47	1361	61.64	74.55 - 75.55		17	4.96
180	8.15	1541	69.79	75.55 - 76.55		18	5.41
158	7.16	1699	76.95	76.55 - 77.55		19	5.86
148	6.70	1847	83.65	77.55 - 78.55		20	6.30
96	4.35	1943	88.00	78.55 - 79.55		21	6.74
88	3.99	2031	91.98	79.55 - 80.55		22	7.17
62	2.81	2093	94.79	80.55 - 81.55		23	7.60
37	1.68	2130	96.47	81.55 - 82.55		24	8.08
32	1.45	2162	97.92	82.55 - 83.55		25	8.51
15	.68	2177	98.60	83.55 - 84.55		26	8.96
19	.86	2196	99.46	84.55 - 85.55		27	9.42
5	.23	2201	99.68	85.55 - 86.55		28	9.88
5	.23	2206	99.91	86.55 - 87.55		29	10.34
0	.00	2206	99.91	87.55 - 88.55		30	10.80
1	.05	2207	99.95	88.55 - 89.55		31	11.27
0	.00	2207	99.95	89.55 - 90.55		32	11.73
0	.00	2207	99.95	90.55 - 91.55		33	12.20
1	.05	2208	100.00	91.55 - 92.55		34	12.67
				92.55 - 93.55		35	13.14
				93.55 - 94.55		36	13.61
				94.55 - 95.55		37	14.08
				95.55 - 96.55		38	14.55
				96.55 - 97.55		39	15.02
				97.55 - 98.55		40	15.49
				98.55 - 99.55		41	15.96
				99.55 - 100.55		42	16.43
				100.55 - 101.55		43	16.90
				101.55 - 102.55		44	17.37

## (57) HAND BREADTH

The breadth of the right hand between the landmarks at metacarpale II and metacarpale V is measured with a sliding caliper. The subject places the palm on a table, the fingers together and the thumb abducted. The middle finger is parallel to the long axis of the forearm. The two distal phalanges of the fingers lie on a flat surface 8 mm higher than the table.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
7.09	2.79	1ST	8.07 3.10
7.19	2.83	2ND	8.19 3.22
7.25	2.86	3RD	8.27 3.25
7.34	2.89	5TH	8.36 3.29
7.47	2.94	10TH	8.51 3.35
7.56	2.98	15TH	8.61 3.39
7.63	3.00	20TH	8.69 3.42
7.69	3.03	25TH	8.75 3.45
7.74	3.05	30TH	8.82 3.47
7.79	3.07	35TH	8.87 3.49
7.84	3.09	40TH	8.93 3.51
7.89	3.11	45TH	8.98 3.54
7.93	3.12	50TH	9.03 3.56
7.98	3.14	55TH	9.09 3.58
8.03	3.16	60TH	9.14 3.60
8.08	3.18	65TH	9.20 3.62
8.13	3.20	70TH	9.26 3.64
8.18	3.22	75TH	9.32 3.67
8.25	3.25	80TH	9.40 3.70
8.32	3.28	85TH	9.48 3.73
8.42	3.31	90TH	9.59 3.78
8.56	3.37	95TH	9.76 3.84
8.66	3.41	97TH	9.86 3.88
8.74	3.44	98TH	9.93 3.91
8.86	3.49	99TH	10.04 3.95

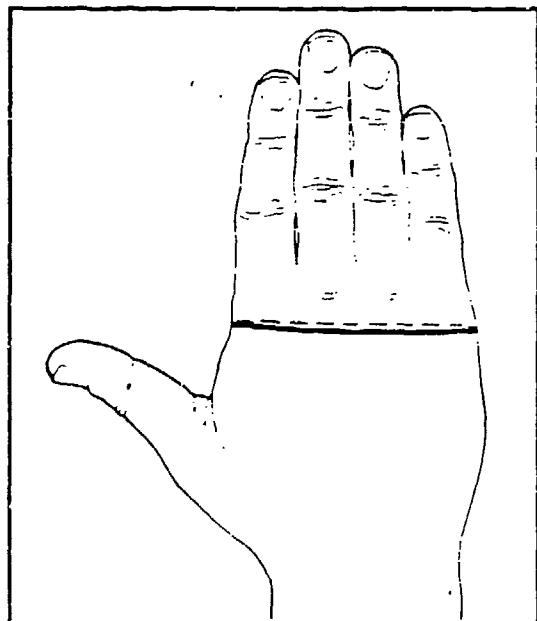
# HAND BREADTH

FEMALES			MALES		
<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>	
7.94	MEAN VALUE	3.13	9.04	MEAN VALUE	3.56
.00	SE(MEAN)	.00	.00	SE(MEAN)	.00
.38	STD DEVIATION	.15	.42	STD DEVIATION	.17
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
6.60	MINIMUM	2.60	7.70	MINIMUM	3.03
9.80	MAXIMUM	3.86	10.60	MAXIMUM	4.17
SYMMETRY---VETA I	=	.16	SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	3.49	KURTOSIS---VETA II	=	3.00
COEF. OF VARIATION	=	4.7%	COEF. OF VARIATION	=	4.7%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	6.55 - 6.65		1	.06
1	.05	3	.14	6.65 - 6.75		3	.17
1	.05	4	.18	6.75 - 6.85		2	.11
4	.18	8	.36	6.85 - 6.95		8	.45
11	.50	19	.86	6.95 - 7.05		15	.85
11	.50	30	1.36	7.05 - 7.15		19	1.07
28	1.27	58	2.63	7.15 - 7.25		135	7.61
61	2.76	119	5.39	7.25 - 7.35		144	8.12
65	2.94	184	8.33	7.35 - 7.45		144	8.12
126	5.71	310	14.04	7.45 - 7.55		155	8.74
173	7.84	483	21.88	7.55 - 7.65		183	10.32
211	9.56	694	31.43	7.65 - 7.75		165	9.30
227	10.28	921	41.71	7.75 - 7.85		162	9.13
217	9.83	1138	51.54	7.85 - 7.95		89	5.02
227	10.28	1365	61.82	7.95 - 8.05		121	6.82
194	8.79	1559	70.61	8.05 - 8.15		104	5.86
209	9.47	1768	80.07	8.15 - 8.25		97	5.47
168	7.61	1936	87.68	8.25 - 8.35		50	2.82
79	3.58	2015	91.26	8.35 - 8.45		81	4.57
75	3.40	2090	94.66	8.45 - 8.55		89	5.02
51	2.31	2141	96.97	8.55 - 8.65		135	7.61
31	1.40	2172	98.37	8.65 - 8.75		144	8.12
12	.54	2184	98.91	8.75 - 8.85		144	8.12
10	.45	2194	99.37	8.85 - 8.95		155	8.74
7	.32	2201	99.68	8.95 - 9.05		183	10.32
3	.14	2204	99.82	9.05 - 9.15		162	9.13
0	.00	2204	99.82	9.15 - 9.25		57	3.21
1	.05	2205	99.86	9.25 - 9.35		64	3.61
1	.05	2206	99.91	9.35 - 9.45		30	1.69
0	.00	2206	99.91	9.45 - 9.55		20	1.13
1	.05	2207	99.95	9.55 - 9.65		21	1.18
0	.00	2207	99.95	9.65 - 9.75		7	.39
1	.05	2208	100.00	9.75 - 9.85		3	.17
				9.85 - 9.95		1	.06
				9.95 - 10.05		1	.06
				10.05 - 10.15		1	.06
				10.15 - 10.25		1	.06
				10.25 - 10.35		1	.06
				10.35 - 10.45		2	.11
				10.45 - 10.55		0	.00
				10.55 - 10.65		1	.06

## (58) HAND CIRCUMFERENCE

The circumference of the right hand is measured with a tape passing over the landmarks at metacarpale II and metacarpale V. The subject places the palm on a table, the fingers together, and the thumb abducted. The middle finger is parallel to the long axis of the forearm. The two distal phalanges of the fingers lie on a flat surface 8 mm higher than the table.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
16.73	6.59	1ST	19.16 7.54
16.93	6.67	2ND	19.45 7.66
17.07	6.72	3RD	19.62 7.72
17.25	6.79	5TH	19.85 7.81
17.55	6.91	10TH	20.18 7.94
17.75	6.99	15TH	20.40 8.03
17.91	7.05	20TH	20.57 8.10
18.04	7.10	25TH	20.72 8.16
18.17	7.15	30TH	20.86 8.21
18.28	7.20	35TH	20.98 8.26
18.39	7.24	40TH	21.11 8.31
18.50	7.28	45TH	21.22 8.36
18.60	7.32	50TH	21.34 8.40
18.70	7.36	55TH	21.46 8.45
18.81	7.41	60TH	21.59 8.50
18.92	7.45	65TH	21.72 8.55
19.04	7.49	70TH	21.86 8.61
19.16	7.54	75TH	22.01 8.67
19.30	7.60	80TH	22.18 8.73
19.47	7.67	85TH	22.38 8.81
19.69	7.75	90TH	22.64 8.92
20.03	7.88	95TH	23.03 9.07
20.25	7.97	97TH	23.28 9.17
20.43	8.04	98TH	23.46 9.24
20.72	8.16	99TH	23.74 9.35

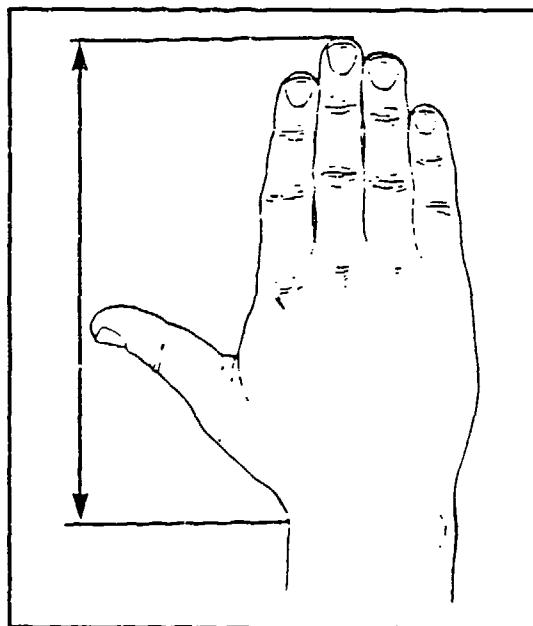
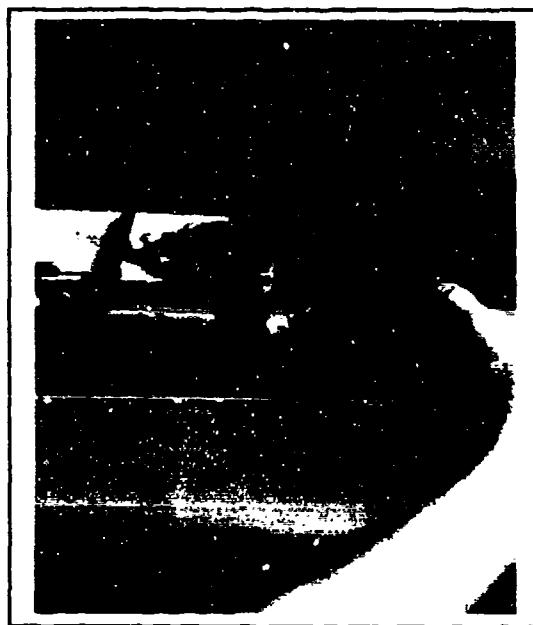
# HAND CIRCUMFERENCE

FEMALES			MALES		
	CM	INCHES		CM	INCHES
18.62	MEAN VALUE	7.33	21.38	MEAN VALUE	8.42
.02	SE(MEAN)	.00	.02	SE(MEAN)	.00
.85	STD DEVIATION	.33	.97	STD DEVIATION	.38
.00	SE(STD DEV)	.00	.02	SE(STD DEV)	.00
15.80	MINIMUM	6.22	18.20	MINIMUM	7.17
23.00	MAXIMUM	9.06	24.70	MAXIMUM	9.72
SYMMETRY---VETA I	=	.20	SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.46	KURTOSIS---VETA II	=	3.12
COEF. OF VARIATION	=	4.5%	COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	15.75 - 15.95		1	.06
1	.05	3	.14	15.95 - 16.15			.17
4	.18	7	.32	16.15 - 16.35			.11
6	.27	13	.59	16.35 - 16.55			.28
11	.50	24	1.09	16.55 - 16.75			.34
21	.95	45	2.04	16.75 - 16.95			.62
35	1.59	80	3.62	16.95 - 17.15			.96
53	2.40	133	6.02	17.15 - 17.35			1.63
72	3.26	205	9.28	17.35 - 17.55			2.42
119	5.39	324	14.67	17.55 - 17.75			4.06
173	7.84	497	22.51	17.75 - 17.95			5.69
164	7.43	661	29.94	17.95 - 18.15			9.58
195	8.83	856	38.77	18.15 - 18.35			14.09
196	8.88	1052	47.64	18.35 - 18.55			19.50
202	9.15	1254	56.79	18.55 - 18.75			26.27
210	9.51	1464	66.30	18.75 - 18.95			32.24
159	7.20	1623	73.51	18.95 - 19.15			41.21
171	7.74	1794	81.25	19.15 - 19.35			46.60
127	5.75	1921	97.00	19.35 - 19.55			50.96
106	4.80	2027	91.80	19.55 - 19.75			59.19
57	2.58	2084	94.38	19.75 - 19.95			67.14
45	2.04	2129	96.42	19.95 - 20.15			73.11
28	1.27	2157	97.69	20.15 - 20.35			78.52
22	1.00	2179	98.69	20.35 - 20.55			83.82
7	.32	2186	99.00	20.55 - 20.75			88.44
7	.32	2193	99.32	20.75 - 20.95			91.66
8	.36	2201	99.68	20.95 - 21.15			94.36
1	.05	2202	99.73	21.15 - 21.35			97.63
2	.09	2204	99.82	21.35 - 21.55			98.48
1	.05	2205	99.86	21.55 - 21.75			98.99
2	.09	2207	99.95	21.75 - 21.95			99.38
0	.00	2207	99.95	21.95 - 22.15			99.66
0	.00	2207	99.95	22.15 - 22.35			99.83
0	.00	2207	99.95	22.35 - 22.55			99.89
0	.00	2207	99.95	22.55 - 22.75			100.00
1	.05	2208	100.00	22.75 - 22.95			
				22.95 - 23.15			
				23.15 - 23.35			
				23.35 - 23.55			
				23.55 - 23.75			
				23.75 - 23.95			
				23.95 - 24.15			
				24.15 - 24.35			
				24.35 - 24.55			
				24.55 - 24.75			

## (59) HAND LENGTH

The length of the right hand between the stylion landmark on the wrist and the tip of the middle finger is measured with a Poech sliding caliper. The subject places the palm on a table, the fingers together, and the thumb abducted. The middle finger is parallel to the long axis of the forearm. The two distal phalanges of the fingers lie on a flat surface 8 mm higher than the table.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.89	6.26	1ST	17.28 6.80
16.13	6.35	2ND	17.52 6.90
16.29	6.41	3RD	17.67 6.96
16.50	6.50	5TH	17.87 7.04
16.83	6.63	10TH	18.18 7.16
17.06	6.72	15TH	18.39 7.24
17.24	6.79	20TH	18.56 7.31
17.39	6.85	25TH	18.71 7.37
17.53	6.90	30TH	18.85 7.42
17.66	6.95	35TH	18.97 7.47
17.78	7.00	40TH	19.09 7.52
17.90	7.05	45TH	19.21 7.56
18.02	7.09	50TH	19.33 7.61
18.14	7.14	55TH	19.45 7.66
18.26	7.19	60TH	19.57 7.70
18.39	7.24	65TH	19.70 7.75
18.52	7.29	70TH	19.84 7.81
18.67	7.35	75TH	19.99 7.87
18.84	7.42	80TH	20.16 7.94
19.04	7.49	85TH	20.37 8.02
19.29	7.60	90TH	20.64 8.13
19.69	7.75	95TH	21.06 8.29
19.96	7.86	97TH	21.34 8.40
20.16	7.94	98TH	21.55 8.49
20.50	8.07	99TH	21.90 8.62

# HAND LENGTH

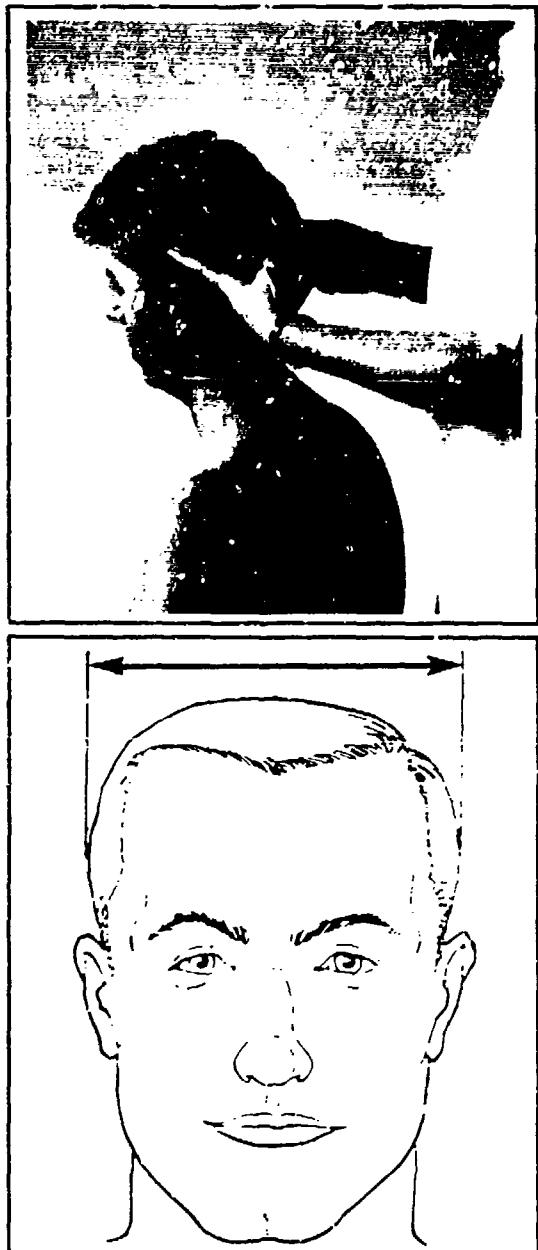
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
18.05	MEAN VALUE	7.10
.02	SE(MEAN)	.00
.97	STD DEVIATION	.38
.00	SE(STD DEV)	.00
14.90	MINIMUM	5.87
21.50	MAXIMUM	8.46
SYMMETRY---VETA I	=	.16
KURTOSIS---VETA II	=	3.20
COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
19.38	MEAN VALUE	7.63
.02	SE(MEAN)	.00
.98	STD DEVIATION	.39
.02	SE(STD DEV)	.00
16.00	MINIMUM	6.30
23.30	MAXIMUM	9.17
SYMMETRY---VETA I	=	.31
KURTOSIS---VETA II	=	3.45
COEF. OF VARIATION	=	5.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	14.75 - 14.95		2	.11
2	.09	3	.14	14.95 - 15.15		3	.06
2	.09	5	.23	15.15 - 15.35		3	.17
7	.32	12	.54	15.35 - 15.55		5	.28
4	.18	16	.72	15.55 - 15.75		8	.45
8	.36	24	1.09	15.75 - 15.95		12	.68
23	1.04	47	2.13	15.95 - 16.15		21	1.18
32	1.45	79	3.58	16.15 - 16.35		36	2.03
35	1.59	114	5.16	16.35 - 16.55		36	.11
74	3.35	188	8.51	16.55 - 16.75		68	.17
86	3.89	274	12.41	16.75 - 16.95		109	.14
115	5.21	389	17.62	16.95 - 17.15		171	.64
136	6.16	525	23.78	17.15 - 17.35		236	13.30
136	6.16	661	29.94	17.35 - 17.55		325	18.32
187	8.47	848	38.41	17.55 - 17.75		457	25.76
189	8.56	1037	46.97	17.75 - 17.95		457	.11
187	8.47	1224	55.43	17.95 - 18.15		610	.17
187	8.47	1411	63.90	18.15 - 18.35		766	34.39
165	7.47	1576	71.38	18.35 - 18.55		89	.79
134	6.07	1710	77.45	18.55 - 18.75		132	8.62
124	5.62	1834	83.06	18.75 - 18.95		153	8.79
104	4.71	1938	87.77	18.95 - 19.15		156	9.19
75	3.40	2013	91.17	19.15 - 19.35		163	9.29
58	2.63	2071	93.80	19.35 - 19.55		123	5.02
34	1.54	2105	95.34	19.55 - 19.75		150	7.44
33	1.49	2138	96.83	19.75 - 19.95		102	5.75
26	1.18	2164	98.01	19.95 - 20.15		103	5.81
16	.72	2180	98.73	20.15 - 20.35		83	4.68
8	.36	2188	99.09	20.35 - 20.55		71	4.00
9	.41	2197	99.50	20.55 - 20.75		57	3.21
3	.14	2200	99.64	20.75 - 20.95		48	2.71
4	.18	2204	99.82	20.95 - 21.15		31	1.75
2	.09	2206	99.91	21.15 - 21.35		33	1.86
2	.09	2208	100.00	21.35 - 21.55		13	.73
				21.55 - 21.75		11	.62
				21.75 - 21.95		2	.11
				21.95 - 22.15		5	.28
				22.15 - 22.35		2	.11
				22.35 - 22.55		4	.23
				22.55 - 22.75		1	.06
				22.75 - 22.95		5	.28
				22.95 - 23.15		0	.00
				23.15 - 23.35		1	.06

## (60) HEAD BREADTH

The maximum horizontal breadth of the head above the attachment of the ears is measured with a spreading caliper.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
13.33	5.25	13.92	5.48
13.46	5.30	14.08	5.54
13.55	5.33	14.18	5.58
13.66	5.38	14.31	5.63
13.83	5.45	14.50	5.71
13.95	5.49	14.62	5.76
14.04	5.53	14.72	5.80
14.12	5.56	14.81	5.83
14.19	5.59	14.88	5.86
14.25	5.61	14.96	5.89
14.31	5.63	15.02	5.91
14.37	5.66	15.09	5.94
14.43	5.68	15.15	5.97
14.49	5.70	15.22	5.99
14.55	5.73	15.29	6.02
14.61	5.75	15.36	6.05
14.68	5.78	15.43	6.08
14.75	5.81	15.51	6.11
14.84	5.84	15.61	6.15
14.94	5.88	15.72	6.19
15.07	5.93	15.86	6.25
15.27	6.01	16.08	6.33
15.41	6.07	16.23	6.39
15.51	6.11	16.34	6.41
15.69	6.18	16.52	6.49

# HEAD BREADTH

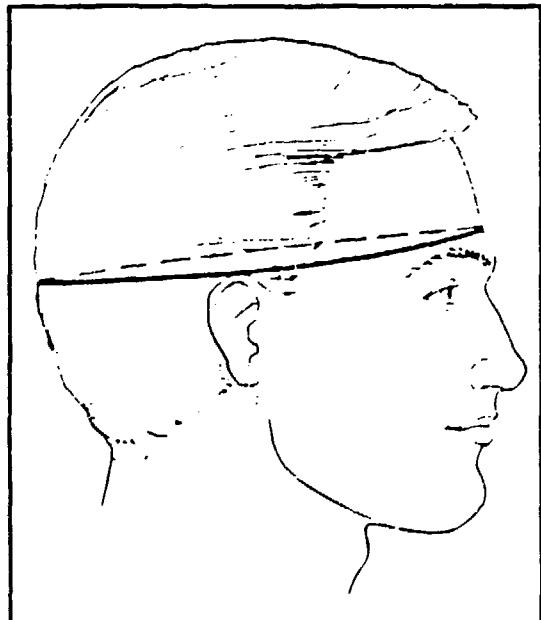
FEMALES		
	<u>CM</u>	<u>INCHES</u>
14.44	MEAN VALUE	5.69
.00	SE(MEAN)	.00
.49	STD DEVIATION	.19
.00	SE(STD DEV)	.00
12.60	MINIMUM	4.96
16.70	MAXIMUM	6.57
SYMMETRY---VETA I	=	.23
KURTOSIS---VETA II	=	3.52
COEF. OF VARIATION	=	3.4%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
15.17	MEAN VALUE	5.97
.00	SE(MEAN)	.00
.54	STD DEVIATION	.21
.00	SE(STD DEV)	.00
12.80	MINIMUM	5.04
17.30	MAXIMUM	6.81
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.32
COEF. OF VARIATION	=	3.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	12.55 - 12.65		1	.06
0	.00	1	.05	12.65 - 12.75		1	.06
0	.00	1	.05	12.75 - 12.85		0	.00
1	.05	2	.09	12.85 - 12.95		0	.00
2	.09	4	.18	12.95 - 13.05		0	.00
2	.09	6	.27	13.05 - 13.15		0	.00
8	.36	14	.63	13.15 - 13.25		0	.00
12	.54	26	1.18	13.25 - 13.35		0	.00
11	.50	37	1.68	13.35 - 13.45		0	.00
24	1.09	61	2.76	13.45 - 13.55		0	.00
48	2.17	109	4.94	13.55 - 13.65		1	.06
53	2.40	162	7.34	13.65 - 13.75		3	.17
82	3.71	244	11.05	13.75 - 13.85		8	.45
86	3.89	330	14.95	13.85 - 13.95		8	.45
116	5.25	446	20.20	13.95 - 14.05		10	.56
150	6.79	596	26.99	14.05 - 14.15		10	.56
182	8.24	778	35.24	14.15 - 14.25		26	1.47
205	9.28	983	44.52	14.25 - 14.35		45	2.54
154	6.97	1137	51.49	14.35 - 14.45		40	2.25
165	7.47	1302	58.97	14.45 - 14.55		61	3.44
180	8.15	1482	67.12	14.55 - 14.65		76	4.28
173	7.84	1655	74.95	14.65 - 14.75		98	5.52
141	6.39	1796	81.34	14.75 - 14.85		119	6.71
95	4.30	1891	85.64	14.85 - 14.95		96	5.41
78	3.53	1969	89.18	14.95 - 15.05		134	7.55
67	3.03	2036	92.21	15.05 - 15.15		134	7.55
48	2.17	2084	94.38	15.15 - 15.25		145	8.17
49	2.22	2133	96.60	15.25 - 15.35		129	7.27
21	.95	2154	97.55	15.35 - 15.45		117	6.60
19	.86	2173	98.41	15.45 - 15.55		114	6.43
9	.41	2182	98.82	15.55 - 15.65		89	5.02
8	.36	2190	99.18	15.65 - 15.75		79	4.45
2	.09	2192	99.28	15.75 - 15.85		48	2.71
4	.18	2196	99.46	15.85 - 15.95		45	2.54
3	.14	2199	99.59	15.95 - 16.05		33	1.86
2	.09	2201	99.68	16.05 - 16.15		34	1.92
6	.27	2207	99.95	16.15 - 16.25		23	1.30
0	.00	2207	99.95	16.25 - 16.35		15	.85
0	.00	2207	99.95	16.35 - 16.45		10	.56
0	.00	2207	99.95	16.45 - 16.55		8	.45
0	.00	2207	99.95	16.55 - 16.65		7	.39
1	.05	2208	100.00	16.65 - 16.75		4	.23
				16.75 - 16.85		1	.06
				16.85 - 16.95		0	.00
				16.95 - 17.05		1	.06
				17.05 - 17.15		0	.00
				17.15 - 17.25		1	.06
				17.25 - 17.35		1	.06
						1774	100.00

## (61) HEAD CIRCUMFERENCE

The maximum circumference of the head above the attachment of the ears to the head is measured with a tape passing just above the ridges of the eyebrows and around the back of the head.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
51.34	20.21	53.32	20.99
51.69	20.35	53.69	21.14
51.92	20.44	53.93	21.23
52.25	20.57	54.27	21.37
52.77	20.78	54.81	21.58
53.13	20.92	55.18	21.72
53.41	21.03	55.47	21.84
53.65	21.12	55.73	21.94
53.86	21.20	55.96	22.03
54.06	21.28	56.17	22.11
54.24	21.36	56.37	22.19
54.42	21.43	56.56	22.27
54.60	21.50	56.75	22.34
54.77	21.56	56.94	22.42
54.95	21.63	57.13	22.49
55.14	21.71	57.33	22.57
55.33	21.78	57.54	22.65
55.55	21.87	57.77	22.75
55.79	21.96	58.03	22.85
56.07	22.08	58.34	22.97
56.45	22.23	58.73	23.12
57.05	22.46	59.35	23.37
57.48	22.63	59.77	23.53
57.82	22.76	60.10	23.66
58.40	22.99	60.65	23.88

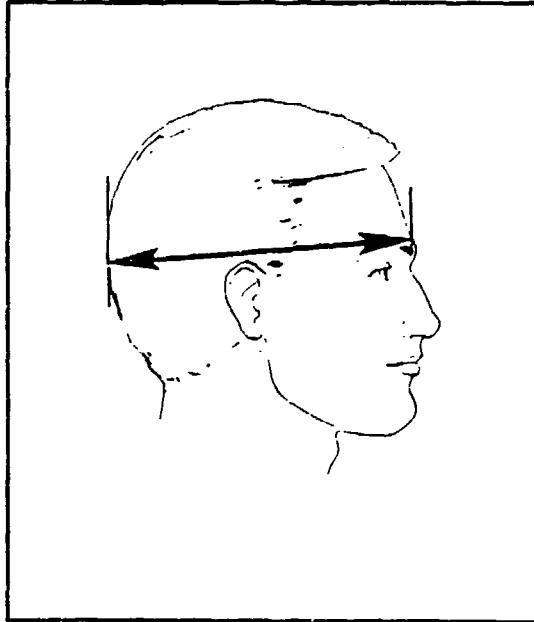
# HEAD CIRCUMFERENCE

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
54.62	MEAN VALUE	21.50	56.77	MEAN VALUE	22.35
.03	SE(MEAN)	.00	.04	SE(MEAN)	.00
1.46	STD DEVIATION	.58	1.54	STD DEVIATION	.50
.02	SE(STD DEV)	.00	.03	SE(STD DEV)	.00
50.00	MINIMUM	19.69	51.40	MINIMUM	20.24
61.10	MAXIMUM	24.06	62.70	MAXIMUM	24.69
SYMMETRY---VETA I	=	.19	SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	3.34	KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	2.7%	COEF. OF VARIATION	=	2.7%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
1	.05	1	.05	49.85	- 50.10	1	.06	1	.06
2	.09	3	.14	50.10	- 50.35	1	.06	2	.11
2	.09	5	.23	50.35	- 50.60	0	.00	2	.11
5	.23	10	.45	50.60	- 50.85	2	.11	4	.23
5	.23	15	.68	50.85	- 51.10	1	.06	5	.28
9	.41	24	1.09	51.10	- 51.35	4	.23	9	.51
8	.36	32	1.45	51.35	- 51.60	2	.11	11	.62
21	.95	53	2.40	51.60	- 51.85	6	.34	17	.96
27	1.22	80	3.62	51.85	- 52.10	10	.56	27	1.52
44	1.99	124	5.62	52.10	- 52.35	23	1.30	50	2.82
39	1.77	163	7.38	52.35	- 52.60	16	.90	66	3.72
79	3.58	242	10.96	52.60	- 52.85	35	1.97	101	5.69
58	2.63	300	13.59	52.85	- 53.10	30	1.69	131	7.38
111	5.03	411	18.61	53.10	- 53.35	45	2.54	176	9.92
86	3.89	497	22.51	53.35	- 53.60	49	2.76	225	12.68
162	7.34	659	29.85	53.60	- 53.85	90	5.07	315	17.76
112	5.07	771	34.92	53.85	- 54.10	58	3.27	373	21.03
217	9.83	988	44.75	54.10	- 54.35	132	7.44	505	28.47
131	5.93	1119	50.68	54.35	- 54.60	69	3.89	574	32.36
143	6.48	1262	57.16	54.60	- 54.85	122	6.88	696	39.23
106	4.80	1368	61.96	54.85	- 55.10	97	5.47	793	44.70
178	8.06	1546	70.02	55.10	- 55.35	140	7.89	933	52.59
104	4.71	1650	74.73	55.35	- 55.60	85	4.79	1018	57.38
128	5.80	1778	80.53	55.60	- 55.85	140	7.89	1158	65.28
66	2.99	1844	83.51	55.85	- 56.10	97	5.47	1255	70.74
105	4.76	1949	88.27	56.10	- 56.35	102	5.75	1357	76.49
50	2.26	1999	90.53	56.35	- 56.60	67	3.78	1424	80.27
78	3.53	2077	94.07	56.60	- 56.85	104	5.86	1528	86.13
25	1.13	2107	95.20	56.85	- 57.10	35	1.97	1563	88.11
41	1.86	2143	97.06	57.10	- 57.35	65	3.66	1628	91.77
12	.54	2155	97.60	57.35	- 57.60	27	1.52	1655	93.29
13	.59	2168	98.19	57.60	- 57.85	36	2.03	1691	95.32
5	.23	2173	98.41	57.85	- 58.10	15	.85	1706	96.17
10	.45	2183	98.87	58.10	- 58.35	18	1.01	1724	97.18
4	.18	2187	99.05	58.35	- 58.60	6	.34	1730	97.52
14	.63	2201	99.68	58.60	- 58.85	18	1.01	1748	98.53
1	.05	2202	99.73	58.85	- 59.10	7	.39	1755	98.93
1	.05	2203	99.77	59.10	- 59.35	11	.62	1766	99.55
1	.05	2204	99.82	59.35	- 59.60	2	.11	1768	99.66
1	.05	2205	99.86	59.60	- 59.85	1	.06	1769	99.72
0	.00	2205	99.86	59.85	- 60.10	3	.17	1772	99.89
2	.09	2207	99.95	60.10	- 60.35	1	.06	1773	99.94
0	.00	2207	99.95	60.35	- 60.60	0	.00	1773	99.94
0	.00	2207	99.95	60.60	- 60.85	11	.62	1773	99.94
0	.00	2207	99.95	60.85	- 61.10	2	.11	1773	99.94
1	.05	2208	100.00	61.10	- 61.35	1	.06	1774	100.00

## (62) HEAD LENGTH

The distance from the glabella landmark between the browridges to the posterior point on the back of the head is measured with a spreading caliper.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
17.23	6.78	1ST	18.02 7.09
17.38	6.84	2ND	18.23 7.18
17.48	6.88	3RD	18.36 7.23
17.63	6.94	5TH	18.53 7.30
17.87	7.04	10TH	18.81 7.40
18.04	7.10	15TH	18.99 7.47
18.17	7.16	20TH	19.13 7.53
18.29	7.20	25TH	19.25 7.58
18.39	7.24	30TH	19.35 7.62
18.48	7.28	35TH	19.45 7.66
18.57	7.31	40TH	19.54 7.69
18.66	7.34	45TH	19.63 7.73
18.74	7.38	50TH	19.72 7.76
18.82	7.41	55TH	19.81 7.80
18.90	7.44	60TH	19.90 7.83
18.98	7.47	65TH	19.99 7.87
19.07	7.51	70TH	20.08 7.91
19.16	7.54	75TH	20.18 7.95
19.26	7.58	80TH	20.30 7.99
19.38	7.63	85TH	20.43 8.04
19.53	7.69	90TH	20.60 8.11
19.75	7.77	95TH	20.85 8.21
19.90	7.83	97TH	21.01 8.27
20.01	7.88	98TH	21.14 8.32
20.19	7.95	99TH	21.34 8.40

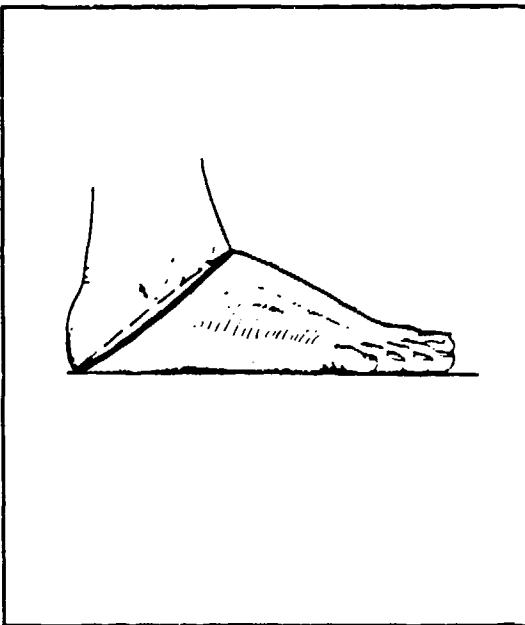
# HEAD LENGTH

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
18.72	MEAN VALUE	7.37	19.71	MEAN VALUE	7.76
.00	SE(MEAN)	.00	.02	SE(MEAN)	.00
.64	STD DEVIATION	.25	.71	STD DEVIATION	.28
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
15.80	MINIMUM	6.22	17.30	MINIMUM	6.81
21.10	MAXIMUM	8.31	22.00	MAXIMUM	8.66
SYMMETRY---VETA I	=	-.11	SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	3.14	KURTOSIS---VETA II	=	3.05
COEF. OF VARIATION	=	3.4%	COEF. OF VARIATION	=	3.6%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	15.75 - 15.95		1	.06
0	.00	1	.05	15.95 - 16.15		2	.11
1	.05	2	.09	16.15 - 16.35		6	.34
1	.05	3	.14	16.35 - 16.55			
1	.05	4	.18	16.55 - 16.75			
3	.14	7	.32	16.75 - 16.95			
8	.36	15	.68	16.95 - 17.15			
19	.86	34	1.54	17.15 - 17.35			
50	2.26	84	3.89	17.35 - 17.55			
63	2.85	147	6.66	17.55 - 17.75			
110	4.98	257	11.64	17.75 - 17.95			
153	6.93	410	18.57	17.95 - 18.15			
218	9.87	628	28.44	18.15 - 18.35			
229	10.37	857	38.81	18.35 - 18.55			
273	12.36	1130	51.18	18.55 - 18.75			
260	11.78	1390	62.95	18.75 - 18.95			
238	10.78	1628	73.73	18.95 - 19.15			
225	10.19	1953	83.92	19.15 - 19.35			
156	7.07	2009	90.99	19.35 - 19.55			
91	4.12	2100	95.11	19.55 - 19.75			
59	2.67	2159	97.78	19.75 - 19.95			
22	1.00	2181	98.78	19.95 - 20.15			
19	.86	2200	99.64	20.15 - 20.35			
5	.23	2205	99.86	20.35 - 20.55			
0	.00	2205	99.86	20.55 - 20.75			
2	.09	2207	99.95	20.75 - 20.95			
1	.05	2208	100.00	20.95 - 21.15			
				21.15 - 21.35	13	.73	1756 98.99
				21.35 - 21.55	8	.45	1764 99.44
				21.55 - 21.75	7	.39	1771 99.83
				21.75 - 21.95	2	.11	1773 99.94
				21.95 - 22.15	1	.06	1774 100.00

### (63) HEEL ANKLE CIRCUMFERENCE

The circumference of the right foot at the ankle and base of the heel is measured with a tape passing over the point at which the heel first contacts the table and over the dorsal-juncture-of-the-foot-and-leg landmark at the front of the ankle. The subject stands with the feet about 10 cm apart and the weight distributed equally on both feet.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
27.25	10.73	1ST	30.31 11.93
27.56	10.85	2ND	30.69 12.08
27.77	10.93	3RD	30.94 12.18
28.08	11.06	5TH	31.29 12.32
28.58	11.25	10TH	31.84 12.54
28.93	11.39	15TH	32.23 12.69
29.21	11.50	20TH	32.53 12.81
29.46	11.60	25TH	32.80 12.91
29.68	11.68	30TH	33.03 13.01
29.88	11.76	35TH	33.25 13.09
30.07	11.84	40TH	33.46 13.17
30.26	11.91	45TH	33.67 13.25
30.44	11.99	50TH	33.87 13.33
30.63	12.06	55TH	34.07 13.41
30.82	12.13	60TH	34.27 13.49
31.01	12.21	65TH	34.49 13.58
31.22	12.29	70TH	34.71 13.67
31.44	12.38	75TH	34.96 13.76
31.69	12.48	80TH	35.24 13.87
31.99	12.60	85TH	35.56 14.00
32.38	12.75	90TH	35.99 14.17
33.00	12.99	95TH	36.65 14.43
33.43	13.16	97TH	37.11 14.61
33.76	13.29	98TH	37.46 14.75
34.34	13.52	99TH	38.04 14.98

# HEEL ANKLE CIRCUMFERENCE

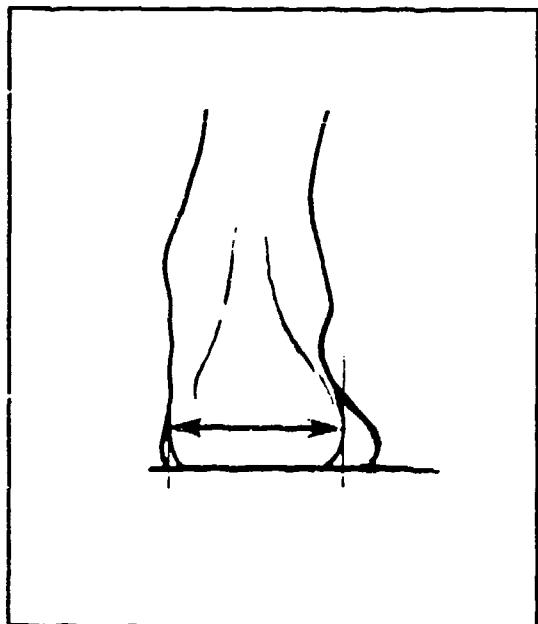
FEMALES		
<u>CM</u>	<u>INCHES</u>	
30.48	MEAN VALUE	12.00
.03	SE(MEAN)	.00
1.49	STD DEVIATION	.59
.02	SE(STD DEV)	.00
25.70	MINIMUM	10.12
36.50	MAXIMUM	14.37
SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
33.90	MEAN VALUE	13.35
.04	SE(MEAN)	.02
1.63	STD DEVIATION	.54
.03	SE(STD DEV)	.00
28.80	MINIMUM	11.34
40.20	MAXIMUM	15.83
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	25.25 - 25.75			
3	.14	4	.18	25.75 - 26.25			
3	.14	7	.32	26.25 - 26.75			
15	.68	22	1.00	26.75 - 27.25			
39	1.77	61	2.76	27.25 - 27.75			
71	3.22	132	5.98	27.75 - 28.25			
119	5.39	251	11.37	28.25 - 28.75			
196	8.88	447	20.24	28.75 - 29.25			
255	11.55	702	31.79	29.25 - 29.75			
285	12.91	987	44.70	29.75 - 30.25			
301	13.63	1288	58.33	30.25 - 30.75			
277	12.55	1565	70.88	30.75 - 31.25			
213	9.65	1778	80.53	31.25 - 31.75			
162	7.34	1940	87.86	31.75 - 32.25			
124	5.62	2064	93.48	32.25 - 32.75			
64	2.90	2128	96.38	32.75 - 33.25			
40	1.81	2168	98.19	33.25 - 33.75			
13	.59	2181	98.78	33.75 - 34.25			
15	.68	2196	99.46	34.25 - 34.75			
10	.45	2206	99.91	34.75 - 35.25			
1	.05	2207	99.95	35.25 - 35.75			
0	.00	2207	99.95	35.75 - 36.25			
1	.05	2208	100.00	36.25 - 36.75			
				36.75 - 37.25			
				37.25 - 37.75			
				37.75 - 38.25			
				38.25 - 38.75			
				38.75 - 39.25			
				39.25 - 39.75			
				39.75 - 40.25			

## (64) HEEL BREADTH

The maximum horizontal distance between the medial and lateral points on the inside and outside of the right heel, at or posterior to the lateral malleolus landmark, is measured with a Holtain caliper. The measurement is taken just above the level of the standing surface at the most protruding points of the curvature of the heel. The subject stands with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
5.32	2.09	5.97	2.35
5.41	2.13	6.07	2.39
5.48	2.16	6.14	2.42
5.57	2.19	6.23	2.45
5.71	2.25	6.38	2.51
5.81	2.29	6.48	2.55
5.89	2.32	6.57	2.59
5.96	2.35	6.64	2.62
6.03	2.37	6.71	2.64
6.09	2.40	6.78	2.67
6.15	2.42	6.84	2.69
6.21	2.44	6.90	2.72
6.27	2.47	6.97	2.74
6.33	2.49	7.03	2.77
6.39	2.52	7.10	2.80
6.46	2.54	7.17	2.82
6.53	2.57	7.25	2.86
6.61	2.60	7.34	2.89
6.69	2.64	7.44	2.93
6.80	2.68	7.56	2.98
6.94	2.73	7.71	3.04
7.14	2.81	7.95	3.13
7.28	2.87	8.12	3.20
7.39	2.91	8.24	3.25
7.56	2.98	8.45	3.33

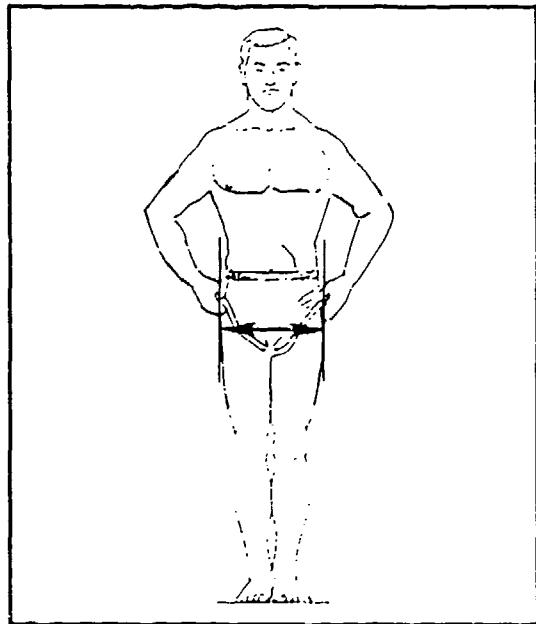
# HEEL BREADTH

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
6.30	MEAN VALUE	2.48	7.01	MEAN VALUE	2.76
.00	SE(MEAN)	.00	.00	SE(MEAN)	.00
.48	STD DEVIATION	.19	.53	STD DEVIATION	.21
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
5.00	MINIMUM	1.97	5.50	MINIMUM	2.17
8.40	MAXIMUM	3.31	9.00	MAXIMUM	3.54
SYMMETRY---VETA I	=	.41	SYMMETRY---VETA I	=	.49
KURTOSIS---VETA II	=	3.29	KURTOSIS---VETA II	=	3.36
COEF. OF VARIATION	=	7.7%	COEF. OF VARIATION	=	7.5%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	4.95 -	5.05	1	.06
2	.09	3	.14	5.05 -	5.15	2	.11
13	.59	16	.72	5.15 -	5.25	4	.11
10	.45	26	1.18	5.25 -	5.35	11	.23
26	1.18	52	2.36	5.35 -	5.45	12	.68
42	1.90	94	4.26	5.45 -	5.55	13	.69
68	3.08	162	7.34	5.55 -	5.65	14	1.69
139	6.30	301	13.63	5.65 -	5.75	15	6.09
78	3.53	379	17.16	5.75 -	5.85	16	9.36
129	5.84	508	23.01	5.85 -	5.95	17	12.29
209	9.47	717	32.47	5.95 -	6.05	18	18.77
168	7.61	885	40.08	6.05 -	6.15	19	24.92
184	8.33	1069	48.41	6.15 -	6.25	20	32.41
191	8.20	1250	56.61	6.25 -	6.35	21	39.80
158	7.16	1408	63.77	6.35 -	6.45	22	47.18
167	7.56	1575	71.33	6.45 -	6.55	23	56.82
148	6.70	1723	78.03	6.55 -	6.65	24	64.60
137	6.20	1860	84.24	6.65 -	6.75	25	71.03
61	2.76	1921	87.00	6.75 -	6.85	26	75.65
68	3.08	1989	90.08	6.85 -	6.95	27	80.72
70	3.17	2059	93.25	6.95 -	7.05	28	85.17
37	1.68	2096	94.93	7.05 -	7.15	29	88.56
35	1.59	2131	96.51	7.15 -	7.25	30	91.15
28	1.27	2159	97.78	7.25 -	7.35	31	92.84
17	.77	2176	98.55	7.35 -	7.45	32	94.48
9	.41	2185	98.96	7.45 -	7.55	33	96.28
7	.32	2192	99.28	7.55 -	7.65	34	97.13
7	.32	2199	99.59	7.65 -	7.75	35	97.97
1	.05	2200	99.64	7.75 -	7.85	36	98.70
3	.14	2203	99.77	7.85 -	7.95	37	99.10
0	.00	2203	99.77	7.95 -	8.05	38	99.32
4	.18	2207	99.95	8.05 -	8.15	39	99.44
0	.00	2207	99.95	8.15 -	8.25	40	99.72
0	.00	2207	99.95	8.25 -	8.35	41	99.83
1	.05	2208	100.00	8.35 -	8.45	42	99.89
						43	100.00

## (65) HIP BREADTH

The horizontal distance between the lateral buttock landmarks on the sides of the hips is measured with a beam caliper. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
29.58	11.65	1ST	29.64 11.67
30.05	11.83	2ND	30.18 11.88
30.35	11.95	3RD	30.51 12.01
30.78	12.12	5TH	30.97 12.19
31.47	12.39	10TH	31.66 12.46
31.96	12.58	15TH	32.12 12.65
32.35	12.74	20TH	32.49 12.79
32.70	12.87	25TH	32.81 12.92
33.01	13.00	30TH	33.10 13.03
33.31	13.11	35TH	33.36 13.14
33.59	13.23	40TH	33.62 13.24
33.87	13.34	45TH	33.87 13.33
34.15	13.45	50TH	34.12 13.43
34.44	13.56	55TH	34.37 13.53
34.73	13.67	60TH	34.62 13.63
35.03	13.79	65TH	34.89 13.74
35.36	13.92	70TH	35.18 13.85
35.71	14.06	75TH	35.49 13.97
36.12	14.22	80TH	35.85 14.11
36.59	14.41	85TH	36.27 14.28
37.21	14.65	90TH	36.82 14.50
38.15	15.02	95TH	37.65 14.82
38.77	15.27	97TH	38.22 15.05
39.24	15.45	98TH	38.64 15.21
40.00	15.75	99TH	39.32 15.48

# HIP BREADTH

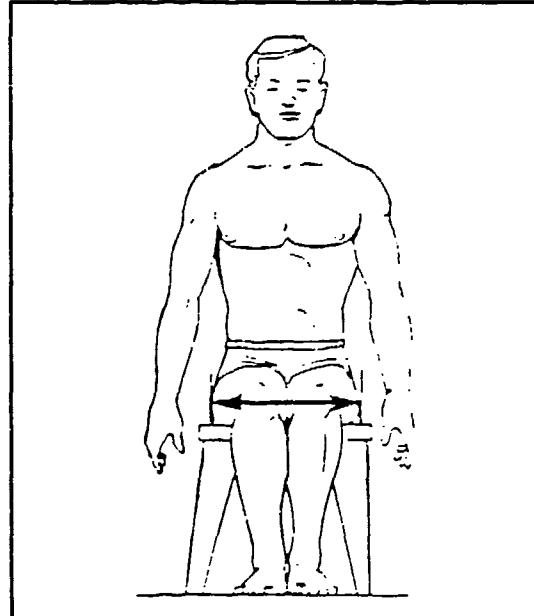
FEMALES		
	<u>CM</u>	<u>INCHES</u>
34.27	MEAN VALUE	13.49
.05	SE(MEAN)	.02
2.24	STD DEVIATION	.88
.03	SE(STD DEV)	.00
27.00	MINIMUM	10.63
42.00	MAXIMUM	16.54
SYMMETRY---VETA I	=	.29
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	6.5%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
34.18	MEAN VALUE	13.46
.05	SE(MEAN)	.02
2.03	STD DEVIATION	.80
.03	SE(STD DEV)	.00
28.20	MINIMUM	11.10
41.60	MAXIMUM	16.38
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.15
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	26.75	-	27.25	
0	.00	1	.05	27.25	-	27.75	
0	.00	1	.05	27.75	-	28.25	
3	.14	4	.18	28.25	-	28.75	
10	.45	14	.63	28.75	-	29.25	
14	.63	28	1.27	29.25	-	29.75	
26	1.18	54	2.45	29.75	-	30.25	
43	1.95	97	4.39	30.25	-	30.75	
90	4.08	187	8.47	30.75	-	31.25	
93	4.21	280	12.68	31.25	-	31.75	
116	5.25	396	17.93	31.75	-	32.25	
190	8.61	586	26.54	32.25	-	32.75	
180	8.15	766	34.69	32.75	-	33.25	
179	8.11	945	42.80	33.25	-	33.75	
188	8.51	1133	51.31	33.75	-	34.25	
210	9.51	1343	60.82	34.25	-	34.75	
155	7.02	1498	67.84	34.75	-	35.25	
159	7.20	1657	75.05	35.25	-	35.75	
134	6.07	1791	81.11	35.75	-	36.25	
120	5.43	1911	86.55	36.25	-	36.75	
91	4.12	2002	90.67	36.75	-	37.25	
50	2.26	2052	92.93	37.25	-	37.75	
57	2.58	2109	95.52	37.75	-	38.25	
35	1.59	2144	97.10	38.25	-	38.75	
21	.95	2165	98.05	38.75	-	39.25	
15	.68	2180	98.73	39.25	-	39.75	
10	.45	2190	99.18	39.75	-	40.25	
5	.23	2195	99.41	40.25	-	40.75	
6	.27	2201	99.68	40.75	-	41.25	
6	.27	2207	99.95	41.25	-	41.75	
1	.05	2208	100.00	41.75	-	42.25	

## (66) HIP BREADTH, SITTING

The distance between the lateral points of the hips or thighs (whichever are broader) is measured with a beam caliper. The subject sits erect with the feet and knees together.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
32.71	12.88	1ST	31.15 12.26
33.33	13.12	2ND	31.90 12.56
33.72	13.28	3RD	32.33 12.73
34.25	13.48	5TH	32.87 12.94
35.06	13.81	10TH	33.64 13.24
35.65	14.03	15TH	34.15 13.45
36.11	14.22	20TH	34.56 13.60
36.52	14.38	25TH	34.91 13.75
36.90	14.53	30TH	35.24 13.88
37.25	14.67	35TH	35.56 14.00
37.60	14.80	40TH	35.86 14.12
37.94	14.94	45TH	36.16 14.24
38.28	15.07	50TH	36.47 14.36
38.63	15.21	55TH	36.79 14.49
38.99	15.35	60TH	37.12 14.62
39.36	15.50	65TH	37.48 14.75
39.77	15.66	70TH	37.86 14.90
40.21	15.83	75TH	38.28 15.07
40.72	16.03	80TH	38.77 15.26
41.32	16.27	85TH	39.34 15.49
42.08	16.57	90TH	40.07 15.78
43.22	17.02	95TH	41.16 16.20
43.96	17.31	97TH	41.84 16.47
44.49	17.52	98TH	42.32 16.66
45.32	17.84	99TH	43.00 16.93

# HIP BREADTH, SITTING

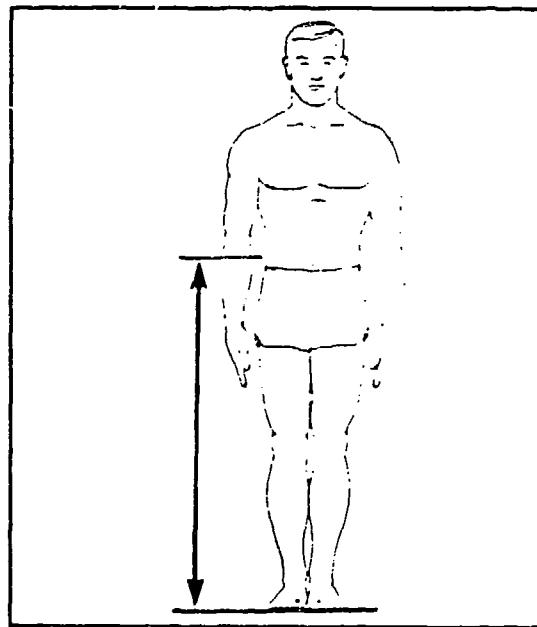
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
38.45	MEAN VALUE	15.14
.06	SE(MEAN)	.02
2.72	STD DEVIATION	1.07
.04	SE(STD DEV)	.02
30.80	MINIMUM	12.13
49.30	MAXIMUM	19.41
SYMMETRY---VETA I	=	.34
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	7.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
36.68	MEAN VALUE	14.44
.06	SE(MEAN)	.02
2.52	STD DEVIATION	.99
.04	SE(STD DEV)	.02
29.90	MINIMUM	11.77
48.40	MAXIMUM	19.06
SYMMETRY---VETA I	=	.36
KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	6.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF
				29.75	-	30.25	4	.23
				30.25	-	30.75	6	.34
1	.05	1	.05	30.75	-	31.25	10	.56
2	.09	3	.14	31.25	-	31.75	8	.45
8	.36	11	.50	31.75	-	32.25	23	1.30
13	.59	24	1.09	32.25	-	32.75	21	1.18
15	.68	39	1.77	32.75	-	33.25	45	2.54
27	1.22	66	2.99	33.25	-	33.75	76	4.28
40	1.81	106	4.80	33.75	-	34.25	97	5.47
63	2.85	169	7.65	34.25	-	34.75	122	6.88
79	3.58	248	11.23	34.75	-	35.25	124	6.99
105	4.76	353	15.99	35.25	-	35.75	134	7.55
121	5.48	474	21.47	35.75	-	36.25	151	8.51
163	7.38	637	28.85	36.25	-	36.75	140	7.89
143	6.48	780	35.33	36.75	-	37.25	138	7.78
161	7.29	941	42.62	37.25	-	37.75	116	6.54
142	6.43	1083	49.05	37.75	-	38.25	107	6.03
167	7.56	1250	56.61	38.25	-	38.75	97	5.47
141	6.39	1391	53.00	38.75	-	39.25	80	4.51
139	6.30	1530	69.29	39.25	-	39.75	60	3.38
130	5.89	1660	75.18	39.75	-	40.25	61	3.44
114	5.16	1774	80.34	40.25	-	40.75	38	2.14
94	4.26	1868	84.60	40.75	-	41.25	36	2.03
82	3.71	1950	88.32	41.25	-	41.75	23	1.30
75	3.40	2025	91.71	41.75	-	42.25	18	1.01
41	1.86	2066	93.57	42.25	-	42.75	17	.96
32	1.45	2098	95.02	42.75	-	43.25	9	.51
34	1.54	2132	96.56	43.25	-	43.75	3	.17
25	1.13	2157	97.69	43.75	-	44.25	3	.17
14	.63	2171	98.32	44.25	-	44.75	5	.28
14	.63	2185	98.96	44.75	-	45.25	0	.00
6	.27	2191	99.23	45.25	-	45.75	0	.00
8	.36	2199	99.59	45.75	-	46.25	1	.06
2	.09	2201	99.68	46.25	-	46.75	0	.00
1	.05	2202	99.73	46.75	-	47.25	0	.00
2	.09	2204	99.82	47.25	-	47.75	0	.00
1	.05	2205	99.86	47.75	-	48.25	0	.00
1	.05	2206	99.91	48.25	-	48.75	1	.06
1	.05	2207	99.95	48.75	-	49.25	0	.00
1	.05	2208	100.00	49.25	-	49.75	0	.00

## (67) ILIOCRISTALE HEIGHT

The vertical distance between a standing surface and the iliocristale landmark on the top of the right side of the pelvis is measured with an anthropometer. The subject stands erect with the heels together and the weight distributed equally on both feet. The shoulders and upper extremities are relaxed.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
87.95	34.63	1ST	95.66 37.66
89.24	35.13	2ND	97.07 38.22
90.05	35.45	3RD	97.94 38.56
91.13	35.88	5TH	99.10 39.02
92.79	36.53	10TH	100.86 39.71
93.90	36.97	15TH	102.05 40.18
94.79	37.32	20TH	102.99 40.55
95.56	37.62	25TH	103.81 40.87
96.26	37.90	30TH	104.56 41.16
96.90	38.15	35TH	105.25 41.44
97.52	38.39	40TH	105.91 41.70
98.12	38.63	45TH	106.56 41.95
98.73	38.87	50TH	107.21 42.21
99.33	39.11	55TH	107.86 42.46
99.95	39.35	60TH	108.52 42.73
100.60	39.61	65TH	109.22 43.00
101.29	39.88	70TH	109.95 43.29
102.04	40.17	75TH	110.75 43.60
102.90	40.51	80TH	111.65 43.96
103.90	40.90	85TH	112.69 44.36
105.18	41.41	90TH	114.00 44.88
107.12	42.17	95TH	115.89 45.63
108.39	42.67	97TH	117.07 46.09
109.33	43.04	98TH	117.91 46.42
110.82	43.63	99TH	119.15 46.91

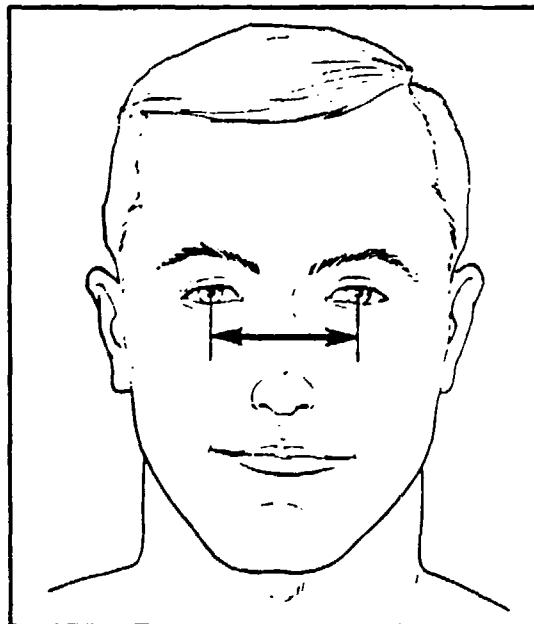
# ILIOCRISTALE HEIGHT

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
98.88	MEAN VALUE	38.93	107.34	MEAN VALUE	42.26
.10	SE(MEAN)	.04	.12	SE(MEAN)	.05
4.82	STD DEVIATION	1.90	5.14	STD DEVIATION	2.02
.07	SE(STD DEV)	.03	.09	SE(STD DEV)	.03
81.50	MINIMUM	32.09	87.70	MINIMUM	34.53
117.80	MAXIMUM	46.38	131.70	MAXIMUM	51.85
SYMMETRY---VETA I	=	.13	SYMMETRY---VETA I	=	.12
KURTOSIS---VETA II	=	3.08	KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.9%	COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	80.55 - 81.55		1	.06
0	.00	1	.05	81.55 - 82.55		0	.00
1	.05	2	.09	82.55 - 83.55		0	.00
0	.00	2	.09	83.55 - 84.55		1	.06
2	.09	4	.18	84.55 - 85.55		1	.06
4	.18	8	.36	85.55 - 86.55		1	.06
8	.36	16	.72	86.55 - 87.55		1	.06
18	.82	34	1.54	87.55 - 88.55		1	.06
12	.54	46	2.08	88.55 - 89.55		1	.06
34	1.54	80	3.62	89.55 - 90.55		1	.06
44	1.99	124	5.62	90.55 - 91.55		1	.06
77	3.49	201	9.10	91.55 - 92.55		1	.06
87	3.94	288	13.04	92.55 - 93.55		1	.06
125	5.66	413	18.70	93.55 - 94.55		6	.34
136	6.16	549	24.86	94.55 - 95.55		6	.34
157	7.11	706	31.97	95.55 - 96.55		11	.62
182	8.24	888	40.22	96.55 - 97.55		17	.96
184	8.33	1072	48.55	97.55 - 98.55		21	1.18
181	8.20	1253	56.75	98.55 - 99.55		35	1.97
184	8.33	1437	65.08	99.55 - 100.55		61	3.44
156	7.07	1593	72.15	100.55 - 101.55		70	3.95
116	5.25	1709	77.40	101.55 - 102.55		74	4.17
130	5.89	1839	83.29	102.55 - 103.55		102	5.75
93	4.21	1932	87.50	103.55 - 104.55		118	6.65
96	4.35	2028	91.85	104.55 - 105.55		143	8.06
54	2.45	2082	94.29	105.55 - 106.55		134	7.55
40	1.81	2122	96.11	106.55 - 107.55		137	7.72
22	1.00	2144	97.10	107.55 - 108.55		139	7.84
23	1.04	2167	98.14	108.55 - 109.55		118	6.65
17	.77	2184	98.91	109.55 - 110.55		105	5.92
14	.63	2198	99.55	110.55 - 111.55		110	6.20
4	.18	2202	99.73	111.55 - 112.55		75	4.23
2	.09	2204	99.82	112.55 - 113.55		73	4.11
0	.00	2204	99.82	113.55 - 114.55		60	3.38
3	.14	2207	99.95	114.55 - 115.55		58	3.27
0	.00	2207	99.95	115.55 - 116.55		43	2.42
0	.00	2207	99.95	116.55 - 117.55		14	.79
1	.05	2208	100.00	117.55 - 118.55		14	.79
				118.55 - 119.55		10	.56
				119.55 - 120.55		8	.45
				120.55 - 121.55		2	.11
				121.55 - 122.55		2	.11
				122.55 - 123.55		2	.11
				123.55 - 124.55		0	.00
				124.55 - 125.55		0	.00
				125.55 - 126.55		0	.00
				126.55 - 127.55		0	.00
				127.55 - 128.55		0	.00
				128.55 - 129.55		1	.06
				129.55 - 130.55		0	.00
				130.55 - 131.55		0	.00
				131.55 - 132.55		1	.06

## (68) INTERPUPILLARY BREADTH

The distance between the two pupils is measured with a pupillometer.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
5.45	2.14	1ST	5.68 2.24
5.53	2.18	2ND	5.76 2.27
5.58	2.20	3RD	5.81 2.29
5.66	2.23	5TH	5.88 2.31
5.77	2.27	10TH	6.00 2.36
5.86	2.31	15TH	6.08 2.39
5.92	2.33	20TH	6.15 2.42
5.98	2.35	25TH	6.21 2.44
6.03	2.37	30TH	6.26 2.46
6.08	2.39	35TH	6.31 2.48
6.13	2.41	40TH	6.36 2.50
6.17	2.43	45TH	6.41 2.52
6.22	2.45	50TH	6.45 2.54
6.26	2.47	55TH	6.50 2.56
6.31	2.48	60TH	6.55 2.58
6.36	2.50	65TH	6.60 2.60
6.41	2.52	70TH	6.65 2.62
6.47	2.55	75TH	6.71 2.64
6.53	2.57	80TH	6.78 2.67
6.61	2.60	85TH	6.86 2.70
6.70	2.64	90TH	6.96 2.74
6.85	2.70	95TH	7.10 2.80
6.94	2.73	97TH	7.20 2.83
7.01	2.76	98TH	7.27 2.86
7.11	2.80	99TH	7.38 2.91

# INTERPUPILLARY BREADTH

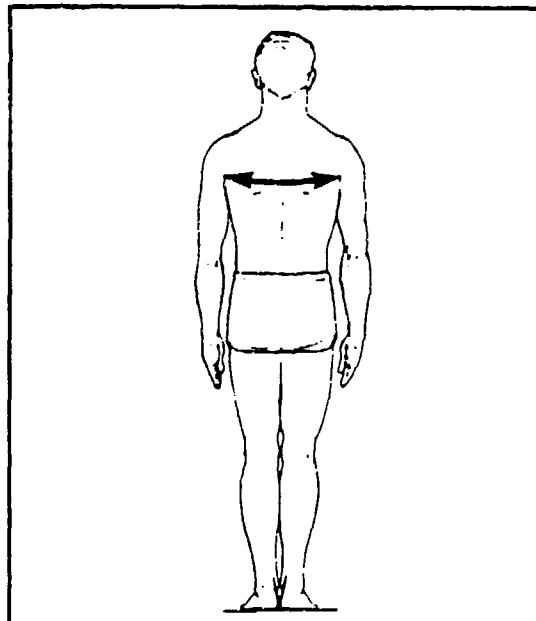
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
6.23	MEAN VALUE	2.45
.00	SE(MEAN)	.00
.36	STD DEVIATION	.14
.00	SE(STD DEV)	.00
5.20	MINIMUM	2.05
7.60	MAXIMUM	2.99
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	2.97
COEF. OF VARIATION	=	5.8%
NUMBER OF SUBJECTS	=	2205

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
6.47	MEAN VALUE	2.55
.00	SE(MEAN)	.00
.37	STD DEVIATION	.15
.00	SE(STD DEV)	.00
5.20	MINIMUM	2.05
7.80	MAXIMUM	3.07
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	2.89
COEF. OF VARIATION	=	5.7%
NUMBER OF SUBJECTS	=	1771

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF
2	.09	2	.09	5.15 - 5.25	1	.06	1
10	.45	12	.54	5.25 - 5.35	0	.00	i
9	.41	21	.95	5.35 - 5.45	0	.00	1
30	1.36	51	2.31	5.45 - 5.55	4	.23	5
57	2.59	108	4.90	5.55 - 5.65	9	.51	14
74	3.36	182	8.25	5.65 - 5.75	20	1.13	34
127	5.76	309	14.01	5.75 - 5.85	29	1.64	63
182	8.25	491	22.27	5.85 - 5.95	55	3.11	118
218	9.89	709	32.15	5.95 - 6.05	119	6.72	237
219	9.93	928	42.09	6.05 - 6.15	125	7.06	362
241	10.93	1169	53.02	6.15 - 6.25	167	9.43	529
248	11.25	1417	64.26	6.25 - 6.35	178	10.05	707
209	9.48	1626	73.74	6.35 - 6.45	175	9.88	882
173	7.85	1799	81.59	6.45 - 6.55	181	10.22	1063
132	5.99	1931	87.57	6.55 - 6.65	146	8.24	1209
96	4.35	2027	91.93	6.65 - 6.75	157	8.87	1366
66	2.99	2093	94.92	6.75 - 6.85	135	7.62	1501
49	2.22	2142	97.14	6.85 - 6.95	99	5.59	1600
32	1.45	2174	98.59	6.95 - 7.05	65	3.67	1665
15	.68	2189	99.27	7.05 - 7.15	39	2.20	1704
11	.50	2200	99.77	7.15 - 7.25	30	1.69	1734
2	.09	2202	99.86	7.25 - 7.35	14	.79	1748
1	.05	2203	99.91	7.35 - 7.45	11	.62	1759
1	.05	2204	99.95	7.45 - 7.55	8	.45	1767
1	.05	2205	100.00	7.55 - 7.65	3	.17	1770
				7.65 - 7.75	0	.00	1770
				7.75 - 7.85	1	.06	1771
							100.00

## (69) INTERSCYE I

The distance across the back between the right and left posterior-axillary-fold landmarks is measured with a tape. The tape is held on the skin surface except where the tape spans the hollow of the back. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
29.39	11.57	1ST	33.23 13.08
30.03	11.82	2ND	34.02 13.40
30.43	11.98	3RD	34.52 13.59
30.99	12.20	5TH	35.19 13.85
31.85	12.54	10TH	36.21 14.26
32.45	12.78	15TH	36.91 14.53
32.93	12.96	20TH	37.48 14.75
33.35	13.13	25TH	37.97 14.95
33.73	13.28	30TH	38.42 15.13
34.08	13.42	35TH	38.84 15.29
34.42	13.55	40TH	39.24 15.45
34.76	13.68	45TH	39.64 15.61
35.09	13.82	50TH	40.04 15.76
35.43	13.95	55TH	40.44 15.92
35.78	14.09	60TH	40.85 16.08
36.14	14.23	65TH	41.29 16.25
36.52	14.38	70TH	41.75 16.44
36.95	14.55	75TH	42.25 16.63
37.42	14.73	80TH	42.82 16.86
37.98	14.95	85TH	43.48 17.12
38.70	15.24	90TH	44.32 17.45
39.78	15.66	95TH	45.56 17.94
40.49	15.94	97TH	46.35 18.25
41.01	16.15	98TH	46.91 18.47
41.83	16.47	99TH	47.77 18.81

# INTERSCYE I

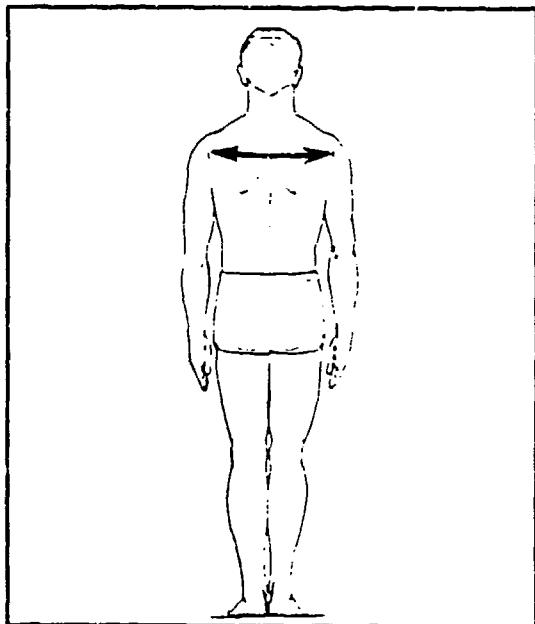
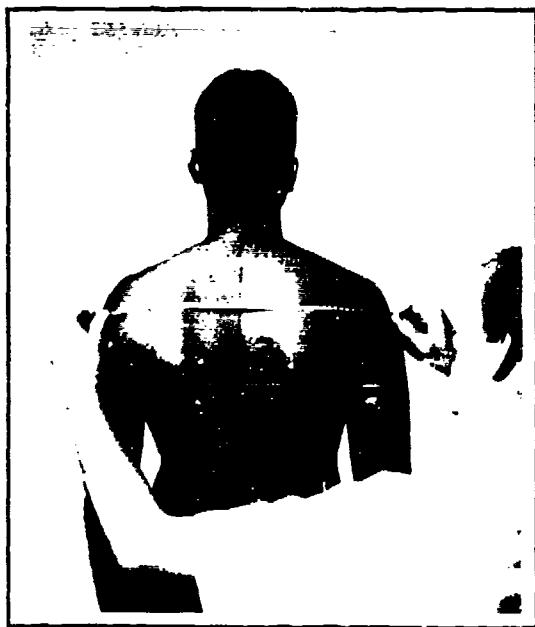
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
35.20	MEAN VALUE	13.86
.06	SE(MEAN)	.02
2.55	STD DEVIATION	1.04
.04	SE(STD DEV)	.02
26.60	MINIMUM	10.47
44.50	MAXIMUM	17.52
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	2.96
COEF. OF VARIATION	=	7.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
40.15	MEAN VALUE	15.81
.07	SE(MEAN)	.03
3.14	STD DEVIATION	1.24
.05	SE(STD DEV)	.02
28.50	MINIMUM	11.22
54.10	MAXIMUM	21.30
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.15
COEF. OF VARIATION	=	7.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumP	CumFPct	<u>CENTIMETERS</u>		F	FPct		
1	.05	1	.05	26.25 - 26.75		1	.06		
2	.09	3	.14	26.75 - 27.25		0	.00		
0	.00	3	.14	27.25 - 27.75		0	.00		
0	.00	3	.14	27.75 - 28.25		1	.06		
7	.32	10	.45	28.25 - 28.75		1	.06		
8	.36	18	.82	28.75 - 29.25		0	.00		
12	.54	30	1.36	29.25 - 29.75		0	.00		
26	1.18	56	2.54	29.75 - 30.25		1	.06		
39	1.77	95	4.30	30.25 - 30.75		1	.06		
36	1.63	131	5.93	30.75 - 31.25		3	.17		
66	2.99	197	8.92	31.25 - 31.75		6	.34		
92	4.17	289	13.09	31.75 - 32.25		7	.39		
94	4.26	383	17.35	32.25 - 32.75		9	.51		
149	6.75	532	24.09	32.75 - 33.25		13	.73		
125	5.66	657	29.76	33.25 - 33.75		18	1.01		
167	7.56	824	37.32	33.75 - 34.25		25	1.41		
170	7.70	994	45.02	34.25 - 34.75		41	2.31		
164	7.43	1158	52.45	34.75 - 35.25		57	3.21		
167	7.56	1325	60.01	35.25 - 35.75		84	4.74		
156	7.07	1481	67.07	35.75 - 36.25		126	7.10		
118	5.31	1599	72.42	36.25 - 36.75		187	10.54		
121	5.48	1720	77.90	36.75 - 37.25		249	14.04		
115	5.21	1835	83.11	37.25 - 37.75		324	18.26		
98	4.44	1933	87.55	37.75 - 38.25		411	23.17		
61	2.76	1994	90.31	38.25 - 38.75		499	28.13		
60	2.72	2054	93.03	38.75 - 39.25		590	33.26		
46	2.08	2100	95.11	39.25 - 39.75		704	39.68		
30	1.36	2130	96.47	39.75 - 40.25		826	46.56		
20	.91	2150	97.37	40.25 - 40.75		931	52.48		
22	1.00	2172	98.37	40.75 - 41.25		1033	58.23		
13	.59	2185	98.96	41.25 - 41.75		1147	64.66		
12	.54	2197	99.50	41.75 - 42.25		1246	70.24		
6	.27	2203	99.77	42.25 - 42.75		1340	75.54		
2	.09	2205	99.86	42.75 - 43.25		1413	79.65		
1	.05	2206	99.91	43.25 - 43.75		1539	83.65		
1	.05	2207	99.95	43.75 - 44.25		1602	86.75		
1	.05	2208	100.00	44.25 - 44.75		1643	92.62		
				44.75 - 45.25		1680	94.70		
				45.25 - 45.75		1701	95.89		
				45.75 - 46.25		1722	97.07		
				46.25 - 46.75		1734	97.75		
				46.75 - 47.25		1745	98.37		
				47.25 - 47.75		1756	98.99		
				47.75 - 48.25		1762	99.32		
				48.25 - 48.75		1766	99.55		
				48.75 - 49.25		1769	99.72		
				49.25 - 49.75		1771	99.83		
				49.75 - 50.25		1773	99.94		
				50.25 - 50.75		1773	99.94		
				50.75 - 51.25		1773	99.94		
				51.25 - 51.75		1773	99.94		
				51.75 - 52.25		1773	99.94		
				52.25 - 52.75		1773	99.94		
				52.75 - 53.25		1773	99.94		
				53.25 - 53.75		1773	99.94		
				53.75 - 54.25		1774	100.00		

## (70) INTERSCYE II

The distance across the back between the right and left midsye landmarks is measured with a tape. The tape is held on the skin surface except where it spans the hollow of the back. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
32.14	12.66	1ST	34.56 13.61
32.69	12.87	2ND	35.29 13.89
33.07	13.02	3RD	35.74 14.07
33.61	13.23	5TH	36.34 14.31
34.48	13.57	10TH	37.26 14.67
35.08	13.91	15TH	37.89 14.92
35.56	14.00	20TH	38.39 15.11
35.98	14.17	25TH	38.82 15.28
36.35	14.31	30TH	39.21 15.44
36.70	14.45	35TH	39.58 15.58
37.02	14.58	40TH	39.94 15.72
37.33	14.70	45TH	40.28 15.86
37.64	14.82	50TH	40.62 15.99
37.94	14.94	55TH	40.97 16.13
38.25	15.06	60TH	41.33 16.27
38.57	15.18	65TH	41.70 16.42
38.90	15.31	70TH	42.09 16.57
39.25	15.45	75TH	42.52 16.74
39.65	15.61	80TH	43.00 16.93
40.10	15.79	85TH	43.57 17.15
40.69	16.02	90TH	44.28 17.43
41.57	16.36	95TH	45.32 17.84
42.16	16.60	97TH	45.97 18.10
42.61	16.77	98TH	46.44 18.28
43.35	17.07	99TH	47.15 18.56

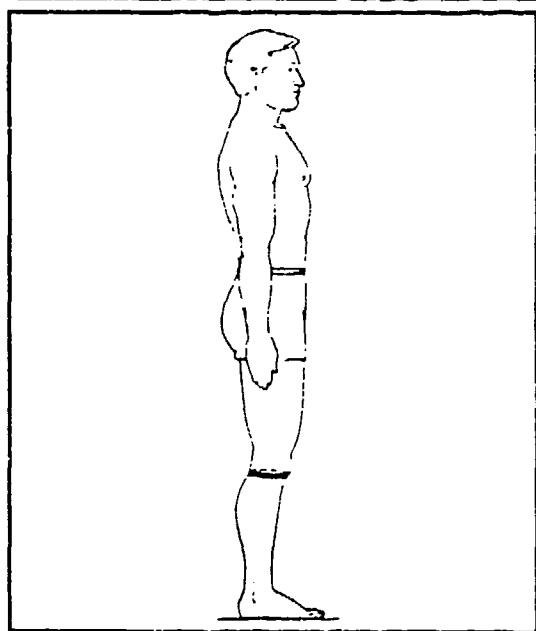
# INTERSCYE II

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
37.62	MEAN VALUE	14.81	40.68	MEAN VALUE	16.02
.05	SE(MEAN)	.02	.06	SE(MEAN)	.03
2.41	STD DEVIATION	.95	2.74	STD DEVIATION	1.08
.04	SE(STD DEV)	.00	.05	SE(STD DEV)	.02
28.40	MINIMUM	11.18	31.30	MINIMUM	12.32
47.00	MAXIMUM	18.50	50.50	MAXIMUM	19.88
SYMMETRY---VETA I	=	.03	SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	3.04	KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	6.4%	COEF. OF VARIATION	=	6.7%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
1	.05	1	.05	28.25	-	28.75			
0	.00	1	.05	28.75	-	29.25			
0	.00	1	.05	29.25	-	29.75			
0	.00	1	.05	29.75	-	30.25			
1	.05	2	.09	30.25	-	30.75			
4	.18	6	.27	30.75	-	31.25			
4	.18	10	.45	31.25	-	31.75			
13	.59	23	1.04	31.75	-	32.25			
26	1.18	49	2.22	32.25	-	32.75			
36	1.63	85	3.85	32.75	-	33.25			
38	1.72	123	5.57	33.25	-	33.75			
65	2.94	186	8.51	33.75	-	34.25			
73	3.31	261	11.82	34.25	-	34.75			
98	4.44	359	16.26	34.75	-	35.25			
107	4.85	466	21.11	35.25	-	35.75			
156	7.07	622	28.17	35.75	-	36.25			
168	7.61	790	35.78	36.25	-	36.75			
184	8.33	974	44.11	36.75	-	37.25			
167	7.56	1141	51.68	37.25	-	37.75			
183	8.29	1324	59.96	37.75	-	38.25			
187	8.47	1511	68.43	38.25	-	38.75			
157	7.11	1668	75.54	38.75	-	39.25			
125	5.71	1794	81.25	39.25	-	39.75			
115	5.21	1909	86.46	39.75	-	40.25			
94	4.26	2003	90.72	40.25	-	40.75			
67	3.03	2070	93.75	40.75	-	41.25			
37	1.68	2107	95.43	41.25	-	41.75			
39	1.77	2146	97.19	41.75	-	42.25			
24	1.09	2170	98.28	42.25	-	42.75			
15	.68	2195	98.96	42.75	-	43.25			
8	.36	2193	99.32	43.25	-	43.75			
9	.41	2202	99.73	43.75	-	44.25			
1	.05	2203	99.77	44.25	-	44.75			
2	.09	2205	99.86	44.75	-	45.25			
1	.05	2206	99.91	45.25	-	45.75			
0	.00	2206	99.91	45.75	-	46.25			
1	.05	2207	99.95	46.25	-	46.75			
1	.05	2208	100.00	46.75	-	47.25			

## (71) KNEE CIRCUMFERENCE

The horizontal circumference of the right knee at the level of the midpatella landmark at the center of the knee is measured with a tape. The subject stands erect with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
31.58	12.43	1ST	33.70 13.27
32.11	12.64	2ND	34.23 13.48
32.46	12.78	3RD	34.57 13.61
32.93	12.97	5TH	35.05 13.80
33.67	13.26	10TH	35.82 14.10
34.18	13.46	15TH	36.34 14.31
34.58	13.62	20TH	36.76 14.47
34.93	13.75	25TH	37.12 14.61
35.25	13.88	30TH	37.45 14.74
35.54	13.99	35TH	37.75 14.86
35.83	14.11	40TH	38.04 14.98
36.10	14.21	45TH	38.32 15.09
36.38	14.32	50TH	38.59 15.19
36.66	14.43	55TH	38.87 15.30
36.95	14.55	60TH	39.15 15.41
37.25	14.67	65TH	39.45 15.53
37.58	14.79	70TH	39.75 15.65
37.94	14.94	75TH	40.09 15.78
38.36	15.10	80TH	40.47 15.93
38.86	15.30	85TH	40.92 16.11
39.53	15.56	90TH	41.49 16.33
40.60	15.99	95TH	42.36 16.68
41.37	16.29	97TH	42.95 16.91
41.97	16.52	98TH	43.39 17.08
42.99	16.93	99TH	44.13 17.37

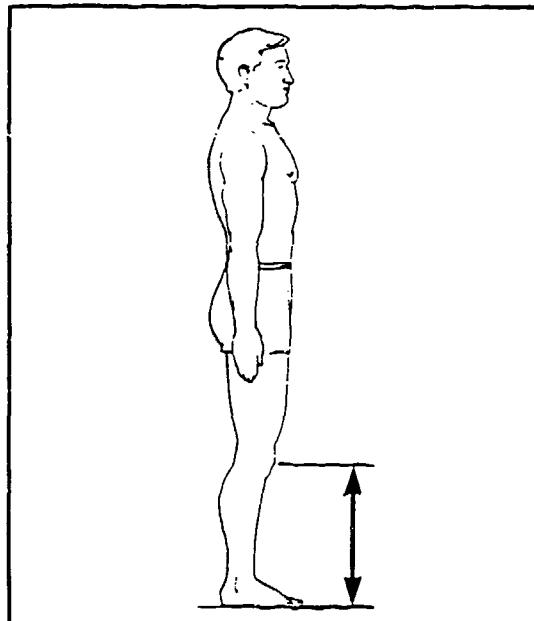
# KNEE CIRCUMFERENCE

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
36.52	MEAN VALUE	14.38	38.64	MEAN VALUE	15.21
.05	SE(MEAN)	.02	.05	SE(MEAN)	.02
2.33	STD DEVIATION	.92	2.21	STD DEVIATION	.87
.04	SE(STD DEV)	.00	.04	SE(STD DEV)	.00
30.20	MINIMUM	11.89	31.70	MINIMUM	12.48
46.10	MAXIMUM	18.15	46.40	MAXIMUM	18.27
SYMMETRY---VETA I	=	.42	SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.51	KURTOSIS---VETA II	=	3.00
COEF. OF VARIATION	=	6.4%	COEF. OF VARIATION	=	5.7%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	29.75	-	30.25	
8	.36	9	.41	30.25	-	30.75	
8	.36	17	.77	30.75	-	31.25	
10	.45	27	1.22	31.25	-	31.75	
20	.91	47	2.13	31.75	-	32.25	
37	1.68	84	3.80	32.25	-	32.75	
63	2.85	147	6.66	32.75	-	33.25	
91	4.12	238	10.78	33.25	-	33.75	
122	5.53	360	16.30	33.75	-	34.25	
132	5.98	492	22.28	34.25	-	34.75	
184	8.33	676	30.62	34.75	-	35.25	
190	8.61	866	39.22	35.25	-	35.75	
166	7.52	1032	46.74	35.75	-	36.25	
191	8.65	1223	55.39	36.25	-	36.75	
210	9.51	1433	64.90	36.75	-	37.25	
181	8.20	1614	73.10	37.25	-	37.75	
133	6.02	1747	79.12	37.75	-	38.25	
115	5.21	1862	84.33	38.25	-	38.75	
81	3.67	1943	88.00	38.75	-	39.25	
69	3.13	2012	91.12	39.25	-	39.75	
54	2.45	2066	93.57	39.75	-	40.25	
44	1.99	2110	95.56	40.25	-	40.75	
30	1.36	2140	96.92	40.75	-	41.25	
17	.77	2157	97.69	41.25	-	41.75	
16	.72	2173	98.41	41.75	-	42.25	
8	.36	2181	98.78	42.25	-	42.75	
9	.41	2190	99.18	42.75	-	43.25	
7	.32	2197	99.50	43.25	-	43.75	
6	.27	2203	99.77	43.75	-	44.25	
1	.05	2204	99.82	44.25	-	44.75	
1	.05	2205	99.86	44.75	-	45.25	
0	.00	2205	99.86	45.25	-	45.75	
3	.14	2208	100.00	45.75	-	46.25	
				46.25	-	46.75	
				1	.06	1774	100.00

## (72) KNEE HEIGHT, MIDPATELLA

The vertical distance between a standing surface and the midpatella landmark at the center of the right knee is measured with an anthropometer. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
39.94	15.73	1ST	44.30 17.44
40.64	16.00	2ND	45.05 17.74
41.07	16.17	3RD	45.50 17.91
41.67	16.40	5TH	46.10 18.15
42.58	16.76	10TH	47.01 18.51
43.19	17.00	15TH	47.63 18.75
43.68	17.20	20TH	48.13 18.95
44.10	17.36	25TH	48.56 19.12
44.48	17.51	30TH	48.96 19.27
44.83	17.65	35TH	49.33 19.42
45.16	17.78	40TH	49.69 19.56
45.48	17.91	45TH	50.04 19.70
45.81	18.03	50TH	50.39 19.84
46.13	18.16	55TH	50.75 19.98
46.46	18.29	60TH	51.11 20.12
46.81	18.43	65TH	51.49 20.27
47.17	18.57	70TH	51.90 20.43
47.57	18.73	75TH	52.34 20.61
48.02	18.91	80TH	52.84 20.80
48.55	19.11	85TH	53.41 21.03
49.23	19.38	90TH	54.13 21.31
50.25	19.78	95TH	55.16 21.72
50.94	20.05	97TH	55.78 21.96
51.45	20.26	98TH	56.21 22.13
52.27	20.58	99TH	56.81 22.37

# KNEE HEIGHT, MIDPATELLA

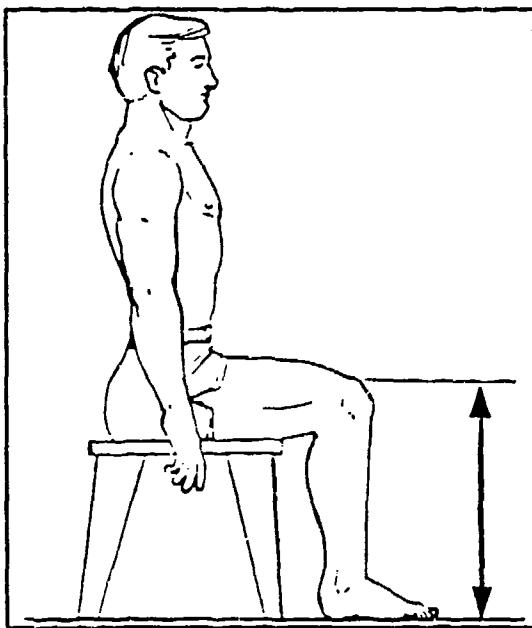
FEMALES		
<u>CM</u>	<u>INCHES</u>	
45.87	MEAN VALUE	18.06
.06	SE(MEAN)	.02
2.61	STD DEVIATION	1.03
.04	SE(STD DEV)	.02
35.80	MINIMUM	14.09
58.40	MAXIMUM	22.99
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.18
COEF. OF VARIATION	=	5.7%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
50.48	MEAN VALUE	19.88
.07	SE(MEAN)	.03
2.76	STD DEVIATION	1.09
.05	SE(STD DEV)	.02
40.60	MINIMUM	15.98
62.00	MAXIMUM	24.41
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.04
COEF. OF VARIATION	=	5.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct		
1	.05	1	.05	35.75 - 36.25		1	.06		
0	.00	1	.05	36.25 - 36.75		1	.06		
0	.00	1	.05	36.75 - 37.25		1	.06		
0	.00	1	.05	37.25 - 37.75		1	.06		
1	.05	2	.09	37.75 - 38.25		0	.00		
1	.05	3	.14	38.25 - 38.75		0	.00		
6	.27	9	.41	38.75 - 39.25		1	.06		
8	.36	17	.77	39.25 - 39.75		16	.90		
13	.59	30	1.36	39.75 - 40.25		26	1.47		
20	.91	50	2.26	40.25 - 40.75		44	2.48		
25	1.13	75	3.40	40.75 - 41.25		57	3.78		
41	1.86	116	5.25	41.25 - 41.75		96	5.41		
9	2.22	165	7.47	41.75 - 42.25		136	1.67		
71	3.22	236	10.69	42.25 - 42.75		207	11.67		
106	4.80	342	15.49	42.75 - 43.25		279	15.73		
111	5.03	453	20.52	43.25 - 43.75		379	41.26		
143	6.48	596	26.99	43.75 - 44.25		482	48.03		
172	7.79	768	34.78	44.25 - 44.75		556	55.64		
157	7.11	925	41.89	44.75 - 45.25		636	20.63		
166	7.52	1091	49.41	45.25 - 45.75		745	27.45		
169	7.65	1260	57.07	45.75 - 46.25		773	34.39		
146	6.61	1406	63.68	46.25 - 46.75		832	41.26		
149	6.75	1555	70.43	46.75 - 47.25		852	48.03		
139	6.30	1694	76.72	47.25 - 47.75		987	55.64		
126	5.71	1820	82.43	47.75 - 48.25		1101	62.06		
94	4.26	1914	86.68	48.25 - 48.75		1215	68.49		
75	3.40	1989	90.08	48.75 - 49.25		1308	73.73		
54	2.45	2043	92.53	49.25 - 49.75		1394	78.58		
56	2.54	2099	95.06	49.75 - 50.25		1483	83.60		
34	1.54	2133	96.60	50.25 - 50.75		1546	87.15		
27	1.22	2160	97.83	50.75 - 51.25		1608	90.64		
17	.77	2177	98.60	51.25 - 51.75		1659	93.52		
7	.32	2184	98.91	51.75 - 52.25		1695	95.55		
11	.50	2195	99.41	52.25 - 52.75		1721	97.01		
5	.23	2200	99.64	52.75 - 53.25		1741	98.14		
5	.23	2205	99.86	53.25 - 53.75		1755	98.93		
2	.09	2207	99.95	53.75 - 54.25		1762	99.32		
0	.03	2207	99.95	54.25 - 54.75		1766	99.55		
0	.00	2207	99.95	54.75 - 55.25		1767	99.61		
0	.00	2207	99.95	55.25 - 55.75		1770	99.77		
0	.00	2207	99.95	55.75 - 56.25		1772	99.89		
0	.00	2207	99.95	56.25 - 56.75		1772	99.89		
0	.00	2207	99.95	56.75 - 57.25		1772	99.89		
0	.00	2207	99.95	57.25 - 57.75		1773	99.94		
0	.00	2207	99.95	57.75 - 58.25		1773	99.94		
1	.05	2208	100.00	58.25 - 58.75		1774	100.00		

### (73) KNEE HEIGHT, SITTING

The vertical distance between a footrest surface and the suprapatella landmark at the top of the right knee (located and drawn while the subject stands) is measured with an anthropometer. The subject sits with the thighs parallel, the knees flexed 90 degrees, and the feet in line with the thighs.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
45.47	17.90	1ST	49.66 19.55
46.30	18.23	2ND	50.38 19.84
46.78	18.42	3RD	50.83 20.01
47.40	18.66	5TH	51.44 20.25
48.30	19.02	10TH	52.36 20.62
48.89	19.25	15TH	53.00 20.86
49.35	19.43	20TH	53.50 21.06
49.76	19.59	25TH	53.95 21.24
50.12	19.73	30TH	54.35 21.40
50.46	19.97	35TH	54.73 21.55
50.79	20.00	40TH	55.09 21.69
51.11	20.12	45TH	55.44 21.83
51.43	20.25	50TH	55.80 21.97
51.76	20.38	55TH	56.16 22.11
52.10	20.51	60TH	56.52 22.25
52.46	20.65	65TH	56.90 22.40
52.84	20.80	70TH	57.31 22.56
53.26	20.97	75TH	57.75 22.74
53.73	21.15	80TH	58.24 22.93
54.28	21.37	85TH	58.82 23.16
54.99	21.65	90TH	59.54 23.44
56.02	22.05	95TH	60.57 23.85
56.66	22.31	97TH	61.22 24.10
57.12	22.49	98TH	61.67 24.28
57.78	22.75	99TH	62.34 24.54

# KNEE HEIGHT, SITTING

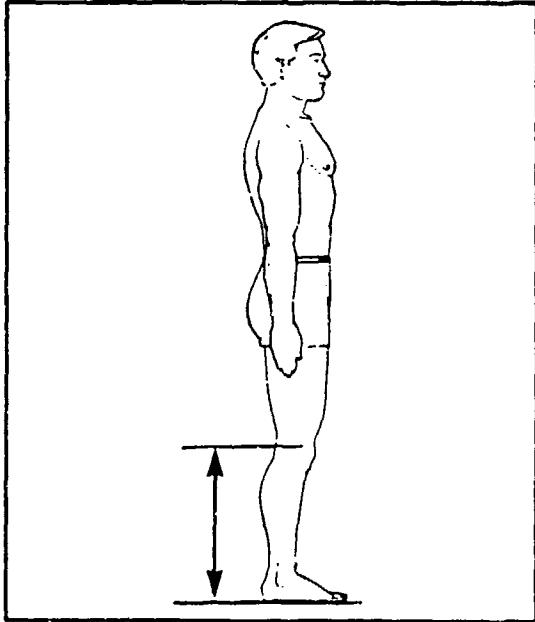
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
51.54	MEAN VALUE	20.29
.06	SE(MEAN)	.02
2.63	STD DEVIATION	1.04
.04	SE(STD DEV)	.02
40.60	MINIMUM	15.98
63.30	MAXIMUM	24.92
SYMMETRY---VETA I	=	.16
KURTOSIS---VETA II	=	3.29
COEF. OF VARIATION	=	5.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
55.88	MEAN VALUE	22.00
.07	SE(MEAN)	.03
2.79	STD DEVIATION	1.10
.05	SE(STD DEV)	.02
45.40	MINIMUM	17.87
67.50	MAXIMUM	26.57
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	40.25 - 40.75		1	.06
0	.00	1	.05	40.75 - 41.25		0	.00
0	.00	1	.05	41.25 - 41.75		0	.00
0	.00	1	.05	41.75 - 42.25		1	.06
0	.00	1	.05	42.25 - 42.75		2	.11
1	.05	2	.09	42.75 - 43.25		0	.00
0	.00	2	.09	43.25 - 43.75		1	.06
2	.09	4	.18	43.75 - 44.25		3	.17
4	.18	8	.36	44.25 - 44.75		3	.17
7	.32	15	.68	44.75 - 45.25		4	.23
15	.68	30	1.36	45.25 - 45.75		6	.34
14	.63	44	1.99	45.75 - 46.25		10	.56
17	.77	61	2.76	46.25 - 46.75		19	1.07
34	1.54	95	4.30	46.75 - 47.25		19	1.07
54	2.45	149	6.75	47.25 - 47.75		31	1.75
62	2.81	211	9.56	47.75 - 48.25		51	2.87
103	4.66	314	14.22	48.25 - 48.75		74	4.17
108	4.89	422	19.11	48.75 - 49.25		110	6.20
118	5.34	540	24.46	49.25 - 49.75		167	9.41
155	7.02	695	31.48	49.75 - 50.25		226	12.74
168	7.61	863	39.09	50.25 - 50.75		295	16.63
169	7.65	1032	46.74	50.75 - 51.25		391	22.04
175	7.93	1207	54.66	51.25 - 51.75		503	28.35
168	7.61	1375	62.27	51.75 - 52.25		636	35.85
157	7.11	1532	69.38	52.25 - 52.75		760	42.84
131	5.93	1663	75.32	52.75 - 53.25		890	50.17
125	5.66	1788	80.98	53.25 - 53.75		1008	56.82
82	3.71	1870	84.69	53.75 - 54.25		1110	62.57
75	3.40	1945	88.09	54.25 - 54.75		1227	69.17
74	3.35	2019	91.44	54.75 - 55.25		1318	74.30
50	2.26	2069	93.70	55.25 - 55.75		1413	79.65
48	2.17	2117	95.88	55.75 - 56.25		1498	84.44
34	1.54	2151	97.42	56.25 - 56.75		1566	88.28
15	.68	2166	98.10	56.75 - 57.25		1616	91.09
20	.91	2186	99.00	57.25 - 57.75		1673	94.31
6	.27	2192	99.28	57.75 - 58.25		1702	95.94
6	.27	2198	99.55	58.25 - 58.75		1720	96.96
2	.09	2200	99.64	58.75 - 59.25		1743	98.25
2	.09	2202	99.73	59.25 - 59.75		1755	98.93
2	.09	2204	99.82	59.75 - 60.25		1761	99.27
1	.05	2205	99.86	60.25 - 60.75		1763	99.38
1	.05	2206	99.91	60.75 - 61.25		1767	99.61
1	.05	2207	99.95	61.25 - 61.75		1770	99.77
0	.00	2207	99.95	61.75 - 62.25		1771	99.83
0	.00	2207	99.95	62.25 - 62.75		1772	99.89
0	.00	2207	99.95	62.75 - 63.25		1772	99.89
1	.05	2208	100.00	63.25 - 63.75		1772	99.89
				63.75 - 64.25		1773	99.94
				64.25 - 64.75		1774	100.00

## (74) LATERAL FEMORAL EPICONDYLE HEIGHT

The vertical distance between a standing surface and the standing lateral-femoral-epicondyle landmark on the outside of the right knee is measured with an anthropometer. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
40.59	15.98	1ST	44.31 17.45
41.23	16.23	2ND	45.01 17.72
41.63	16.39	3RD	45.44 17.89
42.18	16.60	5TH	46.01 18.12
43.01	16.93	10TH	46.88 18.46
43.58	17.16	15TH	47.47 18.69
44.03	17.33	20TH	47.95 18.88
44.42	17.49	25TH	48.36 19.04
44.78	17.63	30TH	48.73 19.19
45.11	17.76	35TH	49.08 19.32
45.42	17.88	40TH	49.42 19.46
45.73	18.00	45TH	49.74 19.58
46.04	18.13	50TH	50.07 19.71
46.35	18.25	55TH	50.41 19.84
46.66	18.37	60TH	50.74 19.98
46.99	18.50	65TH	51.10 20.12
47.35	18.64	70TH	51.48 20.27
47.73	18.79	75TH	51.89 20.43
48.16	18.96	80TH	52.35 20.61
48.67	19.16	85TH	52.89 20.82
49.32	19.42	90TH	53.57 21.09
50.30	19.80	95TH	54.57 21.48
50.94	20.06	97TH	55.20 21.73
51.42	20.24	98TH	55.64 21.91
52.16	20.54	99TH	56.31 22.17

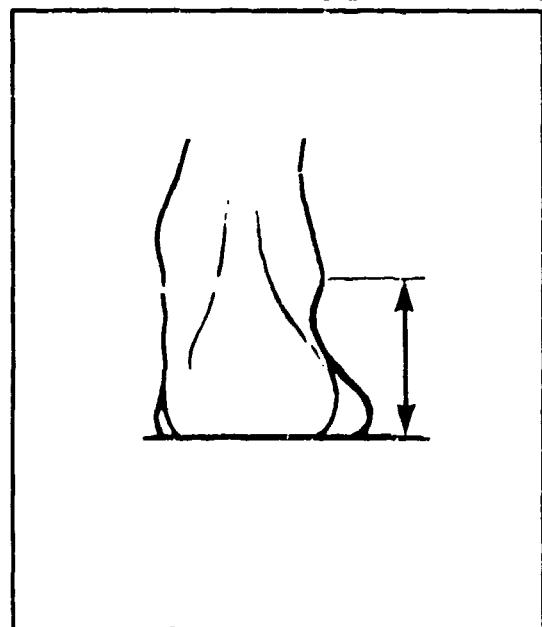
# LATERAL FEMORAL EPICONDYLE HEIGHT

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
46.11	SE(MEAN)	18.15	50.15	SE(MEAN)	19.75
.05	STD DEVIATION	.02	.06	STD DEVIATION	.02
2.47	SE(STD DEV)	.97	.04	SE(STD DEV)	1.03
.04	MINIMUM	.00	39.80	MINIMUM	.02
35.90	MAXIMUM	14.13	62.60	MAXIMUM	15.67
57.10		22.48			24.65
SYMMETRY---VETA I	=	.16	SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.18	KURTOSIS---VETA II	=	3.33
COEF. OF VARIATION	=	5.4%	COEF. OF VARIATION	=	5.2%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct
1	.05	1	.05	35.75	-	36.25			
0	.00	1	.05	36.25	-	36.75			
0	.00	1	.05	36.75	-	37.25			
0	.00	1	.05	37.25	-	37.75			
1	.05	2	.09	37.75	-	38.25			
0	.00	2	.09	38.25	-	38.75			
1	.05	3	.14	38.75	-	39.25			
2	.09	5	.23	39.25	-	39.75			
11	.50	16	.72	39.75	-	40.25	1	.06	.06
11	.50	27	1.22	40.25	-	40.75	0	.00	.06
16	.72	43	1.95	40.75	-	41.25	0	.00	.06
27	1.22	70	3.17	41.25	-	41.75	0	.00	.06
44	1.99	114	5.16	41.75	-	42.25	1	.06	.11
63	2.85	177	8.02	42.25	-	42.75	0	.00	.11
85	3.85	262	11.87	42.75	-	43.25	4	.23	.34
117	5.30	379	17.16	43.25	-	43.75	4	.23	.56
123	5.57	502	22.74	43.75	-	44.25	7	.39	.96
163	7.38	665	30.12	44.25	-	44.75	9	.51	1.47
162	7.34	827	37.45	44.75	-	45.25	18	1.01	2.48
169	7.65	996	45.11	45.25	-	45.75	24	1.35	3.83
187	8.47	1183	53.58	45.75	-	46.25	34	1.92	5.75
159	7.20	1342	60.78	46.25	-	46.75	50	2.82	8.57
166	7.52	1508	68.30	46.75	-	47.25	77	4.34	12.91
152	6.88	1660	75.18	47.25	-	47.75	81	4.57	17.47
128	5.80	1788	80.98	47.75	-	48.25	115	6.48	23.96
108	4.89	1896	85.87	48.25	-	48.75	122	6.88	30.83
79	3.58	1975	89.45	48.75	-	49.25	118	6.65	37.49
69	3.13	2044	92.57	49.25	-	49.75	135	7.61	45.10
51	2.31	2095	94.88	49.75	-	50.25	136	7.67	52.76
41	1.86	2136	96.74	50.25	-	50.75	138	7.78	60.54
22	1.00	2158	97.74	50.75	-	51.25	113	6.37	66.91
18	.82	2176	98.55	51.25	-	51.75	115	6.48	73.39
11	.50	2187	99.05	51.75	-	52.25	88	4.96	1390
7	.32	2194	99.37	52.25	-	52.75	95	5.36	1485
6	.27	2200	99.64	52.75	-	53.25	68	3.83	1553
5	.23	2205	99.86	53.25	-	53.75	58	3.27	1611
0	.00	2205	99.86	53.75	-	54.25	49	2.76	1660
1	.05	2206	99.91	54.25	-	54.75	40	2.25	1700
1	.05	2207	99.95	54.75	-	55.25	28	1.58	1728
0	.00	2207	99.95	55.25	-	55.75	19	1.07	1747
0	.00	2207	99.95	55.75	-	56.25	7	.39	1754
0	.00	2207	99.95	56.25	-	56.75	7	.39	1761
1	.05	2208	100.00	56.75	-	57.25	3	.17	1764
				57.25	-	57.75	3	.17	1767
				57.75	-	58.25	2	.11	1769
				58.25	-	58.75	1	.06	1770
				58.75	-	59.25	2	.11	1772
				59.25	-	59.75	0	.00	1772
				59.75	-	60.25	0	.00	1772
				60.25	-	60.75	0	.00	1772
				60.75	-	61.25	0	.00	1772
				61.25	-	61.75	1	.06	1773
				61.75	-	62.25	0	.00	1773
				62.25	-	62.75	1	.06	1774
									100.00

## (75) LATERAL MALLEOLUS HEIGHT

The vertical distance between a standing surface and the lateral malleolus landmark on the outside of the right ankle is measured with a modified sliding caliper. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
4.96	1.95	1ST	5.48 2.16
5.06	1.99	2ND	5.62 2.21
5.13	2.02	3RD	5.71 2.25
5.23	2.06	5TH	5.84 2.30
5.39	2.12	10TH	6.02 2.37
5.51	2.17	15TH	6.15 2.42
5.61	2.21	20TH	6.25 2.46
5.69	2.24	25TH	6.34 2.50
5.77	2.27	30TH	6.42 2.53
5.84	2.30	35TH	6.49 2.55
5.91	2.33	40TH	6.56 2.58
5.97	2.35	45TH	6.62 2.61
6.04	2.38	50TH	6.69 2.63
6.11	2.40	55TH	6.76 2.66
6.18	2.43	60TH	6.82 2.69
6.25	2.46	65TH	6.90 2.71
6.33	2.49	70TH	6.97 2.74
6.41	2.52	75TH	7.05 2.78
6.50	2.56	80TH	7.15 2.81
6.61	2.60	85TH	7.26 2.86
6.76	2.66	90TH	7.41 2.92
6.97	2.74	95TH	7.61 3.01
7.11	2.80	97TH	7.79 3.07
7.22	2.84	98TH	7.91 3.12
7.39	2.91	99TH	8.11 3.19

# LATERAL MALLEOLUS HEIGHT

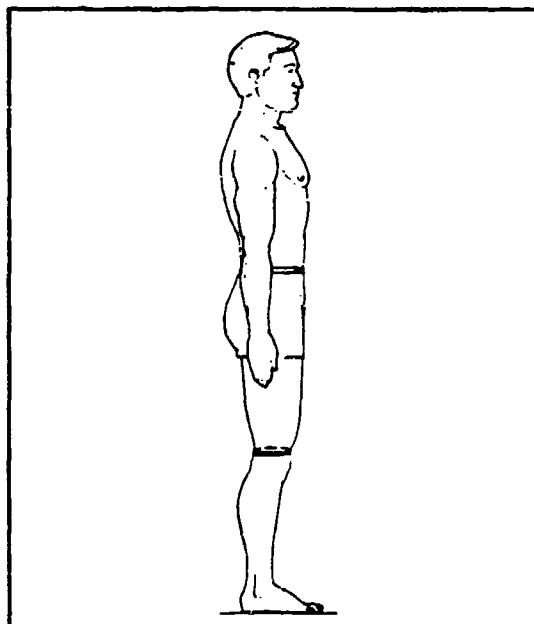
FEMALES		
<u>CM</u>	<u>INCHES</u>	
6.06	MEAN VALUE	2.39
.00	SE(MEAN)	.00
.53	STD DEVIATION	.21
.00	SE(STD DEV)	.00
4.20	MINIMUM	1.65
8.30	MAXIMUM	3.27
SYMMETRY---VETA I	=	.23
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	8.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
6.71	MEAN VALUE	2.64
.00	SE(MEAN)	.00
.55	STD DEVIATION	.22
.00	SE(STD DEV)	.00
5.20	MINIMUM	2.05
9.30	MAXIMUM	3.66
SYMMETRY---VETA I	=	.25
KURTOSIS---VETA II	=	3.38
COEF. OF VARIATION	=	8.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	4.15 - 4.25			
1	.05	2	.09	4.25 - 4.35			
1	.05	3	.14	4.35 - 4.45			
1	.05	4	.18	4.45 - 4.55			
1	.05	5	.23	4.55 - 4.65			
3	.14	8	.36	4.65 - 4.75			
3	.14	11	.50	4.75 - 4.85			
9	.41	20	.91	4.85 - 4.95			
25	1.13	45	2.04	4.95 - 5.05			
24	1.09	69	3.13	5.05 - 5.15			
52	2.36	121	5.48	5.15 - 5.25		4	.23
59	2.67	180	8.15	5.25 - 5.35		2	.11
82	3.71	262	11.87	5.35 - 5.45		7	.39
109	4.94	371	16.80	5.45 - 5.55		12	.68
139	6.30	510	23.10	5.55 - 5.65		19	1.07
129	5.84	639	28.94	5.65 - 5.75		20	1.13
159	7.20	798	36.14	5.75 - 5.85		21	1.18
159	7.20	957	43.34	5.85 - 5.95		51	2.87
154	6.97	1111	50.32	5.95 - 6.05		61	3.44
147	6.66	1258	56.97	6.05 - 6.15		81	4.57
191	8.65	1449	65.63	6.15 - 6.25		81	4.57
140	6.34	1589	71.97	6.25 - 6.35		90	5.07
116	5.25	1705	77.22	6.35 - 6.45		108	6.09
122	5.53	1827	82.74	6.45 - 6.55		140	7.89
73	3.31	1900	86.05	6.55 - 6.65		123	6.93
84	3.80	1984	89.86	6.65 - 6.75		139	7.84
59	2.67	2043	92.53	6.75 - 6.85		126	7.10
51	2.31	2094	94.84	6.85 - 6.95		150	8.46
35	1.59	2129	96.42	6.95 - 7.05		119	6.65
20	.91	2149	97.33	7.05 - 7.15		81	4.57
21	.95	2170	98.28	7.15 - 7.25		69	3.89
13	.59	2183	98.87	7.25 - 7.35		60	3.38
9	.41	2192	99.28	7.35 - 7.45		55	3.10
7	.32	2199	99.59	7.45 - 7.55		42	2.37
4	.18	2203	99.77	7.55 - 7.65		28	1.58
1	.05	2204	99.82	7.65 - 7.75		16	.90
1	.05	2205	99.86	7.75 - 7.85		23	1.30
0	.00	2205	99.86	7.85 - 7.95		16	.90
1	.05	2206	99.91	7.95 - 8.05		9	.51
1	.05	2207	99.95	8.05 - 8.15		10	.56
0	.00	2207	99.95	8.15 - 8.25		5	.28
1	.05	2208	100.00	8.25 - 8.35		0	.00
				8.35 - 8.45		3	.17
				8.45 - 8.55		1	.06
				8.55 - 8.65		1	.06
				8.65 - 8.75		0	.00
				8.75 - 8.85		1	.06
				8.85 - 8.95		0	.00
				8.95 - 9.05		0	.00
				9.05 - 9.15		0	.00
				9.15 - 9.25		0	.00
				9.25 - 9.35		1	.06

## (76) LOWER THIGH CIRCUMFERENCE

The horizontal circumference of the right thigh at the level of the suprapatella landmark at the top of the knee is measured with a tape. The subject stands erect with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
31.93	12.57	1ST	33.09 13.03
32.52	12.80	2ND	33.75 13.29
32.91	12.96	3RD	34.19 13.46
33.46	13.17	5TH	34.78 13.69
34.34	13.52	10TH	35.73 14.07
34.95	13.76	15TH	36.38 14.32
35.44	13.95	20TH	36.89 14.53
35.87	14.12	25TH	37.34 14.70
36.25	14.27	30TH	37.75 14.86
36.61	14.41	35TH	38.12 15.01
36.96	14.55	40TH	38.47 15.15
37.29	14.68	45TH	38.82 15.28
37.63	14.81	50TH	39.16 15.42
37.96	14.95	55TH	39.50 15.55
38.31	15.08	60TH	39.84 15.69
38.67	15.22	65TH	40.20 15.83
39.05	15.38	70TH	40.58 15.98
39.48	15.54	75TH	40.95 16.14
39.97	15.73	80TH	41.45 16.32
40.55	15.96	85TH	41.98 16.53
41.31	16.26	90TH	42.67 16.80
42.52	16.74	95TH	43.69 17.20
43.37	17.07	97TH	44.38 17.47
44.03	17.33	98TH	44.88 17.67
45.14	17.77	99TH	45.70 17.99

## LOWER THIGH CIRCUMFERENCE

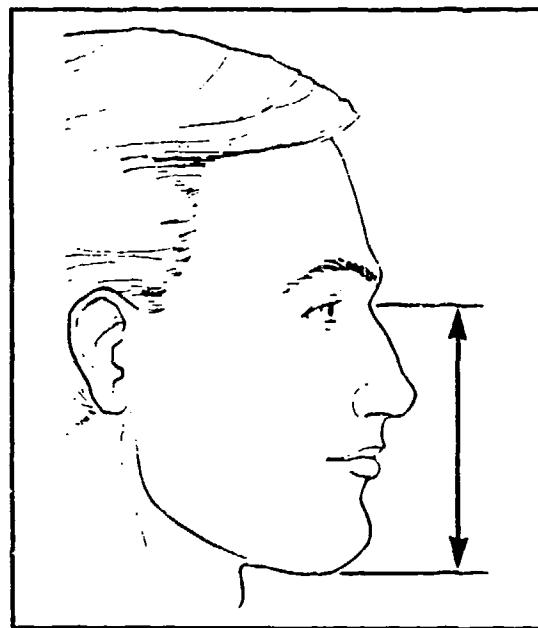
FEMALES		
<u>CM</u>	<u>INCHES</u>	
37.75	MEAN VALUE	14.86
.06	SE(MEAN)	.02
2.76	STD DEVIATION	1.09
.04	SE(STD DEV)	.02
30.30	MINIMUM	11.93
49.20	MAXIMUM	19.37
SYMMETRY---VETA I	=	.36
KURTOSIS---VETA II	=	3.40
COEF. OF VARIATION	=	7.3%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
39.18	MEAN VALUE	15.43
.06	SE(MEAN)	.03
2.71	STD DEVIATION	1.07
.05	SE(STD DEV)	.02
30.10	MINIMUM	11.85
49.00	MAXIMUM	19.29
SYMMETRY---VETA I	=	.11
KURTOSIG---VETA II	=	3.04
COEF. OF VARIATION	=	6.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
6	.27	6	.27	29.75 - 30.25	1	.06	1 .06
8	.36	14	.63	30.25 - 30.75	0	.00	1 .06
5	.23	19	.86	30.75 - 31.25	2	.11	3 .17
11	.50	30	1.36	31.25 - 31.75	1	.06	4 .23
25	1.13	55	2.49	31.75 - 32.25	3	.17	7 .39
27	1.22	82	3.71	32.25 - 32.75	5	.28	12 .68
54	2.45	136	6.16	32.75 - 33.25	9	.51	21 1.18
83	3.76	219	9.92	33.25 - 33.75	13	.73	34 1.92
78	3.53	297	13.45	33.75 - 34.25	22	1.24	56 3.16
95	4.30	392	17.75	34.25 - 34.75	31	1.75	87 4.90
131	5.93	523	23.69	34.75 - 35.25	36	2.03	123 6.93
129	5.84	652	29.53	35.25 - 35.75	53	2.99	176 9.92
157	7.11	809	36.64	35.75 - 36.25	75	4.23	251 14.15
178	8.06	987	44.70	36.25 - 36.75	73	4.11	324 18.26
162	7.34	1149	52.04	36.75 - 37.25	102	5.75	426 24.01
157	7.11	1306	59.15	37.25 - 37.75	112	6.31	538 39.33
144	6.52	1450	65.67	37.75 - 38.25	113	6.37	651 36.70
146	6.61	1596	72.28	38.25 - 38.75	127	7.16	778 43.86
126	5.71	1722	77.99	38.75 - 39.25	127	7.16	905 51.01
119	5.39	1841	83.38	39.25 - 39.75	143	8.06	1048 59.08
85	3.85	1926	87.23	39.75 - 40.25	125	7.05	1173 66.12
41	1.86	1967	89.09	40.25 - 40.75	111	6.26	1284 72.38
61	2.76	2028	91.85	40.75 - 41.25	88	4.96	1372 77.34
47	2.13	2075	93.98	41.25 - 41.75	97	5.47	1469 82.81
39	1.77	2114	95.74	41.75 - 42.25	80	4.51	1549 87.32
25	1.13	2139	96.88	42.25 - 42.75	55	3.10	1604 90.42
17	.77	2156	97.64	42.75 - 43.25	47	2.65	1651 93.07
18	.82	2174	98.46	43.25 - 43.75	39	2.20	1690 95.26
5	.23	2179	98.69	43.75 - 44.25	29	1.63	1719 96.90
8	.36	2187	99.05	44.25 - 44.75	17	.96	1736 97.86
6	.27	2193	99.32	44.75 - 45.25	8	.45	1744 98.31
4	.18	2197	99.50	45.25 - 45.75	13	.73	1757 99.04
4	.18	2201	99.68	45.75 - 46.25	6	.34	1763 99.38
2	.09	2203	99.77	46.25 - 46.75	1	.06	1764 99.44
2	.09	2205	99.86	46.75 - 47.25	5	.28	1769 99.72
1	.05	2206	99.91	47.25 - 47.75	3	.17	1772 99.89
0	.00	2206	99.91	47.75 - 48.25	1	.06	1773 99.94
2	.09	2208	100.00	48.25 - 48.75	0	.00	1773 99.94
				48.75 - 49.25	1	.06	1774 100.00

## (77) MENTON-SELLION LENGTH

The distance between the menton landmark at the bottom of the chin and the sellion landmark at the deepest point of the nasal root depression is measured with a sliding caliper. The teeth are lightly occluded.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
10.06	3.96	1ST	10.77 4.24
10.18	4.01	2ND	10.93 4.30
10.27	4.04	3RD	11.03 4.34
10.39	4.09	5TH	11.16 4.39
10.59	4.17	10TH	11.37 4.48
10.73	4.22	15TH	11.52 4.54
10.84	4.27	20TH	11.64 4.58
10.93	4.30	25TH	11.74 4.62
11.02	4.34	30TH	11.83 4.66
11.10	4.37	35TH	11.92 4.69
11.18	4.40	40TH	12.01 4.73
11.25	4.43	45TH	12.09 4.76
11.33	4.46	50TH	12.17 4.79
11.40	4.49	55TH	12.25 4.82
11.48	4.52	60TH	12.34 4.86
11.56	4.55	65TH	12.43 4.89
11.64	4.58	70TH	12.52 4.93
11.73	4.62	75TH	12.62 4.97
11.84	4.66	80TH	12.74 5.01
11.96	4.71	85TH	12.87 5.07
12.12	4.77	90TH	13.04 5.13
12.36	4.87	95TH	13.29 5.23
12.53	4.93	97TH	13.45 5.30
12.65	4.98	98TH	13.57 5.34
12.86	5.06	99TH	13.74 5.41

# MENTON-SELLION LENGTH

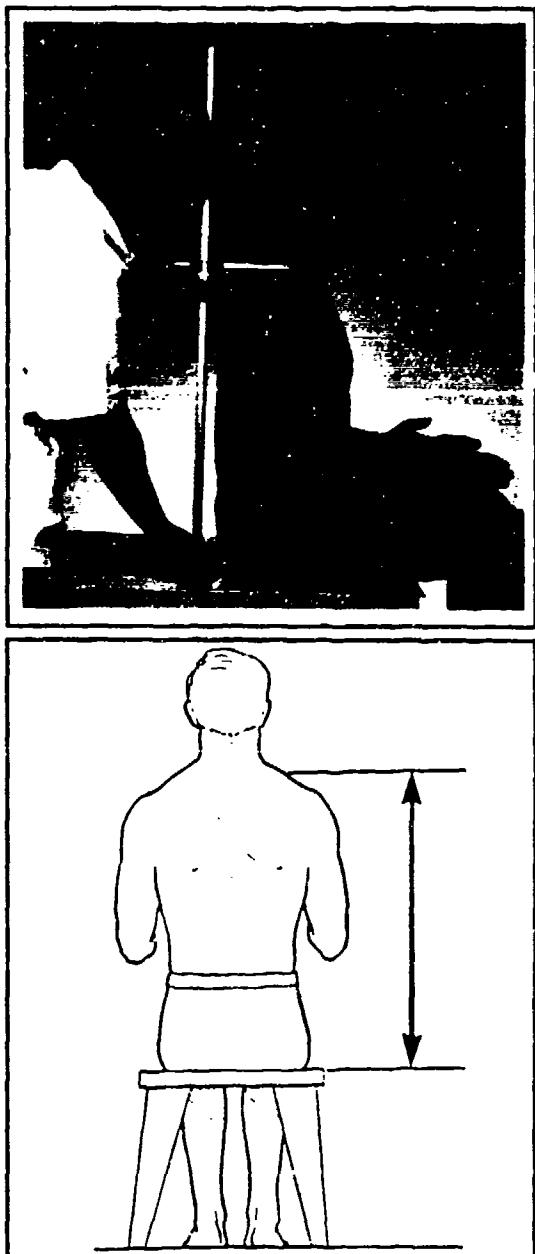
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
11.35	MEAN VALUE	4.47
.00	SE(MEAN)	.00
.60	STD DEVIATION	.23
.00	SE(STD DEV)	.00
9.50	MINIMUM	3.74
13.40	MAXIMUM	5.28
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	2.98
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
12.19	MEAN VALUE	4.80
.02	SE(MEAN)	.00
.65	STD DEVIATION	.26
.00	SE(STD DEV)	.00
10.10	MINIMUM	3.98
14.80	MAXIMUM	5.83
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct		
2	.09	2	.09	9.45 - 9.55		1	.06		
0	.00	2	.09	9.55 - 9.65		1	.06		
2	.09	4	.18	9.65 - 9.75		2	.11		
2	.09	6	.27	9.75 - 9.85		3	.17		
7	.32	13	.59	9.85 - 9.95		6	.34		
8	.36	21	.95	9.95 - 10.05		9	.51		
15	.68	36	1.63	10.05 - 10.15		14	.79		
22	1.00	58	2.63	10.15 - 10.25		0	.00		
40	1.81	98	4.44	10.25 - 10.35		1	.06		
43	1.95	141	6.39	10.35 - 10.45		1	.06		
57	2.58	198	8.97	10.45 - 10.55		3	.17		
63	2.85	261	11.82	10.55 - 10.65		4	.23		
79	3.58	340	15.40	10.65 - 10.75		6	.34		
93	4.21	433	19.61	10.75 - 10.85		9	.51		
117	5.30	550	24.91	10.85 - 10.95		14	.79		
152	6.88	702	31.79	10.95 - 11.05		19	1.07		
155	7.02	857	38.81	11.05 - 11.15		23	1.30		
145	6.57	1002	45.38	11.15 - 11.25		30	1.69		
157	7.11	1159	52.49	11.25 - 11.35		52	2.93		
132	5.98	1291	58.47	11.35 - 11.45		59	3.33		
145	6.57	1436	65.04	11.45 - 11.55		64	3.61		
122	5.53	1558	70.56	11.55 - 11.65		81	4.57		
110	4.98	1668	75.54	11.65 - 11.75		98	5.52		
106	4.80	1774	80.34	11.75 - 11.85		93	5.24		
77	3.49	1851	83.83	11.85 - 11.95		85	4.79		
82	3.71	1933	87.55	11.95 - 12.05		105	5.92		
65	2.94	1998	90.49	12.05 - 12.15		106	5.98		
55	2.49	2053	92.98	12.15 - 12.25		133	7.50		
47	2.13	2100	95.11	12.25 - 12.35		97	5.47		
26	1.18	2126	96.29	12.35 - 12.45		101	5.69		
24	1.09	2150	97.37	12.45 - 12.55		75	4.23		
16	.72	2166	98.10	12.55 - 12.65		82	4.62		
9	.41	2175	98.51	12.65 - 12.75		82	4.62		
8	.36	2183	98.87	12.75 - 12.85		72	4.06		
11	.50	2194	99.37	12.85 - 12.95		51	2.87		
8	.36	2202	99.73	12.95 - 13.05		61	3.44		
4	.18	2206	99.91	13.05 - 13.15		36	2.03		
1	.05	2207	99.95	13.15 - 13.25		31	1.75		
0	.00	2207	99.95	13.25 - 13.35		32	1.80		
1	.05	2208	100.00	13.35 - 13.45		17	.96		
				13.45 - 13.55		9	.51		
				13.55 - 13.65		15	.85		
				13.65 - 13.75		9	.51		
				13.75 - 13.85		3	.17		
				13.85 - 13.95		5	.28		
				13.95 - 14.05		2	.11		
				14.05 - 14.15		3	.17		
				14.15 - 14.25		2	.11		
				14.25 - 14.35		0	.00		
				14.35 - 14.45		0	.00		
				14.45 - 14.55		1	.06		
				14.55 - 14.65		0	.00		
				14.65 - 14.75		0	.00		
				14.75 - 14.85		1	.06		

## (78) MIDSHOULDER HEIGHT, SITTING

The vertical distance between a sitting surface and the midshoulder landmark at the top of the right shoulder is measured with an anthropometer. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
52.31	20.60	56.28	22.16
52.94	20.84	57.12	22.49
53.35	21.00	57.64	22.69
53.92	21.23	58.1	22.97
54.84	21.59	59.39	23.38
55.48	21.84	60.0	23.66
56.00	22.05	60.65	23.88
56.46	22.23	61.12	24.06
56.88	22.39	61.55	24.23
57.26	22.54	61.95	24.39
57.64	22.69	62.32	24.54
58.00	22.83	62.68	24.68
58.36	22.98	63.04	24.82
58.72	23.12	63.40	24.96
59.09	23.26	63.77	25.10
59.47	23.41	64.14	25.25
59.87	23.57	64.54	25.41
60.31	23.74	64.97	25.58
60.80	23.94	65.44	25.76
61.35	24.15	65.99	25.98
62.05	24.43	66.67	26.25
63.05	24.82	67.66	26.64
63.66	25.06	68.27	26.88
64.10	25.24	68.71	27.05
64.74	25.49	69.36	27.31

# MIDSHOULDER HEIGHT, SITTING

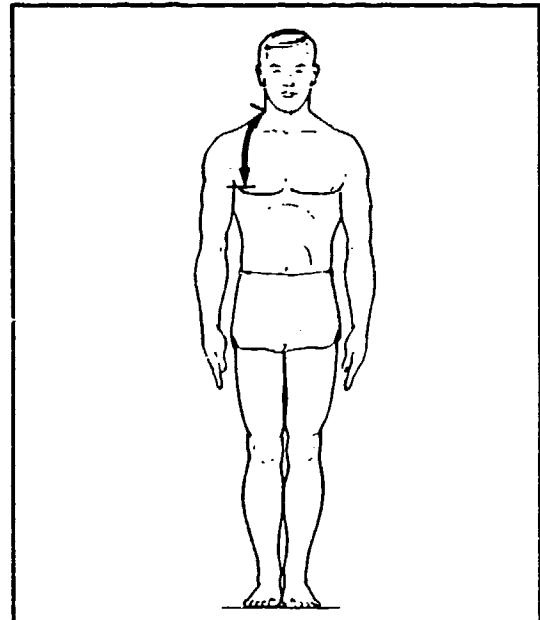
FEMALES		
<u>CM</u>	<u>INCHES</u>	
58.40	MEAN VALUE	22.99
.06	SE(MEAN)	.02
2.77	STD DEVIATION	1.09
.04	SE(STD DEV)	.02
48.80	MINIMUM	19.21
69.40	MAXIMUM	27.32
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	2.85
COEF. OF VARIATION	=	4.7%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
63.03	MEAN VALUE	24.81
.07	SE(MEAN)	.03
2.82	STD DEVIATION	1.11
.05	SE(STD DEV)	.02
53.80	MINIMUM	21.18
73.00	MAXIMUM	28.74
SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	2.93
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	48.75 - 49.25		1	.06
0	.00	1	.05	49.25 - 49.75		2	.11
0	.00	1	.05	49.75 - 50.25		6	.34
0	.00	1	.05	50.25 - 50.75		10	.56
7	.32	8	.36	50.75 - 51.25		16	.90
6	.27	14	.63	51.25 - 51.75		28	1.58
3	.14	17	.77	51.75 - 52.25		40	2.25
20	.91	37	1.68	52.25 - 52.75		44	2.56
26	1.18	63	2.85	52.75 - 53.25		49	2.76
34	1.54	97	4.39	53.25 - 53.75		217	12.23
51	2.31	148	6.70	53.75 - 54.25		282	15.90
57	2.58	205	9.28	54.25 - 54.75		366	21.08
78	3.53	283	12.82	54.75 - 55.25		421	26.38
86	3.89	369	16.71	55.25 - 55.75		468	31.74
110	4.98	479	21.69	55.75 - 56.25		563	36.63
130	5.89	609	27.58	56.25 - 56.75		621	42.23
170	7.70	779	35.28	56.75 - 57.25		680	47.82
156	7.07	935	42.35	57.25 - 57.75		740	53.41
152	6.88	1087	49.23	57.75 - 58.25		797	58.00
143	6.48	1230	55.71	58.25 - 58.75		856	63.59
139	6.30	1369	62.00	58.75 - 59.25		915	69.18
144	6.52	1513	68.52	59.25 - 59.75		974	74.77
120	5.43	1633	73.96	59.75 - 60.25		1033	80.36
122	5.53	1755	79.48	60.25 - 60.75		1092	85.95
101	4.57	1856	84.06	60.75 - 61.25		1151	91.54
94	4.26	1950	88.32	61.25 - 61.75		1210	97.13
67	3.03	2017	91.35	61.75 - 62.25		1269	102.72
62	2.81	2079	94.16	62.25 - 62.75		1328	108.31
37	1.68	2116	95.83	62.75 - 63.25		1387	113.90
29	1.31	2145	97.15	63.25 - 63.75		1446	119.49
23	1.04	2168	98.19	63.75 - 64.25		1505	125.08
20	.91	2188	99.09	64.25 - 64.75		1564	130.67
7	.32	2195	99.41	64.75 - 65.25		1623	136.26
4	.18	2199	99.59	65.25 - 65.75		1682	141.85
4	.18	2203	99.77	65.75 - 66.25		1741	147.44
4	.18	2207	99.95	66.25 - 66.75		1800	153.03
0	.00	2207	99.95	66.75 - 67.25		1859	158.62
0	.00	2207	99.95	67.25 - 67.75		1918	164.21
0	.00	2207	99.95	67.75 - 68.25		1977	169.80
0	.00	2207	99.95	68.25 - 68.75		2036	175.39
1	.05	2208	100.00	68.75 - 69.25		2095	180.98
				69.25 - 69.75		2154	186.57
				69.75 - 70.25		2213	192.16
				70.25 - 70.75		2272	197.75
				70.75 - 71.25		2331	203.34
				71.25 - 71.75		2390	208.93
				71.75 - 72.25		2449	214.52
				72.25 - 72.75		2508	219.11
				72.75 - 73.25		2567	224.70

## (79) NECK-BUSTPOINT/THELION LENGTH

The distance between the trapezius landmark at the right side of the neck and the right bustpoint landmark on women or the right ripple (thelion) on men is measured with a tape. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
22.02	8.67	1ST	23.27 9.16
22.55	8.88	2ND	23.73 9.34
22.88	9.01	3RD	24.02 9.46
23.34	9.19	5TH	24.40 9.61
24.04	9.47	10TH	25.00 9.84
24.53	9.66	15TH	25.40 10.00
24.91	9.81	20TH	25.72 10.12
25.25	9.94	25TH	25.99 10.23
25.56	10.06	30TH	26.24 10.33
25.85	10.18	35TH	26.48 10.42
26.13	10.29	40TH	26.70 10.51
26.40	10.39	45TH	26.92 10.60
26.67	10.50	50TH	27.14 10.68
26.95	10.61	55TH	27.36 10.77
27.23	10.72	60TH	27.59 10.86
27.53	10.84	65TH	27.83 10.96
27.85	10.96	70TH	28.09 11.06
28.20	11.10	75TH	28.37 11.17
28.60	11.26	80TH	28.70 11.30
29.08	11.45	85TH	29.08 11.45
29.70	11.69	90TH	29.59 11.65
30.65	12.07	95TH	30.38 11.96
31.30	12.32	97TH	30.92 12.17
31.78	12.51	98TH	31.33 12.34
32.57	12.82	99TH	32.00 12.60

# NECK-BUSTPOINT/THELION LENGTH

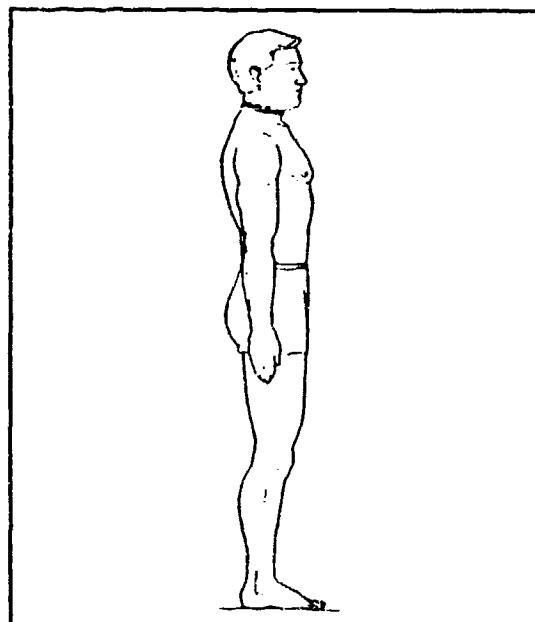
<b>FEMALES</b>		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
26.80	MEAN VALUE	10.55
.05	SE(MEAN)	.02
2.23	STD DEVIATION	.88
.03	SE(STD DEV)	.00
20.20	MINIMUM	7.95
35.40	MAXIMUM	13.94
SYMMETRY---VETA I	=	.31
KURTOSIS---VETA II	=	3.21
COEF. OF VARIATION	=	8.3%
NUMBER OF SUBJECTS	=	2208

<b>MALES</b>		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
27.24	MEAN VALUE	10.73
.04	SE(MEAN)	.02
1.81	STD DEVIATION	.71
.03	SE(STD DEV)	.00
22.20	MINIMUM	8.74
34.20	MAXIMUM	13.46
SYMMETRY---VETA I	=	.33
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	6.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
<b>FEMALES</b>				<b>MALES</b>			
F	FPct	CumP	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	19.75 - 20.25		1	.06
1	.05	2	.09	20.25 - 20.75		3	.17
9	.41	11	.50	20.75 - 21.25		13	.73
6	.27	17	.77	21.25 - 21.75		20	1.13
11	.50	28	1.27	21.75 - 22.25		32	1.80
25	1.13	53	2.40	22.25 - 22.75		57	3.21
39	1.77	92	4.17	22.75 - 23.25		109	6.14
77	3.49	169	7.65	23.25 - 23.75		125	7.05
95	4.30	264	11.96	23.75 - 24.25		167	9.41
115	5.21	379	17.16	24.25 - 24.75		214	12.06
182	8.24	561	25.41	24.75 - 25.25		212	11.95
187	8.47	748	33.88	25.25 - 25.75		173	9.75
187	8.47	935	42.35	25.75 - 26.25		148	8.34
197	8.92	1132	51.27	26.25 - 26.75		157	8.85
209	9.47	1341	60.73	26.75 - 27.25		100	5.64
161	7.29	1502	68.03	27.25 - 27.75		85	4.79
159	7.20	1661	75.23	27.75 - 28.25		61	3.44
142	6.43	1803	81.66	28.25 - 28.75		40	2.25
108	4.89	1911	86.55	28.75 - 29.25		18	1.01
74	3.35	1985	89.90	29.25 - 29.75		12	.68
72	3.26	2057	93.16	29.75 - 30.25		4	.23
58	2.63	2115	95.79	30.25 - 30.75		2	.11
31	1.40	2146	97.19	30.75 - 31.25		4	.23
16	.72	2162	97.92	31.25 - 31.75		2	.11
18	.82	2180	98.73	31.75 - 32.25		1	.06
8	.36	2188	99.09	32.25 - 32.75			
5	.23	2193	99.32	32.75 - 33.25			
6	.27	2199	99.59	33.25 - 33.75			
6	.27	2205	99.86	33.75 - 34.25			
2	.09	2207	99.95	34.25 - 34.75			
0	.00	2207	99.95	34.75 - 35.25			
1	.05	2208	100.00	35.25 - 35.75			

## (80) NECK CIRCUMFERENCE

The circumference of the neck at the level of the infrathyroid landmark (Adam's apple) is measured with a tape. The plane of the measurement is perpendicular to the long axis of the neck. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
28.43	11.19	1ST	33.66 13.25
28.73	11.31	2ND	34.17 13.45
28.93	11.39	3RD	34.48 13.57
29.22	11.50	5TH	34.90 13.74
29.68	11.68	10TH	35.53 13.99
30.00	11.81	15TH	35.96 14.16
30.27	11.92	20TH	36.31 14.29
30.50	12.01	25TH	36.61 14.41
30.71	12.09	30TH	36.88 14.52
30.91	12.17	35TH	37.14 14.62
31.10	12.24	40TH	37.38 14.72
31.29	12.32	45TH	37.63 14.81
31.48	12.39	50TH	37.87 14.91
31.67	12.47	55TH	38.12 15.01
31.87	12.55	60TH	38.37 15.11
32.07	12.63	65TH	38.63 15.21
32.30	12.71	70TH	38.92 15.32
32.54	12.81	75TH	39.23 15.44
32.82	12.92	80TH	39.58 15.58
33.15	13.05	85TH	40.00 15.75
33.58	13.22	90TH	40.53 15.96
34.25	13.48	95TH	41.34 16.28
34.70	13.66	97TH	41.87 16.48
35.04	13.80	98TH	42.25 16.64
35.60	14.02	99TH	42.86 16.87

# NECK CIRCUMFERENCE

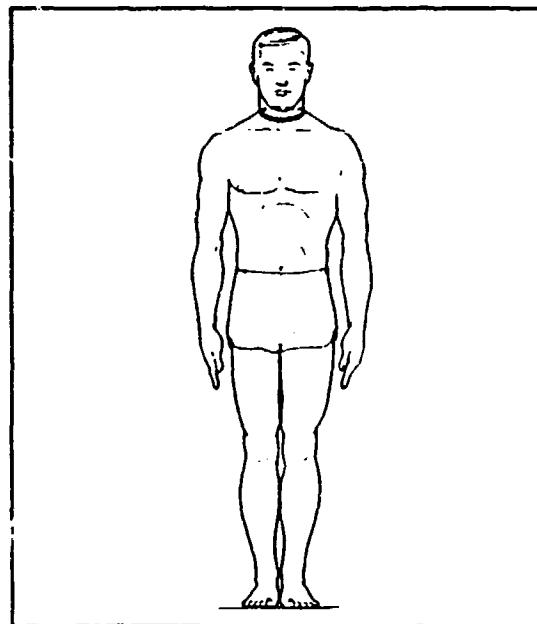
FEMALES		
<u>CM</u>	<u>INCHES</u>	
31.57	MEAN VALUE	12.43
.03	SE(MEAN)	.00
1.53	STD DEVIATION	.60
.02	SE(STD DEV)	.00
27.20	MINIMUM	10.71
37.20	MAXIMUM	14.65
SYMMETRY---VETA I	=	.36
KURTOSIS---VETA II	=	3.19
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
37.96	MEAN VALUE	14.94
.05	SE(MEAN)	.02
1.97	STD DEVIATION	.77
.03	SE(STD DEV)	.00
31.60	MINIMUM	12.44
47.00	MAXIMUM	18.50
SYMMETRY---VETA I	=	.32
KURTOSIS---VETA II	=	3.50
COEF. OF VARIATION	=	5.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	26.75 - 27.25			
5	.23	6	.27	27.25 - 27.75			
6	.27	12	.54	27.75 - 28.25			
31	1.40	43	1.95	28.25 - 28.75			
72	3.26	115	5.21	28.75 - 29.25			
121	5.48	236	10.69	29.25 - 29.75			
206	9.33	442	20.02	29.75 - 30.25			
237	10.73	679	30.75	30.25 - 30.75			
285	12.91	964	43.66	30.75 - 31.25			
301	13.63	1265	57.29	31.25 - 31.75			
264	11.96	1529	69.25	31.75 - 32.25	1	.06	1
214	9.69	1743	78.94	32.25 - 32.75	0	.00	.06
165	7.47	1908	86.41	32.75 - 33.25	2	.11	.17
114	5.16	2022	91.58	33.25 - 33.75	5	.28	.45
73	3.31	2095	94.86	33.75 - 34.25	11	.62	19
52	2.36	2147	97.24	34.25 - 34.75	20	1.13	39
28	1.27	2175	98.51	34.75 - 35.25	36	2.03	75
14	.63	2189	99.14	35.25 - 35.75	50	2.82	125
8	.36	2197	99.50	35.75 - 36.25	98	5.52	223
7	.32	2204	99.82	36.25 - 36.75	111	6.26	334
4	.18	2208	100.00	36.75 - 37.25	143	8.06	477
				37.25 - 37.75	174	9.81	651
				37.75 - 38.25	199	11.22	850
				38.25 - 38.75	171	9.64	1021
				38.75 - 39.25	167	9.41	1188
				39.25 - 39.75	164	9.24	1352
				39.75 - 40.25	116	6.54	1468
				40.25 - 40.75	93	5.24	1561
				40.75 - 41.25	64	3.61	1625
				41.25 - 41.75	53	2.99	1678
				41.75 - 42.25	30	1.69	1708
				42.25 - 42.75	31	1.75	1739
				42.75 - 43.25	16	.90	1755
				43.25 - 43.75	10	.56	1765
				43.75 - 44.25	3	.17	1768
				44.25 - 44.75	2	.11	1770
				44.75 - 45.25	0	.00	1770
				45.25 - 45.75	0	.00	1770
				45.75 - 46.25	2	.11	1772
				46.25 - 46.75	0	.00	1772
				46.75 - 47.25	2	.11	1774
							100.00

## (81) NECK CIRCUMFERENCE, BASE

The circumference of the base of the neck is measured by a tape passing over the drawn lateral and anterior neck landmarks. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
31.18	12.28	1ST	36.32 14.30
31.50	12.40	2ND	36.83 14.50
31.72	12.49	3RD	37.15 14.63
32.03	12.61	5TH	37.59 14.80
32.55	12.81	10TH	38.28 15.07
32.91	12.96	15TH	38.75 15.26
33.21	13.07	20TH	39.12 15.40
33.47	13.18	25TH	39.45 15.53
33.71	13.27	30TH	39.74 15.64
33.93	13.36	35TH	40.01 15.75
34.15	13.44	40TH	40.27 15.85
34.35	13.53	45TH	40.52 15.95
34.56	13.61	50TH	40.77 16.05
34.77	13.69	55TH	41.02 16.15
34.98	13.77	60TH	41.28 16.25
35.21	13.86	65TH	41.55 16.36
35.44	13.95	70TH	41.84 16.47
35.70	14.05	75TH	42.16 16.50
35.99	14.17	80TH	42.52 16.74
36.33	14.30	85TH	42.94 16.90
36.76	14.47	90TH	43.49 17.12
37.42	14.73	95TH	44.33 17.45
37.85	14.90	97TH	44.91 17.68
38.18	15.03	98TH	45.34 17.85
38.71	15.24	99TH	46.05 18.13

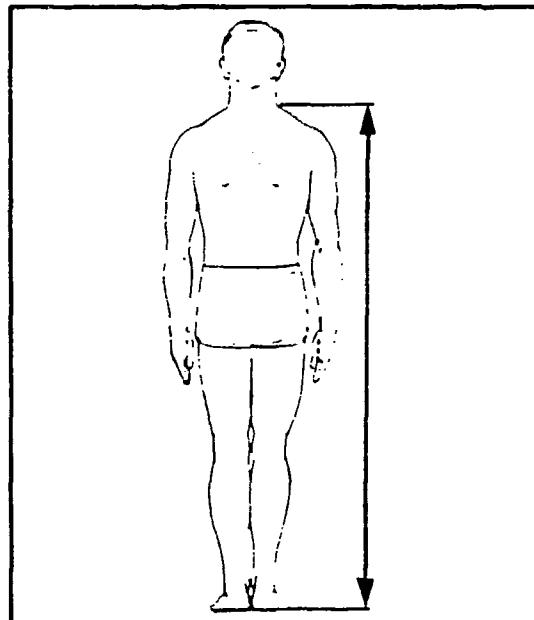
# NECK CIRCUMFERENCE, BASE

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
34.62	MEAN VALUE	13.63	40.84	MEAN VALUE	16.08
.03	SE(MEAN)	.00	.05	SE(MEAN)	.02
1.63	STD DEVIATION	.64	2.05	STD DEVIATION	.81
.02	SE(STD DEV)	.00	.03	SE(STD DEV)	.00
29.80	MINIMUM	11.73	34.90	MINIMUM	13.74
40.90	MAXIMUM	16.10	50.50	MAXIMUM	19.88
SYMMETRY---VETA I	=	.21	SYMMETRY---VETA I	=	.29
KURTOSIS---VETA II	=	3.00	KURTOSIS---VETA II	=	3.48
COEF. OF VARIATION	=	4.7%	COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct
6	.27	6	.27	29.75 - 30.25		5	.28	5	.28
2	.09	8	.36	30.25 - 30.75		1	.06	6	.34
17	.77	25	1.13	30.75 - 31.25		7	.39	13	.73
44	1.99	69	3.13	31.25 - 31.75		20	1.13	33	1.86
81	3.67	150	6.79	31.75 - 32.25		28	1.58	61	3.44
120	5.43	270	12.23	32.25 - 32.75		44	2.48	105	5.92
182	8.24	452	20.47	32.75 - 33.25		69	3.89	174	9.81
222	10.05	674	30.53	33.25 - 33.75		86	4.85	260	14.66
265	12.00	939	42.53	33.75 - 34.25		112	6.31	372	20.97
262	11.87	1201	54.39	34.25 - 34.75		166	9.36	538	30.33
258	11.68	1459	66.08	34.75 - 35.25		156	8.79	694	39.12
217	9.83	1676	75.21	35.25 - 35.75		176	9.92	870	49.04
174	7.88	1850	83.79	35.75 - 36.25		201	11.33	1071	60.37
145	6.57	1995	90.35	36.25 - 36.75		157	8.85	1228	69.22
84	3.80	2079	94.16	36.75 - 37.25		133	7.50	1361	76.72
49	2.22	2128	96.38	37.25 - 37.75		111	6.26	1472	82.98
37	1.68	2165	98.05	37.75 - 38.25		85	4.79	1557	87.77
22	1.00	2187	99.05	38.25 - 38.75		72	4.06	1629	91.83
12	.54	2199	99.59	38.75 - 39.25		54	3.04	1683	94.87
5	.23	2204	99.82	39.25 - 39.75		27	1.52	1710	96.39
3	.14	2207	99.95	39.75 - 40.25		25	1.41	1735	97.80
0	.00	2207	99.95	40.25 - 40.75		15	.85	1750	98.65
1	.05	2208	100.00	40.75 - 41.25		12	.60	1762	99.32
				41.25 - 41.75		4	.23	1766	99.55
				41.75 - 42.25		4	.23	1770	99.77
				42.25 - 42.75		0	.00	1770	99.77
				42.75 - 43.25		0	.00	1770	99.77
				43.25 - 43.75		1	.06	1771	99.83
				43.75 - 44.25		1	.06	1772	99.89
				44.25 - 44.75		1	.06	1773	99.94
				44.75 - 45.25		0	.00	1773	99.94
				45.25 - 45.75		1	.06	1774	100.00

## (82) NECK HEIGHT, LATERAL

The vertical distance between a standing surface and the trapezius landmark on the right side of the neck is measured with an anthropometer. The subject stands erect with the head in the Frankfort plane. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
126.30	49.72	1ST	136.42 53.71
127.97	50.38	2ND	138.30 54.45
128.98	50.78	3RD	139.44 54.90
130.32	51.31	5TH	140.93 55.48
132.32	52.10	10TH	143.15 56.36
133.66	52.62	15TH	144.62 56.94
134.73	53.04	20TH	145.77 57.39
135.65	53.41	25TH	146.78 57.79
136.49	53.73	30TH	147.68 58.14
137.27	54.04	35TH	148.51 58.47
138.01	54.34	40TH	149.31 58.78
138.74	54.62	45TH	150.09 59.09
139.48	54.91	50TH	150.86 59.39
140.22	55.20	55TH	151.64 59.70
140.97	55.50	60TH	152.43 60.01
141.76	55.81	65TH	153.26 60.34
142.60	56.14	70TH	154.13 60.68
143.52	56.50	75TH	155.08 61.06
144.56	56.91	80TH	156.15 61.48
145.76	57.39	85TH	157.38 61.96
147.29	57.99	90TH	158.93 62.57
149.54	58.87	95TH	161.16 63.45
150.96	59.43	97TH	162.55 63.99
151.97	59.83	98TH	163.52 64.38
153.49	60.43	99TH	164.94 64.94

# NECK HEIGHT, LATERAL

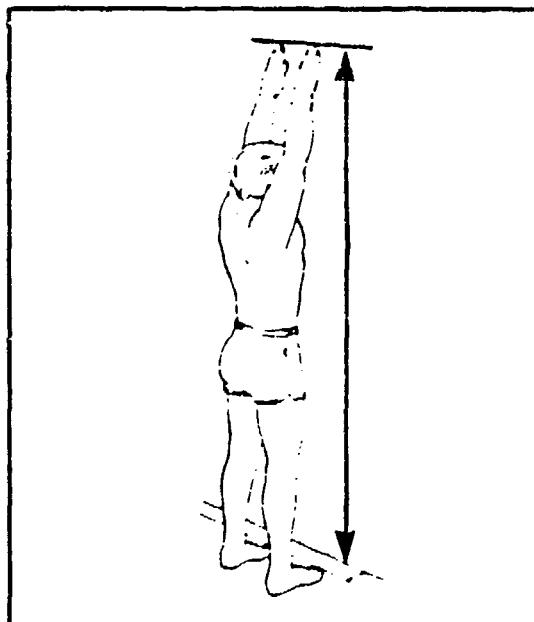
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
139.65	MEAN VALUE	54.98
.12	SE(MEAN)	.05
5.84	STD DEVIATION	2.30
.09	SE(STD DEV)	.03
120.60	MINIMUM	47.48
161.30	MAXIMUM	63.50
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	3.00
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
150.95	MEAN VALUE	59.43
.15	SE(MEAN)	.06
6.16	STD DEVIATION	2.42
.10	SE(STD DEV)	.04
125.40	MINIMUM	49.37
177.10	MAXIMUM	69.72
SYMMETRY---VETA I	=	.06
KURTOSIS---VETA II	=	3.20
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	F <sup>a</sup> Pct	CumF	CumFPct	<u>CENTIMETERS</u>		F	F <sup>a</sup> Pct
1	.05	1	.05	120.25 - 121.75		1	.06
3	.14	4	.18	121.75 - 123.25		0	.00
8	.36	12	.54	123.25 - 124.75		0	.00
7	.32	19	.86	124.75 - 126.25		0	.00
23	1.04	42	1.90	126.25 - 127.75		4	.23
30	1.36	72	3.26	127.75 - 129.25		12	.68
45	2.04	117	5.30	129.25 - 130.75		16	.90
90	4.08	207	9.38	130.75 - 132.25		144	6.12
124	5.62	331	14.99	132.25 - 133.75		160	9.02
180	8.15	511	23.14	133.75 - 135.25		155	10.02
208	9.42	719	32.56	135.25 - 136.75		173	9.75
216	9.78	935	42.35	136.75 - 138.25		161	9.08
187	8.47	1122	50.82	138.25 - 139.75		161	9.08
233	10.55	1355	61.37	139.75 - 141.25		171	8.29
195	8.83	1550	70.20	141.25 - 142.75		171	8.29
183	8.29	1733	78.49	142.75 - 144.25		171	8.29
145	6.57	1878	85.05	144.25 - 145.75		171	8.29
107	4.85	1985	89.90	145.75 - 147.25		171	8.29
88	3.99	2073	93.85	147.25 - 148.75		171	8.29
51	2.31	2124	96.20	148.75 - 150.25		171	8.29
36	1.63	2160	97.83	150.25 - 151.75		171	8.29
21	.95	2181	98.78	151.75 - 153.25		171	8.29
15	.68	2196	99.46	153.25 - 154.75		171	8.29
4	.18	2200	99.64	154.75 - 156.25		171	8.29
5	.23	2205	99.86	156.25 - 157.75		171	8.29
2	.09	2207	99.95	157.75 - 159.25		171	8.29
0	.00	2207	99.95	159.25 - 160.75		171	8.29
1	.05	2208	100.00	160.75 - 162.25		171	8.29
				162.25 - 163.75		171	8.29
				163.75 - 165.25		171	8.29
				165.25 - 166.75		171	8.29
				166.75 - 168.25		171	8.29
				168.25 - 169.75		171	8.29
				169.75 - 171.25		171	8.29
				171.25 - 172.75		171	8.29
				172.75 - 174.25		171	8.29
				174.25 - 175.75		171	8.29
				175.75 - 177.25		171	8.29

### (83) OVERHEAD FINGERTIP REACH

The vertical distance between a standing surface and the tip of the right middle finger when the arm is extended overhead is measured on a wall scale. The subject stands facing a wall-mounted scale with both arms extended overhead parallel to each other. The toes are 20 cm from the wall and the feet are about 10 cm apart. The palms of the hands rest on the scale. A block is placed against the tip of the finger to establish the measurement. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
184.98	72.83	1ST	200.56 78.96
187.68	73.89	2ND	203.35 80.06
189.31	74.53	3RD	205.06 80.73
191.45	75.37	5TH	207.33 81.63
194.64	76.63	10TH	210.77 82.98
196.76	77.47	15TH	213.07 83.89
198.44	78.13	20TH	214.90 84.61
199.91	78.70	25TH	216.49 85.23
201.22	79.22	30TH	217.92 85.80
202.45	79.71	35TH	219.26 86.32
203.63	80.17	40TH	220.54 86.83
204.79	80.62	45TH	221.78 87.32
205.94	81.08	50TH	223.02 87.80
207.10	81.54	55TH	224.27 88.30
208.29	82.01	60TH	225.54 88.80
209.54	82.50	65TH	226.87 89.32
210.86	83.02	70TH	228.26 89.87
212.31	83.59	75TH	229.78 90.46
213.94	84.23	80TH	231.47 91.13
215.83	84.97	85TH	233.42 91.90
218.23	85.92	90TH	235.85 92.85
221.73	87.30	95TH	239.32 94.22
223.93	88.16	97TH	241.43 95.05
225.50	88.78	98TH	242.90 95.63
227.82	89.69	99TH	245.00 96.46

# OVERHEAD FINGERTIP REACH

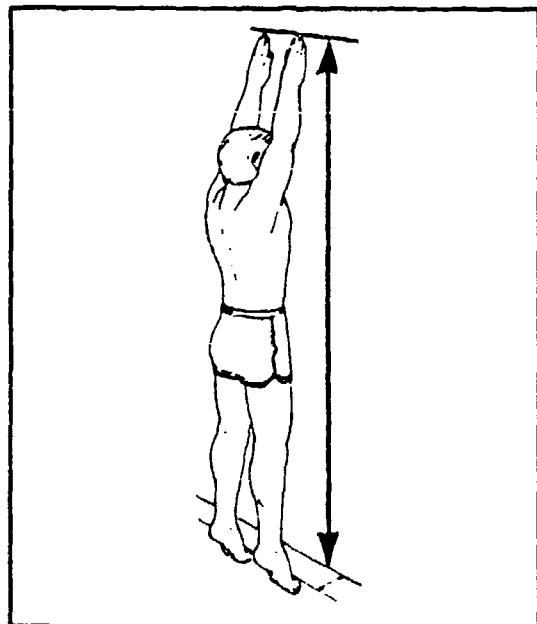
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
206.15	MEAN VALUE	81.16
.20	SE(MEAN)	.08
9.24	STD DEVIATION	3.64
.14	SE(STD DEV)	.05
172.10	MINIMUM	67.76
239.30	MAXIMUM	94.21
SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
223.14	MEAN VALUE	87.85
.23	SE(MEAN)	.09
9.75	STD DEVIATION	3.84
.16	SE(STD DEV)	.06
179.90	MINIMUM	70.83
267.60	MAXIMUM	105.35
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.30
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	171.55 - 173.55			
0	.00	2	.09	173.55 - 175.55			
1	.05	3	.14	175.55 - 177.55			
2	.09	5	.23	177.55 - 179.55			
1	.05	6	.27	179.55 - 181.55			
8	.36	14	.63	181.55 - 183.55			
16	.72	30	1.36	183.55 - 185.55			
15	.68	45	2.04	185.55 - 187.55			
17	.77	62	2.81	187.55 - 189.55			
46	2.08	108	4.89	189.55 - 191.55			
66	2.99	174	7.88	191.55 - 193.55			
102	4.62	276	12.50	193.55 - 195.55			
105	4.76	381	17.26	195.55 - 197.55			
151	6.84	532	24.09	197.55 - 199.55			
172	7.79	704	31.88	199.55 - 201.55			
192	8.70	896	40.58	201.55 - 203.55			
188	8.51	1084	49.09	203.55 - 205.55			
164	7.43	1248	56.52	205.55 - 207.55			
170	7.70	1418	64.22	207.55 - 209.55			
164	7.43	1582	71.65	209.55 - 211.55			
144	6.52	1726	78.17	211.55 - 213.55			
133	6.02	1859	84.19	213.55 - 215.55			
119	5.39	1978	89.58	215.55 - 217.55			
54	2.45	2032	92.03	217.55 - 219.55			
72	3.26	2104	95.29	219.55 - 221.55			
38	1.72	2142	97.01	221.55 - 223.55			
22	1.00	2164	98.01	223.55 - 225.55			
17	.77	2181	98.78	225.55 - 227.55			
17	.77	2198	99.55	227.55 - 229.55			
2	.09	2200	99.64	229.55 - 231.55			
4	.18	2204	99.82	231.55 - 233.55			
1	.05	2205	99.86	233.55 - 235.55			
1	.05	2206	99.91	235.55 - 237.55			
2	.09	2208	100.00	237.55 - 239.55			
				239.55 - 241.55			
				241.55 - 243.55			
				243.55 - 245.55			
				245.55 - 247.55			
				247.55 - 249.55			
				249.55 - 251.55			
				251.55 - 253.55			
				253.55 - 255.55			
				255.55 - 257.55			
				257.55 - 259.55			
				259.55 - 261.55			
				261.55 - 263.55			
				263.55 - 265.55			
				265.55 - 267.55			
				267.55 - 269.55			

## (84) OVERHEAD FINGERTIP REACH, EXTENDED

The vertical distance between a standing surface and the tip of the right middle finger when the arm is extended overhead as high as possible is measured on a wall scale. The subject stands on his/her toes facing a wall-mounted scale with both arms parallel and extended overhead as high as possible. The toes are 20 cm from the wall and the feet are about 10 cm apart. The palms of the hands rest on the scale. A block is placed against the tip of the finger to establish the measurement. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
193.57	76.21	1ST	209.93 82.65
196.30	77.28	2ND	212.68 83.73
197.97	77.94	3RD	214.39 84.40
200.16	78.80	5TH	216.68 85.31
203.45	80.10	10TH	220.16 86.68
205.65	80.96	15TH	222.52 87.60
207.39	81.65	20TH	224.38 88.34
208.90	82.25	25TH	226.01 88.98
210.27	82.78	30TH	227.47 89.56
211.54	83.28	35TH	228.83 90.09
212.76	83.76	40TH	230.14 90.60
213.95	84.23	45TH	231.40 91.10
215.14	84.70	50TH	232.66 91.60
216.34	85.17	55TH	233.93 92.10
217.56	85.65	60TH	235.22 92.61
218.84	86.16	65TH	236.56 93.14
220.20	86.69	70TH	237.98 93.69
221.68	87.28	75TH	239.53 94.30
223.35	87.93	80TH	241.26 94.98
225.28	88.69	85TH	243.26 95.77
227.72	89.66	90TH	245.77 96.76
231.28	91.06	95TH	249.44 98.20
233.52	91.94	97TH	251.74 99.11
235.10	92.56	98TH	253.38 99.75
237.45	93.48	99TH	255.84 100.72

# OVERHEAD FINGERTIP REACH, EXTENDED

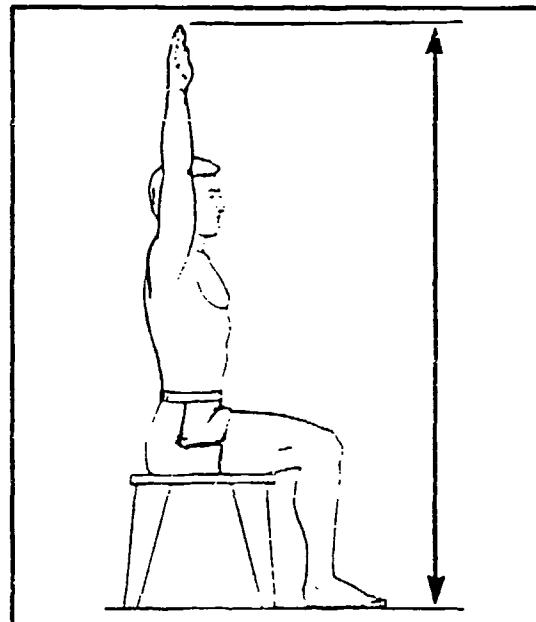
FEMALES		
	CM	INCHES
215.34	MEAN VALUE	84.78
.20	SE(MEAN)	.08
9.50	STD DEVIATION	3.74
.14	SE(STD DEV)	.06
182.00	MINIMUM	71.65
248.80	MAXIMUM	97.95
SYMMETRY---VETA I	=	.06
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	2208

MALES		
	CM	INCHES
232.80	MEAN VALUE	91.65
.24	SE(MEAN)	.09
9.99	STD DEVIATION	3.94
.17	SE(STD DEV)	.07
191.70	MINIMUM	75.47
281.10	MAXIMUM	110.67
SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
3	.14	3	.14	181.55 - 183.55			
0	.00	3	.14	183.55 - 185.55	1	.06	1 .06
1	.05	4	.18	185.55 - 187.55	0	.00	1 .06
2	.09	6	.27	187.55 - 189.55	0	.00	1 .06
10	.45	16	.72	189.55 - 191.55	1	.06	1 .06
9	.41	25	1.13	191.55 - 193.55	0	.00	1 .06
11	.50	36	1.63	193.55 - 195.55	0	.00	1 .06
20	.91	56	2.54	195.55 - 197.55	0	.00	1 .06
39	1.77	95	4.30	197.55 - 199.55	1	.06	1 .06
59	2.67	154	6.97	199.55 - 201.55	2	.11	4 .23
74	3.35	228	10.33	201.55 - 203.55	0	.00	4 .23
99	4.48	327	14.81	203.55 - 205.55	0	.00	4 .23
120	5.43	447	20.24	205.55 - 207.55	5	.28	9 .51
160	7.25	607	27.49	207.55 - 209.55	7	.39	16 .90
190	8.61	797	36.10	209.55 - 211.55	10	.56	26 1.47
180	8.15	977	44.25	211.55 - 213.55	21	1.18	47 2.65
166	7.52	1143	51.77	213.55 - 215.55	20	1.13	67 3.78
174	7.88	1317	59.65	215.55 - 217.55	47	2.65	114 6.43
157	7.11	1474	66.76	217.55 - 219.55	37	2.09	151 8.51
157	7.11	1631	73.87	219.55 - 221.55	61	3.44	212 11.95
149	6.75	1780	80.62	221.55 - 223.55	100	5.64	312 17.59
120	5.43	1900	86.05	223.55 - 225.55	116	6.54	428 24.13
81	3.67	1981	89.72	225.55 - 227.55	125	7.05	553 31.17
64	2.90	2045	92.62	227.55 - 229.55	113	6.37	666 37.54
60	2.72	2105	95.34	229.55 - 231.55	152	8.57	818 46.11
46	2.08	2151	97.42	231.55 - 233.55	139	7.84	957 53.95
20	.91	2171	98.32	233.55 - 235.55	144	8.12	1101 62.06
14	.63	2185	98.96	235.55 - 237.55	116	6.54	1217 68.60
11	.50	2196	99.46	237.55 - 239.55	116	6.54	1333 75.14
6	.27	2202	99.73	239.55 - 241.55	89	5.02	1422 80.16
2	.09	2204	99.82	241.55 - 243.55	97	5.47	1519 85.63
2	.09	2206	99.91	243.55 - 245.55	77	4.34	1596 89.97
1	.05	2207	99.95	245.55 - 247.55	52	2.93	1648 92.90
1	.05	2208	100.00	247.55 - 249.55	33	1.86	1681 94.76
				249.55 - 251.55	40	2.25	1721 97.01
				251.55 - 253.55	22	1.24	1743 98.25
				253.55 - 255.55	11	.62	1754 98.87
				255.55 - 257.55	10	.56	1764 99.44
				257.55 - 259.55	6	.34	1770 99.77
				259.55 - 261.55	0	.00	1770 99.77
				261.55 - 263.55	1	.06	1771 99.83
				263.55 - 265.55	1	.06	1772 99.89
				265.55 - 267.55	0	.00	1772 99.89
				267.55 - 269.55	0	.00	1772 99.89
				269.55 - 271.55	1	.06	1773 99.94
				271.55 - 273.55	0	.00	1773 99.94
				273.55 - 275.55	0	.00	1773 99.94
				275.55 - 277.55	0	.00	1773 99.94
				277.55 - 279.55	0	.00	1773 99.94
				279.55 - 281.55	1	.06	1774 100.00

## (85) OVERHEAD FINGERTIP REACH, SITTING

The vertical distance between a sitting surface and the tip of the right middle finger of a seated subject whose arm is extended overhead is measured on a wall scale. The subject sits erect on a flat surface 40.8 cm high with the right arm and hand extended vertically overhead as far as possible and the palm of the hand facing forward. Neither the back nor the arm touches a wall. A block placed at the tip of the middle finger spans the distance between the finger and the wall and establishes the measurement on the wall scale. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
119.72	47.13	1ST	129.31 50.91
121.12	47.69	2ND	131.19 51.65
122.05	48.05	3RD	132.32 52.09
123.33	48.55	5TH	133.78 52.67
125.35	49.35	10TH	135.93 53.52
126.75	49.90	15TH	137.35 54.07
127.85	50.34	20TH	138.46 54.51
128.81	50.71	25TH	139.42 54.89
129.68	51.05	30TH	140.28 55.23
130.47	51.37	35TH	141.07 55.54
131.22	51.66	40TH	141.84 55.84
131.95	51.95	45TH	142.58 56.13
132.67	52.23	50TH	143.32 56.42
133.39	52.51	55TH	144.06 56.72
134.11	52.80	60TH	144.82 57.02
134.85	53.09	65TH	145.61 57.33
135.63	53.40	70TH	146.45 57.66
136.47	53.73	75TH	147.36 58.01
137.40	54.09	80TH	148.38 58.42
138.47	54.52	85TH	149.56 58.88
139.81	55.04	90TH	151.04 59.46
141.77	55.81	95TH	153.17 60.30
143.03	56.31	97TH	154.48 60.82
143.94	56.67	98TH	155.39 61.18
145.30	57.24	99TH	156.72 61.70

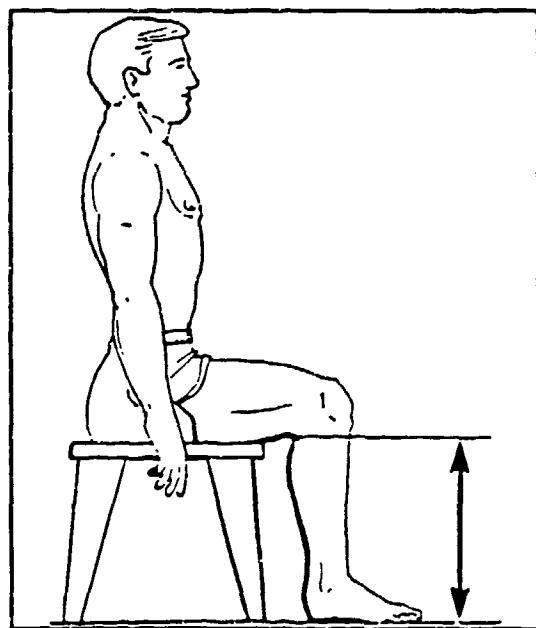
# OVERHEAD FINGERTIP REACH, SITTING

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
132.65	.12	52.22	143.38	.14	56.45
	SE(MEAN)	.05		SE(MEAN)	.06
5.59	STD DEVIATION	2.20	5.90	STD DEVIATION	2.32
.08	SE(STD DEV)	.03	.10	SE(STD DEV)	.04
112.90	MINIMUM	44.45	116.40	MINIMUM	45.83
151.40	MAXIMUM	59.61	169.30	MAXIMUM	66.65
SYMMETRY---VETA I	=	-.03	SYMMETRY---VETA I	=	-.03
KURTOSIS---VETA II	=	2.93	KURTOSIS---VETA II	=	3.28
COEF. OF VARIATION	=	4.2%	COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				CENTIMETERS				MALES			
F	FPct	CumF	CumFPct	112.75 - 114.25	114.25 - 115.75	115.75 - 117.25	117.25 - 118.75	118.75 - 120.25	120.25 - 121.75	121.75 - 123.25	123.25 - 124.75
2	.09	2	.09	112.75 - 114.25	114.25 - 115.75	115.75 - 117.25	117.25 - 118.75	118.75 - 120.25	120.25 - 121.75	121.75 - 123.25	123.25 - 124.75
1	.05	3	.14								
5	.23	8	.36								
6	.27	14	.63								
14	.63	28	1.27								
33	1.49	61	2.76								
44	1.99	105	4.76								
68	3.08	173	7.84								
100	4.53	273	12.36								
139	6.30	412	18.66								
198	8.97	610	27.63								
225	10.19	835	37.82								
219	9.92	1054	47.74								
200	9.06	1254	56.79								
229	10.37	1483	67.16								
190	8.61	1673	75.77								
191	8.65	1864	84.42								
121	5.48	1985	89.90								
96	4.35	2081	94.25								
53	2.40	2134	96.65								
35	1.59	2169	98.23								
23	1.04	2192	99.28								
8	.36	2200	99.64								
5	.23	2205	99.86								
2	.09	2207	99.95								
1	.05	2208	100.00								

## (86) POPLITEAL HEIGHT

The vertical distance from a footrest surface to the back of the right knee (the popliteal fossa at the dorsal juncture of the right calf and thigh) is measured with an anthropometer. The subject sits with the thighs parallel, the feet in line with the thighs, and the knees flexed 90 degrees.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
33.67	13.25	1ST	37.83 14.89
34.24	13.48	2ND	38.49 15.15
34.61	13.63	3RD	38.90 15.32
35.13	13.83	5TH	39.46 15.53
35.93	14.14	10TH	40.30 15.86
36.48	14.36	15TH	40.86 16.09
36.92	14.53	20TH	41.31 16.26
37.30	14.69	25TH	41.70 16.42
37.65	14.82	30TH	42.06 16.56
37.98	14.95	35TH	42.39 16.69
38.29	15.07	40TH	42.70 16.81
38.59	15.19	45TH	43.01 16.93
38.89	15.31	50TH	43.32 17.06
39.19	15.43	55TH	43.63 17.18
39.50	15.55	60TH	43.95 17.30
39.82	15.68	65TH	44.28 17.43
40.16	15.81	70TH	44.64 17.57
40.53	15.96	75TH	45.03 17.73
40.94	16.12	80TH	45.47 17.90
41.42	16.31	85TH	45.98 18.10
42.04	16.55	90TH	46.64 18.36
42.94	16.91	95TH	47.63 18.75
43.53	17.14	97TH	48.28 19.01
43.96	17.31	98TH	48.75 19.19
44.63	17.57	99TH	49.49 19.48

# POPLITEAL HEIGHT

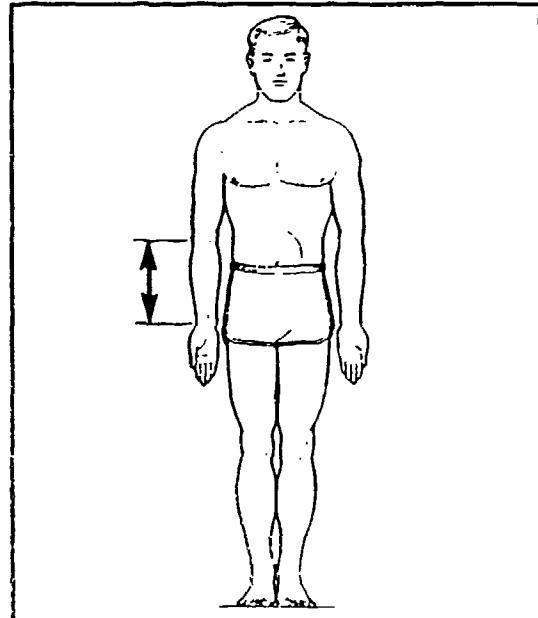
FEMALES		
<u>CM</u>	<u>INCHES</u>	
38.94	MEAN VALUE	15.33
.05	SE(MEAN)	.02
2.37	STD DEVIATION	.93
.04	SE(STD DEV)	.00
29.90	MINIMUM	11.77
50.00	MAXIMUM	19.69
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	6.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
43.41	MEAN VALUE	17.09
.06	SE(MEAN)	.02
2.49	STD DEVIATION	.98
.04	SE(STD DEV)	.02
33.80	MINIMUM	13.31
54.70	MAXIMUM	21.54
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.32
COEF. OF VARIATION	=	5.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	
1	.05	1	.05	29.75 - 30.25				
0	.00	1	.05	30.25 - 30.75				
0	.00	1	.05	30.75 - 31.25				
0	.00	1	.05	31.25 - 31.75				
1	.05	2	.09	31.75 - 32.25				
3	.14	5	.23	32.25 - 32.75				
5	.23	10	.45	32.75 - 33.25				
15	.68	25	1.13	33.25 - 33.75				
20	.91	45	2.04	33.75 - 34.25				
25	1.13	70	3.17	34.25 - 34.75	1	.06	1	.06
55	2.49	125	5.66	34.75 - 35.25	0	.00	1	.06
63	2.85	188	8.51	35.25 - 35.75	0	.00	1	.06
92	4.17	280	12.68	35.75 - 36.25	1	.06	2	.11
136	6.16	416	18.84	36.25 - 36.75	3	.17	5	.28
120	5.43	536	24.28	36.75 - 37.25	3	.17	8	.45
147	6.66	683	30.93	37.25 - 37.75	9	.51	17	.96
176	7.97	859	38.90	37.75 - 38.25	9	.51	26	1.47
180	8.15	1039	47.06	38.25 - 38.75	17	.96	43	2.42
209	9.47	1248	56.52	38.75 - 39.25	32	1.80	75	4.23
176	7.97	1424	64.49	39.25 - 39.75	34	1.92	109	6.14
148	6.70	1572	71.20	39.75 - 40.25	58	3.27	167	9.41
147	6.66	1719	77.85	40.25 - 40.75	65	3.66	232	13.08
117	5.30	1836	83.15	40.75 - 41.25	109	6.14	341	19.22
113	5.12	1949	88.27	41.25 - 41.75	120	6.76	461	25.99
76	3.44	2025	91.71	41.75 - 42.25	135	7.61	596	33.60
56	2.54	2081	94.25	42.25 - 42.75	138	7.78	734	41.38
39	1.77	2120	96.01	42.75 - 43.25	137	7.72	871	49.10
35	1.59	2155	97.60	43.25 - 43.75	140	7.89	1011	56.99
24	1.09	2179	98.69	43.75 - 44.25	117	6.60	1128	63.59
9	.41	2188	99.09	44.25 - 44.75	133	7.50	1261	71.08
5	.23	2193	99.32	44.75 - 45.25	108	6.09	1369	77.17
8	.36	2201	99.68	45.25 - 45.75	101	5.69	1470	82.86
3	.14	2204	99.82	45.75 - 46.25	81	4.57	1551	87.43
2	.09	2206	99.91	46.25 - 46.75	68	3.83	1619	91.26
1	.05	2207	99.95	46.75 - 47.25	41	2.31	1660	93.57
0	.00	2207	99.95	47.25 - 47.75	33	1.86	1693	95.43
0	.00	2207	99.95	47.75 - 48.25	33	1.86	1726	97.29
0	.00	2207	99.95	48.25 - 48.75	11	.62	1737	97.91
0	.00	2207	99.95	48.75 - 49.25	15	.85	1752	98.76
0	.00	2207	99.95	49.25 - 49.75	8	.45	1760	99.21
1	.05	2208	100.00	49.75 - 50.25	7	.39	1767	99.61
				50.25 - 50.75	2	.11	1769	99.72
				50.75 - 51.25	0	.00	1769	99.72
				51.25 - 51.75	3	.17	1772	99.89
				51.75 - 52.25	0	.00	1772	99.89
				52.25 - 52.75	0	.00	1772	99.89
				52.75 - 53.25	0	.00	1772	99.89
				53.25 - 53.75	0	.00	1772	99.89
				53.75 - 54.25	1	.06	1773	99.94
				54.25 - 54.75	1	.06	1774	100.00

## (87) RADIALE-STYLION LENGTH

The distance between the radiale landmark on the right elbow and the stylion landmark on the right wrist is measured with a beam caliper held parallel to the long axis of the forearm. The subject stands with the arms relaxed at the sides. The hand and fingers are held straight in line with the long axis of the forearm.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
20.97	8.26	1ST	23.67 9.32
21.32	8.39	2ND	24.01 9.45
21.55	8.49	3RD	24.23 9.54
21.87	8.61	5TH	24.54 9.66
22.39	8.81	10TH	25.03 9.85
22.74	8.95	15TH	25.37 9.99
23.03	9.07	20TH	25.65 10.10
23.28	9.16	25TH	25.89 10.19
23.50	9.25	30TH	26.11 10.28
23.71	9.33	35TH	26.32 10.36
23.91	9.41	40TH	26.52 10.44
24.10	9.49	45TH	26.72 10.52
24.30	9.57	50TH	26.92 10.60
24.49	9.64	55TH	27.12 10.68
24.69	9.72	60TH	27.32 10.76
24.89	9.80	65TH	27.53 10.84
25.11	9.89	70TH	27.76 10.93
25.35	9.98	75TH	28.01 11.03
25.62	10.09	80TH	28.29 11.14
25.93	10.21	85TH	28.62 11.27
26.33	10.37	90TH	29.05 11.44
26.94	10.61	95TH	29.69 11.69
27.35	10.77	97TH	30.11 11.85
27.65	10.89	98TH	30.42 11.98
28.14	11.08	99TH	30.92 12.17

# RADIALE-STYLION LENGTH

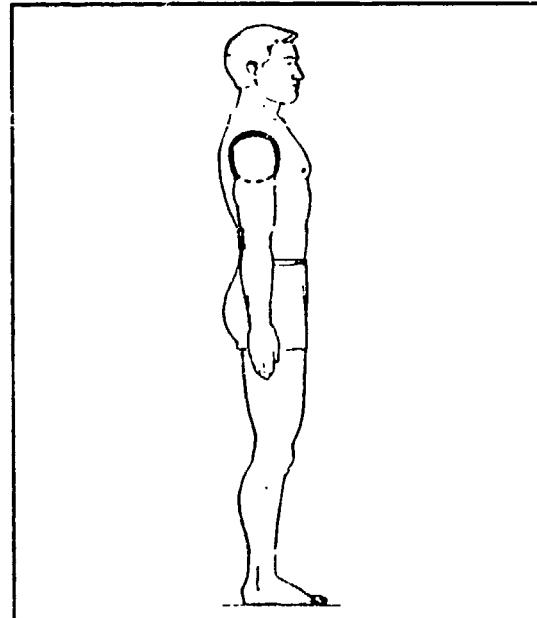
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
24.34	MEAN VALUE	9.58
.03	SE(MEAN)	.00
1.55	STD DEVIATION	.61
.02	SE(STD DEV)	.00
15.70	MINIMUM	6.18
31.20	MAXIMUM	12.28
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.48
COEF. OF VARIATION	=	6.3%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
26.99	MEAN VALUE	10.62
.04	SE(MEAN)	.00
1.57	STD DEVIATION	.62
.03	SE(STD DEV)	.00
21.20	MINIMUM	8.35
32.50	MAXIMUM	12.80
SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.10
COEF. OF VARIATION	=	5.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
1	.05	1	.05	15.25	-	15.75		1	.06	1	.06
0	.00	1	.05	15.75	-	16.25		0	.00	1	.06
0	.00	1	.05	16.25	-	16.75		2	.11	3	.17
0	.00	1	.05	16.75	-	17.25		1	.06	4	.23
0	.00	1	.05	17.25	-	17.75		5	.28	9	.51
0	.00	1	.05	17.75	-	18.25					
0	.00	1	.05	18.25	-	18.75					
0	.00	1	.05	18.75	-	19.25		14	.79	23	1.30
1	.05	2	.09	19.25	-	19.75		32	1.80	55	3.10
3	.14	5	.23	19.75	-	20.25					
9	.41	14	.63	20.25	-	20.75		67	3.78	122	6.88
23	1.04	37	1.68	20.75	-	21.25		103	5.81	225	12.68
41	1.86	78	3.53	21.25	-	21.75		172	9.70	397	22.38
111	5.03	189	8.56	21.75	-	22.25		192	10.82	589	33.20
145	6.57	334	15.13	22.25	-	22.75		230	12.97	819	46.17
203	9.19	537	24.32	22.75	-	23.25		222	12.51	1041	58.68
278	12.59	815	36.91	23.25	-	23.75		192	10.82	1233	69.50
253	11.46	1068	48.37	23.75	-	24.25		186	10.48	1419	79.99
285	12.91	1353	61.28	24.25	-	24.75		122	6.88	1541	86.87
259	11.73	1612	73.01	24.75	-	25.25		89	5.02	1630	91.88
199	9.01	1811	82.02	25.25	-	25.75		58	3.27	1688	95.15
160	7.25	1971	89.27	25.75	-	26.25		43	2.42	1731	97.58
111	5.03	2082	94.29	26.25	-	26.75		21	1.18	1752	98.76
52	2.36	2134	96.65	26.75	-	27.25		13	.73	1765	99.49
40	1.81	2174	98.46	27.25	-	27.75					
14	.63	2188	99.09	27.75	-	28.25		4	.23	1769	99.72
13	.59	2201	99.68	28.25	-	28.75		4	.23	1773	99.94
4	.18	2205	99.86	28.75	-	29.25					
0	.00	2205	99.86	29.25	-	29.75					
1	.05	2206	99.91	29.75	-	30.25					
1	.05	2207	99.95	30.25	-	30.75					
1	.05	2208	100.00	30.75	-	31.25		1	.06	1774	100.00

## (88) SCYE CIRCUMFERENCE

The vertical circumference of the right upper arm (scye) is measured with a tape passing through the armpit and over the acromion landmark on the tip of the shoulder. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed with the palms facing the thighs.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
32.40	12.76	38.42	15.13
32.87	12.94	39.18	15.43
33.18	13.06	39.65	15.61
33.62	13.24	40.27	15.85
34.32	13.51	41.20	16.22
34.80	13.70	41.82	16.47
35.20	13.86	42.31	16.66
35.55	13.99	42.73	16.82
35.86	14.12	43.11	16.97
36.16	14.23	43.46	17.11
36.44	14.35	43.80	17.24
36.72	14.46	44.13	17.37
37.00	14.57	44.46	17.50
37.28	14.68	44.79	17.63
37.58	14.79	45.12	17.77
37.88	14.92	45.48	17.90
38.21	15.05	45.85	18.05
38.58	15.19	46.27	18.22
39.00	15.35	46.74	18.40
39.50	15.55	47.30	18.62
40.16	15.81	48.02	18.91
41.19	16.22	49.13	19.34
41.91	16.50	49.88	19.64
42.46	16.72	50.45	19.86
43.38	17.08	51.36	20.22

# SCYE CIRCUMFERENCE

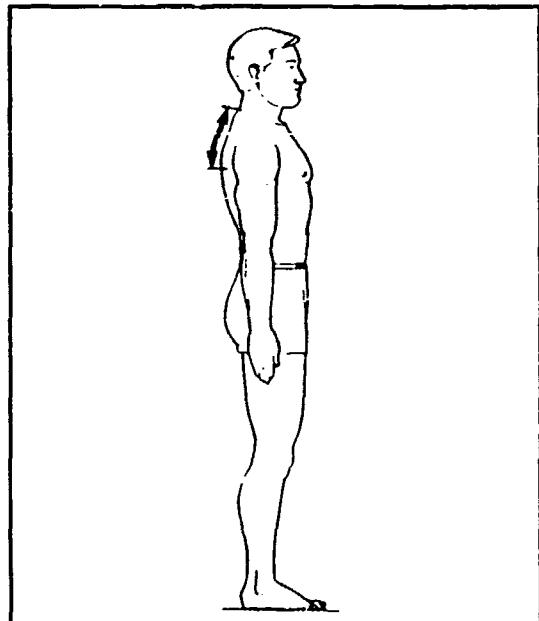
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
37.13	MEAN VALUE	14.62
.05	SE(MEAN)	.02
2.30	STD DEVIATION	.91
.03	SE(STD DEV)	.00
29.80	MINIMUM	11.73
45.60	MAXIMUM	17.95
SYMMETRY---VETA I	=	.39
KURTOSIS---VETA II	=	3.30
COEF. OF VARIATION	=	6.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
44.55	MEAN VALUE	17.54
.06	SE(MEAN)	.03
2.71	STD DEVIATION	1.07
.05	SE(STD DEV)	.02
35.80	MINIMUM	14.09
55.30	MAXIMUM	21.77
SYMMETRY---VETA I	=	.24
KURTOSIS---VETA II	=	3.41
COEF. OF VARIATION	=	6.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	29.75 - 30.25			
2	.09	3	.14	30.25 - 30.75			
3	.14	6	.27	30.75 - 31.25			
2	.09	8	.36	31.25 - 31.75			
8	.36	16	.72	31.75 - 32.25			
18	.82	34	1.54	32.25 - 32.75			
41	1.86	75	3.40	32.75 - 33.25			
54	2.45	129	5.84	33.25 - 33.75			
72	3.26	201	9.10	33.75 - 34.25			
100	4.53	301	13.63	34.25 - 34.75			
153	6.93	454	20.56	34.75 - 35.25			
160	7.25	614	27.81	35.25 - 35.75			
195	8.83	809	36.64	35.75 - 36.25			
198	8.97	1007	45.61	36.25 - 36.75	2	.11	2
200	9.06	1207	54.66	36.75 - 37.25	1	.06	3
200	9.06	1407	63.72	37.25 - 37.75	4	.23	7
163	7.38	1570	71.11	37.75 - 38.25	2	.11	9
132	5.98	1702	77.08	38.25 - 38.75	5	.28	14
119	5.39	1821	82.47	38.75 - 39.25	9	.51	23
92	4.17	1913	86.64	39.25 - 39.75	18	1.01	41
73	3.31	1986	89.95	39.75 - 40.25	17	.96	58
62	2.81	2048	92.75	40.25 - 40.75	28	1.58	86
59	2.67	2107	95.43	40.75 - 41.25	22	1.24	108
29	1.31	2136	96.74	41.25 - 41.75	57	3.21	165
25	1.13	2161	97.87	41.75 - 42.25	76	4.28	241
10	.45	2171	98.32	42.25 - 42.75	102	5.75	343
12	.54	2183	98.87	42.75 - 43.25	107	6.03	450
8	.36	2191	99.23	43.25 - 43.75	124	6.99	574
11	.50	2202	99.73	43.75 - 44.25	131	7.38	705
0	.00	2202	99.73	44.25 - 44.75	143	8.06	848
4	.18	2206	99.91	44.75 - 45.25	137	7.72	985
2	.09	2208	100.00	45.25 - 45.75	118	6.65	1103
				45.75 - 46.25	113	6.37	1216
				46.25 - 46.75	95	5.36	68.55
				46.75 - 47.25	91	5.13	1311
				47.25 - 47.75	88	4.96	1490
				47.75 - 48.25	62	3.49	1552
				48.25 - 48.75	62	3.49	1614
				48.75 - 49.25	50	2.82	1664
				49.25 - 49.75	35	1.97	1699
				49.75 - 50.25	25	1.41	1724
				50.25 - 50.75	11	.62	1735
				50.75 - 51.25	11	.62	1746
				51.25 - 51.75	6	.34	1752
				51.75 - 52.25	9	.51	1761
				52.25 - 52.75	1	.06	1762
				52.75 - 53.25	5	.28	1767
				53.25 - 53.75	1	.06	1768
				53.75 - 54.25	0	.00	1768
				54.25 - 54.75	2	.11	1770
				54.75 - 55.25	1	.06	1771
				55.25 - 55.75	1	.06	1773
							99.94
							100.00

## (89) SCYE DEPTH

The surface distance along the spine between the cervicale landmark on the base of the back of the neck and the scye-level-at-midspine landmark is measured with a tape. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.31	6.03	1ST	17.17 6.99
15.70	6.18	2ND	18.11 7.13
15.95	6.28	3RD	18.35 7.22
16.27	6.41	5TH	18.70 7.36
16.77	6.60	10TH	19.26 7.58
17.10	6.73	15TH	19.66 7.74
17.36	6.83	20TH	19.97 7.86
17.59	6.92	25TH	20.24 7.97
17.79	7.01	30TH	20.47 8.06
17.99	7.08	35TH	20.69 8.15
18.17	7.15	40TH	20.90 8.23
18.35	7.22	45TH	21.09 8.30
18.53	7.30	50TH	21.28 8.38
18.71	7.37	55TH	21.47 8.45
18.90	7.44	60TH	21.66 8.53
19.10	7.52	65TH	21.86 8.61
19.30	7.60	70TH	22.06 8.69
19.53	7.69	75TH	22.28 8.77
19.79	7.79	80TH	22.53 8.87
20.09	7.91	85TH	22.82 8.98
20.47	8.06	90TH	23.19 9.13
21.04	8.28	95TH	23.77 9.36
21.40	8.43	97TH	24.18 9.52
21.67	8.53	98TH	24.50 9.64
22.08	8.69	99TH	25.05 9.86

# SCYE DEPTH

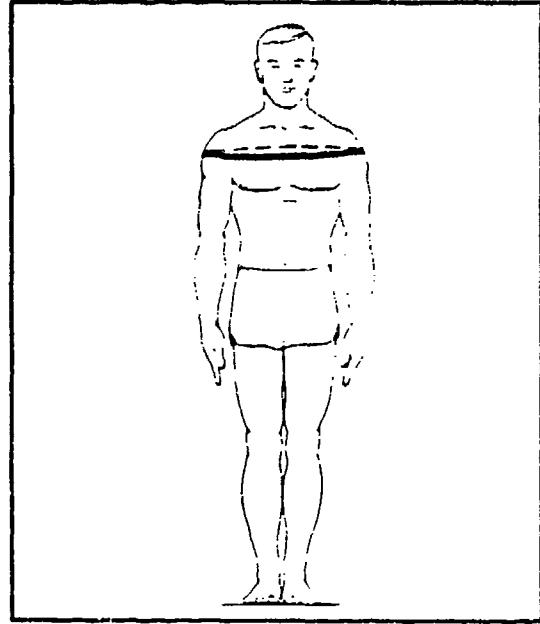
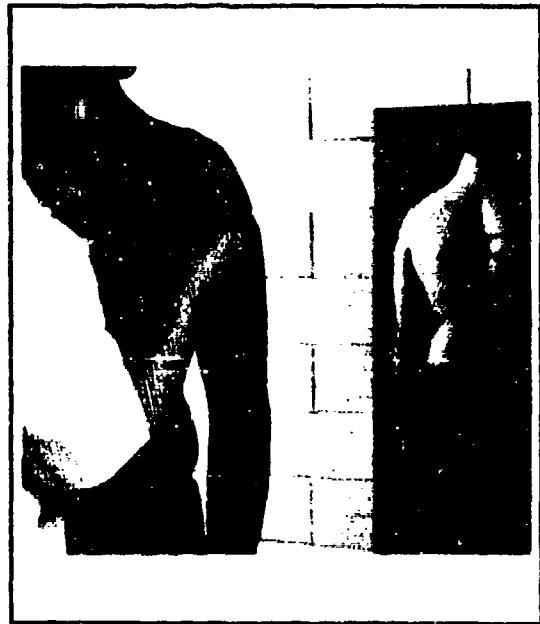
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
18.57	MEAN VALUE	7.31
.03	SE(MEAN)	.00
1.44	STD DEVIATION	.57
.02	SE(STD DEV)	.00
14.20	MINIMUM	5.59
23.50	MAXIMUM	9.25
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	2.93
COEF. OF VARIATION	=	7.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
21.27	MEAN VALUE	8.38
.04	SE(MEAN)	.00
1.55	STD DEVIATION	.61
.03	SE(STD DEV)	.00
16.60	MINIMUM	6.54
28.40	MAXIMUM	11.18
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.46
COEF. OF VARIATION	=	7.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	13.75 - 14.25			
4	.18	5	.23	14.25 - 14.75			
12	.54	17	.77	14.75 - 15.25			
28	1.27	45	2.04	15.25 - 15.75			
64	2.90	109	4.94	15.75 - 16.25			
116	5.25	225	10.19	16.25 - 16.75			
173	7.84	398	18.03	16.75 - 17.25			
237	10.73	635	28.76	17.25 - 17.75			
290	13.13	925	41.89	17.75 - 18.25			
321	14.54	1246	56.43	18.25 - 18.75			
261	11.82	1507	68.25	18.75 - 19.25			
251	11.37	1758	79.62	19.25 - 19.75			
178	8.06	1936	87.68	19.75 - 20.25			
118	5.34	2054	93.03	20.25 - 20.75			
68	3.08	2122	96.11	20.75 - 21.25			
47	2.13	2169	98.23	21.25 - 21.75			
24	1.09	2193	99.32	21.75 - 22.25			
10	.45	2203	99.77	22.25 - 22.75			
4	.18	2207	99.95	22.75 - 23.25			
1	.05	2208	100.00	23.25 - 23.75			
				23.75 - 24.25			
				24.25 - 24.75			
				24.75 - 25.25			
				25.25 - 25.75			
				25.75 - 26.25			
				26.25 - 26.75			
				26.75 - 27.25			
				27.25 - 27.75			
				27.75 - 28.25			
				28.25 - 28.75			

## (90) SHOULDER CIRCUMFERENCE

The horizontal circumference of the shoulders at the level of the maximum protrusion of the right deltoid muscle is measured with a tape. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed with the palms facing the thighs. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
91.38	35.98	1ST	103.66 40.81
92.71	36.50	2ND	105.32 41.46
93.54	36.83	3RD	106.36 41.87
94.64	37.26	5TH	107.77 42.43
96.32	37.92	10TH	109.92 43.28
97.44	38.36	15TH	111.37 43.84
98.34	38.72	20TH	112.50 44.29
99.12	39.02	25TH	113.49 44.68
99.82	39.30	30TH	114.37 45.03
100.48	39.56	35TH	115.18 45.35
101.12	39.81	40TH	115.95 45.65
101.74	40.06	45TH	116.70 45.94
102.37	40.30	50TH	117.44 46.24
103.00	40.55	55TH	118.19 46.53
103.66	40.81	60TH	118.94 46.83
104.35	41.08	65TH	119.73 47.14
105.10	41.38	70TH	120.56 47.47
105.92	41.70	75TH	121.47 47.82
106.87	42.08	80TH	122.50 48.23
108.01	42.52	85TH	123.70 48.70
109.50	43.11	90TH	125.25 49.31
111.85	44.03	95TH	127.61 50.24
113.46	44.67	97TH	129.19 50.86
114.68	45.15	98TH	130.38 51.33
116.70	45.94	99TH	132.30 52.09

# SHOULDER CIRCUMFERENCE

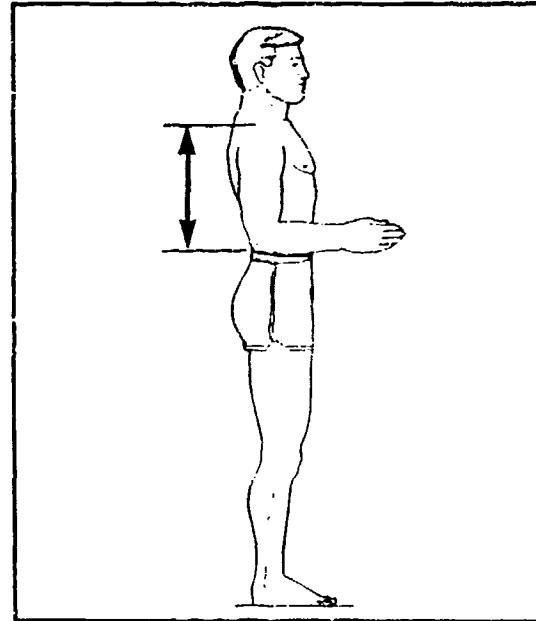
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
102.69	MEAN VALUE	40.43
.11	SE(MEAN)	.04
5.22	STD DEVIATION	2.05
.08	SE(STD DEV)	.03
86.20	MINIMUM	33.94
126.10	MAXIMUM	49.65
SYMMETRY---VETA I	=	.36
KURTOSIS---VETA II	=	3.32
COEF. OF VARIATION	=	5.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
117.52	MEAN VALUE	46.27
.14	SE(MEAN)	.06
6.04	STD DEVIATION	2.38
.10	SE(STD DEV)	.04
96.60	MINIMUM	38.03
142.40	MAXIMUM	56.06
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	5.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	85.75 - 87.25		1	.06
1	.05	2	.09	87.25 - 88.75		1	.06
7	.32	9	.41	88.75 - 90.25		8	.45
18	.82	27	1.22	90.25 - 91.75		13	.73
31	1.40	58	2.63	91.75 - 93.25		18	1.01
59	2.67	117	5.30	93.25 - 94.75		33	1.86
96	4.35	213	9.65	94.75 - 96.25		62	3.49
154	6.97	367	16.62	96.25 - 97.75		166	9.36
202	9.15	569	25.77	97.75 - 99.25		260	14.66
246	11.14	915	36.91	99.25 - 100.75		1041	58.68
269	12.18	1084	49.09	100.75 - 102.25		1210	68.21
259	11.73	1343	60.82	102.25 - 103.75		1362	76.78
228	10.33	1571	71.15	103.75 - 105.25		1485	83.71
195	8.83	1766	79.98	105.25 - 106.75		1567	88.33
140	6.34	1906	86.32	106.75 - 108.25		1636	92.22
88	3.99	1994	90.31	108.25 - 109.75		1686	95.04
77	3.49	2071	93.80	109.75 - 111.25		1723	97.13
56	2.54	2127	96.33	111.25 - 112.75		1745	98.37
32	1.45	2159	97.78	112.75 - 114.25		1755	98.93
16	.72	2175	98.51	114.25 - 115.75		1768	99.66
16	.72	2191	99.23	115.75 - 117.25		1770	99.77
10	.45	2201	99.68	117.25 - 118.75		1771	99.83
4	.18	2205	99.86	118.75 - 120.25		1772	99.89
2	.09	2207	99.95	120.25 - 121.75		1772	99.89
0	.00	2207	99.95	121.75 - 123.25		1773	99.94
0	.00	2207	99.95	123.25 - 124.75		1774	100.00
1	.05	2208	100.00	124.75 - 126.25			
				126.25 - 127.75	50	2.82	
				127.75 - 129.25	37	2.09	
				129.25 - 130.75	22	1.24	
				130.75 - 132.25	10	.56	
				132.25 - 133.75	13	.73	
				133.75 - 135.25	2	.11	
				135.25 - 136.75	1	.06	
				136.75 - 138.25	1	.06	
				138.25 - 139.75	0	.00	
				139.75 - 141.25	1	.06	
				141.25 - 142.75	1	.06	

## (91) SHOULDER-ELBOW LENGTH

The distance between the acromion landmark on the tip of the right shoulder and the olecranon landmark on the bottom of the right elbow is measured with a beam caliper parallel to the long axis of the upper arm. The subject stands with the right upper arm hanging at the side and the elbow flexed 90 degrees. The hand is straight and the palm faces inward.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
29.62	11.66	1ST	32.88 12.94
30.08	11.84	2ND	33.33 13.12
30.37	11.96	3RD	33.62 13.24
30.76	12.11	5TH	34.02 13.39
31.36	12.35	10TH	34.64 13.64
31.77	12.51	15TH	35.06 13.80
32.09	12.64	20TH	35.40 13.94
32.38	12.75	25TH	35.69 14.05
32.63	12.85	30TH	35.95 14.15
32.87	12.94	35TH	36.20 14.25
33.10	13.03	40TH	36.43 14.34
33.32	13.12	45TH	36.66 14.43
33.54	13.20	50TH	36.88 14.52
33.76	13.29	55TH	37.11 14.61
33.98	13.38	60TH	37.34 14.70
34.22	13.47	65TH	37.58 14.79
34.47	13.57	70TH	37.83 14.89
34.74	13.68	75TH	38.10 15.00
35.05	13.80	80TH	38.41 15.12
35.40	13.94	85TH	38.76 15.26
35.85	14.11	90TH	39.21 15.44
36.51	14.37	95TH	39.88 15.70
36.92	14.54	97TH	40.31 15.87
37.23	14.66	98TH	40.63 16.00
37.69	14.84	99TH	41.13 16.19

# SHOULDER-ELBOW LENGTH

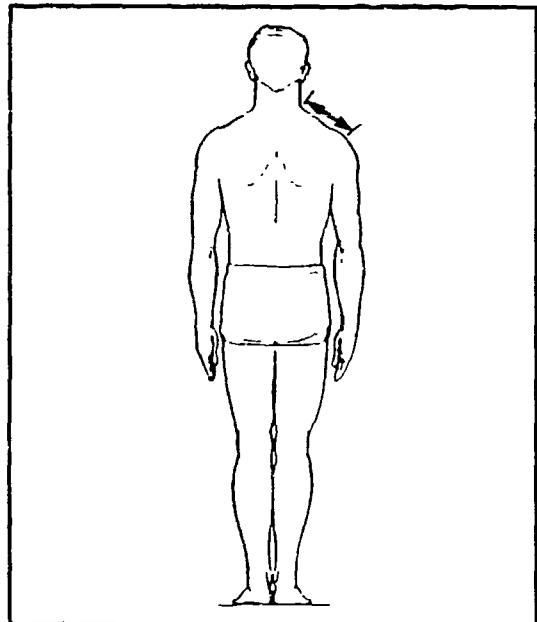
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
33.58	MEAN VALUE	13.22
.04	SE(MEAN)	.00
1.74	STD DEVIATION	.68
.03	SE(STD DEV)	.00
28.20	MINIMUM	11.10
40.10	MAXIMUM	15.79
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	5.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
36.90	MEAN VALUE	14.53
.04	SE(MEAN)	.02
1.79	STD DEVIATION	.71
.03	SE(STD DEV)	.00
29.70	MINIMUM	11.69
44.60	MAXIMUM	17.56
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	27.75 - 28.25		1	.06
1	.05	2	.09	28.25 - 28.75		0	.00
8	.36	10	.45	28.75 - 29.25		0	.00
19	.86	29	1.31	29.25 - 29.75		0	.00
32	1.45	61	2.76	29.75 - 30.25		4	.23
50	2.26	111	5.03	30.25 - 30.75		10	.56
69	3.13	180	8.15	30.75 - 31.25		15	.85
133	6.02	313	14.18	31.25 - 31.75		31	1.75
189	8.56	502	22.74	31.75 - 32.25		46	2.59
219	9.92	721	32.65	32.25 - 32.75		91	5.13
220	9.96	941	42.62	32.75 - 33.25		117	6.60
276	12.50	1217	55.12	33.25 - 33.75		144	8.12
253	11.46	1470	66.58	33.75 - 34.25		185	10.43
207	9.38	1677	75.95	34.25 - 34.75		204	11.50
170	7.70	1847	83.65	34.75 - 35.25		192	10.82
119	5.39	1966	89.04	35.25 - 35.75		166	9.36
97	4.39	2063	93.43	35.75 - 36.25		156	8.79
58	2.63	2121	96.06	36.25 - 36.75		146	8.23
40	1.81	2161	97.87	36.75 - 37.25		106	5.98
29	1.31	2190	99.18	37.25 - 37.75		56	3.16
6	.27	2196	99.46	37.75 - 38.25		50	2.82
5	.23	2201	99.68	38.25 - 38.75		19	1.07
5	.23	2206	99.91	38.75 - 39.25		7	.39
1	.05	2207	99.95	39.25 - 39.75		3	.17
1	.05	2208	100.00	39.75 - 40.25		0	.00
				40.25 - 40.75		1	.06
				40.75 - 41.25		1	.06
				41.25 - 41.75		1	.06
				41.75 - 42.25		1	.06
				42.25 - 42.75		1	.06
				42.75 - 43.25		1	.06
				43.25 - 43.75		0	.00
				43.75 - 44.25		0	.00
				44.25 - 44.75		2	.11

## (92) SHOULDER LENGTH

The surface distance between the trapezius landmark at the base of the side of the neck and the acromion landmark on the tip of the right shoulder is measured with a tape. The subject stands looking straight ahead. The shoulders and upper extremities are relaxed.



### THE PERCENTILES

FEMALES		MALES		
CM	INCHES	CM	INCHES	
11.97	4.71	1ST	12.44	4.90
12.23	4.82	2ND	12.79	5.03
12.41	4.89	3RD	12.99	5.12
12.66	4.98	5TH	13.26	5.22
13.05	5.14	10TH	13.66	5.38
13.33	5.25	15TH	13.92	5.48
13.54	5.33	20TH	14.13	5.56
13.73	5.41	25TH	14.30	5.63
13.90	5.47	30TH	14.46	5.69
14.05	5.53	35TH	14.61	5.75
14.20	5.59	40TH	14.75	5.81
14.34	5.64	45TH	14.89	5.86
14.47	5.70	50TH	15.02	5.92
14.61	5.75	55TH	15.16	5.97
14.74	5.80	60TH	15.30	6.03
14.88	5.86	65TH	15.45	6.08
15.03	5.92	70TH	15.61	6.15
15.19	5.98	75TH	15.78	6.21
15.37	6.05	80TH	15.98	6.29
15.57	6.13	85TH	16.20	6.38
15.84	6.24	90TH	16.49	6.49
16.24	6.39	95TH	16.91	6.66
16.51	6.50	97TH	17.18	6.76
16.73	6.59	98TH	17.37	6.84
17.08	6.72	99TH	17.66	6.95

# SHOULDER LENGTH

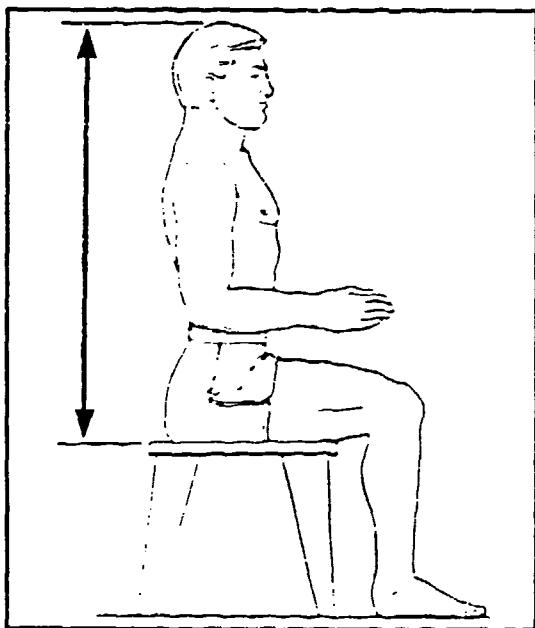
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
14.47	MEAN VALUE	5.70
.02	SE(MEAN)	.00
1.08	STD DEVIATION	.43
.02	SE(STD DEV)	.00
11.10	MINIMUM	4.37
18.20	MAXIMUM	7.17
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	2.99
COEF. OF VARIATION	=	7.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
15.05	MEAN VALUE	5.92
.03	SE(MEAN)	.00
1.10	STD DEVIATION	.43
.02	SE(STD DEV)	.00
11.40	MINIMUM	4.49
18.50	MAXIMUM	7.28
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	7.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	10.95 - 11.15		1	.06
1	.05	2	.09	11.15 - 11.35		1	.06
3	.14	5	.23	11.35 - 11.55		3	.17
3	.14	8	.36	11.55 - 11.75		5	.28
10	.45	18	.82	11.75 - 11.95		5	.28
19	.86	37	1.68	11.95 - 12.15		10	.56
24	1.09	61	2.76	12.15 - 12.35		15	.85
27	1.22	88	3.99	12.35 - 12.55		22	1.24
38	1.72	126	5.71	12.55 - 12.75		32	1.80
51	2.31	177	8.02	12.75 - 12.95		46	2.59
74	3.35	251	11.37	12.95 - 13.15		74	4.17
83	3.76	334	15.13	13.15 - 13.35		101	5.69
116	5.25	450	20.38	13.35 - 13.55		151	8.51
113	5.12	563	25.50	13.55 - 13.75		203	11.44
131	5.93	694	31.43	13.75 - 13.95		274	15.45
141	6.39	835	37.82	13.95 - 14.15		352	19.84
169	7.65	1004	45.47	14.15 - 14.35		477	26.89
197	8.92	1201	54.39	14.35 - 14.55		598	33.71
131	5.93	1332	60.33	14.55 - 14.75		716	40.36
151	6.84	1483	67.16	14.75 - 14.95		837	47.18
132	5.98	1615	73.14	14.95 - 15.15		963	54.28
145	6.57	1760	79.71	15.15 - 15.35		1097	61.84
100	4.53	1860	84.24	15.35 - 15.55		1203	67.81
91	4.12	1951	88.36	15.55 - 15.75		1304	73.51
71	3.22	2022	91.58	15.75 - 15.95		1414	79.71
56	2.54	2078	94.11	15.95 - 16.15		1488	83.88
48	2.17	2126	96.29	16.15 - 16.35		1552	87.49
26	1.18	2152	97.46	16.35 - 16.55		1619	91.26
11	.50	2163	97.96	16.55 - 16.75		1663	93.74
14	.63	2177	98.60	16.75 - 16.95		1693	95.43
14	.63	2191	99.23	16.95 - 17.15		1718	96.84
5	.23	2196	99.46	17.15 - 17.35		1738	97.97
3	.14	2199	99.59	17.35 - 17.55		1752	98.76
3	.14	2202	99.73	17.55 - 17.75		1759	99.15
4	.18	2206	99.91	17.75 - 17.95		1768	99.66
1	.05	2207	99.95	17.95 - 18.15		1771	99.83
1	.05	2208	100.00	18.15 - 18.35		1774	100.00
				18.35 - 18.55			

## (93) SITTING HEIGHT

The vertical distance between a sitting surface and the top of the head is measured with an anthropometer. The subject sits erect with the head in the Frankfort plane. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The thighs are parallel and the knees are flexed 90 degrees with the feet in line with the thighs. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
77.48	30.50	82.79	32.59
78.27	30.81	83.88	33.02
78.79	31.02	84.55	33.29
79.53	31.31	85.45	33.64
80.70	31.77	86.79	34.17
81.52	32.09	87.68	34.52
82.18	32.35	88.38	34.80
82.76	32.58	88.99	35.03
83.28	32.79	89.53	35.25
83.77	32.98	90.03	35.44
84.23	33.16	90.51	35.63
84.69	33.34	90.97	35.81
85.14	33.52	91.42	35.99
85.59	33.70	91.88	36.17
86.05	33.88	92.34	36.35
86.52	34.06	92.82	36.54
87.02	34.26	93.32	36.74
87.57	34.48	93.86	36.95
88.17	34.71	94.46	37.19
88.87	34.99	95.14	37.46
89.75	35.33	95.99	37.79
91.02	35.84	97.19	38.26
91.83	36.15	97.91	38.55
92.42	36.38	98.42	38.75
93.31	36.74	99.14	39.03

# SITTING HEIGHT

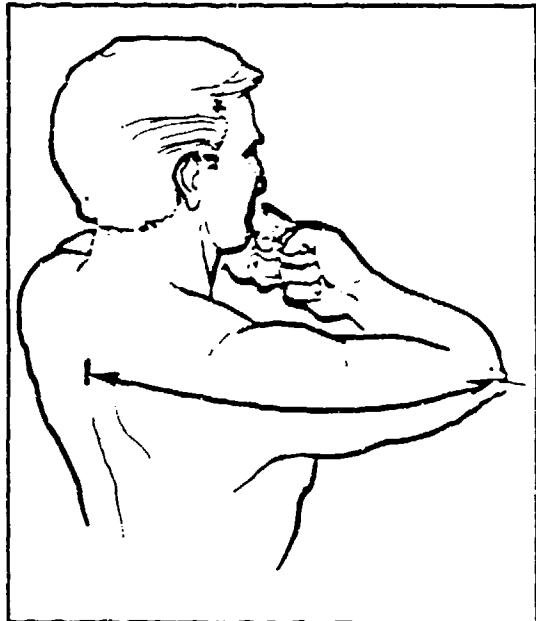
FEMALES		
	CM	INCHES
65.20	MEAN VALUE	33.54
.07	SE(MEAN)	.03
3.49	STD DEVIATION	1.37
.05	SE(STD DEV)	.02
74.80	MINIMUM	29.45
97.10	MAXIMUM	38.23
SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	2.82
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	2208

MALES		
	CM	INCHES
91.39	MEAN VALUE	35.98
.08	SE(MEAN)	.03
3.56	STD DEVIATION	1.40
.06	SE(STD DEV)	.02
80.80	MINIMUM	31.81
103.20	MAXIMUM	40.63
SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	2.87
COEF. OF VARIATION	=	3.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	CENTIMETERS		F	FPct
3	.14	3	.14	74.55 - 75.55		5	.28
7	.32	10	.45	75.55 - 76.55		9	.51
13	.59	23	1.04	76.55 - 77.55		16	.90
34	1.54	57	2.58	77.55 - 78.55		23	1.30
54	2.45	111	5.03	78.55 - 79.55		37	2.09
84	3.80	195	8.83	79.55 - 80.55		61	3.44
134	6.07	329	14.90	80.55 - 81.55		99	5.58
176	7.97	505	22.87	81.55 - 82.55		131	7.38
231	10.46	736	33.33	82.55 - 83.55		160	9.02
239	10.82	975	44.16	83.55 - 84.55		177	9.98
238	10.78	1213	54.94	84.55 - 85.55		199	11.22
210	9.51	1423	64.45	85.55 - 86.55		182	10.26
226	10.24	1649	74.68	86.55 - 87.55		174	9.81
171	7.74	1820	82.43	87.55 - 88.55		167	9.41
155	7.02	1975	89.45	88.55 - 89.55		112	6.31
85	3.85	2060	93.30	89.55 - 90.55		93	5.24
67	3.03	2127	96.33	90.55 - 91.55		63	3.55
42	1.90	2169	98.23	91.55 - 92.55		35	1.97
19	.86	2188	99.09	92.55 - 93.55		16	.90
11	.50	2199	99.59	93.55 - 94.55		10	.56
5	.23	2204	99.82	94.55 - 95.55		2	.11
3	.14	2207	99.95	95.55 - 96.55		1	.06
1	.05	2208	100.00	96.55 - 97.55		2	.11
				97.55 - 98.55			
				98.55 - 99.55			
				99.55 - 100.55			
				100.55 - 101.55			
				101.55 - 102.55			
				102.55 - 103.55			

## (94) SLEEVE LENGTH: SPINE-ELBOW

The horizontal surface distance between the midspine landmark and the olecranon-center landmark on the tip of the raised elbow is measured with a tape. The measurement is made while the subject holds his/her arms up in a horizontal position parallel to the standing surface and joins them by bringing the fists together at the metacarpophalangeal and proximal interphalangeal knuckles. The forearms and fists are in a straight line.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
47.94	18.87	52.88	20.82
48.64	19.15	53.63	21.11
49.07	19.32	54.10	21.30
49.65	19.55	54.74	21.55
50.53	19.89	55.71	21.93
51.13	20.13	56.36	22.19
51.60	20.32	56.88	22.39
52.01	20.48	57.32	22.57
52.38	20.62	57.72	22.72
52.73	20.76	58.08	22.87
53.06	20.89	58.43	23.00
53.38	21.02	58.77	23.14
53.70	21.14	59.10	23.27
54.02	21.27	59.43	23.40
54.34	21.39	59.77	23.53
54.68	21.53	60.13	23.67
55.04	21.67	60.50	23.82
55.42	21.82	60.91	23.98
55.85	21.99	61.37	24.16
56.34	22.18	61.90	24.37
56.95	22.42	62.59	24.64
57.83	22.77	63.63	25.05
58.36	22.98	64.33	25.33
58.74	23.12	64.85	25.53
59.28	23.34	65.69	25.86

# SLEEVE LENGTH: SPINE-ELBOW

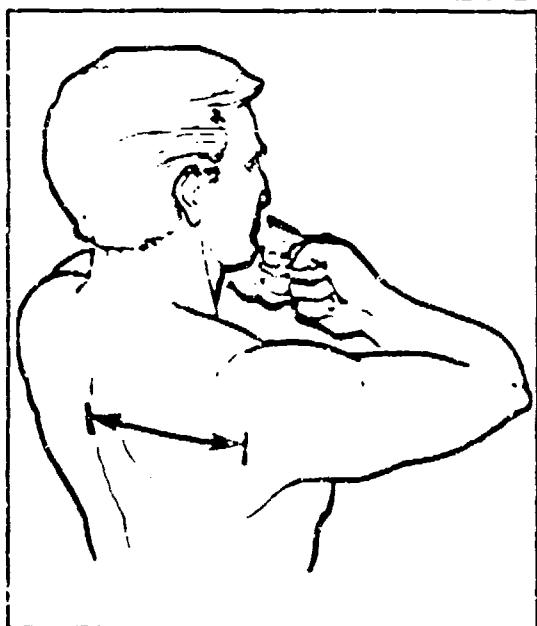
FEMALES		
<u>CM</u>	<u>INCHES</u>	
53.71	MEAN VALUE	21.14
.05	SE(MEAN)	.02
2.47	STD DEVIATION	.97
.04	SE(STD DEV)	.00
44.80	MINIMUM	17.64
61.60	MAXIMUM	24.25
SYMMETRY---VETA I	=	-.03
KURTOSIS---VETA II	=	2.91
COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
59.12	MEAN VALUE	23.28
.06	SE(MEAN)	.03
2.70	STD DEVIATION	1.06
.05	SE(STD DEV)	.02
48.40	MINIMUM	19.06
68.90	MAXIMUM	27.13
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.15
COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	44.75 - 45.25		1	.06
2	.09	3	.14	45.25 - 45.75		0	.00
0	.00	3	.14	45.75 - 46.25		0	.00
5	.23	8	.36	46.25 - 46.75		1	.06
2	.09	10	.45	46.75 - 47.25		0	.00
7	.32	17	.77	47.25 - 47.75		0	.00
16	.72	33	1.49	47.75 - 48.25		0	.00
14	.63	47	2.13	48.25 - 48.75		1	.06
29	1.31	76	3.44	48.75 - 49.25		1	.06
39	1.77	115	5.21	49.25 - 49.75		1	.06
51	2.31	166	7.52	49.75 - 50.25		2	.11
89	4.03	255	11.55	50.25 - 50.75		2	.11
112	5.07	367	16.62	50.75 - 51.25		2	.11
120	5.43	487	22.06	51.25 - 51.75		4	.23
135	6.11	622	28.17	51.75 - 52.25		9	.51
157	7.11	779	35.28	52.25 - 52.75		14	.79
183	8.29	962	43.57	52.75 - 53.25		24	1.35
147	6.66	1109	50.23	53.25 - 53.75		40	2.25
187	8.47	1296	58.70	53.75 - 54.25		61	3.44
155	7.02	1451	65.72	54.25 - 54.75		95	5.36
152	6.88	1603	72.60	54.75 - 55.25		143	8.06
143	5.48	1746	79.08	55.25 - 55.75		181	10.20
104	4.71	1850	83.79	55.75 - 56.25		238	13.42
106	4.80	1956	88.59	56.25 - 56.75		325	18.32
91	4.12	2047	92.71	56.75 - 57.25		514	51.47
48	2.17	2095	94.88	57.25 - 57.75		428	24.13
42	1.90	2137	96.78	57.75 - 58.25		529	29.82
26	1.18	2163	97.96	58.25 - 58.75		665	37.49
22	1.00	2185	98.96	58.75 - 59.25		795	44.81
12	.54	2197	99.50	59.25 - 59.75		913	51.47
6	.27	2203	99.77	59.75 - 60.25		1053	59.36
0	.00	2203	99.77	60.25 - 60.75		1194	67.31
1	.05	2204	99.82	60.75 - 61.25		1314	74.07
4	.18	2208	100.00	61.25 - 61.75		1415	79.76
				61.75 - 62.25		1482	83.54
				62.25 - 62.75		1555	87.66
				62.75 - 63.25		1618	91.21
				63.25 - 63.75		1660	93.57
				63.75 - 64.25		1691	95.32
				64.25 - 64.75		1714	96.62
				64.75 - 65.25		1735	97.80
				65.25 - 65.75		1747	98.48
				65.75 - 66.25		1760	99.21
				66.25 - 66.75		1764	99.44
				66.75 - 67.25		1770	99.77
				67.25 - 67.75		1770	99.77
				67.75 - 68.25		1772	99.89
				68.25 - 68.75		1773	99.94
				68.75 - 69.25		1773	99.94
						1774	100.00

## (95) SLEEVE LENGTH: SPINE-SCYE

The horizontal surface distance between the midspine landmark and the right posterior-diagonal-scye landmark at the back of the raised right arm near the armpit is measured with a tape. The measurement is made while the subject holds his/her arms up in a horizontal position parallel to the standing surface and joins them by bringing the fists together at the metacarpophalangeal and proximal interphalangeal knuckles. The forearms and fists are in a straight line.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
17.85	7.03	1ST	19.35 7.62
18.19	7.16	2ND	19.69 7.75
18.41	7.25	3RD	19.92 7.84
18.71	7.37	5TH	20.23 7.96
19.18	7.55	10TH	20.72 8.16
19.50	7.68	15TH	21.06 8.29
19.75	7.78	20TH	21.33 8.40
19.97	7.86	25TH	21.57 8.49
20.16	7.94	30TH	21.78 8.58
20.33	8.01	35TH	21.99 8.66
20.50	8.07	40TH	22.18 8.73
20.66	8.14	45TH	22.37 8.81
20.82	8.20	50TH	22.56 8.88
20.98	8.26	55TH	22.75 8.95
21.14	8.32	60TH	22.94 9.03
21.31	8.39	65TH	23.14 9.11
21.48	8.46	70TH	23.35 9.19
21.68	8.5	75TH	23.58 9.28
21.89	8.62	80TH	23.84 9.39
22.14	8.72	85TH	24.14 9.50
22.47	8.85	90TH	24.52 9.65
22.97	9.04	95TH	25.08 9.87
23.31	9.18	97TH	25.44 10.02
23.58	9.28	98TH	25.70 10.12
24.01	9.45	99TH	26.11 10.28

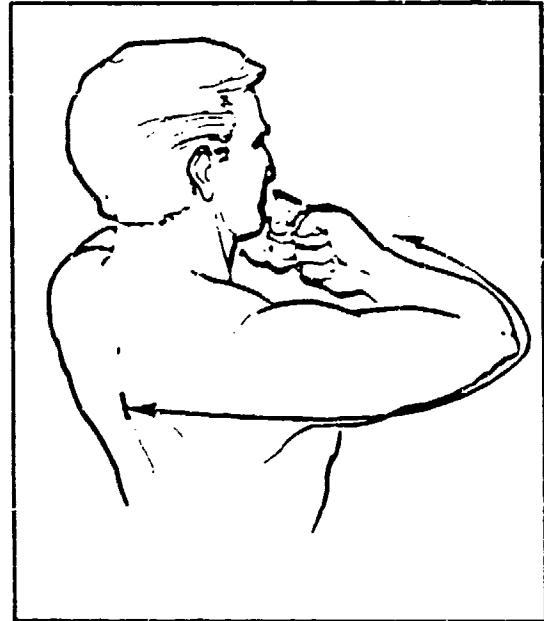
# SLEEVE LENGTH: SPINE-SCYE

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
20.83	MEAN VALUE	8.20	22.59	MEAN VALUE	8.89
.03	SE(MEAN)	.00	.04	SE(MEAN)	.00
1.29	STD DEVIATION	.51	1.48	STD DEVIATION	.58
.02	SE(STD DEV)	.00	.02	SE(STD DEV)	.00
16.70	MINIMUM	6.57	17.50	MINIMUM	6.89
25.20	MAXIMUM	9.92	27.50	MAXIMUM	10.83
SYMMETRY---VETA I	=	.07	SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.08	KURTOSIS---VETA II	=	2.99
COEF. OF VARIATION	=	6.2%	COEF. OF VARIATION	=	6.5%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct
1	.05	1	.05	16.55	-	16.75		1	.06
2	.09	3	.14	16.75	-	16.95		0	.00
2	.09	5	.23	16.95	-	17.15		1	.06
3	.14	8	.36	17.15	-	17.35		2	.11
3	.14	15	.68	17.35	-	17.55		4	.11
13	.59	28	1.27	17.55	-	17.95		6	.00
12	.54	40	1.81	17.95	-	18.15		8	.00
20	.91	60	2.72	18.15	-	18.35		10	.00
32	1.49	93	4.21	18.35	-	18.55		12	.00
21	.95	114	5.16	18.55	-	18.75		14	.00
27	1.22	141	6.39	18.75	-	18.95		16	.00
54	2.45	195	8.83	18.95	-	19.15		18	.00
79	3.58	274	12.41	19.15	-	19.35		20	.00
94	4.26	368	16.67	19.35	-	19.55		22	.00
72	3.26	440	19.93	19.55	-	19.75		24	.00
98	4.44	538	24.37	19.75	-	19.95		26	.00
106	4.80	644	29.17	19.95	-	20.15		28	.00
149	6.75	793	35.91	20.15	-	20.35		30	.00
138	6.25	931	42.16	20.35	-	20.55		32	.00
109	4.94	1040	47.10	20.55	-	20.75		34	.00
147	6.66	1187	53.76	20.75	-	20.95		36	.00
136	6.16	1323	59.92	20.95	-	21.15		38	.00
156	7.07	1479	66.98	21.15	-	21.35		40	.00
127	5.75	1606	72.74	21.35	-	21.55		42	.00
79	3.58	1685	76.31	21.55	-	21.75		44	.00
102	4.62	1787	80.93	21.75	-	21.95		46	.00
89	4.03	1876	84.96	21.95	-	22.15		48	.00
77	3.42	1953	88.45	22.15	-	22.35		50	.00
71	3.22	2024	91.67	22.35	-	22.55		52	.00
33	1.49	2057	93.16	22.55	-	22.75		54	.00
34	1.54	2091	94.70	22.75	-	22.95		56	.00
29	1.31	2120	96.01	22.95	-	23.15		58	.00
25	1.13	2145	97.15	23.15	-	23.35		60	.00
19	.36	2164	98.01	23.35	-	23.55		62	.00
9	.41	2173	98.41	23.55	-	23.75		64	.00
9	.41	2182	98.82	23.75	-	23.95		66	.00
11	.50	2193	99.32	23.95	-	24.15		68	.00
6	.27	2199	99.59	24.15	-	24.35		70	.00
4	.18	2203	99.77	24.35	-	24.55		72	.00
0	.00	2203	99.77	24.55	-	24.75		74	.00
3	.14	2206	99.91	24.75	-	24.95		76	.00
1	.05	2207	99.95	24.95	-	25.15		78	.00
1	.05	2208	100.00	25.15	-	25.35		80	.00
				25.35	-	25.55		82	.00
				25.55	-	25.75		84	.00
				25.75	-	25.95		86	.00
				25.95	-	26.15		88	.00
				26.15	-	26.35		90	.00
				26.35	-	26.55		92	.00
				26.55	-	26.75		94	.00
				26.75	-	26.95		96	.00
				26.95	-	27.15		98	.00
				27.15	-	27.35		100	.00
				27.35	-	27.55			

## (96) SLEEVE LENGTH: SPINE-WRIST

The horizontal surface distance from the midspine landmark, across the olecranon-center landmark at the tip of the raised right elbow, to the dorsal wrist landmark is measured with a tape. The measurement is made while the subject holds his/her arms up in a horizontal position parallel to the standing surface and joins them by bringing the fists together at the metacarpophalangeal and proximal interphalangeal knuckles. The forearms and fists are in a straight line.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
72.41	28.51	1ST	80.12 31.54
73.40	28.90	2ND	81.06 31.91
74.01	29.14	3RD	81.66 32.15
74.82	29.46	5TH	82.49 32.47
76.07	29.95	10TH	83.78 32.98
76.91	30.28	15TH	84.67 33.33
77.58	30.54	20TH	85.38 33.61
78.17	30.77	25TH	86.00 33.86
78.70	30.98	30TH	86.56 34.08
79.20	31.18	35TH	87.08 34.28
79.67	31.37	40TH	87.58 34.48
80.14	31.55	45TH	88.06 34.67
80.60	31.73	50TH	88.54 34.86
81.07	31.92	55TH	89.03 35.05
81.55	32.11	60TH	89.52 35.24
82.04	32.30	65TH	90.03 35.44
82.57	32.51	70TH	90.56 35.65
83.14	32.73	75TH	91.15 35.88
83.78	32.98	80TH	91.80 36.14
84.51	33.27	85TH	92.56 36.44
85.42	33.63	90TH	93.52 36.82
86.71	34.14	95TH	94.93 37.37
87.49	34.45	97TH	95.84 37.73
88.03	34.66	98TH	96.50 37.99
88.79	34.95	99TH	97.51 38.39

# SLEEVE LENGTH: SPINE-WRIST

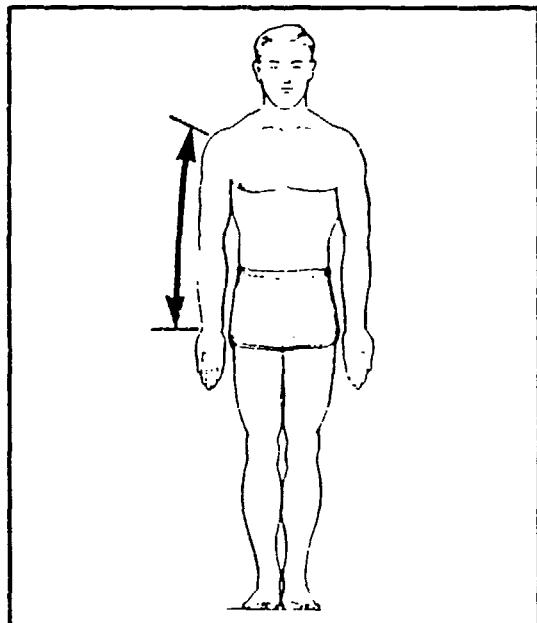
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
80.67	MEAN VALUE	31.76
.08	SE(MEAN)	.03
3.63	STD DEVIATION	1.43
.05	SE(STD DEV)	.02
67.10	MINIMUM	26.42
94.80	MAXIMUM	37.32
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
88.60	MEAN VALUE	34.88
.09	SE(MEAN)	.04
3.79	STD DEVIATION	1.49
.06	SE(STD DEV)	.03
73.10	MINIMUM	28.78
103.70	MAXIMUM	40.83
SYMMETRY---VETA I	=	.03
KURTOSIS---VETA II	=	3.23
COEF. OF VARIATION	=	4.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	66.55 - 67.55		2	.11
1	.05	3	.14	67.55 - 68.55		0	.00
2	.09	5	.23	68.55 - 69.55		0	.00
2	.09	7	.32	69.55 - 70.55		1	.06
6	.27	13	.59	70.55 - 71.55		3	.17
10	.45	23	1.04	71.55 - 72.55		5	.28
28	1.27	51	2.31	72.55 - 73.55		10	.56
37	1.68	88	3.99	73.55 - 74.55		20	.60
73	3.31	161	7.29	74.55 - 75.55		2	.11
121	5.48	282	12.77	75.55 - 76.55		2	.11
157	7.11	439	19.88	76.55 - 77.55		1	.06
204	9.24	643	29.12	77.55 - 78.55		3	.17
214	9.69	857	38.81	78.55 - 79.55		5	.28
223	10.10	1080	48.91	79.55 - 80.55		10	.56
247	11.19	1327	60.10	80.55 - 81.55		30	1.69
223	10.10	1550	70.20	81.55 - 82.55		52	2.93
186	8.42	1736	78.62	82.55 - 83.55		60	3.38
164	7.43	1900	86.05	83.55 - 84.55		76	4.28
103	4.66	2003	90.72	84.55 - 85.55		127	7.16
82	3.71	2085	94.43	85.55 - 86.55		155	8.74
61	2.76	2146	97.19	86.55 - 87.55		166	9.36
34	1.54	2180	98.73	87.55 - 88.55		214	12.06
13	.59	2193	99.32	88.55 - 89.55		180	10.15
6	.27	2199	99.59	89.55 - 90.55		171	9.64
4	.18	2203	99.77	90.55 - 91.55		127	7.16
2	.09	2205	99.86	91.55 - 92.55		131	7.38
1	.05	2206	99.91	92.55 - 93.55		91	5.13
1	.05	2207	99.95	93.55 - 94.55		64	3.61
1	.05	2208	100.00	94.55 - 95.55		42	2.37
				95.55 - 96.55		33	1.86
				96.55 - 97.55		18	1.01
				97.55 - 98.55		5	.28
				98.55 - 99.55		6	.34
				99.55 - 100.55		1	.06
				100.55 - 101.55		1	.06
				101.55 - 102.55		0	.00
				102.55 - 103.55		0	.00
				103.55 - 104.55		1	.06

## (97) SLEEVE OUTSEAM

The straight-line distance between the acromion landmark on the tip of the right shoulder and the stylion landmark on the right wrist is measured with a tape. The subject stands erect with both arms straight at the sides and the palms facing forward.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
47.91	18.86	1ST	53.24 20.96
48.66	19.16	2ND	54.03 21.27
49.15	19.35	3RD	54.52 21.47
49.81	19.61	5TH	55.19 21.73
50.85	20.02	10TH	56.24 22.14
51.56	20.30	15TH	56.95 22.42
52.13	20.52	20TH	57.52 22.64
52.62	20.72	25TH	58.01 22.84
53.07	20.89	30TH	58.46 23.02
53.48	21.06	35TH	58.88 23.18
53.88	21.21	40TH	59.28 23.34
54.26	21.36	45TH	59.67 23.49
54.64	21.51	50TH	60.07 23.65
55.02	21.66	55TH	60.46 23.80
55.41	21.82	60TH	60.86 23.96
55.82	21.97	65TH	61.28 24.13
56.24	22.14	70TH	61.72 24.30
56.71	22.33	75TH	62.21 24.49
57.24	22.53	80TH	62.75 24.71
57.85	22.77	85TH	63.39 24.96
58.63	23.08	90TH	64.20 25.27
59.81	23.55	95TH	65.39 25.74
60.58	23.85	97TH	66.16 26.05
61.16	24.08	98TH	66.72 26.27
62.09	24.44	99TH	67.58 26.61

# SLEEVE OUTSEAM

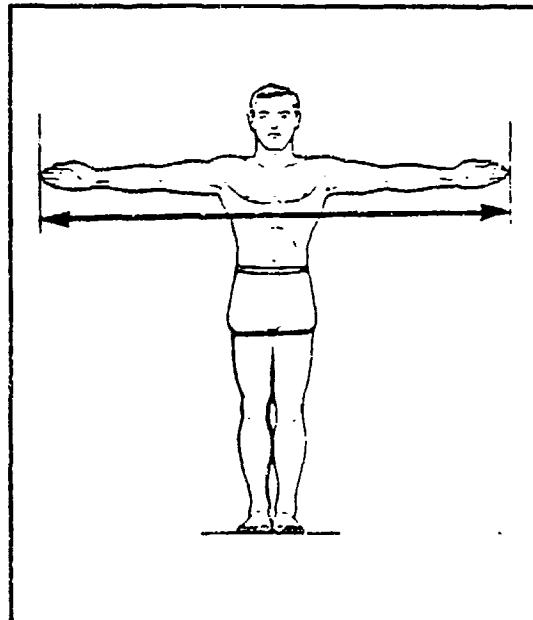
FEMALES		
<u>CM</u>	<u>INCHES</u>	
54.72	MEAN VALUE	21.54
.06	SE(MEAN)	.03
3.02	STD DEVIATION	1.19
.05	SE(STD DEV)	.02
42.10	MINIMUM	16.57
67.80	MAXIMUM	26.69
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	5.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
60.15	MEAN VALUE	23.68
.07	SE(MEAN)	.03
3.07	STD DEVIATION	1.21
.05	SE(STD DEV)	.02
48.10	MINIMUM	18.94
74.50	MAXIMUM	29.33
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.29
COEF. OF VARIATION	=	5.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
				41.55 - 42.55	42.55 - 43.55	43.55 - 44.55	44.55 - 45.55
1	.05	1	.05	41.55 - 42.55	42.55 - 43.55	43.55 - 44.55	44.55 - 45.55
0	.00	1	.05	42.55 - 43.55	43.55 - 44.55	44.55 - 45.55	45.55 - 46.55
0	.00	1	.05	43.55 - 44.55	44.55 - 45.55	45.55 - 46.55	46.55 - 47.55
0	.00	1	.05	44.55 - 45.55	45.55 - 46.55	46.55 - 47.55	47.55 - 48.55
1	.05	2	.09	45.55 - 46.55	46.55 - 47.55	47.55 - 48.55	48.55 - 49.55
14	.63	16	.72	46.55 - 47.55	47.55 - 48.55	48.55 - 49.55	49.55 - 50.55
22	1.00	38	1.72	47.55 - 48.55	48.55 - 49.55	49.55 - 50.55	50.55 - 51.55
48	2.17	86	3.89	48.55 - 49.55	49.55 - 50.55	50.55 - 51.55	51.55 - 52.55
81	3.67	167	7.56	49.55 - 50.55	50.55 - 51.55	51.55 - 52.55	52.55 - 53.55
172	7.79	339	15.35	50.55 - 51.55	51.55 - 52.55	52.55 - 53.55	53.55 - 54.55
184	8.33	523	23.69	51.55 - 52.55	52.55 - 53.55	53.55 - 54.55	54.55 - 55.55
267	12.09	790	35.78	52.55 - 53.55	53.55 - 54.55	54.55 - 55.55	55.55 - 56.55
310	14.04	1100	49.82	53.55 - 54.55	54.55 - 55.55	55.55 - 56.55	56.55 - 57.55
256	11.59	1356	61.41	54.55 - 55.55	55.55 - 56.55	56.55 - 57.55	57.55 - 58.55
270	12.23	1626	73.64	55.55 - 56.55	56.55 - 57.55	57.55 - 58.55	58.55 - 59.55
197	8.92	1823	82.56	56.55 - 57.55	57.55 - 58.55	58.55 - 59.55	59.55 - 60.55
151	6.84	1974	89.40	57.55 - 58.55	58.55 - 59.55	59.55 - 60.55	60.55 - 61.55
105	4.76	2079	94.16	58.55 - 59.55	59.55 - 60.55	60.55 - 61.55	61.55 - 62.55
66	2.99	2145	97.15	59.55 - 60.55	60.55 - 61.55	61.55 - 62.55	62.55 - 63.55
31	1.40	2176	98.55	60.55 - 61.55	61.55 - 62.55	62.55 - 63.55	63.55 - 64.55
17	.77	2193	99.32	61.55 - 62.55	62.55 - 63.55	63.55 - 64.55	64.55 - 65.55
7	.32	2200	99.64	62.55 - 63.55	63.55 - 64.55	64.55 - 65.55	65.55 - 66.55
4	.16	2204	99.82	63.55 - 64.55	64.55 - 65.55	65.55 - 66.55	66.55 - 67.55
3	.14	2207	99.95	64.55 - 65.55	65.55 - 66.55	66.55 - 67.55	67.55 - 68.55
0	.00	2207	99.95	65.55 - 66.55	66.55 - 67.55	67.55 - 68.55	68.55 - 69.55
0	.00	2207	99.95	66.55 - 67.55	67.55 - 68.55	68.55 - 69.55	69.55 - 70.55
1	.05	2208	100.00	67.55 - 68.55	68.55 - 69.55	69.55 - 70.55	70.55 - 71.55
				68.55 - 69.55	69.55 - 70.55	70.55 - 71.55	71.55 - 72.55
				70.55 - 71.55	71.55 - 72.55	72.55 - 73.55	73.55 - 74.55

## (98) SPAN

The distance between the tips of the middle fingers of the horizontally outstretched arms is measured on a wall chart. The subject stands erect with the back against a wall-mounted scale and the heels together. Both arms and hands are stretched horizontally against a back wall with the tip of the middle finger of one hand just touching a side wall. A block is placed at the tip of the middle finger of the other hand to establish the measurement on the scale. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
148.81	58.59	154.79	64.88
151.02	59.46	166.53	65.56
152.38	59.99	167.68	66.02
154.21	60.71	169.31	66.66
157.00	61.81	171.94	67.69
158.88	62.55	173.78	68.42
160.37	63.14	175.28	69.01
161.67	63.65	176.60	69.53
162.85	64.11	177.80	70.00
163.94	64.54	178.92	70.44
164.98	64.95	179.99	70.86
166.00	65.36	181.04	71.28
167.02	65.76	182.09	71.69
168.04	66.16	183.14	72.10
169.09	66.57	184.21	72.52
170.18	67.00	185.32	72.96
171.33	67.45	186.50	73.42
172.60	67.95	187.77	73.93
174.02	68.51	189.21	74.49
175.67	69.16	190.86	75.14
177.76	69.99	192.96	75.97
180.86	71.20	196.03	77.18
182.84	71.98	197.99	77.95
184.27	72.55	199.42	78.51
186.45	73.41	201.62	79.38

# SPAN

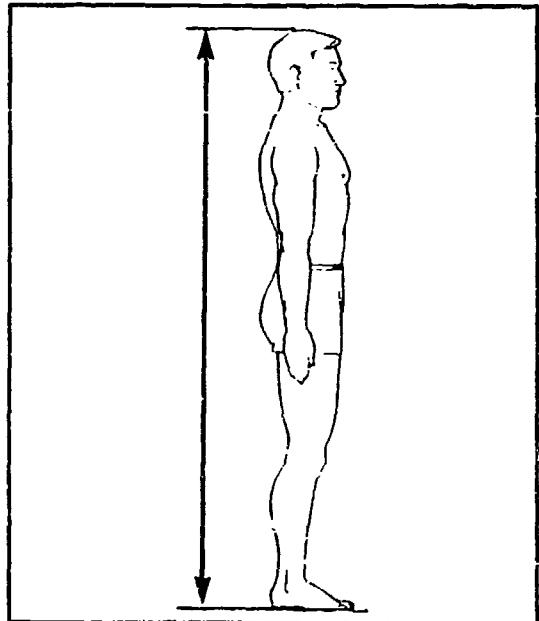
FEMALES		
CM	MEAN VALUE	INCHES
167.19	MEAN VALUE	65.82
.17	SE(MEAN)	.07
8.13	STD DEVIATION	3.20
.12	SE(STD DEV)	.05
135.60	MINIMUM	53.39
196.80	MAXIMUM	77.48
SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	3.09
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
182.31	MEAN VALUE	71.77
.19	SE(MEAN)	.08
8.19	STD DEVIATION	3.23
.14	SE(STD DEV)	.05
147.40	MINIMUM	58.03
215.90	MAXIMUM	85.00
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.21
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumPPct	CENTIMETERS			
1	.05	1	.05	135.25 - 136.75			
0	.00	1	.05	136.75 - 138.25			
0	.00	1	.05	138.25 - 139.75			
1	.05	2	.09	139.75 - 141.25			
2	.09	4	.18	141.25 - 142.75			
4	.18	8	.36	142.75 - 144.25			
0	.00	8	.36	144.25 - 145.75			
5	.23	13	.59	145.75 - 147.25			
11	.50	24	1.09	147.25 - 148.75			
9	.41	33	1.49	148.75 - 150.25			
12	.54	45	2.04	150.25 - 151.75			
35	1.59	80	3.62	151.75 - 153.25			
34	1.54	114	5.16	153.25 - 154.75			
69	3.13	183	8.29	154.75 - 156.25			
82	3.71	265	12.00	156.25 - 157.75			
111	5.03	376	17.03	157.75 - 159.25			
112	5.07	488	22.10	159.25 - 160.75			
120	5.43	608	27.54	160.75 - 162.25			
156	7.07	764	34.60	162.25 - 163.75			
142	6.43	906	41.03	163.75 - 165.25			
171	7.74	1077	48.78	165.25 - 166.75			
159	7.20	1236	55.98	166.75 - 168.25			
156	7.07	1392	63.04	168.25 - 169.75			
140	6.34	1532	69.38	169.75 - 171.25			
131	5.93	1663	75.32	171.25 - 172.75			
127	5.75	1790	81.07	172.75 - 174.25			
94	4.26	1884	85.33	174.25 - 175.75			
82	3.71	1966	89.04	175.75 - 177.25			
55	2.49	2021	91.53	177.25 - 178.75			
63	2.85	2084	94.38	178.75 - 180.25			
44	1.99	2128	96.38	180.25 - 181.75			
26	1.18	2154	97.55	181.75 - 183.25			
11	.50	2165	98.05	183.25 - 184.75			
18	.82	2183	98.87	184.75 - 186.25			
10	.45	2193	99.32	186.25 - 187.75			
5	.23	2198	99.55	187.75 - 189.25			
2	.09	2200	99.64	189.25 - 190.75			
4	.18	2204	99.82	190.75 - 192.25			
2	.09	2206	99.91	192.25 - 193.75			
0	.00	2206	99.91	193.75 - 195.25			
1	.05	2207	99.95	195.25 - 196.75			
1	.05	2208	100.00	196.75 - 198.25			
				198.25 - 199.75			
				199.75 - 201.25			
				201.25 - 202.75			
				202.75 - 204.25			
				204.25 - 205.75			
				205.75 - 207.25			
				207.25 - 208.75			
				208.75 - 210.25			
				210.25 - 211.75			
				211.75 - 213.25			
				213.25 - 214.75			
				214.75 - 216.25			

## (99) STATURE

The vertical distance from a standing surface to the top of the head is measured with an anthropometer. The subject stands erect with the head in the Frankfort plane. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
148.32	58.39	1ST	160.27 63.10
150.18	59.13	2ND	162.05 63.80
151.31	59.57	3RD	163.17 64.24
152.78	60.15	5TH	164.69 64.84
154.97	61.01	10TH	167.03 65.76
156.43	61.59	15TH	168.62 66.39
157.58	62.04	20TH	169.89 66.88
158.58	62.43	25TH	170.99 67.32
159.48	62.79	30TH	171.98 67.71
160.32	63.12	35TH	172.90 68.07
161.14	63.44	40TH	173.78 68.42
161.93	63.75	45TH	174.64 68.76
162.72	64.06	50TH	175.49 69.09
163.53	64.38	55TH	176.34 69.43
164.35	64.70	60TH	177.21 69.77
165.21	65.04	65TH	178.11 70.12
166.13	65.40	70TH	179.06 70.50
167.13	65.80	75TH	180.09 70.90
168.27	66.25	80TH	181.24 71.35
169.59	66.77	85TH	182.57 71.88
171.27	67.43	90TH	184.23 72.53
173.73	68.40	95TH	186.65 73.48
175.28	69.01	97TH	188.16 74.08
176.39	69.44	98TH	189.24 74.50
178.04	70.09	99TH	190.87 75.14

# STATURE

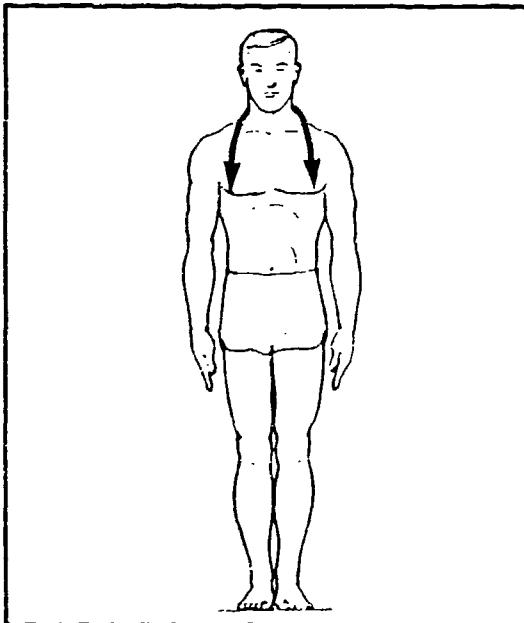
FEMALES		
<u>CM</u>	<u>INCHES</u>	
162.94	MEAN VALUE	64.15
.14	SE(MEAN)	.05
6.36	STD DEVIATION	2.50
.10	SE(STD DEV)	.04
142.80	MINIMUM	56.22
187.00	MAXIMUM	73.62
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	3.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
175.58	MEAN VALUE	69.13
.16	SE(MEAN)	.06
6.68	STD DEVIATION	2.63
.11	SE(STD DEV)	.04
149.70	MINIMUM	58.94
204.20	MAXIMUM	80.39
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.09
COEF. OF VARIATION	=	3.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct		
1	.05	1	.05	142.75 - 144.25		1	.06		
6	.27	7	.32	144.25 - 145.75		1	.06		
4	.18	11	.50	145.75 - 147.25		1	.06		
15	.68	26	1.18	147.25 - 148.75		1	.06		
25	1.13	51	2.31	148.75 - 150.25		1	.06		
24	1.09	75	3.40	150.25 - 151.75		1	.06		
46	2.08	121	5.48	151.75 - 153.25		1	.06		
74	3.35	195	8.83	153.25 - 154.75		1	.06		
112	5.07	307	13.90	154.75 - 156.25		1	.06		
148	6.70	455	20.61	156.25 - 157.75		1	.06		
190	8.61	645	29.21	157.75 - 159.25		1	.06		
209	9.47	854	38.68	159.25 - 160.75		1	.06		
170	7.70	1024	46.38	160.75 - 162.25		1	.06		
222	10.05	1246	56.43	162.25 - 163.75		1	.06		
174	7.88	1420	64.31	163.75 - 165.25		1	.06		
199	9.01	1619	73.32	165.25 - 166.75		1	.06		
143	6.48	1762	79.80	166.75 - 168.25		1	.06		
128	5.80	1890	85.60	168.25 - 169.75		1	.06		
100	4.53	1990	90.13	169.75 - 171.25		1	.06		
64	2.90	2054	93.03	171.25 - 172.75		1	.06		
66	2.99	2120	96.01	172.75 - 174.25		1	.06		
32	1.45	2152	97.46	174.25 - 175.75		1	.06		
25	1.13	2177	98.60	175.75 - 177.25		1	.06		
17	.77	2194	99.37	177.25 - 178.75		1	.06		
4	.18	2198	99.55	178.75 - 180.25		1	.06		
4	.18	2202	99.73	180.25 - 181.75		1	.06		
3	.14	2205	99.86	181.75 - 183.25		1	.06		
2	.09	2207	99.95	183.25 - 184.75		1	.06		
0	.00	2207	99.95	184.75 - 186.25		1	.06		
1	.05	2208	100.00	186.25 - 187.75		1	.06		
				187.75 - 189.25		1	.06		
				189.25 - 190.75		1	.06		
				190.75 - 192.25		1	.06		
				192.25 - 193.75		1	.06		
				193.75 - 195.25		1	.06		
				195.25 - 196.75		1	.06		
				196.75 - 198.25		1	.06		
				198.25 - 199.75		1	.06		
				199.75 - 201.25		1	.06		
				201.25 - 202.75		1	.06		
				202.75 - 204.25		1	.06		

## (100) STRAP LENGTH

The surface distance from the right bustpoint landmark on women or the right nipple (thelion) on men across the back of the neck to the left bustpoint or nipple is measured with a tape passing over the left and right lateral neck landmarks. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
57.95	22.82	1ST	62.35 24.55
58.98	23.22	2ND	63.29 24.92
59.65	23.48	3RD	63.89 25.15
60.58	23.85	5TH	64.73 25.49
62.05	24.43	10TH	66.06 26.01
63.08	24.83	15TH	66.97 26.36
63.90	25.16	20TH	67.69 26.65
64.63	25.44	25TH	68.32 26.90
65.28	25.70	30TH	68.89 27.12
65.90	25.94	35TH	69.42 27.33
66.49	26.18	40TH	69.93 27.53
67.06	26.40	45TH	70.42 27.72
67.64	26.63	50TH	70.91 27.92
68.22	26.86	55TH	71.40 28.11
68.81	27.09	60TH	71.90 28.31
69.43	27.34	65TH	72.43 28.52
70.09	27.60	70TH	72.99 28.74
70.82	27.88	75TH	73.61 28.98
71.64	28.20	80TH	74.31 29.26
72.60	28.58	85TH	75.14 29.58
73.85	29.07	90TH	76.22 30.01
75.74	29.82	95TH	77.91 30.67
77.00	30.31	97TH	79.08 31.13
77.94	30.69	98TH	79.97 31.49
79.46	31.28	99TH	81.46 32.07

# STRAP LENGTH

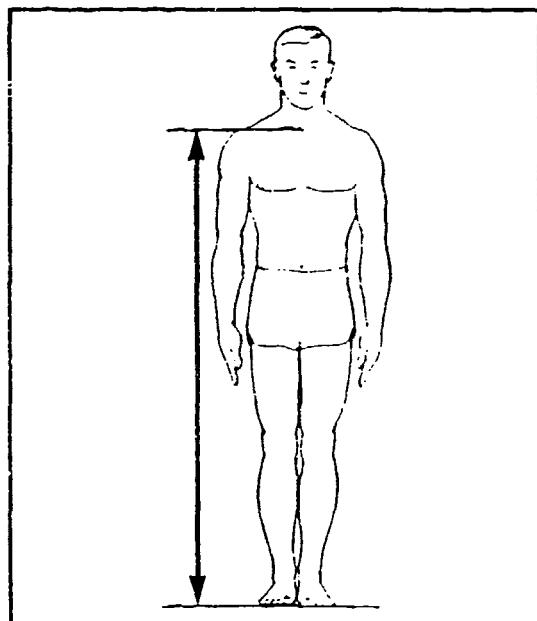
FEMALES		
<u>CM</u>	<u>INCHES</u>	
67.86	MEAN VALUE	26.72
.10	SE(MEAN)	.04
4.62	STD DEVIATION	1.82
.07	SE(STD DEV)	.03
54.50	MINIMUM	21.46
86.70	MAXIMUM	34.13
SYMMETRY---VETA I	=	.28
KURTOSIS---VETA II	=	3.17
COEF. OF VARIATION	=	6.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
71.07	MEAN VALUE	27.98
.10	SE(MEAN)	.04
4.01	STD DEVIATION	1.58
.07	SE(STD DEV)	.03
59.20	MINIMUM	23.31
88.20	MAXIMUM	34.72
SYMMETRY---VETA I	=	.30
KURTOSIS---VETA II	=	3.35
COEF. OF VARIATION	=	5.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	53.55 - 54.55		2	.11
4	.18	5	.23	54.55 - 55.55		1	.06
6	.27	11	.50	55.55 - 56.55		4	.23
6	.27	17	.77	56.55 - 57.55		14	.79
15	.68	32	1.45	57.55 - 58.55		17	.96
29	1.31	61	2.76	58.55 - 59.55		37	2.09
43	1.95	104	4.71	59.55 - 60.55		67	3.78
65	2.94	169	7.65	60.55 - 61.55		76	4.28
91	4.12	260	11.78	61.55 - 62.55		120	6.76
133	6.02	393	17.80	62.55 - 63.55		149	8.40
154	6.97	547	24.77	63.55 - 64.55		170	9.58
172	7.79	719	32.56	64.55 - 65.55		164	9.24
185	8.38	904	40.94	65.55 - 66.55		206	11.61
207	9.38	1111	50.32	66.55 - 67.55		137	7.72
183	8.29	1294	58.61	67.55 - 68.55		139	7.84
159	7.20	1453	65.81	68.55 - 69.55		128	7.22
163	7.38	1616	73.19	69.55 - 70.55		110	6.20
145	6.57	1761	79.76	70.55 - 71.55		85	4.79
97	4.39	1858	84.15	71.55 - 72.55		48	2.71
86	3.89	1944	88.04	72.55 - 73.55		42	2.37
78	3.53	2022	91.58	73.55 - 74.55		18	1.01
76	3.44	2098	95.02	74.55 - 75.55		14	.79
37	1.68	2135	96.69	75.55 - 76.55		8	.45
25	1.13	2160	97.83	76.55 - 77.55		10	.56
17	.77	2177	98.60	77.55 - 78.55		10	.06
9	.41	2186	99.00	78.55 - 79.55		1	.06
6	.27	2192	99.28	79.55 - 80.55			
8	.36	2200	99.64	80.55 - 81.55			
2	.09	2202	99.73	81.55 - 82.55			
2	.09	2204	99.82	82.55 - 83.55			
2	.09	2206	99.91	83.55 - 84.55			
1	.05	2207	99.95	84.55 - 85.55			
0	.00	2207	99.95	85.55 - 86.55			
1	.05	2208	100.00	86.55 - 87.55			
				87.55 - 88.55			

## (101) SUPRASTERNALE HEIGHT

The vertical distance between a standing surface and the suprasternale landmark on the notch at the top of the breastbone is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
120.74	47.53	1ST	130.24 51.28
122.08	48.06	2ND	131.91 51.93
122.93	48.40	3RD	132.94 52.34
124.11	48.86	5TH	134.30 52.88
125.96	49.59	10TH	136.37 53.69
127.24	50.09	15TH	137.76 54.24
128.26	50.50	20TH	138.87 54.67
129.16	50.85	25TH	139.82 55.05
129.97	51.17	30TH	140.69 55.39
130.73	51.47	35TH	141.49 55.70
131.46	51.76	40TH	142.25 56.01
132.17	52.04	45TH	143.00 56.30
132.88	52.31	50TH	143.74 56.59
133.59	52.60	55TH	144.49 56.89
134.32	52.88	60TH	145.26 57.19
135.08	53.18	65TH	146.05 57.50
135.88	53.50	70TH	146.89 57.83
136.76	53.84	75TH	147.80 58.19
137.74	54.23	80TH	148.83 58.59
138.89	54.68	85TH	150.01 59.06
140.34	55.25	90TH	151.51 59.65
142.48	56.09	95TH	153.68 60.50
143.86	56.64	97TH	155.04 61.04
144.85	57.03	98TH	156.01 61.42
146.40	57.64	99TH	157.45 61.99

# SUPRASTERNALE HEIGHT

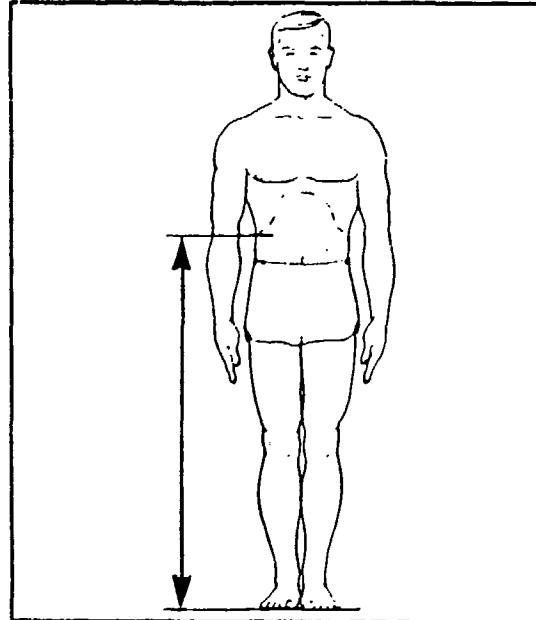
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
133.03	MEAN VALUE	52.37
.12	SE(MEAN)	.05
5.60	STD DEVIATION	2.20
.08	SE(STD DEV)	.03
115.10	MINIMUM	45.31
153.80	MAXIMUM	60.55
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
143.84	MEAN VALUE	56.63
.14	SE(MEAN)	.06
5.93	STD DEVIATION	2.33
.10	SE(STD DEV)	.04
118.80	MINIMUM	46.77
168.60	MAXIMUM	66.38
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	114.55 - 115.55		1	.06
0	.00	1	.05	115.55 - 116.55		0	.00
5	.23	6	.27	116.55 - 117.55		0	.00
6	.27	12	.54	117.55 - 118.55		0	.00
4	.18	16	.72	118.55 - 119.55		0	.00
4	.18	20	.91	119.55 - 120.55		0	.00
20	.91	40	1.81	120.55 - 121.55		0	.00
15	.68	55	2.49	121.55 - 122.55		0	.00
30	1.36	85	3.85	122.55 - 123.55		0	.00
49	2.22	134	6.07	123.55 - 124.55		0	.00
44	1.99	178	8.06	124.55 - 125.55		0	.00
77	3.49	255	11.35	125.55 - 126.55		2	.11
104	4.71	359	16.26	126.55 - 127.55		4	.23
117	5.30	476	21.56	127.55 - 128.55		1	.06
141	6.39	617	27.94	128.55 - 129.55		2	.11
146	6.61	763	34.56	129.55 - 130.55		9	.51
155	7.02	918	41.58	130.55 - 131.55		13	.73
144	6.52	1062	48.10	131.55 - 132.55		18	1.01
145	6.57	1207	54.66	132.55 - 133.55		16	.90
146	6.61	1353	61.28	133.55 - 134.55		28	1.58
143	6.48	1496	67.75	134.55 - 135.55		44	2.48
145	6.57	1641	74.32	135.55 - 136.55		42	2.37
96	4.35	1737	78.67	136.55 - 137.55		64	3.61
108	4.89	1845	83.56	137.55 - 138.55		78	4.40
86	3.89	1931	87.45	138.55 - 139.55		96	5.41
66	2.99	1997	90.44	139.55 - 140.55		108	6.09
55	2.49	2052	92.93	140.55 - 141.55		106	5.98
46	2.08	2098	95.02	141.55 - 142.55		119	6.71
40	1.81	2138	96.83	142.55 - 143.55		133	7.50
24	1.09	2162	97.92	143.55 - 144.55		118	6.65
13	.59	2175	98.51	144.55 - 145.55		92	5.19
12	.54	2187	99.05	145.55 - 146.55		111	6.26
11	.50	2198	99.55	146.55 - 147.55		98	5.52
1	.05	2199	99.59	147.55 - 148.55		94	5.30
1	.05	2200	99.64	148.55 - 149.55		75	4.23
5	.23	2205	99.86	149.55 - 150.55		61	3.44
0	.00	2205	99.86	150.55 - 151.55		63	3.55
0	.00	2205	99.86	151.55 - 152.55		52	2.93
1	.05	2206	99.91	152.55 - 153.55		37	2.09
2	.09	2208	100.00	153.55 - 154.55		24	1.35
				154.55 - 155.55		23	1.30
				155.55 - 156.55		18	1.01
				156.55 - 157.55		6	.34
				157.55 - 158.55		8	.45
				158.55 - 159.55		1	.06
				159.55 - 160.55		2	.11
				160.55 - 161.55		2	.11
				161.55 - 162.55		2	.11
				162.55 - 163.55		1	.06
				163.55 - 164.55		0	.00
				164.55 - 165.55		0	.00
				165.55 - 166.55		0	.00
				166.55 - 167.55		0	.00
				167.55 - 168.55		1	.06
				168.55 - 169.55		1	.06

## (102) TENTH RIB HEIGHT

The vertical distance between a standing surface and the tenth rib landmark at the bottom of the right side of the rib cage is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
93.23	36.71	1ST	100.52 39.57
94.69	37.28	2ND	101.89 40.11
95.56	37.62	3RD	102.75 40.45
96.70	38.07	5TH	103.90 40.91
98.38	38.73	10TH	105.67 41.60
99.49	39.17	15TH	106.86 42.07
100.37	39.52	20TH	107.81 42.44
101.13	39.81	25TH	108.63 42.77
101.81	40.08	30TH	109.37 43.06
102.45	40.34	35TH	110.06 43.33
103.07	40.58	40TH	110.72 43.59
103.66	40.81	45TH	111.36 43.84
104.26	41.05	50TH	112.00 44.10
104.87	41.29	55TH	112.65 44.35
105.50	41.53	60TH	113.30 44.61
106.15	41.79	65TH	113.99 44.88
106.85	42.07	70TH	114.71 45.16
107.62	42.37	75TH	115.50 45.47
108.49	42.71	80TH	116.39 45.82
109.51	43.11	85TH	117.42 46.23
110.82	43.63	90TH	118.73 46.74
112.77	44.40	95TH	120.56 47.50
114.04	44.90	97TH	121.91 47.99
114.96	45.26	98TH	122.81 48.35
116.37	45.82	99TH	124.20 48.90

# TENTH RIB HEIGHT

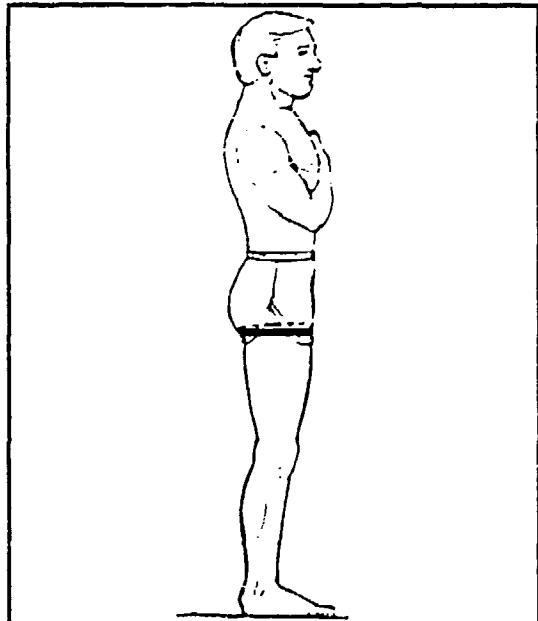
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
104.44	MEAN VALUE	41.12
.10	SE(MEAN)	.04
4.87	STD DEVIATION	1.92
.07	SE(STD DEV)	.03
87.60	MINIMUM	34.49
124.30	MAXIMUM	48.94
SYMMETRY---VETA I	=	.16
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	4.7%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
112.12	MEAN VALUE	44.14
.12	SE(MEAN)	.05
5.13	STD DEVIATION	2.02
.09	SE(STD DEV)	.03
90.50	MINIMUM	35.63
135.30	MAXIMUM	53.27
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	3.31
CCEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
				87.55 - 88.55	88.55 - 89.55	89.55 - 90.55	90.55 - 91.55
2	.09	2	.09	87.55 - 88.55	88.55 - 89.55	89.55 - 90.55	90.55 - 91.55
0	.00	2	.09	88.55 - 89.55	89.55 - 90.55	90.55 - 91.55	91.55 - 92.55
2	.09	4	.18	89.55 - 90.55	90.55 - 91.55	91.55 - 92.55	92.55 - 93.55
2	.09	6	.27	90.55 - 91.55	91.55 - 92.55	92.55 - 93.55	93.55 - 94.55
6	.27	2	.54	91.55 - 92.55	92.55 - 93.55	93.55 - 94.55	94.55 - 95.55
13	.59	25	1.13	92.55 - 93.55	93.55 - 94.55	94.55 - 95.55	95.55 - 96.55
12	.54	37	1.68	93.55 - 94.55	94.55 - 95.55	95.55 - 96.55	96.55 - 97.55
25	1.13	62	2.81	94.55 - 95.55	95.55 - 96.55	96.55 - 97.55	97.55 - 98.55
38	1.72	100	4.53	95.55 - 96.55	96.55 - 97.55	97.55 - 98.55	98.55 - 99.55
48	2.17	148	6.70	96.55 - 97.55	97.55 - 98.55	98.55 - 99.55	99.55 - 100.55
69	4.03	237	10.73	97.55 - 98.55	98.55 - 99.55	99.55 - 100.55	100.55 - 101.55
96	4.35	333	15.08	98.55 - 99.55	99.55 - 100.55	100.55 - 101.55	101.55 - 102.55
155	7.02	488	22.10	99.55 - 100.55	100.55 - 101.55	101.55 - 102.55	102.55 - 103.55
128	5.80	616	27.90	100.55 - 101.55	101.55 - 102.55	102.55 - 103.55	103.55 - 104.55
191	8.65	807	36.55	101.55 - 102.55	102.55 - 103.55	103.55 - 104.55	104.55 - 105.55
167	7.56	974	44.11	102.55 - 103.55	103.55 - 104.55	104.55 - 105.55	105.55 - 106.55
176	7.97	1150	52.08	103.55 - 104.55	104.55 - 105.55	105.55 - 106.55	106.55 - 107.55
169	7.65	1319	59.74	104.55 - 105.55	105.55 - 106.55	106.55 - 107.55	107.55 - 108.55
166	7.52	1485	67.26	105.55 - 106.55	106.55 - 107.55	107.55 - 108.55	108.55 - 109.55
161	7.25	1645	74.50	106.55 - 107.55	107.55 - 108.55	108.55 - 109.55	109.55 - 110.55
133	6.02	1778	80.53	107.55 - 108.55	108.55 - 109.55	109.55 - 110.55	110.55 - 111.55
120	5.43	1898	85.96	108.55 - 109.55	109.55 - 110.55	110.55 - 111.55	111.55 - 112.55
82	3.71	1980	89.67	109.55 - 110.55	110.55 - 111.55	111.55 - 112.55	112.55 - 113.55
51	2.31	2031	91.98	110.55 - 111.55	111.55 - 112.55	112.55 - 113.55	113.55 - 114.55
61	2.76	2092	94.75	111.55 - 112.55	112.55 - 113.55	113.55 - 114.55	114.55 - 115.55
35	1.59	2127	96.33	112.55 - 113.55	113.55 - 114.55	114.55 - 115.55	115.55 - 116.55
27	1.22	2154	97.55	113.55 - 114.55	114.55 - 115.55	115.55 - 116.55	116.55 - 117.55
17	.77	2171	98.32	114.55 - 115.55	115.55 - 116.55	116.55 - 117.55	117.55 - 118.55
19	.86	2190	99.18	115.55 - 116.55	116.55 - 117.55	117.55 - 118.55	118.55 - 119.55
6	.27	2196	99.46	116.55 - 117.55	117.55 - 118.55	118.55 - 119.55	119.55 - 120.55
4	.18	2200	99.64	117.55 - 118.55	118.55 - 119.55	119.55 - 120.55	120.55 - 121.55
3	.14	2203	99.77	118.55 - 119.55	119.55 - 120.55	120.55 - 121.55	121.55 - 122.55
3	.14	2206	99.91	119.55 - 120.55	120.55 - 121.55	121.55 - 122.55	122.55 - 123.55
1	.05	2207	99.95	120.55 - 121.55	121.55 - 122.55	122.55 - 123.55	123.55 - 124.55
0	.00	2207	99.95	121.55 - 122.55	122.55 - 123.55	123.55 - 124.55	124.55 - 125.55
0	.00	2207	99.95	122.55 - 123.55	123.55 - 124.55	124.55 - 125.55	125.55 - 126.55
1	.05	2208	100.00	123.55 - 124.55	124.55 - 125.55	125.55 - 126.55	126.55 - 127.55
				127.55 - 128.55	128.55 - 129.55	129.55 - 130.55	130.55 - 131.55
				131.55 - 132.55	132.55 - 133.55	133.55 - 134.55	134.55 - 135.55

## (103) THIGH CIRCUMFERENCE

The circumference of the right thigh at its juncture with the buttock is measured with a tape. The measurement is made perpendicular to the long axis of the thigh. The subject stands erect with the weight distributed equally on both feet. The legs are spread apart just enough so that the thighs do not touch.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
48.05	18.92	48.72	19.18
49.16	19.35	49.85	19.62
49.87	19.63	50.60	19.92
50.83	20.01	51.65	20.33
52.34	20.61	53.33	21.00
53.37	21.01	54.49	21.45
54.19	21.33	55.43	21.82
54.91	21.62	56.25	22.15
55.55	21.87	56.98	22.43
56.16	22.11	57.67	22.70
56.73	22.34	58.32	22.96
57.29	22.56	58.95	23.21
57.85	22.78	59.58	23.46
58.42	23.00	60.21	23.70
59.00	23.23	60.85	23.96
59.60	23.46	61.51	24.22
60.24	23.72	62.21	24.49
60.94	23.99	62.96	24.79
61.74	24.31	63.81	25.12
62.68	24.68	64.79	25.51
63.89	25.15	66.04	26.00
65.74	25.88	67.90	26.73
66.98	26.37	69.12	27.21
67.91	26.74	70.03	27.57
69.42	27.23	71.46	28.13

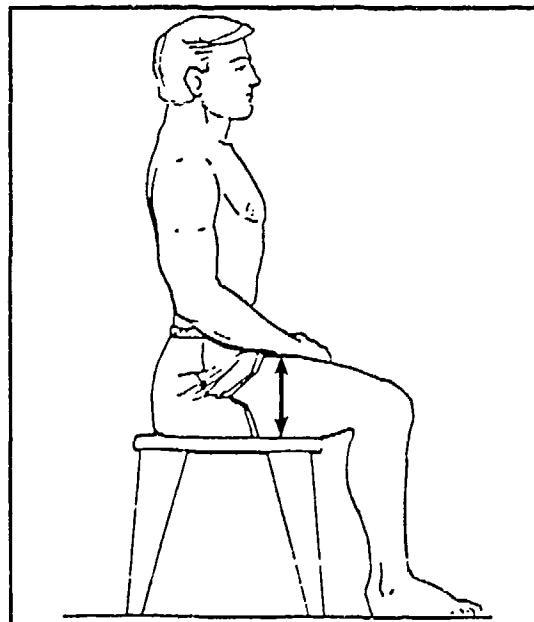
# THIGH CIRCUMFERENCE

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
58.03	MEAN VALUE	22.85	59.65	MEAN VALUE	23.48
.10	SE(MEAN)	.04	.12	SE(MEAN)	.05
4.50	STD DEVIATION	1.77	4.93	STD DEVIATION	1.94
.07	SE(STD DEV)	.03	.08	SE(STD DEV)	.03
45.40	MINIMUM	17.87	45.80	MINIMUM	18.03
74.80	MAXIMUM	29.45	78.70	MAXIMUM	30.98
SYMMETRY---VETA I	=	.24	SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.09	KURTOSIS---VETA II	=	2.95
COEF. OF VARIATION	=	7.8%	COEF. OF VARIATION	=	8.3%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
1	.05	1	.05	44.55 - 45.55	3	.17	3 .17
4	.18	5	.23	45.55 - 46.55	3	.17	6 .34
3	.14	8	.36	46.55 - 47.55	9	.51	15 .85
22	1.00	30	1.36	47.55 - 48.55	16	.90	31 1.75
28	1.27	58	2.63	48.55 - 49.55	14	.79	45 2.54
39	1.77	97	4.39	49.55 - 50.55	35	1.97	80 4.51
50	2.26	147	6.66	50.55 - 51.55	56	3.16	136 7.67
76	3.44	223	10.10	51.55 - 52.55	67	3.78	203 11.44
120	5.43	343	15.53	52.55 - 53.55	77	4.34	280 15.78
137	6.20	480	21.74	53.55 - 54.55	84	4.74	364 20.52
176	7.97	656	29.71	54.55 - 55.55	111	6.26	475 26.78
202	9.15	858	38.86	55.55 - 56.55	134	7.55	609 34.33
196	8.88	1054	47.74	56.55 - 57.55	120	6.76	729 41.09
178	8.06	1232	55.80	57.55 - 58.55	148	8.34	877 49.44
194	8.79	1426	64.58	58.55 - 59.55	144	8.12	1021 57.55
187	8.47	1613	73.05	59.55 - 60.55	140	7.89	1161 65.45
139	6.30	1752	79.35	60.55 - 61.55	124	6.99	1285 72.44
113	5.12	1865	84.47	61.55 - 62.55	120	6.76	1405 79.20
96	4.35	1961	88.81	62.55 - 63.55	86	4.85	1491 84.05
64	2.90	2025	91.71	63.55 - 64.55	69	3.89	1560 87.94
60	2.72	2085	94.43	64.55 - 65.55	70	3.95	1630 91.88
37	1.68	2172	96.11	65.55 - 66.55	45	2.54	1675 94.42
36	1.63	2158	97.74	66.55 - 67.55	28	1.58	1703 96.00
15	.68	2173	98.41	67.55 - 68.55	31	1.75	1734 97.75
17	.77	2190	99.15	68.55 - 69.55	12	.68	1746 98.42
7	.32	2197	99.50	69.55 - 70.55	11	.62	1757 99.04
5	.23	2202	99.73	70.55 - 71.55	7	.39	1764 99.44
2	.09	2204	99.82	71.55 - 72.55	4	.23	1768 99.66
1	.05	2205	99.86	72.55 - 73.55	1	.06	1769 99.72
2	.09	2207	99.95	73.55 - 74.55	2	.11	1771 99.83
1	.05	2208	100.00	74.55 - 75.55	2	.11	1773 99.94
				75.55 - 76.55	0	.00	1773 99.94
				76.55 - 77.55	0	.00	1773 99.94
				77.55 - 78.55	0	.00	1773 99.94
				78.55 - 79.55	1	.06	1774 100.00

## (104) THIGH CLEARANCE

The vertical distance between a sitting surface and the highest point on the top of the right thigh is measured with an anthropometer. The subject sits with the thighs parallel, knees flexed 90 degrees, and the feet in line with the thighs.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
13.38	5.27	1ST	14.09 5.55
13.64	5.37	2ND	14.40 5.67
13.81	5.44	3RD	14.59 5.75
14.04	5.53	5TH	14.86 5.85
14.40	5.67	10TH	15.27 6.01
14.65	5.77	15TH	15.54 6.12
14.86	5.85	20TH	15.76 6.21
15.04	5.92	25TH	15.96 6.28
15.21	5.99	30TH	16.13 6.35
15.36	6.05	35TH	16.30 6.42
15.51	6.11	40TH	16.45 6.48
15.66	6.17	45TH	16.61 6.54
15.82	6.23	50TH	16.76 6.60
15.97	6.29	55TH	16.91 6.66
16.13	6.35	60TH	17.07 6.72
16.29	6.41	65TH	17.24 6.79
16.47	6.48	70TH	17.42 6.86
16.67	6.56	75TH	17.62 6.94
16.89	6.65	80TH	17.84 7.03
17.16	6.75	85TH	18.11 7.13
17.50	6.89	90TH	18.46 7.27
18.02	7.09	95TH	18.99 7.48
18.36	7.23	97TH	19.35 7.62
18.61	7.33	98TH	19.63 7.73
19.01	7.48	99TH	20.07 7.90

# THIGH CLEARANCE

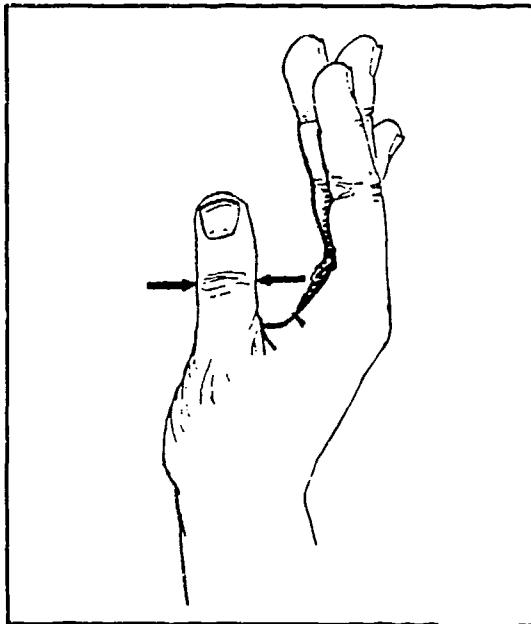
FEMALES		
<u>CM</u>	<u>INCHES</u>	
15.89	MEAN VALUE	6.26
.03	SE(MEAN)	.00
1.21	STD DEVIATION	.48
.02	SE(STD DEV)	.00
12.10	MINIMUM	4.76
20.60	MAXIMUM	8.11
SYMMETRY---VETA I	=	.35
KURTOSIS---VETA II	=	3.17
COEF. OF VARIATION	=	7.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
16.82	MEAN VALUE	6.62
.03	SE(MEAN)	.00
1.26	STD DEVIATION	.49
.02	SE(STD DEV)	.00
12.90	MINIMUM	5.08
22.00	MAXIMUM	8.66
SYMMETRY---VETA I	=	.30
KURTOSIS---VETA II	=	3.27
COEF. OF VARIATION	=	7.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	11.95 - 12.15		1	.06
0	.00	1	.05	12.15 - 12.35		0	.00
0	.00	1	.05	12.35 - 12.55		1	.06
1	.05	2	.09	12.55 - 12.75		1	.06
5	.23	7	.32	12.75 - 12.95		2	.11
6	.27	13	.59	12.95 - 13.15		3	.17
5	.23	18	.82	13.15 - 13.35		2	.11
17	.77	35	1.59	13.35 - 13.55		10	.56
23	1.04	58	2.63	13.55 - 13.75		19	1.07
34	1.54	92	4.17	13.75 - 13.95		38	2.14
42	1.90	134	6.07	13.95 - 14.15		9	.51
67	3.03	201	9.10	14.15 - 14.35		47	2.65
90	4.08	291	13.18	14.35 - 14.55		22	1.24
74	3.35	365	16.53	14.55 - 14.75		33	1.86
119	5.39	484	21.92	14.75 - 14.95		102	5.75
143	6.48	627	28.40	14.95 - 15.15		39	2.20
140	6.34	767	34.74	15.15 - 15.35		66	3.72
146	6.61	913	41.35	15.35 - 15.55		58	3.27
153	6.93	1066	48.28	15.55 - 15.75		83	4.68
130	5.89	1196	54.17	15.75 - 15.95		91	5.13
138	6.25	1334	60.42	15.95 - 16.15		102	5.75
135	6.11	1469	66.53	16.15 - 16.35		114	6.43
126	5.71	1595	72.24	16.35 - 16.55		103	5.81
105	4.76	1700	76.99	16.55 - 16.75		115	6.48
94	4.26	1794	81.25	16.75 - 16.95		115	6.48
88	3.99	1882	85.24	16.95 - 17.15		126	7.10
66	2.99	1948	88.22	17.15 - 17.35		95	5.36
59	2.67	2007	90.90	17.35 - 17.55		102	5.75
48	2.17	2055	93.07	17.55 - 17.75		83	4.68
33	1.49	2088	94.57	17.75 - 17.95		67	3.78
24	1.09	2112	95.65	17.95 - 18.15		64	3.61
28	1.27	2140	96.92	18.15 - 18.35		49	2.76
17	.77	2157	97.69	18.35 - 18.55		42	2.37
20	.91	2177	98.60	18.55 - 18.75		31	1.75
7	.32	2184	98.91	18.75 - 18.95		25	1.41
9	.41	2193	99.32	18.95 - 19.15		34	1.92
3	.14	2196	99.46	19.15 - 19.35		15	.85
5	.23	2201	99.68	19.35 - 19.55		13	.73
2	.09	2203	99.77	19.55 - 19.75		9	.51
0	.00	2203	99.77	19.75 - 19.95		10	.56
2	.09	2205	99.86	19.95 - 20.15		7	.39
1	.05	2206	99.91	20.15 - 20.35		4	.23
0	.00	2206	99.91	20.35 - 20.55		2	.11
2	.09	2208	100.00	20.55 - 20.75		4	.23
				20.75 - 20.95		0	.00
				20.95 - 21.15		0	.00
				21.15 - 21.35		2	.11
				21.35 - 21.55		1	.06
				21.55 - 21.75		0	.00
				21.75 - 21.95		0	.00
				21.95 - 22.15		1	.06

## (105) THUMB BREADTH

The maximum breadth of the right thumb perpendicular to its long axis is measured with a Holtain caliper. The thumb is straight and held away from the hand at about a 45-degree angle.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
1.78	.70	1ST	2.09 .82
1.81	.71	2ND	2.13 .84
1.84	.72	3RD	2.16 .85
1.86	.73	5TH	2.19 .86
1.91	.75	10TH	2.24 .88
1.93	.76	15TH	2.27 .90
1.96	.77	20TH	2.30 .91
1.97	.78	25TH	2.32 .91
1.99	.78	30TH	2.34 .92
2.01	.79	35TH	2.36 .93
2.03	.80	40TH	2.38 .94
2.04	.80	45TH	2.39 .94
2.06	.81	50TH	2.41 .95
2.08	.82	55TH	2.43 .96
2.09	.82	60TH	2.45 .96
2.11	.83	65TH	2.46 .97
2.13	.84	70TH	2.48 .98
2.15	.85	75TH	2.51 .99
2.18	.86	80TH	2.53 1.00
2.20	.87	85TH	2.56 1.01
2.24	.88	90TH	2.60 1.02
2.29	.90	95TH	2.65 1.04
2.31	.91	97TH	2.68 1.06
2.33	.92	98TH	2.71 1.07
2.35	.93	99TH	2.74 1.08

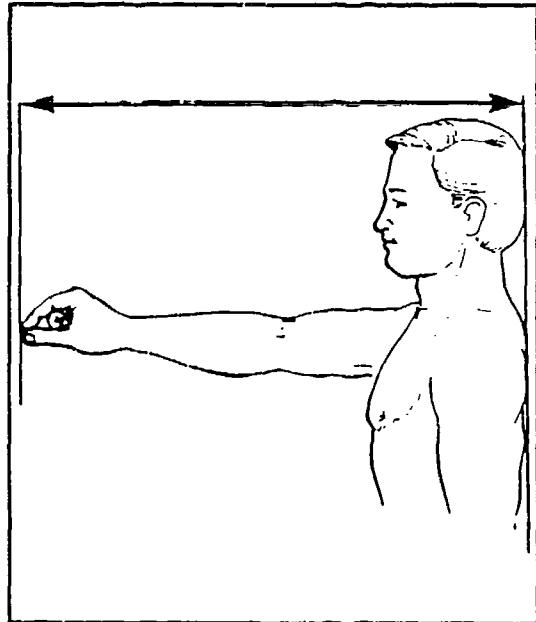
# THUMB BREADTH

FEMALES			MALES		
<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>	
2.07	MEAN VALUE	.81	2.41	MEAN VALUE	.95
.00	SE(MEAN)	.00	.00	SE(MEAN)	.00
.13	STD DEVIATION	.05	.14	STD DEVIATION	.05
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
1.70	MINIMUM	.67	1.90	MINIMUM	.75
2.50	MAXIMUM	.98	2.90	MAXIMUM	1.14
SYMMETRY---VETA I	=	.19	SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	2.88	KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	6.1%	COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	1.65 -	1.75		
70	3.17	72	3.26	1.75 -	1.85		
306	13.86	378	17.12	1.85 -	1.95	2	.11
663	30.03	1041	47.15	1.95 -	2.05	3	.17
625	28.31	1666	75.45	2.05 -	2.15	34	1.92
379	17.16	2045	92.62	2.15 -	2.25	128	7.22
142	6.43	2187	99.05	2.25 -	2.35	413	23.28
16	.72	2203	99.77	2.35 -	2.45	513	28.92
5	.23	2208	100.00	2.45 -	2.55	398	22.44
				2.55 -	2.65	209	11.78
				2.65 -	2.75	61	3.44
				2.75 -	2.85	12	.68
				2.85 -	2.95	1	.06

## (106) THUMBTIP REACH

The horizontal distance from a back wall to the tip of the right thumb is measured on a wall scale. The subject stands erect in a corner looking straight ahead with the feet together and the heels 20 cm from the back wall. The buttocks and shoulders are against the wall. The right arm and hand, palm down, are stretched forward horizontally along a scale on the side wall. The thumb continues the horizontal line of the arm and the index finger curves around to touch the pad at the end of the thumb. The subject's right shoulder is held against the rear wall.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
65.80	25.91	1ST	71.98 28.34
66.49	26.18	2ND	72.69 28.62
66.97	26.37	3RD	73.19 28.81
67.67	26.64	5TH	73.92 29.10
68.81	27.09	10TH	75.14 29.58
69.63	27.41	15TH	76.02 29.93
70.30	27.68	20TH	76.74 30.21
70.89	27.91	25TH	77.37 30.46
71.43	28.12	30TH	77.95 30.69
71.93	28.32	35TH	78.48 30.90
72.41	28.51	40TH	79.00 31.10
72.88	28.69	45TH	79.50 31.30
73.35	28.88	50TH	80.00 31.49
73.82	29.06	55TH	80.50 31.69
74.30	29.25	60TH	81.01 31.89
74.80	29.45	65TH	81.53 32.10
75.33	29.66	70TH	82.09 32.32
75.90	29.88	75TH	82.70 32.56
76.54	30.14	80TH	83.38 32.83
77.29	30.43	85TH	84.17 33.14
78.25	30.81	90TH	85.18 33.54
79.67	31.37	95TH	86.70 34.14
80.60	31.73	97TH	87.71 34.53
81.29	32.01	98TH	88.46 34.83
82.39	32.44	99TH	89.68 35.31

# THUMBTIP REACH

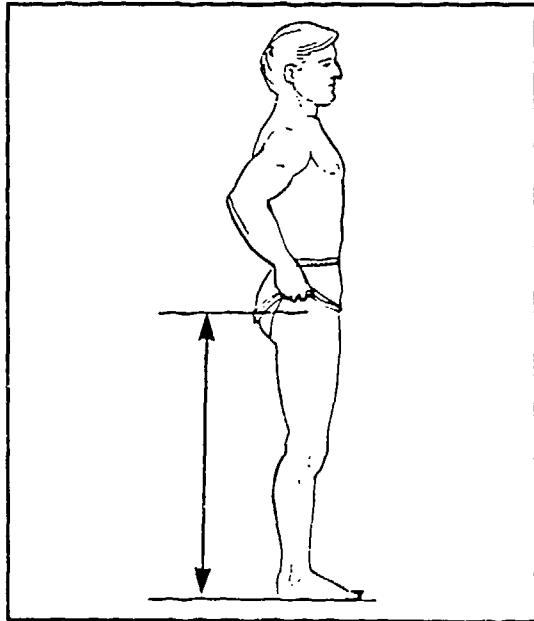
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
73.46	MEAN VALUE	28.92
.08	SE(MEAN)	.03
3.64	STD DEVIATION	1.43
.05	SE(STD DEV)	.02
60.50	MINIMUM	23.82
89.80	MAXIMUM	35.35
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
80.08	MEAN VALUE	31.53
.09	SE(MEAN)	.04
3.92	STD DEVIATION	1.54
.07	SE(STD DEV)	.03
66.20	MINIMUM	26.06
98.00	MAXIMUM	38.58
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.19
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
1	.05	1	.05	59.55	-	60.55	
0	.00	1	.05	60.55	-	61.55	
0	.00	1	.05	61.55	-	62.55	
4	.18	5	.23	62.55	-	63.55	
6	.27	11	.50	63.55	-	64.55	
9	.41	20	.91	64.55	-	65.55	
23	1.04	43	1.95	65.55	-	66.55	
52	2.36	95	4.30	66.55	-	67.55	
90	4.08	185	8.38	67.55	-	68.55	
136	5.16	321	14.54	68.55	-	69.55	
166	7.52	487	22.06	69.55	-	70.55	
209	9.47	696	31.52	70.55	-	71.55	
223	10.10	919	41.62	71.55	-	72.55	
246	11.14	1165	52.76	72.55	-	73.55	
229	10.37	1394	63.13	73.55	-	74.55	
182	8.24	1576	71.38	74.55	-	75.55	
202	9.15	1778	80.53	75.55	-	76.55	
141	6.39	1919	86.91	76.55	-	77.55	
112	5.07	2031	91.98	77.55	-	78.55	
66	2.99	2097	94.97	78.55	-	79.55	
42	1.90	2139	96.88	79.55	-	80.55	
33	1.49	2172	98.37	80.55	-	81.55	
18	.82	2190	99.18	81.55	-	82.55	
11	.50	2201	99.68	82.55	-	83.55	
3	.14	2204	99.82	83.55	-	84.55	
2	.09	2206	99.91	84.55	-	85.55	
0	.00	2206	99.91	85.55	-	86.55	
0	.00	2206	99.91	86.55	-	87.55	
1	.05	2207	99.95	87.55	-	88.55	
0	.00	2207	99.95	88.55	-	89.55	
1	.05	2208	100.00	89.55	-	90.55	
				90.55	-	91.55	
				91.55	-	92.55	
				92.55	-	93.55	
				93.55	-	94.55	
				94.55	-	95.55	
				95.55	-	96.55	
				96.55	-	97.55	
				97.55	-	98.55	

## (107) TROCHANTERION HEIGHT\*

The vertical distance between a standing surface and the trochanterion landmark on the upper side of the right thigh is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
76.05	29.94	1ST	82.13 32.33
77.19	30.39	2ND	83.44 32.85
77.93	30.68	3RD	84.23 33.16
78.93	31.08	5TH	85.29 33.58
80.48	31.69	10TH	86.87 34.20
81.54	32.10	15TH	87.94 34.62
82.37	32.43	20TH	88.79 34.96
83.09	32.71	25TH	89.54 35.25
83.74	32.97	30TH	90.21 35.52
84.34	33.21	35TH	90.85 35.77
84.92	33.43	40TH	91.45 36.01
85.47	33.65	45TH	92.05 36.24
86.03	33.87	50TH	92.65 36.48
86.59	34.09	55TH	93.25 36.71
87.15	34.31	60TH	93.87 36.96
87.74	34.54	65TH	94.52 37.21
88.37	34.79	70TH	95.21 37.49
89.06	35.06	75TH	95.97 37.78
89.84	35.37	80TH	96.82 38.12
90.75	35.73	85TH	97.81 38.51
91.94	36.20	90TH	99.06 39.00
93.77	36.92	95TH	100.89 39.72
95.01	37.41	97TH	102.03 40.17
95.96	37.78	98TH	102.83 40.49
97.50	38.39	99TH	104.02 40.95

\* Same as Trochanteric Height in previous reports.

# TROCHANTERION HEIGHT

FEMALES		
	<u>CM</u>	<u>INCHES</u>
86.16	MEAN VALUE	33.92
.10	SE(MEAN)	.04
4.52	STD DEVIATION	1.78
.07	SE(STD DEV)	.03
67.30	MINIMUM	26.50
106.20	MAXIMUM	41.81
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.33
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	2208

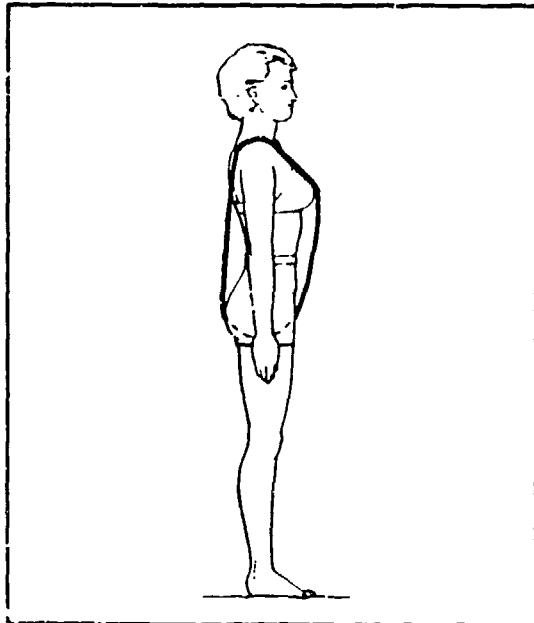
MALES		
	<u>CM</u>	<u>INCHES</u>
92.83	MEAN VALUE	36.55
.11	SE(MEAN)	.04
4.77	STD DEVIATION	1.88
.08	SE(STD DEV)	.03
75.00	MINIMUM	29.53
116.20	MAXIMUM	45.75
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.32
COEF. OF VARIATION	=	5.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	66.55 - 67.55			
0	.00	1	.05	67.55 - 68.55			
0	.00	1	.05	68.55 - 69.55			
0	.00	1	.05	69.55 - 70.55			
1	.05	2	.09	70.55 - 71.55			
0	.00	2	.09	71.55 - 72.55			
1	.05	3	.14	72.55 - 73.55			
3	.14	6	.27	73.55 - 74.55			
9	.41	15	.68	74.55 - 75.55	1	.06	1
19	.86	34	1.54	75.55 - 76.55	0	.00	1
18	.82	52	2.36	76.55 - 77.55	0	.00	1
32	1.45	84	3.80	77.55 - 78.55	4	.23	5
56	2.54	140	6.34	78.55 - 79.55	2	.11	7
76	3.44	216	9.78	79.55 - 80.55	5	.28	12
105	4.76	321	14.54	80.55 - 81.55	19	1.07	39
153	6.93	474	21.47	81.55 - 82.55	16	.90	55
160	7.25	634	28.71	82.55 - 83.55	42	2.37	97
199	9.01	833	37.73	83.55 - 84.55	55	3.10	152
186	8.42	1019	46.15	84.55 - 85.55	68	3.83	220
196	8.88	1215	55.03	85.55 - 86.55	141	7.95	723
166	7.52	1381	62.55	86.55 - 87.55	162	9.13	885
181	8.20	1562	70.74	87.55 - 88.55	143	8.06	1028
163	7.38	1725	78.13	88.55 - 89.55	105	5.92	325
124	5.62	1849	83.74	89.55 - 90.55	127	7.16	452
102	4.62	1951	88.36	90.55 - 91.55	130	7.33	582
82	3.71	2033	92.07	91.55 - 92.55	141	7.95	723
56	2.54	2089	94.61	92.55 - 93.55	162	9.13	885
44	1.99	2133	96.60	93.55 - 94.55	143	8.06	1028
23	1.04	2156	97.64	94.55 - 95.55	130	7.33	1158
19	.86	2175	98.51	95.55 - 96.55	119	6.71	1277
12	.54	2187	99.05	96.55 - 97.55	108	6.09	1385
6	.27	2193	99.32	97.55 - 98.55	104	5.86	1489
7	.32	2200	99.64	98.55 - 99.55	69	3.89	1558
0	.00	2200	99.64	99.55 - 100.55	64	3.61	1622
3	.14	2203	99.77	100.55 - 101.55	56	3.16	1678
4	.18	2207	99.95	101.55 - 102.55	33	1.86	1711
0	.00	2207	99.95	102.55 - 103.55	23	1.30	1734
0	.00	2207	99.95	103.55 - 104.55	17	.96	1751
0	.00	2207	99.95	104.55 - 105.55	9	.51	1760
1	.05	2208	100.00	105.55 - 106.55	4	.23	1764
				106.55 - 107.55	2	.11	1768
				107.55 - 108.55	0	.00	1770
				108.55 - 109.55	2	.11	1772
				109.55 - 110.55	0	.00	1772
				110.55 - 111.55	0	.00	1772
				111.55 - 112.55	1	.06	1773
				112.55 - 113.55	0	.00	1773
				113.55 - 114.55	0	.00	1773
				114.55 - 115.55	0	.00	1773
				115.55 - 116.55	1	.06	1774
							100.00

## (108) VERTICAL TRUNK CIRCUMFERENCE (ASCC)\*

The vertical circumference of the torso is measured with a tape passing between the buttocks, to the right of the genitalia, over the right bust-point landmark on women or the nipple (thelion) on men, and across the midshoulder landmark. The subject stands erect looking straight ahead with the right arm hanging relaxed at the side. The heels are together with the weight distributed equally on both feet. The measurement is taken at the midpoint of quiet respiration.

\* Aircrew Standardization Coordinating Committee



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
134.43	52.93	1ST	141.22 55.60
135.81	53.47	2ND	143.39 56.45
136.75	53.84	3RD	144.75 56.99
138.10	54.37	5TH	146.57 57.71
140.31	55.24	10TH	149.33 58.79
141.87	55.85	15TH	151.17 59.51
143.12	56.35	20TH	152.60 60.08
144.22	56.78	25TH	153.83 60.56
145.20	57.17	30TH	154.93 60.99
146.12	57.53	35TH	155.94 61.39
147.00	57.87	40TH	156.89 61.77
147.85	58.21	45TH	157.82 62.13
148.70	58.54	50TH	158.74 62.50
149.55	58.88	55TH	159.67 62.86
150.41	59.22	60TH	160.61 63.23
151.31	59.57	65TH	161.59 63.62
152.26	60.94	70TH	162.64 64.03
153.29	60.35	75TH	163.78 64.48
154.47	60.81	80TH	165.09 65.00
155.84	61.36	85TH	166.64 65.60
157.63	62.06	90TH	168.67 66.40
160.38	63.14	95TH	171.85 67.66
162.26	63.88	97TH	174.06 68.53
163.71	64.45	98TH	175.77 69.20
166.11	65.40	99TH	178.62 2

# VERTICAL TRUNK CIRCUMFERENCE (ASCC)

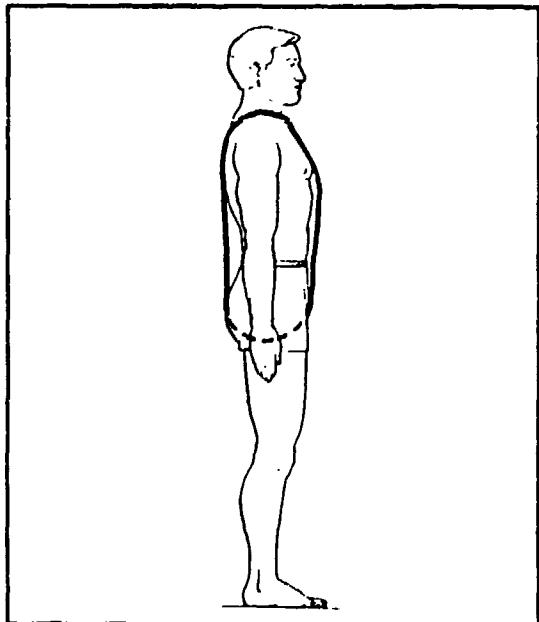
FEMALES			MALES		
CM	MEAN VALUE	INCHES	CM	MEAN VALUE	INCHES
148.89	MEAN VALUE	58.62	158.91	MEAN VALUE	62.56
.14	SE(MEAN)	.06	.18	SE(MEAN)	.07
6.75	STD DEVIATION	2.66	7.74	STD DEVIATION	3.05
.10	SE(STD DEV)	.04	.13	SE(STD DEV)	.05
128.20	MINIMUM	50.47	134.00	MINIMUM	52.76
174.00	MAXIMUM	68.50	187.50	MAXIMUM	73.82
SYMMETRY---VETA I	=	.20	SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.08	KURTOSIS---VETA II	=	3.37
COEF. OF VARIATION	=	4.5%	COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
P	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	127.75 - 129.25		3	.17
1	.05	2	.09	129.25 - 130.75		2	.11
8	.36	10	.45	130.75 - 132.25		3	.17
7	.32	17	.77	132.25 - 133.75		8	.45
14	.63	31	1.40	133.75 - 135.25		3	.17
27	1.22	58	2.63	135.25 - 136.75		10	.56
51	2.31	109	4.94	136.75 - 138.25		19	1.07
93	4.21	202	9.15	138.25 - 139.75		16	.90
99	4.48	301	13.63	139.75 - 141.25		19	1.07
107	4.85	408	18.48	141.25 - 142.75		6	.28
134	6.07	542	24.55	142.75 - 144.25		29	.45
175	7.93	717	32.47	144.25 - 145.75		48	.90
191	8.65	908	41.12	145.75 - 147.25		224	2.71
182	8.24	1090	49.37	147.25 - 148.75		107	3.61
208	9.42	1298	58.79	148.75 - 150.25		157	8.85
203	9.19	1501	67.98	150.25 - 151.75		224	12.63
160	7.25	1661	75.23	151.75 - 153.25		303	17.68
140	6.34	1801	81.57	153.25 - 154.75		400	22.55
111	5.03	1912	86.59	154.75 - 156.25		512	28.86
82	3.71	1994	90.31	156.25 - 157.75		646	36.41
64	2.90	2058	93.21	157.75 - 159.25		794	44.76
49	2.22	2107	95.43	159.25 - 160.75		947	53.38
33	1.49	2140	96.92	160.75 - 162.25		1080	60.88
22	1.00	2162	97.92	162.25 - 163.75		1205	67.93
18	.82	2180	98.73	163.75 - 165.25		1310	73.84
14	.63	2194	99.37	165.25 - 166.75		1421	80.10
3	.14	2197	99.50	166.75 - 168.25		1517	85.51
6	.27	2203	99.77	168.25 - 169.75		1591	89.68
1	.05	2204	99.82	169.75 - 171.25		1635	92.16
3	.14	2207	99.95	171.25 - 172.75		1773	94.31
1	.05	2208	100.00	172.75 - 174.25		1703	96.00
				174.25 - 175.75		1727	97.35
				175.75 - 177.25		1738	97.97
				177.25 - 178.75		1744	98.?
				178.75 - 180.25		1756	98.5
				180.25 - 181.75		1762	99.32
				181.75 - 183.25		1765	99.49
				183.25 - 184.75		1769	99.72
				184.75 - 186.25		1770	99.77
				186.25 - 187.75		1773	99.94
					1	1774	100.00

## (109) VERTICAL TRUNK CIRCUMFERENCE (USA)\*

The vertical circumference of the torso is measured with a tape passing over the maximum protrusion of the right buttock, to the right of the genitalia, over the right bustpoint landmark on women or the nipple (thelion) on men, and across the midshoulder landmark. The subject stands erect looking straight ahead with the right arm hanging relaxed at the side. The heels are together with the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration.

\* U.S. Army



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
137.99	54.33	1ST	144.55 56.91
139.57	54.95	2ND	147.11 57.92
140.60	55.35	3RD	148.64 58.52
142.04	55.92	5TH	150.64 59.31
144.32	56.82	10TH	153.54 60.45
145.89	57.44	15TH	155.41 61.18
147.15	57.93	20TH	156.85 61.75
148.26	58.37	25TH	158.09 62.24
149.25	58.76	30TH	159.18 62.67
150.18	59.13	35TH	160.19 63.07
151.07	59.47	40TH	161.15 63.45
151.93	59.81	45TH	162.08 63.81
152.79	60.15	50TH	163.01 64.18
153.66	60.49	55TH	163.95 64.55
154.54	60.84	60TH	164.90 64.92
155.46	61.21	65TH	165.90 65.31
156.44	61.59	70TH	166.96 65.73
157.51	62.01	75TH	168.13 66.19
158.73	62.49	80TH	169.47 66.72
160.16	63.05	85TH	171.06 67.34
162.01	63.78	90TH	173.13 68.16
164.84	64.90	95TH	176.34 69.43
166.76	65.65	97TH	178.53 70.29
168.21	66.22	98TH	180.19 70.94
170.58	67.16	99TH	182.90 72.01

# VERTICAL TRUNK CIRCUMFERENCE (USA)

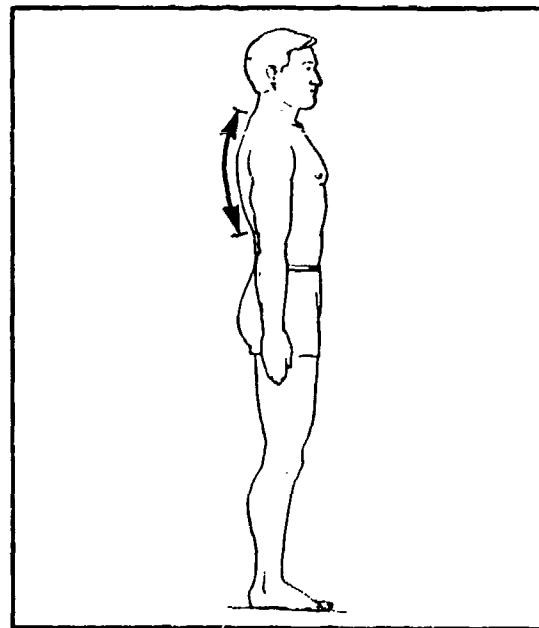
FEMALES		
<b>CM</b>	<b>INCHES</b>	
153.02	MEAN VALUE	60.24
.15	SE(MEAN)	.06
6.92	STD DEVIATION	2.72
.10	SE(STD DEV)	.04
132.30	MINIMUM	52.09
177.30	MAXIMUM	69.80
SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.03
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<b>CM</b>	<b>INCHES</b>	
163.18	MEAN VALUE	64.24
.19	SE(MEAN)	.07
7.81	STD DEVIATION	3.07
.13	SE(STD DEV)	.05
137.70	MINIMUM	54.21
190.40	MAXIMUM	74.96
SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	3.31
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	132.25	-	133.75	
3	.14	4	.18	133.75	-	135.25	
8	.36	12	.54	135.25	-	136.75	
14	.63	26	1.18	136.75	-	138.25	
16	.72	42	1.90	138.25	-	139.75	
37	1.68	79	3.58	139.75	-	141.25	
70	3.17	149	6.75	141.25	-	142.75	
77	3.49	226	10.24	142.75	-	144.25	
105	4.76	331	14.99	144.25	-	145.75	
109	4.94	440	19.93	145.75	-	147.25	
170	7.70	610	27.63	147.25	-	148.75	
172	7.79	782	35.42	148.75	-	150.25	
175	7.93	957	43.34	150.25	-	151.75	
190	8.61	1147	51.95	151.75	-	153.25	
207	9.38	1354	61.32	153.25	-	154.75	
184	8.33	1538	69.66	154.75	-	156.25	
148	6.70	1686	76.36	156.25	-	157.75	
130	5.89	1816	82.25	157.75	-	159.25	
102	4.62	1918	86.87	159.25	-	160.75	
80	3.62	1998	90.49	160.75	-	162.25	
61	2.76	2059	93.25	162.25	-	163.75	
49	2.22	2108	95.47	163.75	-	165.25	
36	1.63	2144	97.10	165.25	-	166.75	
21	.95	2165	98.05	166.75	-	168.25	
10	.45	2175	98.51	168.25	-	169.75	
16	.72	2191	99.23	169.75	-	171.25	
8	.36	2199	99.59	171.25	-	172.75	
6	.27	2205	99.86	172.75	-	174.25	
0	.00	2205	99.86	174.25	-	175.75	
2	.09	2207	99.95	175.75	-	177.25	
1	.05	2208	100.00	177.25	-	178.75	
				178.75	-	180.25	
				180.25	-	181.75	
				181.75	-	183.25	
				183.25	-	184.75	
				184.75	-	186.25	
				186.25	-	187.75	
				187.75	-	189.25	
				189.25	-	190.75	

## (110) WAIST BACK LENGTH (NATURAL INDENTATION)

The surface distance between the cervicale landmark on the back of the neck and the posterior-waist (natural indentation) landmark is measured with a tape. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
31.35	12.34	18T	35.98 14.17
31.88	12.55	2ND	36.49 14.37
32.23	12.69	3RD	36.85 14.51
32.73	12.89	5TH	37.35 14.71
33.54	13.21	10TH	38.17 15.03
34.11	13.43	15TH	38.74 15.25
34.57	13.61	20TH	39.20 15.43
34.98	13.77	25TH	39.60 15.59
35.35	13.92	30TH	39.95 15.73
35.69	14.05	35TH	40.28 15.86
36.02	14.18	40TH	40.59 15.98
36.34	14.31	45TH	40.89 16.10
36.65	14.43	50TH	41.19 16.22
36.97	14.56	55TH	41.48 16.33
37.30	14.69	60TH	41.78 16.45
37.64	14.82	65TH	42.09 16.57
38.00	14.96	70TH	42.41 16.70
38.39	15.11	75TH	42.76 16.84
38.83	15.29	80TH	43.15 16.99
39.34	15.49	85TH	43.61 17.17
39.99	15.75	90TH	44.19 17.40
40.98	16.13	95TH	45.06 17.74
41.62	16.39	97TH	45.65 17.97
42.11	16.58	98TH	46.11 18.15
42.88	16.88	99TH	46.85 18.44

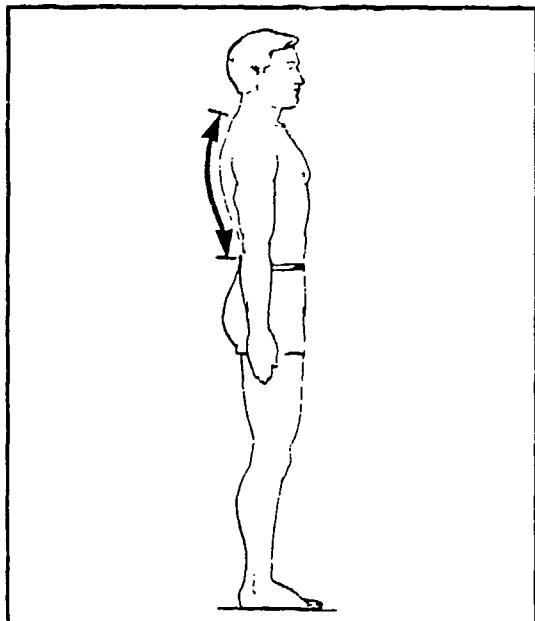
# WAIST BACK LENGTH (NATURAL INDENTATION)

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
36.73	MEAN VALUE	14.46	41.20	MEAN VALUE	16.22
.05	SE(MEAN)	.02	.06	SE(MEAN)	.02
2.50	STD DEVIATION	.99	2.32	STD DEVIATION	.91
.04	SE(STD DEV)	.00	.04	SE(STD DEV)	.02
28.30	MINIMUM	11.14	34.50	MINIMUM	13.58
47.70	MAXIMUM	18.78	49.30	MAXIMUM	19.41
SYMMETRY---VETA I	=	.20	SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.07	KURTOSIS---VETA II	=	2.92
COEF. OF VARIATION	=	6.8%	COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	28.25 - 28.75		3	.17
1	.05	2	.09	28.75 - 29.25		3	.17
1	.05	3	.14	29.25 - 29.75		6	.34
3	.14	6	.27	29.75 - 30.25			
2	.09	8	.36	30.25 - 30.75			
10	.45	18	.82	30.75 - 31.25			
16	.72	34	1.54	31.25 - 31.75			
38	1.72	72	3.26	31.75 - 32.25			
45	2.04	117	5.30	32.25 - 32.75			
58	2.63	175	7.93	32.75 - 33.25			
78	3.53	253	11.46	33.25 - 33.75			
101	4.57	354	16.03	33.75 - 34.25			
106	4.80	460	20.83	34.25 - 34.75	3	.17	.17
154	6.97	614	27.81	34.75 - 35.25	3	.17	
183	8.29	797	36.10	35.25 - 35.75	4	.23	.56
178	8.06	975	44.16	35.75 - 36.25	16	.90	1.47
182	8.24	1157	52.40	36.25 - 36.75	25	1.41	2.87
176	7.97	1333	60.37	36.75 - 37.25	35	1.97	4.85
147	6.66	1480	67.03	37.25 - 37.75	32	1.80	118 6.65
128	5.80	1608	72.83	37.75 - 38.25	64	3.61	182 10.26
135	6.11	1743	78.94	38.25 - 38.75	79	4.45	261 14.71
108	4.89	1851	83.83	38.75 - 39.25	93	5.24	354 19.95
79	3.58	1930	87.41	39.25 - 39.75	121	6.82	475 26.78
88	3.99	2018	91.39	39.75 - 40.25	144	8.12	619 34.89
63	2.85	2081	94.25	40.25 - 40.75	135	7.61	754 42.50
46	2.08	2127	96.33	40.75 - 41.25	160	9.02	914 51.52
23	1.04	2150	97.37	41.25 - 41.75	153	8.62	1067 60.15
22	1.00	2172	98.37	41.75 - 42.25	126	7.10	1193 67.25
10	.45	2182	98.82	42.25 - 42.75	133	7.50	1326 74.75
11	.50	2193	99.32	42.75 - 43.25	113	6.37	1439 81.12
6	.27	2199	99.59	43.25 - 43.75	96	5.41	1535 86.53
3	.14	2202	99.73	43.75 - 44.25	67	3.78	1602 90.30
3	.14	2205	99.86	44.25 - 44.75	61	3.44	1663 93.74
2	.09	2207	99.95	44.75 - 45.25	39	2.20	1702 95.94
0	.00	2207	99.95	45.25 - 45.75	23	1.30	1725 97.24
0	.00	2207	99.95	45.75 - 46.25	18	1.01	1743 98.25
0	.00	2207	99.95	46.25 - 46.75	12	.68	1755 98.93
0	.00	2207	99.95	46.75 - 47.25	10	.56	1765 99.49
1	.05	2208	100.00	47.25 - 47.75	4	.23	1769 99.72
				47.75 - 48.25	3	.17	1772 99.89
				48.25 - 48.75	1	.06	1773 99.94
				48.75 - 49.25	0	.00	1773 99.94
				49.25 - 49.75	1	.06	1774 100.00

## (111) WAIST BACK LENGTH (OMPHALION)

The surface distance between the cervicale landmark at the back of the neck and the posterior-waist (omphalion) landmark at the level of the navel is measured with a tape. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
38.98	15.35	1ST	41.91 16.50
39.52	15.56	2ND	42.53 16.74
39.87	15.70	3RD	42.95 16.91
40.37	15.89	5TH	43.54 17.14
41.16	16.21	10TH	44.47 17.51
41.72	16.42	15TH	45.12 17.76
42.16	16.60	20TH	45.63 17.96
42.56	16.75	25TH	46.06 18.14
42.91	16.89	30TH	46.46 18.29
43.24	17.02	35TH	46.82 18.43
43.55	17.15	40TH	47.16 18.57
43.85	17.27	45TH	47.48 18.69
44.16	17.39	50TH	47.81 18.82
44.47	17.51	55TH	48.13 18.95
44.78	17.63	60TH	48.46 19.08
45.11	17.76	65TH	48.80 19.21
45.45	17.89	70TH	49.16 19.35
45.83	18.04	75TH	49.55 19.51
46.27	18.22	80TH	50.00 19.68
46.78	18.42	85TH	50.52 19.89
47.44	18.68	90TH	51.21 20.16
48.47	19.08	95TH	52.32 20.60
49.17	19.36	97TH	53.10 20.91
49.71	19.57	98TH	53.72 21.15
50.60	19.92	99TH	54.78 21.57

# WAIST BACK LENGTH (OMPHALION)

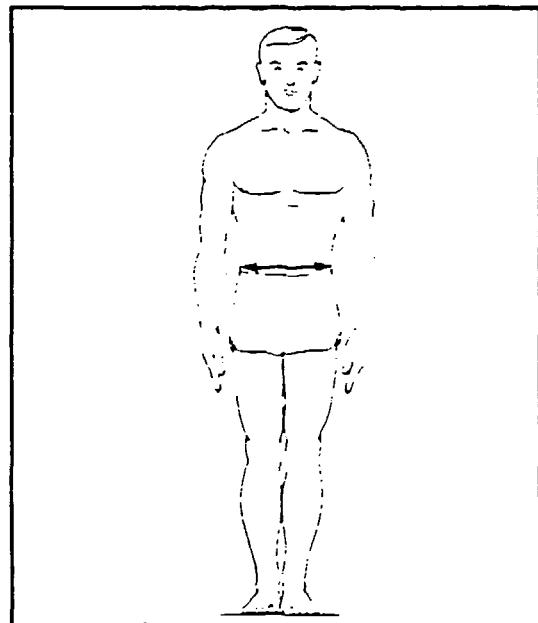
FEMALES		
<u>CM</u>	<u>INCHES</u>	
44.25	MEAN VALUE	17.42
.05	SE(MEAN)	.02
2.46	STD DEVIATION	.97
.04	SE(STD DEV)	.00
36.30	MINIMUM	14.29
55.50	MAXIMUM	21.85
SYMMETRY---VETA I	=	.27
KURTOSIS---VETA II	=	3.30
COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
47.85	MEAN VALUE	18.84
.06	SE(MEAN)	.03
2.68	STD DEVIATION	1.06
.05	SE(STD DEV)	.02
38.50	MINIMUM	15.16
57.10	MAXIMUM	22.48
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct		
1	.05	1	.05	36.25 - 36.75		1	.06		
2	.09	3	.14	36.75 - 37.25		0	.00		
3	.14	6	.27	37.25 - 37.75		1	.06		
4	.18	10	.45	37.75 - 38.25		2	.11		
7	.32	17	.77	38.25 - 38.75		1	.06		
11	.50	28	1.27	38.75 - 39.25		11	.62		
27	1.22	55	2.49	39.25 - 39.75		8	.45		
47	2.13	102	4.62	39.75 - 40.25		16	.90		
57	2.58	159	7.20	40.25 - 40.75		24	1.35		
83	3.76	242	10.96	40.75 - 41.25		114	6.43		
85	3.85	327	14.81	41.25 - 41.75		103	5.81		
141	6.39	468	21.20	41.75 - 42.25		118	6.65		
155	7.02	623	28.22	42.25 - 42.75		136	7.67		
148	6.70	771	34.92	42.75 - 43.25		120	6.76		
168	7.61	939	42.53	43.25 - 43.75		124	6.99		
182	8.24	1121	50.77	43.75 - 44.25		129	7.27		
188	8.51	1309	59.28	44.25 - 44.75		116	6.54		
183	8.29	1492	67.57	44.75 - 45.25		89	5.02		
153	6.93	1645	74.50	45.25 - 45.75		136	7.67		
130	5.89	1775	80.39	45.75 - 46.25		120	6.76		
110	4.98	1885	85.37	46.25 - 46.75		124	6.99		
70	3.17	1955	88.54	46.75 - 47.25		129	7.27		
85	3.85	2040	92.39	47.25 - 47.75		116	6.54		
39	1.77	2079	94.16	47.75 - 48.25		89	5.02		
37	1.68	2116	95.83	48.25 - 48.75		136	7.67		
28	1.27	2144	97.10	48.75 - 49.25		120	6.76		
18	.82	2162	97.92	49.25 - 49.75		124	6.99		
19	.86	2181	98.78	49.75 - 50.25		129	7.27		
9	.41	2190	99.18	50.25 - 50.75		116	6.54		
2	.09	2192	99.28	50.75 - 51.25		89	5.02		
7	.32	2199	99.59	51.25 - 51.75		136	7.67		
5	.23	2204	99.82	51.75 - 52.25		120	6.76		
2	.09	2206	99.91	52.25 - 52.75		124	6.99		
1	.05	2207	99.95	52.75 - 53.25		129	7.27		
0	.00	2207	99.95	53.25 - 53.75		116	6.54		
0	.00	2207	99.95	53.75 - 54.25		89	5.02		
0	.00	2207	99.95	54.25 - 54.75		136	7.67		
1	.05	2208	100.00	54.75 - 55.25		120	6.76		
				55.25 - 55.75		124	6.99		
				55.75 - 56.25		129	7.27		
				56.25 - 56.75		116	6.54		
				56.75 - 57.25		89	5.02		

## (112) WAIST BREADTH

The horizontal breadth of the waist at the level of omphalion is measured with a beam caliper. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
23.72	9.34	1ST	24.98 9.83
24.18	9.52	2ND	25.59 10.08
24.48	9.64	3RD	25.98 10.23
24.89	9.80	5TH	26.51 10.44
25.58	10.07	10TH	27.36 10.77
26.07	10.26	15TH	27.95 11.00
26.49	10.43	20TH	28.43 11.19
26.88	10.58	25TH	28.87 11.36
27.24	10.72	30TH	29.26 11.52
27.59	10.86	35TH	29.64 11.67
27.93	11.00	40TH	30.00 11.81
28.27	11.13	45TH	30.36 11.95
28.63	11.27	50TH	30.73 12.10
28.99	11.41	55TH	31.10 12.24
29.38	11.57	60TH	31.48 12.39
29.78	11.73	65TH	31.88 12.55
30.23	11.90	70TH	32.31 12.72
30.72	12.09	75TH	32.79 12.91
31.29	12.32	80TH	33.32 13.12
31.97	12.59	85TH	33.95 13.37
32.86	12.94	90TH	34.76 13.68
34.22	13.47	95TH	35.95 14.16
35.11	13.82	97TH	36.72 14.46
35.77	14.08	98TH	37.27 14.67
36.79	14.49	99TH	38.11 15.01

# WAIST BREADTH

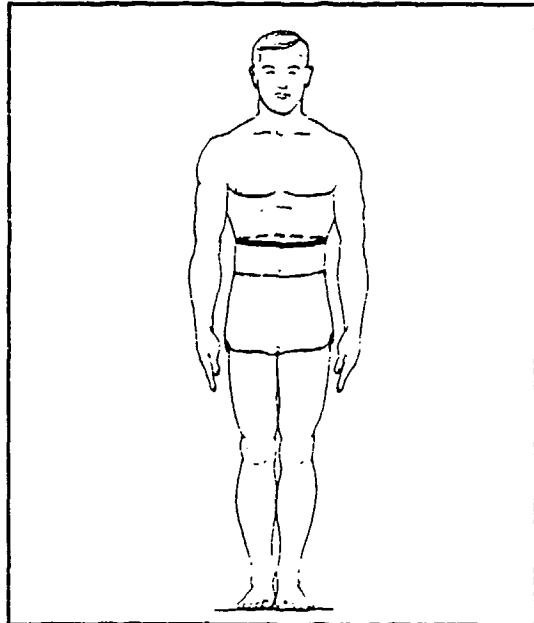
FEMALES		
<u>CM</u>	<u>INCHES</u>	
28.97	MEAN VALUE	11.40
.06	SE(MEAN)	.02
2.83	STD DEVIATION	1.11
.04	SE(STD DEV)	.02
22.50	MINIMUM	8.86
39.00	MAXIMUM	15.35
SYMMETRY---VETA I	=	.57
KURTOSIS---VETA II	=	3.12
COEF. OF VARIATION	=	9.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
30.93	MEAN VALUE	12.18
.07	SE(MEAN)	.03
2.87	STD DEVIATION	1.13
.05	SE(STD DEV)	.02
23.50	MINIMUM	9.25
40.50	MAXIMUM	15.94
SYMMETRY---VETA I	=	.34
KURTOSIS---VETA II	=	2.91
COEF. OF VARIATION	=	9.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	22.25 - 22.75			
7	.32	8	.36	22.75 - 23.25			
13	.59	21	.95	23.25 - 23.75		2	.11
27	1.22	48	2.17	23.75 - 24.25		3	.17
49	2.22	97	4.39	24.25 - 24.75		8	.45
68	3.08	165	7.47	24.75 - 25.25		10	.56
95	4.30	260	11.78	25.25 - 25.75		20	1.13
112	5.07	372	16.85	25.75 - 26.25		23	1.30
135	6.11	507	22.96	26.25 - 26.75		40	2.25
149	6.75	656	29.71	26.75 - 27.25		58	3.27
151	6.84	807	36.55	27.25 - 27.75		67	3.78
170	7.70	977	44.25	27.75 - 28.25		76	4.28
157	7.11	1134	51.36	28.25 - 28.75		102	5.75
150	6.79	1284	58.15	28.75 - 29.25		124	6.99
166	7.52	1450	65.67	29.25 - 29.75		120	6.76
119	5.39	1569	71.06	29.75 - 30.25		127	7.16
95	4.30	1664	75.36	30.25 - 30.75		114	6.43
104	4.71	1768	80.07	30.75 - 31.25		131	7.38
79	3.58	1847	83.65	31.25 - 31.75		105	5.92
69	3.13	1916	86.78	31.75 - 32.25		96	5.41
65	2.94	1981	89.72	32.25 - 32.75		97	5.47
45	2.04	2026	91.76	32.75 - 33.25		79	4.45
43	1.95	2069	93.70	33.25 - 33.75		74	4.17
30	1.36	2099	95.06	33.75 - 34.25		56	3.16
32	1.45	2131	96.51	34.25 - 34.75		60	3.38
11	.50	2142	97.01	34.75 - 35.25		38	2.14
20	.91	2162	97.92	35.25 - 35.75		45	2.54
10	.45	2172	98.37	35.75 - 36.25		28	1.58
16	.72	2188	99.09	36.25 - 36.75		22	1.24
10	.45	2198	99.55	36.75 - 37.25		16	.90
6	.27	2204	99.82	37.25 - 37.75		8	.45
0	.00	2204	99.82	37.75 - 38.25		8	.45
3	.14	2207	99.95	38.25 - 38.75		4	.23
1	.05	2208	100.00	38.75 - 39.25		7	.39
				39.25 - 39.75		2	.11
				39.75 - 40.25		2	.11
				40.25 - 40.75		2	.11

### (113) WAIST CIRCUMFERENCE (NATURAL INDENTATION)

The horizontal circumference of the waist at the level of its natural indentation is measured with a tape passing over right and left waist (natural indentation) landmarks. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is made at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
60.69	23.89	69.92	27.53
61.96	24.39	71.07	27.98
62.72	24.69	71.85	28.29
63.74	25.09	72.99	28.73
65.30	25.71	74.91	29.49
66.38	26.13	76.33	30.05
67.27	26.49	77.53	30.52
68.08	26.80	78.61	30.95
68.83	27.10	79.61	31.34
69.55	27.38	80.58	31.72
70.27	27.66	81.52	32.09
70.99	27.95	82.45	32.46
71.73	28.24	83.40	32.83
72.50	28.54	84.36	33.21
73.31	28.86	85.36	33.61
74.18	29.20	86.41	34.02
75.13	29.58	87.54	34.47
76.21	30.01	88.79	34.96
77.48	30.50	90.20	35.51
79.01	31.11	91.86	36.17
81.07	31.92	93.98	37.00
84.32	33.20	97.14	38.24
86.56	34.08	99.16	39.04
88.27	34.75	100.62	39.62
91.03	35.84	102.86	40.50

# WAIST CIRCUMFERENCE (NATURAL INDENTATION)

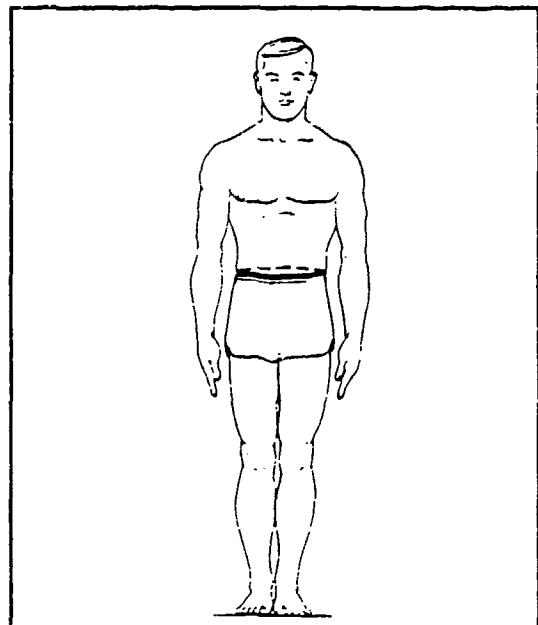
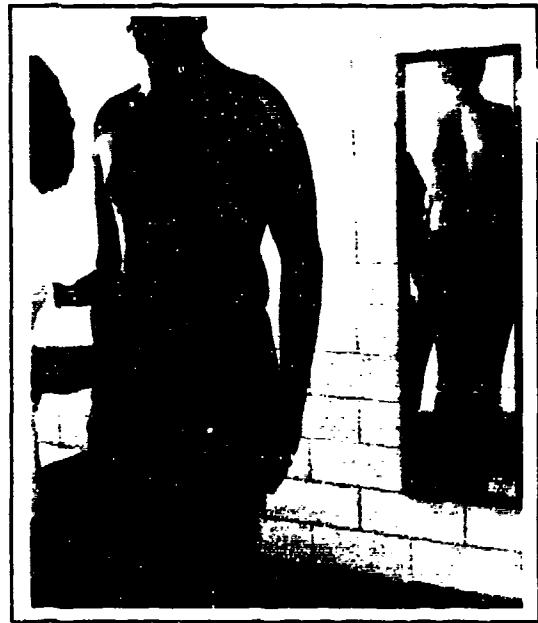
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
72.55	MEAN VALUE	28.56
.13	SE(MEAN)	.05
6.30	STD DEVIATION	2.48
.09	SE(STD DEV)	.04
56.80	MINIMUM	22.36
98.70	MAXIMUM	38.86
SYMMETRY---VETA I	=	.73
KURTOSIS---VETA II	=	3.72
COEF. OF VARIATION	=	8.7%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
83.99	MEAN VALUE	33.07
.18	SE(MEAN)	.07
7.40	STD DEVIATION	2.91
.12	SE(STD DEV)	.05
64.70	MINIMUM	25.47
112.20	MAXIMUM	44.17
SYMMETRY---VETA I	=	.41
KURTOSIS---VETA II	=	2.96
COEF. OF VARIATION	=	8.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
				56.75 - 58.25	59.25 - 59.75	60.75 - 61.25	62.25 - 64.25
3	.14	3	.14	64.25 - 65.75	65.75 - 67.25	68.75 - 70.25	71.25 - 72.75
6	.27	9	.41	65.75 - 67.25	67.25 - 68.75	69.75 - 71.25	71.25 - 72.75
19	.86	28	1.27	68.75 - 70.25	70.25 - 71.75	71.75 - 73.25	73.25 - 74.75
48	2.17	76	3.44	70.25 - 71.75	71.75 - 73.25	73.25 - 74.75	74.75 - 76.25
61	2.76	137	6.20	71.75 - 73.25	73.25 - 74.75	74.75 - 76.25	76.25 - 77.75
129	5.84	266	12.05	73.25 - 74.75	74.75 - 76.25	76.25 - 77.75	77.75 - 79.25
157	7.11	423	19.16	74.75 - 76.25	76.25 - 77.75	77.75 - 79.25	79.25 - 80.75
215	9.74	638	28.89	76.25 - 77.75	77.75 - 79.25	79.25 - 80.75	80.75 - 82.25
222	10.05	860	38.95	77.75 - 79.25	79.25 - 80.75	80.75 - 82.25	82.25 - 83.75
252	11.41	1112	50.36	79.25 - 80.75	80.75 - 82.25	82.25 - 83.75	83.75 - 85.25
215	9.74	1327	60.10	80.75 - 82.25	82.25 - 83.75	83.75 - 85.25	85.25 - 86.75
196	8.88	1523	68.98	82.25 - 83.75	83.75 - 85.25	85.25 - 86.75	86.75 - 88.25
142	6.43	1665	75.41	83.75 - 85.25	85.25 - 86.75	86.75 - 88.25	88.25 - 89.75
121	5.48	1786	80.89	85.25 - 86.75	86.75 - 88.25	88.25 - 89.75	90.25 - 91.75
107	4.85	1893	85.73	86.75 - 88.25	88.25 - 89.75	90.25 - 91.75	91.75 - 93.25
83	3.76	1976	89.49	88.25 - 89.75	89.75 - 91.25	91.25 - 92.75	92.75 - 94.25
55	2.49	2031	91.98	90.25 - 91.75	91.25 - 92.75	92.75 - 94.25	94.25 - 95.75
57	2.58	2088	94.57	91.25 - 92.75	92.75 - 94.25	94.25 - 95.75	95.75 - 97.25
32	1.45	2120	96.01	93.25 - 94.75	94.75 - 96.25	96.25 - 97.75	97.75 - 99.25
21	.95	2141	96.97	95.25 - 96.75	96.75 - 98.25	98.25 - 99.75	100.25 - 101.75
18	.82	2159	97.78	96.75 - 98.25	98.25 - 99.75	99.75 - 101.25	101.25 - 102.75
18	.82	2177	98.60	98.25 - 99.75	99.75 - 101.25	101.25 - 102.75	102.75 - 104.25
13	.59	2190	99.18	99.75 - 101.25	101.25 - 102.75	102.75 - 104.25	104.25 - 105.75
7	.32	2197	99.50	101.25 - 102.75	102.75 - 104.25	104.25 - 105.75	105.75 - 107.25
4	.18	2201	99.68	102.75 - 104.25	104.25 - 105.75	105.75 - 107.25	107.25 - 108.75
2	.09	2203	99.77	104.25 - 105.75	105.75 - 107.25	107.25 - 108.75	108.75 - 110.25
3	.14	2206	99.91	105.75 - 107.25	107.25 - 108.75	108.75 - 110.25	110.25 - 111.75
2	.09	2208	100.00	107.25 - 108.75	108.75 - 110.25	110.25 - 111.75	111.75 - 113.25

## (114) WAIST CIRCUMFERENCE (OMPHALION)

The horizontal circumference of the waist at the level of the center of the navel (omphalion) is measured with a tape. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
64.42	25.36	69.65	27.42
65.64	25.84	71.01	27.96
66.44	26.16	71.94	28.32
67.56	26.60	73.26	28.84
69.43	27.34	75.51	29.73
70.82	27.88	77.18	30.39
72.00	28.35	78.58	30.94
73.09	28.78	79.86	31.44
74.11	29.18	81.05	31.91
75.11	29.57	82.19	32.36
76.09	29.96	83.31	32.80
77.08	30.35	84.42	33.24
78.10	30.75	85.55	33.68
79.16	31.17	86.70	34.13
80.27	31.60	87.89	34.60
81.46	32.07	89.14	35.09
82.75	32.58	90.48	35.62
84.20	33.15	91.95	36.20
85.88	33.81	93.62	36.86
87.89	34.60	95.56	37.62
90.54	35.65	98.02	38.59
94.63	37.26	101.59	40.00
97.37	38.33	103.82	40.87
99.40	39.13	105.38	41.49
102.61	40.40	107.67	42.39

# WAIST CIRCUMFERENCE (OMPHALION)

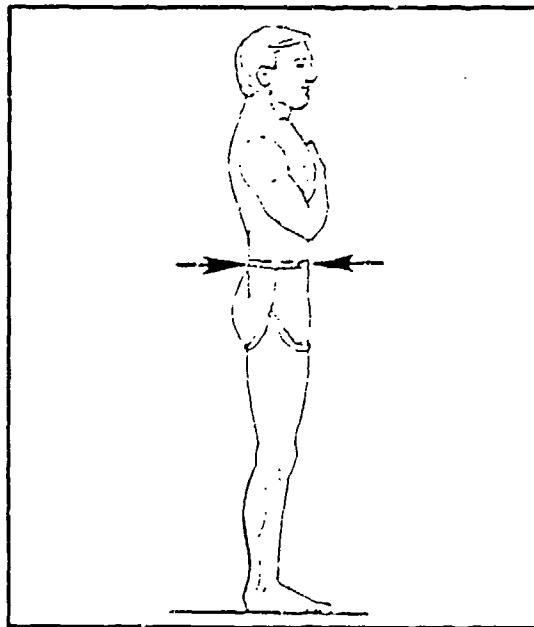
FEMALES		
<u>CM</u>	<u>INCHES</u>	
79.19	MEAN VALUE	31.18
.18	SE(MEAN)	.07
8.27	STD DEVIATION	3.26
.12	SE(STD DEV)	.05
61.00	MINIMUM	24.02
110.80	MAXIMUM	43.62
SYMMETRY---VETA I	=	.67
KURTOSIS---VETA II	=	3.28
COEF. OF VARIATION	=	10.4%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
86.24	MEAN VALUE	33.95
.21	SE(MEAN)	.08
8.64	STD DEVIATION	3.40
.15	SE(STD DEV)	.06
65.40	MINIMUM	25.75
118.50	MAXIMUM	46.65
SYMMETRY---VETA I	=	.40
KURTOSIS---VETA II	=	2.85
COEF. OF VARIATION	=	10.0%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
3	.14	3	.14	60.75 - 62.25			
10	.45	13	.59	62.25 - 63.75			
19	.86	32	1.45	63.75 - 65.25			
45	2.04	77	3.49	65.25 - 66.75		2	.11
68	3.08	145	6.57	66.75 - 68.25		5	.28
91	4.12	236	10.69	68.25 - 69.75		11	.62
123	5.57	359	16.26	69.75 - 71.25		21	1.18
158	7.16	517	23.41	71.25 - 72.75		34	1.92
174	7.88	691	31.30	72.75 - 74.25		38	2.14
158	7.16	849	38.45	74.25 - 75.75		71	4.00
151	6.84	1000	45.29	75.75 - 77.25		93	5.24
171	7.74	1171	53.03	77.25 - 78.75		90	5.07
142	6.43	1313	59.47	78.75 - 80.25		112	6.31
148	6.70	1461	66.17	80.25 - 81.75		120	6.76
136	6.16	1597	72.33	81.75 - 83.25		114	6.43
103	4.66	1700	76.99	83.25 - 84.75		105	5.92
112	5.07	1812	82.07	84.75 - 86.25		125	7.05
65	2.94	1877	85.01	86.25 - 87.75		114	6.43
53	2.40	1930	87.41	87.75 - 89.25		113	6.37
51	2.31	1981	89.72	89.25 - 90.75		88	4.96
51	2.31	2032	92.03	90.75 - 92.25		91	5.13
50	2.26	2082	94.29	92.25 - 93.75		73	4.11
27	1.22	2109	95.52	93.75 - 95.25		54	3.04
26	1.18	2135	96.69	95.25 - 96.75		71	4.00
17	.77	2152	97.46	96.75 - 98.25		54	3.04
9	.41	2161	97.87	98.25 - 99.75		51	2.87
17	.77	2178	98.64	99.75 - 101.25		30	1.69
12	.54	2190	99.18	101.25 - 102.75		28	1.58
5	.23	2195	99.41	102.75 - 104.25		23	1.30
8	.36	2203	99.77	104.25 - 105.75		17	.96
1	.05	2204	99.82	105.75 - 107.25		4	.23
2	.09	2206	99.91	107.25 - 108.75		8	.45
1	.05	2207	99.95	108.75 - 110.25		8	.45
1	.05	2208	100.00	110.25 - 111.75		0	.00
				111.75 - 113.25		1	.06
				113.25 - 114.75		2	.11
				114.75 - 116.25		0	.00
				116.25 - 117.75		2	.11
				117.75 - 119.25		1	.06
						1774	100.00

## (115) WAIST DEPTH

The horizontal distance between the front and back of the waist at the level of the center of the navel (omphalion) is measured with a beam caliper. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.84	6.24	1ST	17.91 7.05
16.34	6.43	2ND	18.32 7.21
16.62	6.54	3RD	18.59 7.32
16.99	6.69	5TH	18.95 7.46
17.56	6.91	10TH	19.56 7.70
17.95	7.07	15TH	20.01 7.88
18.28	7.20	20TH	20.39 8.03
18.58	7.32	25TH	20.74 8.16
18.87	7.43	30TH	21.06 8.29
19.15	7.54	35TH	21.37 8.42
19.43	7.65	40TH	21.68 8.54
19.72	7.76	45TH	21.99 8.66
20.01	7.88	50TH	22.31 8.78
20.32	8.00	55TH	22.64 8.91
20.65	8.13	60TH	22.98 9.05
21.01	8.27	65TH	23.35 9.19
21.40	8.43	70TH	23.75 9.35
21.84	8.60	75TH	24.19 9.52
22.36	8.80	80TH	24.70 9.72
22.99	9.05	85TH	25.30 9.96
23.81	9.37	90TH	26.09 10.27
25.09	9.88	95TH	27.28 10.74
25.93	10.21	97TH	28.06 11.05
26.55	10.45	98TH	28.62 11.27
27.50	10.83	99TH	29.50 11.61

# WAIST DEPTH

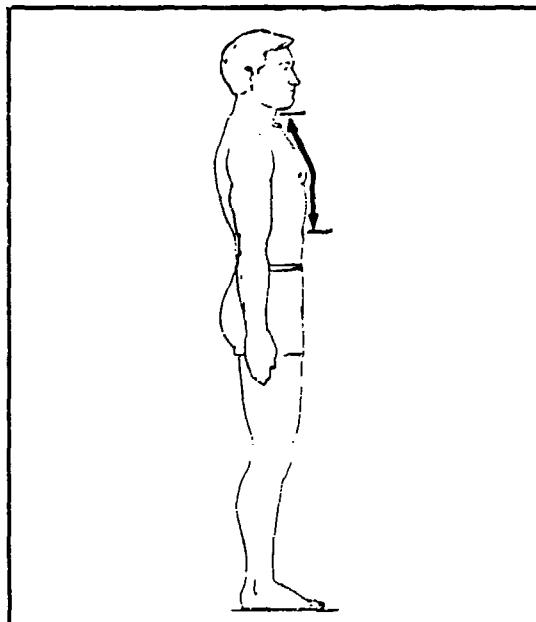
FEMALES		
	<u>CM</u>	<u>INCHES</u>
20.39	MEAN VALUE	8.03
.05	SE(MEAN)	.02
2.49	STD DEVIATION	.98
.04	SE(STD DEV)	.00
14.70	MINIMUM	5.79
30.40	MAXIMUM	11.97
SYMMETRY---VETA I	=	.75
KURTOSIS---VETA II	=	3.56
COEF. OF VARIATION	=	12.2%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
22.62	MEAN VALUE	8.91
.06	SE(MEAN)	.02
2.56	STD DEVIATION	1.01
.04	SE(STD DEV)	.02
15.90	MINIMUM	6.26
33.20	MAXIMUM	13.07
SYMMETRY---VETA I	=	.61
KURTOSIS---VETA II	=	3.35
COEF. OF VARIATION	=	11.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	14.25	-	14.75	
3	.14	4	.18	14.75	-	15.25	
14	.63	18	.82	15.25	-	15.75	
15	.68	33	1.49	15.75	-	16.25	
51	2.31	84	3.80	16.25	-	16.75	
74	3.35	158	7.16	16.75	-	17.25	
121	5.48	279	12.64	17.25	-	17.75	
138	6.25	417	18.89	17.75	-	18.25	
196	8.88	613	27.76	18.25	-	18.75	
186	8.42	799	36.19	18.75	-	19.25	
180	8.15	979	44.34	19.25	-	19.75	
193	8.74	1172	53.08	19.75	-	20.25	
179	8.11	1351	61.19	20.25	-	20.75	
175	7.93	1526	69.11	20.75	-	21.25	
132	5.98	1658	75.09	21.25	-	21.75	
113	5.12	1771	80.21	21.75	-	22.25	
83	3.76	1854	83.97	22.25	-	22.75	
77	3.49	1931	87.45	22.75	-	23.25	
53	2.40	1984	89.86	23.25	-	23.75	
41	1.86	2025	91.71	23.75	-	24.25	
35	1.59	2060	93.30	24.25	-	24.75	
35	1.59	2095	94.88	24.75	-	25.25	
32	1.45	2127	96.33	25.25	-	25.75	
26	1.18	2153	97.51	25.75	-	26.25	
19	.86	2172	98.37	26.25	-	26.75	
13	.59	2185	98.96	26.75	-	27.25	
3	.14	2188	99.09	27.25	-	27.75	
10	.45	2198	99.55	27.75	-	28.25	
4	.18	2202	99.73	28.25	-	28.75	
2	.69	2204	99.82	28.75	-	29.25	
2	.09	2206	99.91	29.25	-	29.75	
1	.05	2207	99.95	29.75	-	30.25	
1	.05	2208	100.00	30.25	-	30.75	
				30.75	-	31.25	
				31.25	-	31.75	
				31.75	-	32.25	
				32.25	-	32.75	
				32.75	-	33.25	

## (116) WAIST FRONT LENGTH (NATURAL INDENTATION)

The surface distance between the anterior-neck landmark and the anterior-waist (natural indentation) landmark is measured with a tape. The subject stands erect with the head in the Frankfort plane. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
26.09	10.27	29.70	11.69
26.64	10.49	30.18	11.88
27.00	10.63	30.50	12.01
27.49	10.82	30.97	12.19
28.25	11.12	31.74	12.50
28.78	11.33	32.28	12.71
29.20	11.50	32.71	12.88
29.57	11.64	33.08	13.02
29.90	11.77	33.41	13.15
30.21	11.89	33.72	13.28
30.50	12.01	34.01	13.39
30.79	12.12	34.29	13.50
31.08	12.23	34.57	13.61
31.37	12.35	34.84	13.72
31.66	12.47	35.12	13.83
31.97	12.59	35.40	13.94
32.31	12.72	35.70	14.06
32.67	12.86	36.02	14.18
33.08	13.03	36.38	14.32
33.57	13.22	36.80	14.49
34.21	13.47	37.33	14.70
35.20	13.86	38.14	15.01
35.87	14.12	38.68	15.23
36.38	14.32	39.10	15.39
37.22	14.65	39.78	15.66

# WAIST FRONT LENGTH (NATURAL INDENTATION)

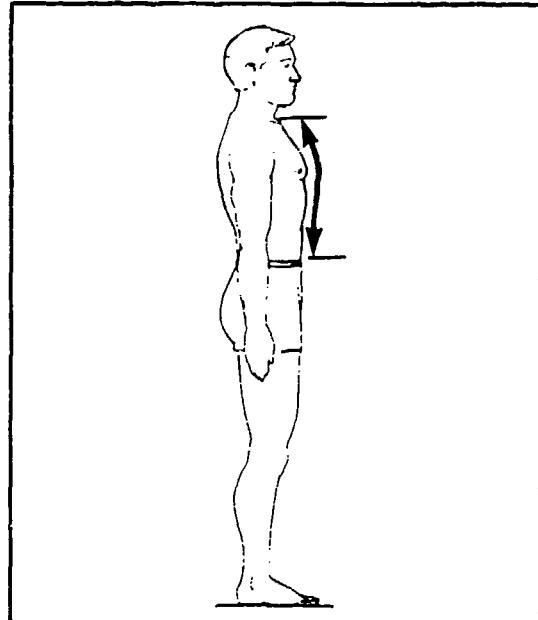
FEMALES		
	<u>CM</u>	<u>INCHES</u>
31.17	MEAN VALUE	12.27
.05	SE(MEAN)	.02
2.35	STD DEVIATION	.92
.04	SE(STD DEV)	.00
23.80	MINIMUM	9.37
40.40	MAXIMUM	15.91
SYMMETRY---VETA I	=	.25
KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	7.5%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
34.57	MEAN VALUE	13.61
.05	SE(MEAN)	.02
2.18	STD DEVIATION	.86
.04	SE(STD DEV)	.00
27.80	MINIMUM	10.94
42.40	MAXIMUM	16.69
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.05
COEF. OF VARIATION	=	6.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
3	.14	3	.14	23.75 - 24.25			
1	.05	4	.18	24.25 - 24.75			
7	.32	11	.50	24.75 - 25.25			
6	.27	17	.77	25.25 - 25.75			
11	.50	28	1.27	25.75 - 26.25			
15	.68	43	1.95	26.25 - 26.75			
38	1.72	81	3.67	26.75 - 27.25			
60	2.72	141	6.39	27.25 - 27.75			
70	3.17	211	9.56	27.75 - 28.25			
113	5.12	324	14.67	28.25 - 28.75			
154	6.97	478	21.65	28.75 - 29.25			
162	7.34	640	28.99	29.25 - 29.75			
158	7.16	798	36.14	29.75 - 30.25			
178	8.06	976	44.20	30.25 - 30.75			
177	8.02	1153	52.22	30.75 - 31.25			
182	8.24	1335	60.46	31.25 - 31.75			
185	8.38	1520	68.84	31.75 - 32.25			
149	6.75	1669	75.59	32.25 - 32.75			
139	6.30	1808	81.88	32.75 - 33.25			
117	5.30	1925	87.18	33.25 - 33.75			
77	3.49	2002	90.67	33.75 - 34.25			
63	2.85	2065	93.52	34.25 - 34.75			
40	1.81	2105	95.34	34.75 - 35.25			
33	1.49	2138	96.83	35.25 - 35.75			
22	1.00	2160	97.83	35.75 - 36.25			
13	.59	2173	98.41	36.25 - 36.75			
13	.59	2186	99.00	36.75 - 37.25			
8	.36	2194	99.37	37.25 - 37.75			
4	.18	2198	99.55	37.75 - 38.25			
5	.23	2203	99.77	38.25 - 38.75			
1	.05	2204	99.82	38.75 - 39.25			
3	.14	2207	99.95	39.25 - 39.75			
0	.00	2207	99.95	39.75 - 40.25			
1	.05	2208	100.00	40.25 - 40.75			
				40.75 - 41.25			
				41.25 - 41.75			
				41.75 - 42.25			
				42.25 - 42.75			

## (117) WAIST FRONT LENGTH (OMPHALION)

The surface distance between the anterior-neck landmark and the center of the navel (omphalion) is measured with a tape. The subject stands erect with the head in the Frankfort plane. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
34.24	13.48	1ST	36.10 14.21
34.69	13.66	2ND	36.71 14.45
35.00	13.78	3RD	37.10 14.60
35.45	13.96	5TH	37.62 14.81
36.17	14.24	10TH	38.43 15.13
36.68	14.44	15TH	38.98 15.35
37.09	14.60	20TH	39.41 15.51
37.45	14.74	25TH	39.79 15.66
37.77	14.87	30TH	40.13 15.80
38.07	14.99	35TH	40.44 15.92
38.35	15.10	40TH	40.74 16.04
38.63	15.21	45TH	41.04 16.16
38.90	15.32	50TH	41.33 16.27
39.18	15.43	55TH	41.63 16.39
39.46	15.54	60TH	41.93 16.51
39.75	15.65	65TH	42.25 16.63
40.06	15.77	70TH	42.59 16.77
40.40	15.91	75TH	42.97 16.92
40.79	16.06	80TH	43.40 17.09
41.25	16.24	85TH	43.92 17.29
41.85	16.47	90TH	44.61 17.56
42.79	16.85	95TH	45.69 17.99
43.45	17.11	97TH	46.46 18.29
43.97	17.31	98TH	47.05 18.52
44.84	17.65	99TH	48.04 18.91

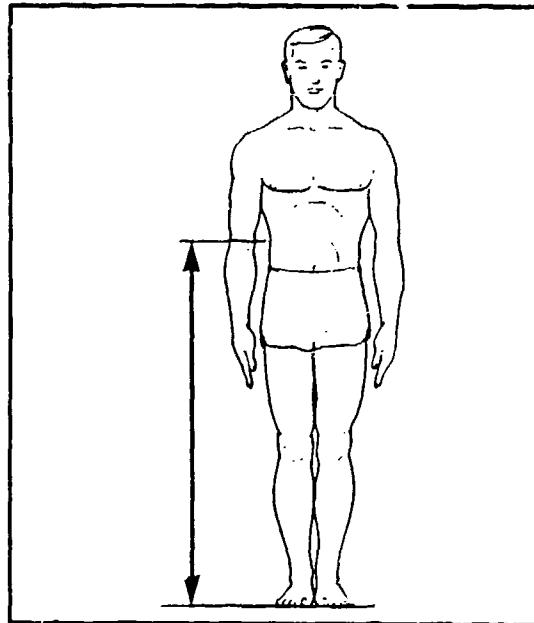
# WAIST FRONT LENGTH (OMPHALION)

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
38.98	MEAN VALUE	15.35	41.45	MEAN VALUE	16.32
.05	SE(MEAN)	.02	.06	SE(MEAN)	.02
2.23	STD DEVIATION	.88	2.45	STD DEVIATION	.96
.03	SE(STD DEV)	.00	.04	SE(STD DEV)	.02
32.30	MINIMUM	12.72	34.00	MINIMUM	13.39
48.10	MAXIMUM	18.94	52.10	MAXIMUM	20.51
SYMMETRY---VETA I	=	.28	SYMMETRY---VETA I	=	.34
KURTOSIS---VETA II	=	3.28	KURTOSIS---VETA II	=	3.52
COEF. OF VARIATION	=	5.7%	COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
5	.23	5	.23	32.25 - 32.75		2	.11
4	.18	9	.41	32.75 - 33.25		3	.06
3	.14	12	.54	33.25 - 33.75		4	.06
11	.50	23	1.04	33.75 - 34.25		6	.34
25	1.13	48	2.17	34.25 - 34.75		10	.56
30	1.36	78	3.53	34.75 - 35.25		16	.90
69	3.13	147	6.66	35.25 - 35.75		32	1.80
90	4.08	237	10.73	35.75 - 36.25		32	1.80
107	4.85	344	15.58	36.25 - 36.75		49	2.76
143	6.48	487	22.06	36.75 - 37.25		69	3.89
186	8.42	673	30.48	37.25 - 37.75		93	5.24
172	7.79	845	38.27	37.75 - 38.25		117	6.60
206	9.33	1051	47.60	38.25 - 38.75		140	7.89
177	8.02	1228	55.62	38.75 - 39.25		143	8.06
200	9.06	1428	64.67	39.25 - 39.75		151	8.51
176	7.97	1604	72.64	39.75 - 40.25		151	8.51
144	6.52	1748	79.17	40.25 - 40.75		151	8.51
134	6.07	1882	85.24	40.75 - 41.25		151	8.51
97	4.39	1979	89.63	41.25 - 41.75		151	8.51
73	3.31	2052	92.93	41.75 - 42.25		142	8.00
44	1.99	2096	94.93	42.25 - 42.75		128	7.22
34	1.54	2130	96.47	42.75 - 43.25		111	6.26
28	1.27	2158	97.74	43.25 - 43.75		87	4.90
16	.72	2174	98.46	43.75 - 44.25		85	4.79
10	.45	2184	98.91	44.25 - 44.75		57	3.21
8	.36	2192	99.28	44.75 - 45.25		39	2.20
6	.27	2198	99.55	45.25 - 45.75		25	1.41
5	.23	2203	99.77	45.75 - 46.25		20	1.13
2	.09	2205	99.86	46.25 - 46.75		22	1.24
1	.05	2206	99.91	46.75 - 47.25		15	.85
1	.05	2207	99.95	47.25 - 47.75		10	.56
1	.05	2208	100.00	47.75 - 48.25		5	.28
				48.25 - 48.75		8	.45
				48.75 - 49.25		3	.17
				49.25 - 49.75		0	.00
				49.75 - 50.25		1	.06
				50.25 - 50.75		1	.06
				50.75 - 51.25		0	.00
				51.25 - 51.75		0	.00
				51.75 - 52.25		2	.11

## (118) WAIST HEIGHT (NATURAL INDENTATION)

The vertical distance between a standing surface and the landmark at the natural indentation of the right waist is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
94.14	37.06	1ST	100.91 39.73
95.39	37.56	2ND	102.28 40.27
96.20	37.88	3RD	103.15 40.61
97.32	38.32	5TH	104.31 41.07
99.09	39.01	10TH	106.11 41.78
100.30	39.49	15TH	107.33 42.26
101.26	39.87	20TH	108.30 42.64
102.10	40.20	25TH	109.15 42.97
102.86	40.50	30TH	109.91 43.27
103.56	40.77	35TH	110.62 43.55
104.23	41.04	40TH	111.29 43.82
104.88	41.29	45TH	111.95 44.07
105.53	41.55	50TH	112.60 44.33
106.18	41.80	55TH	113.26 44.59
106.84	42.06	60TH	113.92 44.85
107.52	42.33	65TH	114.62 45.13
108.25	42.62	70TH	115.35 45.41
109.04	42.93	75TH	116.15 45.73
109.93	43.28	80TH	117.05 46.08
110.97	43.69	85TH	118.08 46.49
112.31	44.22	90TH	119.40 47.01
114.33	45.01	95TH	121.34 47.77
115.67	45.54	97TH	122.58 48.26
116.68	45.94	98TH	123.48 48.61
118.30	46.58	99TH	124.86 49.16

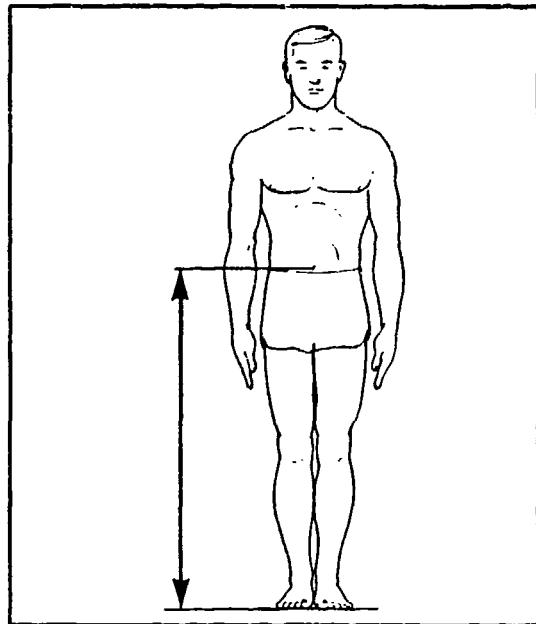
# WAIST HEIGHT (NATURAL INDENTATION)

FEMALES			MALES		
<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>	
105.65	MEAN VALUE	41.60	112.71	MEAN VALUE	44.37
.11	SE(MEAN)	.04	.12	SE(MEAN)	.05
5.17	STD DEVIATION	2.04	5.20	STD DEVIATION	2.05
.08	SE(STD DEV)	.03	.09	SE(STD DEV)	.03
86.30	MINIMUM	33.98	91.70	MINIMUM	36.10
123.40	MAXIMUM	48.58	134.80	MAXIMUM	53.07
SYMMETRY---VETA I	=	.11	SYMMETRY---VETA I	=	.12
KURTOSIS---VETA II	=	3.11	KURTOSIS---VETA II	=	3.20
COEF. OF VARIATION	=	4.9%	COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct
1	.05	1	.05	85.55 - 86.55		1	.06	1	.06
0	.00	1	.05	86.55 - 87.55		0	.00	1	.06
0	.00	1	.05	87.55 - 88.55		0	.00	1	.06
2	.09	3	.14	88.55 - 89.55		0	.00	1	.06
2	.09	5	.23	89.55 - 90.55		0	.00	1	.06
1	.05	6	.27	90.55 - 91.55		1	.06	1	.06
5	.23	11	.50	91.55 - 92.55		0	.00	1	.06
6	.27	17	.77	92.55 - 93.55		0	.00	1	.06
12	.54	29	1.31	93.55 - 94.55		0	.00	1	.06
17	.77	46	2.08	94.55 - 95.55		0	.00	1	.06
31	1.40	77	3.49	95.55 - 96.55		0	.00	1	.06
40	1.81	117	5.30	96.55 - 97.55		2	.11	3	.17
61	2.76	178	8.06	97.55 - 98.55		1	.06	4	.23
68	3.08	246	11.14	98.55 - 99.55		3	.17	7	.39
114	5.16	360	16.30	99.55 - 100.55		8	.45	15	.85
121	5.48	481	21.78	100.55 - 101.55		8	.45	23	1.30
135	6.11	616	27.90	101.55 - 102.55		18	1.01	41	2.31
146	6.61	762	34.51	102.55 - 103.55		18	1.01	59	3.33
175	7.93	937	42.44	103.55 - 104.55		32	1.80	91	5.13
181	8.20	1118	50.63	104.55 - 105.55		52	2.93	143	8.06
164	7.43	1282	58.06	105.55 - 106.55		57	3.21	200	11.27
147	6.66	1429	64.72	106.55 - 107.55		78	4.40	278	15.67
148	6.70	1577	71.42	107.55 - 108.55		102	5.75	380	21.42
141	6.39	1718	77.81	108.55 - 109.55		112	6.31	492	27.73
118	5.34	1836	83.15	109.55 - 110.55		124	6.99	616	34.72
102	4.62	1938	87.77	110.55 - 111.55		142	8.00	758	42.73
69	3.13	2007	90.90	111.55 - 112.55		140	7.89	898	50.62
59	2.67	2066	93.57	112.55 - 113.55		126	7.10	1024	57.72
45	2.04	2111	95.61	113.55 - 114.55		126	7.10	1150	64.83
32	1.45	2143	97.06	114.55 - 115.55		100	5.64	1250	70.46
21	.95	2164	98.01	115.55 - 116.55		102	5.75	1352	76.21
10	.45	2174	98.46	116.55 - 117.55		103	5.81	1455	82.02
14	.63	2188	99.09	117.55 - 118.55		84	4.74	1539	86.75
8	.36	2196	99.46	118.55 - 119.55		55	3.10	1594	89.85
6	.27	2202	99.73	119.55 - 120.55		56	3.16	1650	93.01
0	.00	2202	99.73	120.55 - 121.55		50	2.82	1700	95.83
2	.09	2204	99.82	121.55 - 122.55		29	1.63	1729	97.46
4	.18	2208	100.00	122.55 - 123.55		12	.68	1741	98.14
				123.55 - 124.55		11	.62	1752	98.76
				124.55 - 125.55		8	.45	1760	99.21
				125.55 - 126.55		4	.23	1764	99.44
				126.55 - 127.55		3	.17	1767	99.61
				127.55 - 128.55		3	.17	1770	99.77
				128.55 - 129.55		1	.06	1771	99.83
				129.55 - 130.55		1	.06	1772	99.89
				130.55 - 131.55		0	.00	1772	99.89
				131.55 - 132.55		0	.00	1772	99.89
				132.55 - 133.55		0	.00	1772	99.89
				133.55 - 134.55		1	.06	1773	99.94
				134.55 - 135.55		1	.06	1774	100.00

## (119) WAIST HEIGHT (OMPHALION)

The vertical distance between a standing surface and the center of the navel (omphalion) is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
86.89	34.21	1ST	94.20 37.09
88.30	34.76	2ND	95.61 37.64
89.16	35.10	3RD	96.49 37.99
90.30	35.55	5TH	97.67 38.45
92.01	36.23	10TH	99.46 39.16
93.16	36.68	15TH	100.67 39.63
94.07	37.03	20TH	101.63 40.01
94.86	37.34	25TH	102.45 40.34
95.57	37.62	30TH	103.20 40.63
96.23	37.88	35TH	103.89 40.90
96.86	38.13	40TH	104.54 41.16
97.48	38.38	45TH	105.18 41.41
98.09	38.62	50TH	105.82 41.66
98.71	38.86	55TH	106.45 41.91
99.35	39.11	60TH	107.10 42.17
100.01	39.37	65TH	107.77 42.43
100.71	39.65	70TH	108.48 42.71
101.48	39.95	75TH	109.26 43.01
102.34	40.29	80TH	110.12 43.36
103.34	40.69	85TH	111.13 43.75
104.61	41.19	90TH	112.40 44.25
106.47	41.92	95TH	114.26 44.98
107.65	42.38	97TH	115.45 45.45
108.49	42.71	98TH	116.31 45.79
109.76	43.21	99TH	117.63 46.31

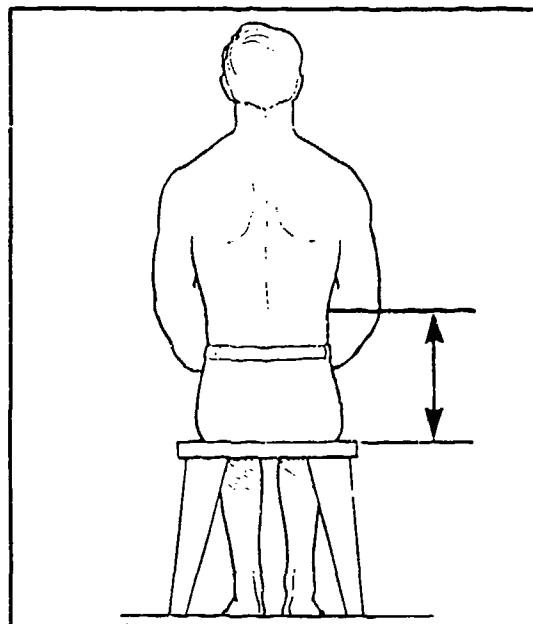
# WAIST HEIGHT (OMPHALION)

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
98.21	MEAN VALUE	38.67	105.88	MEAN VALUE	41.69
.10	SE(MEAN)	.04	.12	SE(MEAN)	.05
4.88	STD DEVIATION	1.92	5.09	STD DEVIATION	2.00
.07	SE(STD DEV)	.03	.09	SE(STD DEV)	.03
80.20	MINIMUM	31.57	86.00	MINIMUM	33.86
117.50	MAXIMUM	46.26	130.50	MAXIMUM	51.38
SYMMETRY---VETA I	=	.09	SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	3.13	KURTOSIS---VETA II	=	3.35
COEF. OF VARIATION	=	5.0%	COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	79.55 - 80.55		1	.06
0	.00	1	.05	80.55 - 81.55		0	.00
0	.00	1	.05	81.55 - 82.55		1	.06
2	.09	3	.14	82.55 - 83.55		2	.11
4	.18	7	.32	83.55 - 84.55		3	.17
2	.09	9	.41	84.55 - 85.55		5	.28
8	.36	17	.77	85.55 - 86.55		7	.39
14	.63	31	1.40	86.55 - 87.55		13	.73
24	1.09	55	2.49	87.55 - 88.55		1	.06
27	1.22	82	3.71	88.55 - 89.55		2	.11
29	1.31	111	5.03	89.55 - 90.55		3	.17
56	2.54	167	7.56	90.55 - 91.55		5	.28
86	3.89	253	11.46	91.55 - 92.55		7	.39
124	5.62	377	17.07	92.55 - 93.55		13	.73
139	6.30	516	23.37	93.55 - 94.55		21	1.18
147	6.66	663	30.03	94.55 - 95.55		34	1.92
164	7.43	827	37.45	95.55 - 96.55		59	3.33
182	8.24	1009	45.70	96.55 - 97.55		86	4.85
185	8.38	1194	54.08	97.55 - 98.55		126	7.10
166	7.52	1360	61.59	98.55 - 99.55		192	10.82
163	7.38	1523	68.98	99.55 - 100.55		254	14.32
131	5.93	1654	74.91	100.55 - 101.55		339	19.11
141	6.39	1795	81.30	101.55 - 102.55		439	24.75
123	5.57	1918	86.87	102.55 - 103.55		578	32.58
82	3.71	2000	90.58	103.55 - 104.55		726	40.92
61	2.76	2061	93.34	104.55 - 105.55		867	48.87
44	1.99	2105	95.34	105.55 - 106.55		1000	56.37
31	1.40	2136	96.74	106.55 - 107.55		1128	63.59
31	1.40	2167	98.14	107.55 - 108.55		1242	70.01
17	.77	2184	98.91	108.55 - 109.55		1348	75.99
8	.36	2192	99.28	109.55 - 110.55		1450	81.74
6	.27	2198	99.55	110.55 - 111.55		1544	87.03
5	.23	2203	99.77	111.55 - 112.55		1600	90.19
2	.09	2205	99.86	112.55 - 113.55		1647	92.84
1	.05	2206	99.91	113.55 - 114.55		1699	95.77
1	.05	2207	99.95	114.55 - 115.55		1732	97.63
0	.00	2207	99.95	115.55 - 116.55		1744	98.31
1	.05	2208	100.00	116.55 - 117.55		1755	98.93
				117.55 - 118.55		1762	99.32
				118.55 - 119.55		1768	99.66
				119.55 - 120.55		1770	99.77
				120.55 - 121.55		1771	99.83
				121.55 - 122.55		1772	99.89
				122.55 - 123.55		1772	99.89
				123.55 - 124.55		1772	99.89
				124.55 - 125.55		1772	99.89
				125.55 - 126.55		1772	99.89
				126.55 - 127.55		1772	99.89
				127.55 - 128.55		1773	99.94
				128.55 - 129.55		1773	99.94
				129.55 - 130.55		1774	100.00

## (120) WAIST HEIGHT, SITTING (NATURAL INDENTATION)

The vertical distance from a sitting surface to the landmark at the natural indentation of the right waist is measured with an anthropometer. The subject sits erect looking straight ahead. The knees are flexed 90 degrees. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
22.81	8.98	1ST	24.79 9.76
23.48	9.24	2ND	25.31 9.96
23.88	9.40	3RD	25.63 10.09
24.42	9.61	5TH	26.04 10.25
25.22	9.93	10TH	26.66 10.50
25.75	10.14	15TH	27.06 10.65
26.16	10.30	20TH	27.37 10.78
26.52	10.44	25TH	27.64 10.88
26.84	10.57	30TH	27.88 10.98
27.14	10.69	35TH	28.10 11.06
27.42	10.80	40TH	28.30 11.14
27.70	10.90	45TH	28.51 11.22
27.97	11.01	50TH	28.70 11.30
28.24	11.12	55TH	28.90 11.38
28.51	11.23	60TH	29.11 11.46
28.80	11.34	65TH	29.32 11.54
29.10	11.46	70TH	29.55 11.63
29.42	11.58	75TH	29.79 11.73
29.78	11.73	80TH	30.07 11.84
30.20	11.89	85TH	30.41 11.97
30.72	12.09	90TH	30.84 12.14
31.46	12.39	95TH	31.50 12.40
31.92	12.57	97TH	31.95 12.58
32.25	12.70	98TH	32.29 12.71
32.73	12.89	99TH	32.85 12.93

# WAIST HEIGHT, SITTING (NATURAL INDENTATION)

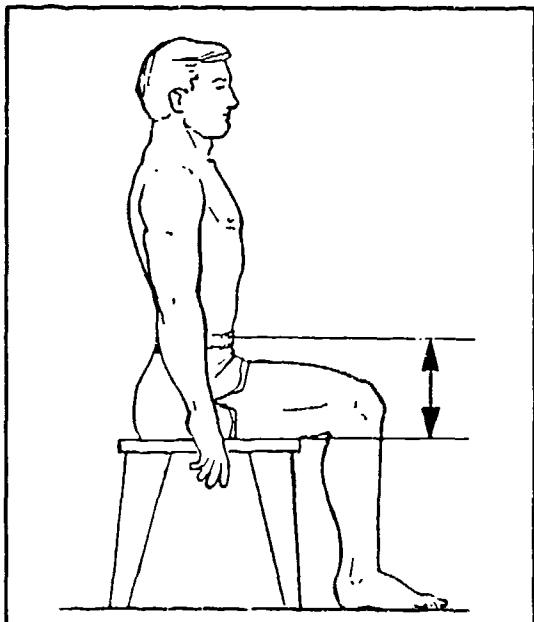
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
27.95	MEAN VALUE	11.01
.05	SE(MEAN)	.02
2.14	STD DEVIATION	.84
.03	SE(STD DEV)	.00
20.80	MINIMUM	8.19
36.00	MAXIMUM	14.17
SYMMETRY---VETA I	=	-.04
KURTOSIS---VETA II	=	2.99
COEF. OF VARIATION	=	7.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
28.73	MEAN VALUE	11.31
.04	SE(MEAN)	.02
1.66	STD DEVIATION	.65
.03	SE(STD DEV)	.00
23.10	MINIMUM	9.09
34.70	MAXIMUM	13.66
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	3.32
COEF. OF VARIATION	=	5.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	20.75 - 21.25			
1	.05	2	.09	21.25 - 21.75			
13	.59	15	.68	21.75 - 22.25			
3	.14	18	.82	22.25 - 22.75			
19	.86	37	1.68	22.75 - 23.25			
21	.95	58	2.63	23.25 - 23.75			
32	1.45	90	4.08	23.75 - 24.25			
66	2.99	156	7.07	24.25 - 24.75			
69	3.13	225	10.19	24.75 - 25.25			
108	4.89	333	15.08	25.25 - 25.75			
136	6.16	469	21.24	25.75 - 26.25			
150	6.79	619	28.03	26.25 - 26.75			
189	8.56	808	36.59	26.75 - 27.25			
19	9.01	1007	45.61	27.25 - 27.75			
196	8.88	1203	54.48	27.75 - 28.25			
226	10.24	1429	64.72	28.25 - 28.75			
188	8.51	1617	73.23	28.75 - 29.25			
155	7.02	1772	80.25	29.25 - 29.75			
122	5.53	1894	85.78	29.75 - 30.25			
103	4.66	1997	90.44	30.25 - 30.75			
62	2.81	2059	93.25	30.75 - 31.25			
62	2.81	2121	96.06	31.25 - 31.75			
46	2.08	2167	98.14	31.75 - 32.25			
21	.95	2188	99.09	32.25 - 32.75			
10	.45	2198	99.55	32.75 - 33.25			
2	.09	2200	99.64	33.25 - 33.75			
4	.18	2204	99.82	33.75 - 34.25			
3	.14	2207	99.95	34.25 - 34.75			
0	.00	2207	99.95	34.75 - 35.25			
0	.00	2207	99.95	35.25 - 35.75			
1	.05	2208	100.00	35.75 - 36.25			

## (121) WAIST HEIGHT, SITTING (OMPHALION)

The vertical distance from a sitting surface to the center of the navel (omphalion) is measured with an anthropometer. The subject sits erect looking straight ahead. The knees are flexed 90 degrees. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
19.02	7.49	1ST	19.94 7.85
19.54	7.69	2ND	20.36 8.02
19.85	7.81	3RD	20.62 8.12
20.25	7.97	5TH	20.98 8.26
20.83	8.20	10TH	21.52 8.47
21.21	8.35	15TH	21.88 8.61
21.51	8.47	20TH	22.17 8.73
21.76	8.57	25TH	22.42 8.83
21.98	8.65	30TH	22.65 8.92
22.19	8.74	35TH	22.86 9.00
22.39	8.81	40TH	23.06 9.08
22.58	8.89	45TH	23.26 9.16
22.76	8.96	50TH	23.45 9.23
22.95	9.04	55TH	23.65 9.31
23.14	9.11	60TH	23.85 9.39
23.34	9.19	65TH	24.05 9.47
23.55	9.27	70TH	24.27 9.56
23.78	9.36	75TH	24.51 9.65
24.04	9.46	80TH	24.77 9.75
24.33	9.58	85TH	25.07 9.87
24.70	9.73	90TH	25.44 10.02
25.24	9.94	95TH	25.97 10.22
25.58	10.07	97TH	26.29 10.35
25.82	10.16	98TH	26.51 10.44
26.17	10.30	99TH	26.83 10.56

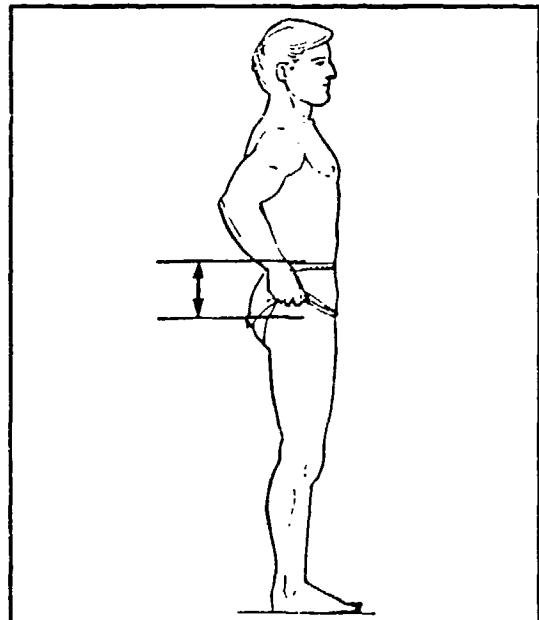
# WAIST HEIGHT, SITTING (OMPHALION)

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
22.76	MEAN VALUE	8.96	23.46	MEAN VALUE	9.23
.03	SE(MEAN)	.00	.04	SE(MEAN)	.00
1.51	STD DEVIATION	.60	1.52	STD DEVIATION	.60
.02	SE(STD DEV)	.00	.03	SE(STD DEV)	.00
17.70	MINIMUM	6.97	17.40	MINIMUM	6.85
27.50	MAXIMUM	10.83	28.50	MAXIMUM	11.22
SYMMETRY---VETA I	=	-.08	SYMMETRY---VETA I	=	-.07
KURTOSIS---VETA II	=	2.99	KURTOSIS---VETA II	=	3.04
COEF. OF VARIATION	=	6.78	COEF. OF VARIATION	=	6.5%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	17.35 - 17.60	17.60 - 17.85	1	.06
2	.09	3	.14	17.85 - 18.10	18.10 - 18.35	0	.00
3	.14	6	.27	18.10 - 18.35	18.35 - 18.60	2	.11
3	.14	9	.41	18.35 - 18.60	18.60 - 18.85	0	.00
4	.18	13	.59	18.60 - 18.85	18.85 - 19.10	2	.11
9	.41	22	1.00	18.85 - 19.10	19.10 - 19.35	2	.11
12	.54	34	1.54	19.10 - 19.35	19.35 - 19.60	1	.06
14	.63	48	2.17	19.35 - 19.60	19.60 - 19.85	10	.56
21	.95	69	3.13	19.60 - 19.85	19.85 - 20.10	1	.06
19	.86	88	3.99	19.85 - 20.10	20.10 - 20.35	1	.06
26	1.18	114	5.16	20.10 - 20.35	20.35 - 20.60	9	.51
39	1.77	153	6.93	20.35 - 20.60	20.60 - 20.85	14	.79
75	3.40	228	10.33	20.60 - 20.85	20.85 - 21.10	35	1.97
42	1.90	270	12.23	20.85 - 21.10	21.10 - 21.35	18	1.01
115	5.21	385	17.44	21.10 - 21.35	21.35 - 21.60	55	3.10
74	3.35	459	20.79	21.35 - 21.60	21.60 - 21.85	31	1.75
133	6.02	592	26.81	21.60 - 21.85	21.85 - 22.10	79	4.45
113	5.12	705	31.93	21.85 - 22.10	22.10 - 22.35	55	3.10
151	6.84	856	38.77	22.10 - 22.35	22.35 - 22.60	104	5.86
147	6.66	1003	45.43	22.35 - 22.60	22.60 - 22.85	74	4.17
165	7.47	1168	52.90	22.60 - 22.85	22.85 - 23.10	122	6.88
93	4.21	1261	57.11	22.85 - 23.10	23.10 - 23.35	88	4.96
172	7.79	1433	64.90	23.10 - 23.35	23.35 - 23.60	133	7.50
114	5.16	1547	70.06	23.35 - 23.60	23.60 - 23.85	91	5.13
137	6.20	1684	76.27	23.60 - 23.85	23.85 - 24.10	134	7.55
86	3.89	1770	80.16	23.85 - 24.10	24.10 - 24.35	89	5.02
102	4.62	1872	84.78	24.10 - 24.35	24.35 - 24.60	122	6.88
70	3.17	1942	87.95	24.35 - 24.60	24.60 - 24.85	78	4.40
83	3.76	2025	91.71	24.60 - 24.85	24.85 - 25.10	87	4.90
42	1.90	2067	93.61	24.85 - 25.10	25.10 - 25.35	70	3.95
43	1.95	2110	95.56	25.10 - 25.35	25.35 - 25.60	72	4.06
30	1.36	2140	96.92	25.35 - 25.60	25.60 - 25.85	36	2.03
30	1.36	2170	98.28	25.60 - 25.85	25.85 - 26.10	56	3.16
7	.32	2177	98.60	25.85 - 26.10	26.10 - 26.35	23	1.30
18	.82	2195	99.41	26.10 - 26.35	26.35 - 26.60	31	1.75
2	.09	2197	99.50	26.35 - 26.60	26.60 - 26.85	17	.96
6	.27	2203	99.77	26.60 - 26.85	26.85 - 27.10	12	.68
3	.14	2206	99.91	26.85 - 27.10	27.10 - 27.35	5	.28
1	.05	2207	99.95	27.10 - 27.35	27.35 - 27.60	7	.39
1	.05	2208	100.00	27.35 - 27.60	27.60 - 27.85	2	.11
				27.60 - 27.85	27.85 - 28.10	0	.00
				27.85 - 28.10	28.10 - 28.35	1	.06
				28.10 - 28.35	28.35 - 28.60	2	.11
				28.35 - 28.60	28.60 - 100.00	1	.06

## (122) WAIST-HIP LENGTH

The surface distance between the right waist (omphalion) landmark and the right lateral-buttock-point landmark on the side of the hip is measured with a tape. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
10.08	3.97	1ST	12.68 4.99
10.54	4.15	2ND	13.30 5.24
10.86	4.28	3RD	13.69 5.39
11.32	4.46	5TH	14.22 5.60
12.07	4.75	10TH	15.01 5.91
12.60	4.96	15TH	15.54 6.12
13.02	5.13	20TH	15.96 6.28
13.39	5.27	25TH	16.32 6.42
13.72	5.40	30TH	16.63 6.55
14.02	5.52	35TH	16.92 6.66
14.31	5.63	40TH	17.20 6.77
14.59	5.74	45TH	17.46 6.87
14.86	5.85	50TH	17.72 6.98
15.13	5.96	55TH	17.98 7.08
15.40	6.06	60TH	18.24 7.18
15.68	6.17	65TH	18.51 7.29
15.97	6.29	70TH	18.78 7.40
16.28	6.41	75TH	19.08 7.51
16.63	6.55	80TH	19.42 7.64
17.03	6.71	85TH	19.80 7.79
17.54	6.91	90TH	20.27 7.98
18.30	7.21	95TH	20.96 8.25
18.81	7.40	97TH	21.39 8.42
19.19	7.55	98TH	21.70 8.54
19.81	7.80	99TH	22.18 8.73

# WAIST-HIP LENGTH

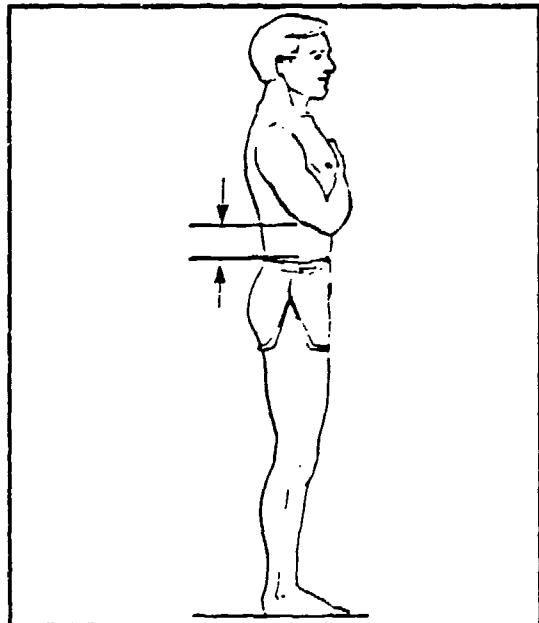
FEMALES		
CM	MEAN VALUE	INCHES
14.84	.05	5.84
.05	SE(MEAN)	.02
2.13	STD DEVIATION	.84
.03	SE(STD DEV)	.00
7.70	MINIMUM	3.03
21.60	MAXIMUM	8.50
SYMMETRY---VETA I	=	-.02
KURTOSIS---VETA II	=	2.92
COEF. OF VARIATION	=	14.3%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
17.68	.05	6.96
.05	SE(MEAN)	.02
2.04	STD DEVIATION	.80
.03	SE(STD DEV)	.00
12.00	MINIMUM	4.72
24.10	MAXIMUM	9.49
SYMMETRY---VETA I	=	-.09
KURTOSIS---VETA II	=	2.89
COEF. OF VARIATION	=	11.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	7.25 - 7.75		9	.51
2	.09	4	.18	7.75 - 8.25		9	.51
1	.05	5	.23	8.25 - 8.75		15	.85
6	.27	11	.50	8.75 - 9.25		27	1.52
4	.18	15	.68	9.25 - 9.75		28	1.58
15	.68	30	1.36	9.75 - 10.25		54	3.04
26	1.18	56	2.54	10.25 - 10.75		81	4.57
42	1.90	98	4.44	10.75 - 11.25		171	9.64
70	3.17	168	7.61	11.25 - 11.75		180	10.15
93	4.21	261	11.82	11.75 - 12.25		164	9.24
108	4.89	369	16.71	12.25 - 12.75		157	8.85
139	6.30	508	23.01	12.75 - 13.25		130	7.33
159	7.20	667	30.21	13.25 - 13.75		131	7.38
205	9.28	872	39.49	13.75 - 14.25		159	8.96
204	9.24	1076	48.73	14.25 - 14.75		171	9.64
195	8.83	1271	57.56	14.75 - 15.25		171	9.64
184	8.33	1455	65.90	15.25 - 15.75		180	10.15
183	8.29	1638	74.18	15.75 - 16.25		164	9.24
159	7.20	1797	81.39	16.25 - 16.75		157	8.85
126	5.71	1923	87.09	16.75 - 17.25		131	7.38
100	4.53	2023	91.62	17.25 - 17.75		159	8.96
75	3.40	2098	95.02	17.75 - 18.25		171	9.64
43	1.95	2141	96.97	18.25 - 18.75		171	9.64
29	1.31	2170	98.28	18.75 - 19.25		180	10.15
13	.59	2183	98.87	19.25 - 19.75		164	9.24
12	.54	2195	99.41	19.75 - 20.25		157	8.85
8	.36	2203	99.77	20.25 - 20.75		130	7.33
3	.14	2206	99.91	20.75 - 21.25		131	7.38
2	.09	2208	100.00	21.25 - 21.75		159	8.96
				21.75 - 22.25		171	9.64
				22.25 - 22.75		171	9.64
				22.75 - 23.25		171	9.64
				23.25 - 23.75		171	9.64
				23.75 - 24.25		171	9.64

**(123) WAIST (NATURAL INDENTATION) - WAIST  
(OMPHALION) LENGTH**

The surface distance between the right waist (natural indentation) and right waist (omphalion) landmarks is measured with a tape. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet.



**THE PERCENTILES**

<b>FEMALES</b>		<b>MALES</b>	
<b>CM</b>	<b>INCHES</b>	<b>CM</b>	<b>INCHES</b>
2.57	1.01	1ST	3.04 1.20
3.28	1.29	2ND	3.48 1.37
3.69	1.45	3RD	3.76 1.48
4.21	1.66	5TH	4.14 1.63
4.96	1.95	10TH	4.72 1.86
5.44	2.14	15TH	5.11 2.01
5.82	2.29	20TH	5.43 2.14
6.14	2.42	25TH	5.70 2.25
6.43	2.53	30TH	5.95 2.34
6.70	2.64	35TH	6.19 2.44
6.96	2.74	40TH	6.41 2.53
7.21	2.84	45TH	6.64 2.61
7.47	2.94	50TH	6.86 2.70
7.72	3.04	55TH	7.09 2.79
7.99	3.15	60TH	7.32 2.88
8.27	3.26	65TH	7.57 2.98
8.58	3.38	70TH	7.83 3.08
8.91	3.51	75TH	8.12 3.20
9.30	3.66	80TH	8.46 3.33
9.75	3.84	85TH	8.86 3.49
10.35	4.07	90TH	9.38 3.69
11.26	4.43	95TH	10.20 4.02
11.07	4.67	97TH	10.76 4.24
12.32	4.85	98TH	11.19 4.40
13.02	5.13	99TH	11.88 4.68

# WAIST (NATURAL INDENTATION)-WAIST (OMPHALION) LENGTH

FEMALES		
CM	MEAN VALUE	INCHES
7.57	.05	2.13
.05	SE(MEAN)	.02
2.13	STD DEVIATION	.84
.03	SE(STD DEV)	.00
.70	MINIMUM	.28
15.50	MAXIMUM	6.10
SYMMETRY---VETA I	=	.23
KURTOSIS---VETA II	=	3.35
COEF. OF VARIATION	=	28.2%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
6.98	.04	2.75
.04	SE(MEAN)	.02
1.84	STD DEVIATION	.72
.03	SE(STD DEV)	.00
1.60	MINIMUM	.63
13.30	MAXIMUM	5.24
SYMMETRY---VETA I	=	.34
KURTOSIS---VETA II	=	3.17
COEF. OF VARIATION	=	26.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	.25 - .75		1	.06
1	.05	2	.09	.75 - 1.25		1	.06
2	.09	4	.18	1.25 - 1.75		3	.17
11	.50	15	.68	1.75 - 2.25		5	.28
10	.45	25	1.13	2.25 - 2.75		18	1.01
21	.95	46	2.08	2.75 - 3.25		26	1.47
28	1.27	74	3.35	3.25 - 3.75		46	2.59
34	1.54	108	4.89	3.75 - 4.25		71	4.00
70	3.17	178	8.06	4.25 - 4.75		125	7.05
103	4.66	281	12.73	4.75 - 5.25		179	10.09
133	6.02	414	18.75	5.25 - 5.75		10.09	474
175	7.93	589	26.68	5.75 - 6.25		172	9.70
183	8.29	772	34.96	6.25 - 6.75		201	11.33
264	11.96	1036	46.92	6.75 - 7.25		193	10.88
182	8.24	1218	55.16	7.25 - 7.75		190	10.71
223	10.10	1441	65.26	7.75 - 8.25		135	7.61
163	7.38	1604	72.64	8.25 - 8.75		116	6.54
162	7.34	1766	79.98	8.75 - 9.25		95	5.36
120	5.43	1886	85.42	9.25 - 9.75		55	3.10
97	4.39	1983	89.81	9.75 - 10.25		60	3.38
67	3.03	2050	92.84	10.25 - 10.75		33	1.86
42	1.90	2092	94.75	10.75 - 11.25		17	.96
36	1.63	2128	96.38	11.25 - 11.75		13	.73
31	1.40	2159	97.78	11.75 - 12.25		10	.56
20	.91	2179	98.69	12.25 - 12.75		3	.17
13	.59	2192	99.28	12.75 - 13.25		6	.34
5	.23	2197	99.50	13.25 - 13.75		1	.06
3	.14	2200	99.64	13.75 - 14.25		1774	100.00
5	.23	2205	99.86	14.25 - 14.75			
1	.05	2206	99.91	14.75 - 15.25			
2	.09	2208	100.00	15.25 - 15.75			

## (124) WEIGHT

The weight of the subject is taken to the nearest tenth of a kilogram. The subject stands on the platform of a scale.



### THE PERCENTILES

FEMALES		MALES	
KG	LB	KG	LB
45.24	99.73	55.27	121.86
47.02	103.66	57.83	127.50
48.13	106.11	59.43	131.03
49.64	109.43	61.59	135.78
51.98	114.60	64.93	143.14
53.61	118.19	67.22	148.20
54.94	121.12	69.08	152.28
56.12	123.72	70.71	155.89
57.20	126.12	72.21	159.19
58.24	128.39	73.61	162.29
59.24	130.60	74.98	165.30
60.24	132.80	76.33	168.27
61.25	135.03	77.69	171.27
62.29	137.32	79.07	174.33
63.37	139.70	80.50	177.48
64.51	142.22	82.02	180.82
65.75	144.95	83.64	184.40
67.13	147.99	85.45	188.38
68.72	151.50	87.51	192.94
70.62	155.68	89.96	198.34
73.11	161.19	93.16	205.39
76.98	169.72	98.07	216.21
79.59	175.48	101.35	223.44
81.56	179.81	103.80	228.85
84.70	186.74	107.71	237.46

# WEIGHT

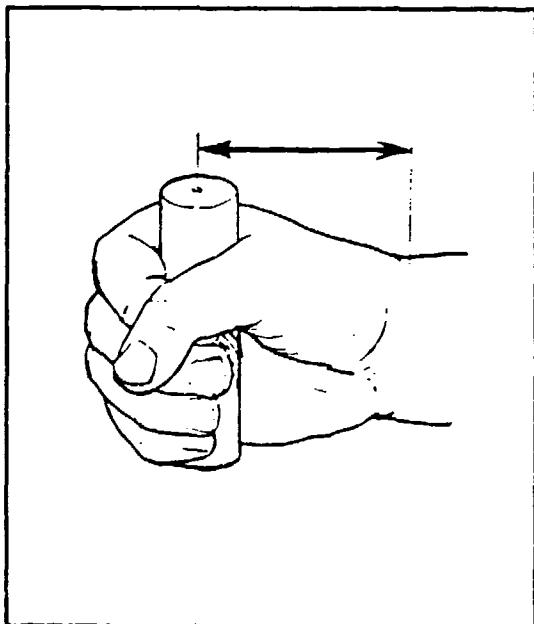
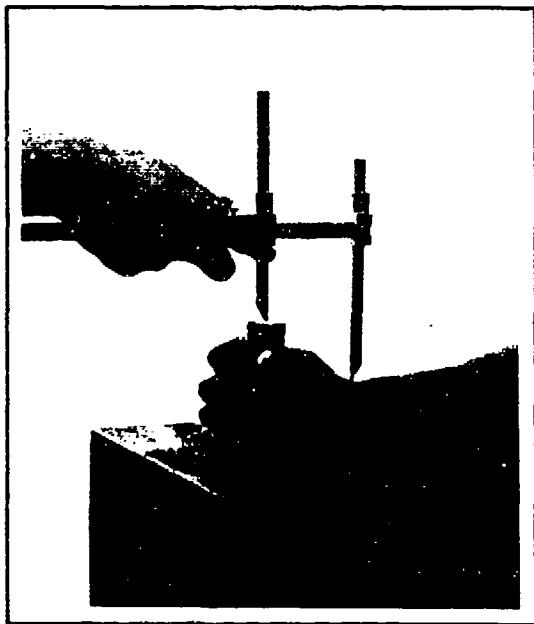
FEMALES		
	<u>KG</u>	<u>POUNDS</u>
62.01	MEAN VALUE	136.72
.18	SE(MEAN)	.39
8.35	STD DEVIATION	18.41
.13	SE(STD DEV)	.28
41.30	MINIMUM	91.05
96.70	MAXIMUM	213.19
SYMMETRY---VETA I	=	.53
KURTOSIS---VETA II	=	3.51
COEF. OF VARIATION	=	13.5%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>KG</u>	<u>POUNDS</u>
78.49	MEAN VALUE	173.03
.26	SE(MEAN)	.58
11.10	STD DEVIATION	24.48
.19	SE(STD DEV)	.41
47.60	MINIMUM	104.94
127.80	MAXIMUM	281.75
SYMMETRY---VETA I	=	.43
KURTOSIS---VETA II	=	3.40
COEF. OF VARIATION	=	14.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct		F	FPct	CumF	
5	.23	5	.23	40.55 - 42.55	1	.06	1	.06
9	.41	14	.63	42.55 - 44.55	2	.11	3	.17
22	1.00	36	1.63	44.55 - 46.55	3	.17	6	.34
43	1.95	79	3.58	46.55 - 48.55	7	.39	13	.73
61	2.76	140	6.34	48.55 - 50.55	12	.68	25	1.41
122	5.53	262	11.87	50.55 - 52.55	16	.90	41	2.31
146	6.61	408	18.48	52.55 - 54.55	26	1.47	67	3.78
180	8.15	588	26.63	54.55 - 56.55	39	2.20	106	5.98
199	9.01	787	35.64	56.55 - 58.55	56	3.16	162	9.13
231	10.46	1018	46.11	58.55 - 60.55	90	5.07	252	14.21
226	10.24	1244	56.34	60.55 - 62.55	72	4.06	324	18.26
207	9.38	1451	65.72	62.55 - 64.55	100	5.64	424	23.90
178	8.06	1629	73.78	64.55 - 66.55	135	7.61	559	31.51
131	5.93	1760	79.71	66.55 - 68.55	127	7.16	686	39.67
117	5.30	1877	85.01	68.55 - 70.55	125	7.05	811	45.72
93	4.21	1970	89.22	70.55 - 72.55	130	7.33	941	53.04
70	3.17	2040	92.39	72.55 - 74.55	112	5.31	1053	59.36
44	1.99	2084	94.38	74.55 - 76.55	122	6.88	1175	66.23
40	1.81	2124	96.20	76.55 - 78.55	113	6.37	1288	72.60
26	1.18	2150	97.37	78.55 - 80.55	100	5.64	1388	78.24
20	.91	2170	98.28	80.55 - 82.55	100	5.64	1466	82.64
16	.72	2186	99.00	82.55 - 84.55	78	4.40	1539	86.75
7	.32	2193	99.32	84.55 - 86.55	73	4.11	1593	89.80
5	.23	2198	99.55	86.55 - 88.55	54	3.04	1633	92.05
2	.09	2200	99.64	88.55 - 90.55	40	2.25	1661	93.63
3	.14	2203	99.77	90.55 - 92.55	28	1.58	1684	94.93
1	.05	2204	99.82	92.55 - 94.55	23	1.30	1710	96.39
3	.14	2207	99.95	94.55 - 96.55	26	1.47	1731	97.58
1	.05	2208	100.00	96.55 - 98.55	14	.79	1745	98.37
				98.55 - 100.55	8	.45	1753	98.82
				100.55 - 102.55	8	.45	1761	99.27
				102.55 - 104.55	3	.17	1764	99.44
				104.55 - 106.55	3	.17	1767	99.61
				106.55 - 108.55	2	.11	1769	99.72
				108.55 - 110.55	0	.00	1769	99.72
				110.55 - 112.55	2	.11	1771	99.83
				112.55 - 114.55	0	.00	1771	99.83
				114.55 - 116.55	1	.06	1772	99.89
				116.55 - 118.55	1	.06	1773	99.94
				118.55 - 120.55	0	.00	1773	99.94
				120.55 - 122.55	1	.06	1773	99.94
				122.55 - 124.55	1	.06	1774	100.00

## (125) WRIST-CENTER OF GRIP LENGTH

The horizontal distance between the stylion landmark on the right wrist and the center of a dowel (1-1/4" diameter) gripped in the right hand is measured with a Poech caliper. The subject sits grasping a dowel in the right hand. The base of the dowel is flush with the bottom of the fist. The subject puts the bottom of the fist on a flat surface in such a way that the base of the dowel rests on the surface. The fist is in line with the long axis of the forearm.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
5.57	2.19	1ST	5.99 2.36
5.69	2.24	2ND	6.08 2.40
5.77	2.27	3RD	6.15 2.42
5.87	2.31	5TH	6.23 2.45
6.02	2.37	10TH	6.37 2.51
6.12	2.41	15TH	6.47 2.55
6.21	2.44	20TH	6.55 2.58
6.28	2.47	25TH	6.62 2.61
6.35	2.50	30TH	6.69 2.63
6.41	2.52	35TH	6.75 2.66
6.47	2.55	40TH	6.82 2.68
6.54	2.57	45TH	6.88 2.71
6.60	2.60	50TH	6.94 2.73
6.66	2.62	55TH	7.01 2.76
6.73	2.65	60TH	7.07 2.78
6.80	2.68	65TH	7.14 2.81
6.87	2.70	70TH	7.22 2.84
6.95	2.74	75TH	7.30 2.87
7.04	2.77	80TH	7.39 2.91
7.15	2.81	85TH	7.50 2.95
7.29	2.87	90TH	7.63 3.00
7.49	2.95	95TH	7.83 3.08
7.62	3.00	97TH	7.95 3.13
7.71	3.04	98TH	8.04 3.16
7.85	3.09	99TH	8.16 3.21

# WRIST-CENTER OF GRIP LENGTH

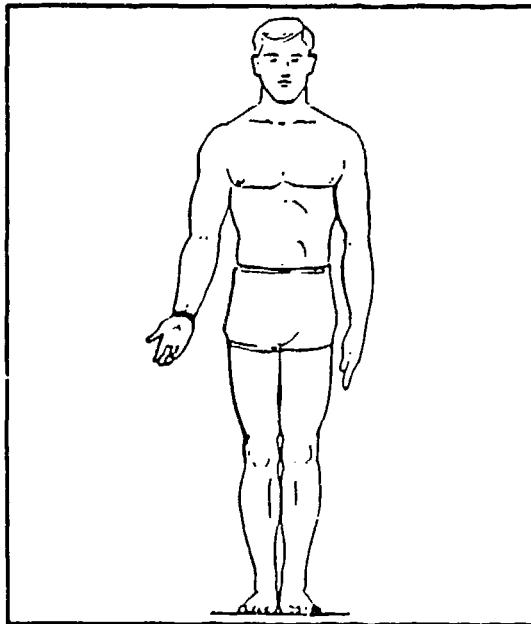
FEMALES		
<u>CM</u>	<u>INCHES</u>	
6.63	MEAN VALUE	2.61
.00	SE(MEAN)	.00
.49	STD DEVIATION	.19
.00	SE(STD DEV)	.00
5.20	MINIMUM	2.05
8.30	MAXIMUM	3.27
SYMMETRY---VETA I	=	.26
KURTOSIS---VETA II	=	2.90
COEF. OF VARIATION	=	7.4%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
6.97	MEAN VALUE	2.75
.00	SE(MEAN)	.00
.49	STD DEVIATION	.19
.00	SE(STD DEV)	.00
5.70	MINIMUM	2.24
8.70	MAXIMUM	3.43
SYMMETRY---VETA I	=	.33
KURTOSIS---VETA II	=	2.87
COEF. OF VARIATION	=	7.0%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	5.15 -	5.25		
2	.09	4	.18	5.25 -	5.35		
2	.09	6	.27	5.35 -	5.45		
10	.45	16	.72	5.45 -	5.55		
20	.91	36	1.63	5.55 -	5.65		
26	1.18	62	2.81	5.65 -	5.75		
44	1.99	106	4.80	5.75 -	5.85	1	.06
51	2.31	157	7.11	5.85 -	5.95	2	.11
91	4.12	248	11.23	5.95 -	6.05	5	.28
97	4.39	345	15.63	6.05 -	6.15	21	1.18
140	6.34	485	21.97	6.15 -	6.25	24	1.35
182	8.24	667	30.21	6.25 -	6.35	49	2.76
182	8.24	849	38.45	6.35 -	6.45	72	4.06
185	8.38	1034	46.83	6.45 -	6.55	75	4.23
164	7.43	1198	54.26	6.55 -	6.65	92	5.19
178	8.06	1376	62.32	6.65 -	6.75	124	6.99
148	6.70	1524	69.02	6.75 -	6.85	143	8.06
121	5.48	1645	74.50	6.85 -	6.95	151	8.51
135	6.11	1780	80.62	6.95 -	7.05	158	8.91
97	4.39	1877	85.01	7.05 -	7.15	134	7.55
70	3.17	1947	88.18	7.15 -	7.25	115	6.48
76	3.44	2023	91.62	7.25 -	7.35	109	6.14
57	2.58	2080	94.20	7.35 -	7.45	119	6.71
41	1.86	2121	96.06	7.45 -	7.55	85	4.79
35	1.59	2156	97.64	7.55 -	7.65	60	3.38
14	.63	2170	98.28	7.65 -	7.75	55	3.10
16	.72	2186	99.00	7.75 -	7.85	51	2.87
15	.68	2201	99.68	7.85 -	7.95	51	2.87
0	.00	2201	99.68	7.95 -	8.05	25	1.41
5	.23	2206	99.91	8.05 -	8.15	25	1.41
0	.00	2206	99.91	8.15 -	8.25	9	.51
2	.09	2208	100.00	8.25 -	8.35	6	.34
				8.35 -	8.45	4	.23
				8.45 -	8.55	2	.11
				8.55 -	8.65	2	.11
				8.65 -	8.75	1	.06

## (126) WRIST CIRCUMFERENCE

The circumference of the wrist perpendicular to the long axis of the forearm is measured with a tape passing over the stylion landmark on the wrist. The subject extends the right arm forward with the palm up.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
13.61	5.36	15.59	6.14
13.78	5.43	15.81	6.23
13.89	5.47	15.95	6.28
14.03	5.52	16.11	6.35
14.26	5.61	16.11	6.46
14.41	5.67	16.13	6.53
14.54	5.72	16.73	6.55
14.65	5.77	16.86	6.64
14.74	5.80	16.98	6.68
14.84	5.84	17.09	6.73
14.92	5.88	17.19	6.77
15.01	5.91	17.29	6.81
15.10	5.94	17.40	6.85
15.18	5.98	17.50	6.89
15.27	6.01	17.61	6.93
15.37	6.05	17.72	6.98
15.46	6.09	17.84	7.02
15.57	6.13	17.97	7.07
15.69	6.18	18.12	7.13
15.84	6.23	18.29	7.20
16.02	6.31	18.51	7.29
16.23	6.42	18.84	7.42
16.47	6.49	19.05	7.50
16.61	6.54	19.21	7.56
16.82	6.62	19.44	7.66

# WRIST CIRCUMFERENCE

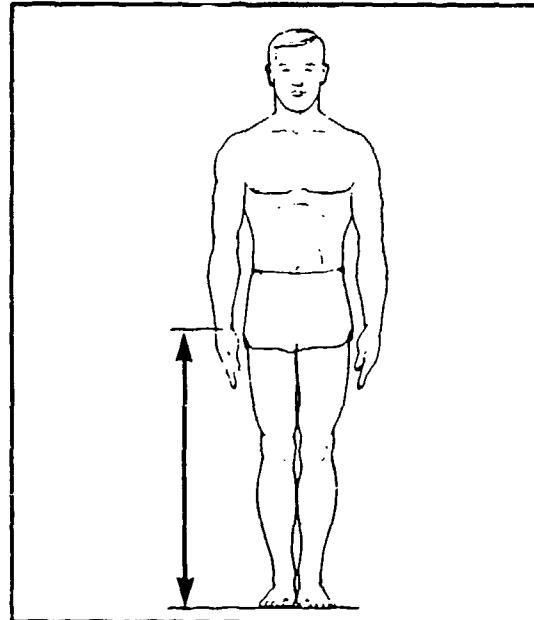
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
15.12	MEAN VALUE	5.95
.00	SE(MEAN)	.00
.69	STD DEVIATION	.27
.00	SE(STD DEV)	.00
12.90	MINIMUM	5.08
17.40	MAXIMUM	6.85
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.04
COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
17.42	MEAN VALUE	6.86
.02	SE(MEAN)	.00
.83	STD DEVIATION	.33
.00	SE(STD DEV)	.00
14.30	MINIMUM	5.63
20.40	MAXIMUM	8.03
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	12.75 - 12.95		1	.06
2	.09	3	.14	12.95 - 13.15		2	.11
3	.14	6	.27	13.15 - 13.35		3	.17
9	.41	15	.68	13.35 - 13.55		5	.28
21	.95	36	1.63	13.55 - 13.75		6	.34
42	1.90	78	3.53	13.75 - 13.95		9	.51
67	3.03	145	6.57	13.95 - 14.15		15	.85
127	5.75	272	12.32	14.15 - 14.35		30	1.69
187	8.47	459	20.79	14.35 - 14.55		51	2.87
204	9.24	663	30.03	14.55 - 14.75		511	28.80
263	11.91	926	41.94	14.75 - 14.95		650	35.64
226	10.24	1152	52.17	14.95 - 15.15		853	48.08
257	11.64	1409	63.81	15.15 - 15.35		1027	57.89
236	10.69	1645	74.50	15.35 - 15.55		1172	66.07
170	7.70	1815	82.20	15.55 - 15.75		1318	74.30
123	5.57	1938	87.77	15.75 - 15.95		1438	81.06
99	4.48	2037	92.26	15.95 - 16.15		1553	87.54
78	3.53	2115	95.79	16.15 - 16.35		1613	90.92
43	1.95	2158	97.74	16.35 - 16.55		1663	93.74
19	.86	2177	98.60	16.55 - 16.75		1704	96.05
17	.77	2194	99.37	16.75 - 16.95		1734	97.75
6	.27	2200	99.64	16.95 - 17.15		1750	98.65
3	.14	2203	99.77	17.15 - 17.35		1764	99.44
5	.23	2208	100.00	17.35 - 17.55		1770	99.77
				17.55 - 17.75		1771	99.83
				17.75 - 17.95		1772	99.89
				17.95 - 18.15		1774	100.00
				18.15 - 18.35			
				18.35 - 18.55			
				18.55 - 18.75			
				18.75 - 18.95			
				18.95 - 19.15			
				19.15 - 19.35			
				19.35 - 19.55			
				19.55 - 19.75			
				19.75 - 19.95			
				19.95 - 20.15			
				20.15 - 20.35			
				20.35 - 20.55			

## (127) WRIST HEIGHT

The vertical distance between a standing surface and the stylion landmark on the right wrist is measured with an anthropometer. The subject stands erect looking straight ahead with the heels together and the weight distributed equally on both feet. The shoulders are relaxed and the arms are extended downwards with the elbow, wrist, and fingers held rigidly straight. The arms lightly touch the sides. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
70.80	27.87	1ST	74.89 29.49
71.53	28.16	2ND	76.07 29.95
72.04	28.36	3RD	76.81 30.24
72.79	28.66	5TH	77.79 30.63
74.04	29.15	10TH	79.30 31.22
74.94	29.50	15TH	80.32 31.62
75.67	29.79	20TH	81.12 31.94
76.31	30.04	25TH	81.82 32.21
76.89	30.27	30TH	82.45 32.46
77.43	30.48	35TH	83.02 32.69
77.95	30.69	40TH	83.58 32.90
78.45	30.89	45TH	84.11 33.11
78.95	31.08	50TH	84.64 33.32
79.45	31.28	55TH	85.17 33.53
79.95	31.48	60TH	85.71 33.74
80.48	31.68	65TH	86.27 33.96
81.03	31.90	70TH	86.86 34.20
81.63	32.14	75TH	87.49 34.45
82.29	32.40	80TH	88.20 34.73
83.07	32.70	85TH	89.02 35.05
84.05	33.09	90TH	90.04 35.45
85.51	33.67	95TH	91.52 36.03
86.47	34.04	97TH	92.44 36.40
87.19	34.33	98TH	93.10 36.65
88.34	34.78	99TH	94.09 37.04

# WRIST HEIGHT

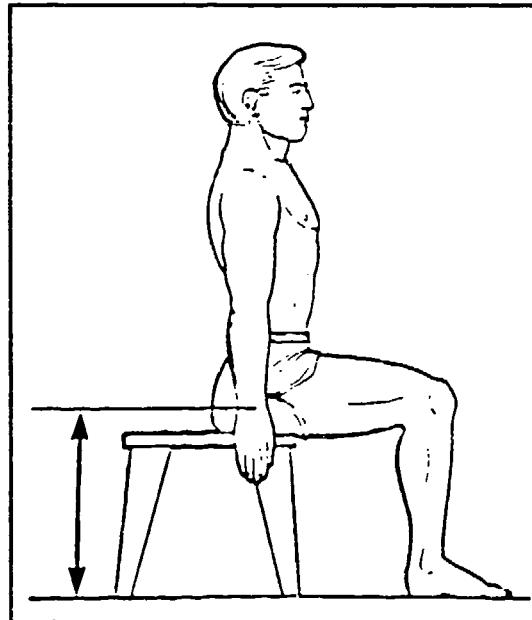
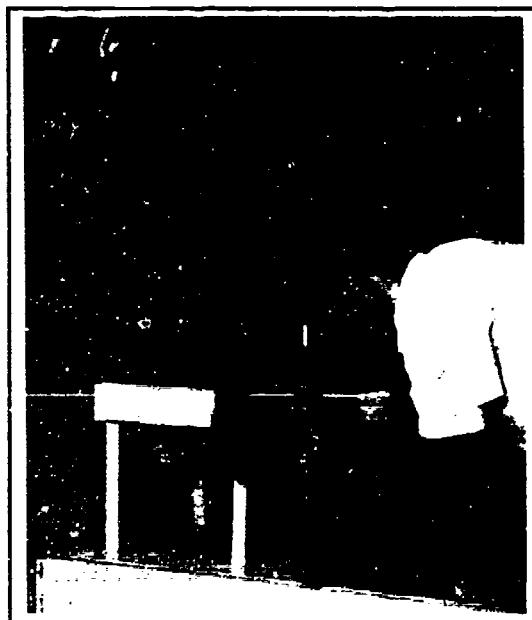
FEMALES		
<u>CM</u>	<u>INCHES</u>	
79.03	MEAN VALUE	31.11
.08	SE(MEAN)	.03
3.86	STD DEVIATION	1.52
.06	SE(STD DEV)	.02
67.30	MINIMUM	26.50
93.90	MAXIMUM	36.97
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	2.92
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
84.65	MEAN VALUE	33.33
.10	SE(MEAN)	.04
4.15	STD DEVIATION	1.63
.07	SE(STD DEV)	.03
70.20	MINIMUM	27.64
100.50	MAXIMUM	39.57
SYMMETRY---VETA I	=	.02
KURTOSIS---VETA II	=	3.05
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>				F	FPct	CumF	CumFPct
1	.05	1	.05	66.55 - 67.55	67.55 - 68.55	68.55 - 69.55	69.55 - 70.55	1	.06	1	.06
6	.27	7	.32	70.55 - 71.55	71.55 - 72.55	72.55 - 73.55	73.55 - 74.55	1	.06	2	.11
3	.14	10	.45	74.55 - 75.55	75.55 - 76.55	76.55 - 77.55	77.55 - 78.55	0	.00	2	.11
9	.41	19	.86	80.55 - 81.55	81.55 - 82.55	82.55 - 83.55	83.55 - 84.55	3	.17	5	.28
23	1.04	42	1.90	87.41 - 11.87	11.87 - 12.27	12.27 - 12.67	12.67 - 13.07	10	.56	15	.85
58	2.63	100	4.53	12.67 - 13.07	13.07 - 13.47	13.47 - 13.87	13.87 - 14.27	11	.62	26	1.47
58	2.63	158	7.16	14.27 - 14.67	14.67 - 15.07	15.07 - 15.47	15.47 - 15.87	16	.90	42	2.37
104	4.71	262	11.87	15.87 - 16.27	16.27 - 16.67	16.67 - 17.07	17.07 - 17.47	40	2.25	82	4.62
161	7.29	423	19.16	17.47 - 17.87	17.87 - 18.27	18.27 - 18.67	18.67 - 19.07	44	2.48	126	7.10
179	8.11	602	27.26	19.07 - 19.47	19.47 - 19.87	19.87 - 20.27	20.27 - 20.67	62	3.49	188	10.60
207	9.38	809	36.64	20.67 - 21.07	21.07 - 21.47	21.47 - 21.87	21.87 - 22.27	98	5.52	286	16.12
222	10.05	1031	46.69	22.27 - 22.67	22.67 - 23.07	23.07 - 23.47	23.47 - 23.87	108	6.09	394	22.21
196	8.88	1227	55.57	23.87 - 24.27	24.27 - 24.67	24.67 - 25.07	25.07 - 25.47	161	9.08	555	31.29
234	10.60	1461	66.17	25.47 - 25.87	25.87 - 26.27	26.27 - 26.67	26.67 - 27.07	153	8.62	708	39.91
191	8.65	1652	74.82	27.07 - 27.47	27.47 - 27.87	27.87 - 28.27	28.27 - 28.67	165	9.30	873	49.21
145	6.57	1797	81.39	28.67 - 29.07	29.07 - 29.47	29.47 - 29.87	29.87 - 30.27	168	9.47	1041	58.68
133	6.02	1930	87.41	30.27 - 30.67	30.67 - 31.07	31.07 - 31.47	31.47 - 31.87	154	8.68	1195	67.36
101	4.57	2031	91.98	31.87 - 32.27	32.27 - 32.67	32.67 - 33.07	33.07 - 33.47	143	8.06	1338	75.42
75	3.40	2106	95.38	33.47 - 33.87	33.87 - 34.27	34.27 - 34.67	34.67 - 35.07	124	6.99	1462	82.41
41	1.86	2147	97.24	35.07 - 35.47	35.47 - 35.87	35.87 - 36.27	36.27 - 36.67	160	6.14	1571	88.56
25	1.13	2172	98.37	36.67 - 37.07	37.07 - 37.47	37.47 - 37.87	37.87 - 38.27	109	3.95	1641	92.50
18	.82	2190	99.18	38.27 - 38.67	38.67 - 39.07	39.07 - 39.47	39.47 - 39.87	45	2.54	1686	95.04
12	.54	2202	99.73	39.87 - 40.27	40.27 - 40.67	40.67 - 41.07	41.07 - 41.47	34	1.92	1720	96.96
2	.09	2204	99.82	41.47 - 41.87	41.87 - 42.27	42.27 - 42.67	42.67 - 43.07	29	1.63	1749	98.59
2	.09	2206	99.91	43.07 - 43.47	43.47 - 43.87	43.87 - 44.27	44.27 - 44.67	12	.68	1761	99.27
0	.00	2206	99.91	44.67 - 45.07	45.07 - 45.47	45.47 - 45.87	45.87 - 46.27	6	.34	1767	99.61
1	.05	2207	99.95	46.27 - 46.67	46.67 - 47.07	47.07 - 47.47	47.47 - 47.87	2	.11	1769	99.72
1	.05	2207	99.95	47.87 - 48.27	48.27 - 48.67	48.67 - 49.07	49.07 - 49.47	2	.11	1771	99.83
1	.05	2208	100.00	49.47 - 50.00	50.00 - 50.55	50.55 - 51.00	51.00 - 51.55	1	.06	1772	99.89
1	.05	2208	100.00	51.55 - 52.00	52.00 - 52.55	52.55 - 53.00	53.00 - 53.55	1	.06	1773	99.94
				53.55 - 54.00	54.00 - 54.55	54.55 - 55.00	55.00 - 55.55	1	.06	1774	100.00

## (128) WRIST HEIGHT, SITTING

The vertical distance between the floor and the styilon landmark on the right wrist of a seated subject is measured with an anthropometer. The subject sits erect with the trochanter landmark on the hip lined up with a marker placed about 7 cm from the front edge of the seat. The subject looks straight ahead. The shoulders are relaxed and the arms are extended downwards with the elbow, wrist, and fingers held rigidly straight. The arms lightly touch the sides. The measurement is taken at the maximum point of quiet respiration with the subject holding his/her breath. Note: The height of the seat used in this measurement was 45.5 cm.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
39.46	15.53	1ST	37.13 14.62
40.09	15.78	2ND	38.19 15.04
40.57	15.97	3RD	38.88 15.31
41.29	16.25	5TH	39.84 15.68
42.52	16.74	10TH	41.32 16.27
43.40	17.09	15TH	42.30 16.66
44.12	17.37	20TH	43.07 16.96
44.75	17.62	25TH	43.72 17.21
45.31	17.84	30TH	44.29 17.44
45.83	18.04	35TH	44.81 17.64
46.32	18.24	40TH	45.29 17.83
46.79	18.42	45TH	45.74 18.01
47.25	18.60	50TH	46.19 18.18
47.71	18.78	55TH	46.62 18.35
48.16	18.96	60TH	47.05 18.52
48.62	19.14	65TH	47.49 18.70
49.10	19.33	70TH	47.94 18.88
49.61	19.53	75TH	48.43 19.07
50.16	19.75	80TH	48.96 19.28
50.79	19.99	85TH	49.57 19.52
51.56	20.30	90TH	50.34 19.82
52.66	20.73	95TH	51.50 20.27
53.37	21.01	97TH	52.27 20.58
53.89	21.22	98TH	52.87 20.82
54.72	21.54	99TH	53.88 21.21

# WRIST HEIGHT, SITTING

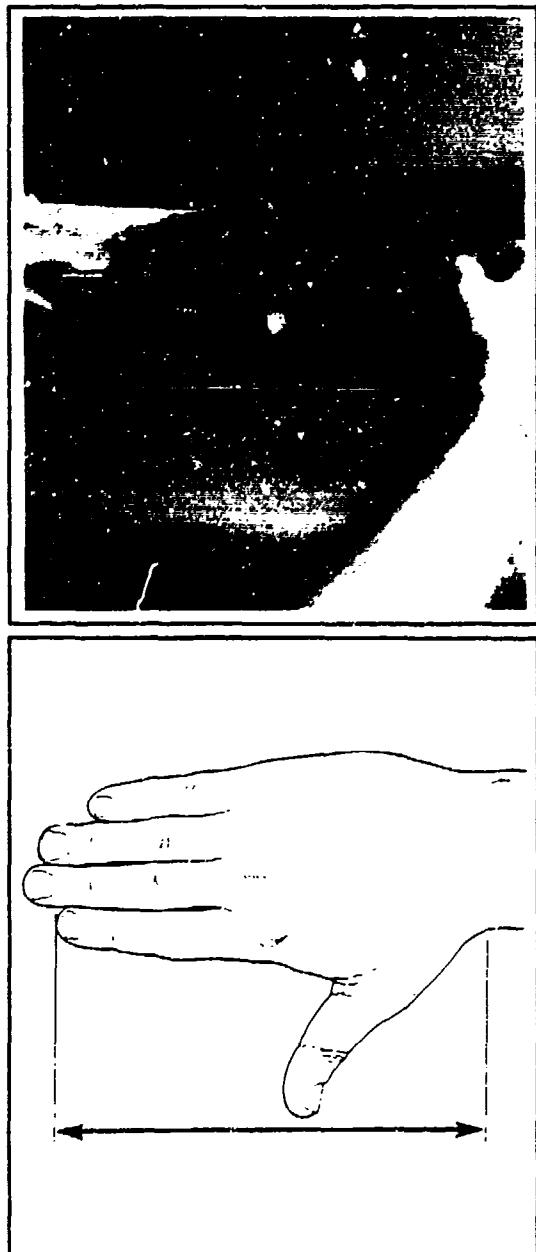
FEMALES		
	<u>CM</u>	<u>INCHES</u>
47.13	MEAN VALUE	18.55
.07	SE(MEAN)	.03
3.44	STD DEVIATION	1.36
.05	SE(STD DEV)	.02
35.50	MINIMUM	13.98
57.20	MAXIMUM	22.52
SYMMETRY---VETA I	=	-.11
KURTOSIS---VETA II	=	2.71
COEF. OF VARIATION	=	7.3%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
45.98	MEAN VALUE	18.10
.08	SE(MEAN)	.03
3.52	STD DEVIATION	1.39
.06	SE(STD DEV)	.02
34.30	MINIMUM	13.50
55.90	MAXIMUM	22.01
SYMMETRY---VETA I	=	-.24
KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	7.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF
2	.09	2	.09	34.25 - 34.75	34.75 - 35.25	2	.11	2 .11
1	.05	3	.14	35.25 - 35.75	35.75 - 36.25	3	.17	5 .28
0	.00	3	.14	36.25 - 36.75	36.75 - 37.25	4	.23	9 .51
2	.09	5	.23	37.25 - 37.75	37.75 - 38.25	4	.23	13 .73
0	.00	5	.23	38.25 - 38.75	38.75 - 39.25	5	.28	18 1.01
2	.09	7	.32	39.25 - 39.75	39.75 - 40.25	6	.34	24 1.35
2	.09	9	.41	40.25 - 40.75	40.75 - 41.25	13	.73	37 2.09
6	.27	15	.68	41.25 - 41.75	41.75 - 42.25	17	.96	54 3.04
1	.72	31	1.40	42.25 - 42.75	42.75 - 43.25	8	.45	62 3.49
21	.95	52	2.36	43.25 - 43.75	43.75 - 44.25	23	1.30	85 4.79
23	1.04	75	3.40	44.25 - 44.75	44.75 - 45.25	24	1.35	109 6.14
30	1.36	105	4.76	45.25 - 45.75	45.75 - 46.25	34	1.92	143 8.06
42	1.90	147	6.66	46.25 - 46.75	46.75 - 47.25	35	1.97	178 10.03
40	1.81	187	8.47	47.25 - 47.75	47.75 - 48.25	41	2.31	219 12.34
59	2.67	246	11.14	48.25 - 48.75	48.75 - 49.25	42	2.37	261 14.71
65	2.94	311	14.09	49.25 - 49.75	49.75 - 50.25	54	3.04	315 17.76
69	3.13	380	17.21	50.25 - 50.75	50.75 - 51.25	55	3.10	370 20.86
91	4.12	471	21.33	51.25 - 51.75	51.75 - 52.25	69	3.89	439 24.75
81	3.67	552	25.00	52.25 - 52.75	52.75 - 53.25	73	4.11	512 28.86
102	4.62	654	29.62	53.25 - 53.75	53.75 - 54.25	82	4.62	594 33.48
102	4.62	756	34.24	54.25 - 54.75	54.75 - 55.25	94	5.30	688 38.78
114	5.16	870	39.40	55.25 - 55.75	55.75 - 56.25	112	6.31	800 45.10
110	4.98	980	44.38	56.25 - 56.75	56.75 - 57.25	102	5.75	902 50.85
122	5.53	1102	49.91	57.25 - 57.75	57.75 - 58.25	97	5.47	999 56.31
110	4.98	1212	54.89	58.25 - 58.75	58.75 - 59.25	109	6.14	1108 62.46
139	6.30	1351	61.19	59.25 - 59.75	59.75 - 60.25	106	5.98	1214 68.43
111	5.03	1462	66.21	60.25 - 60.75	60.75 - 61.25	94	5.30	1308 73.73
110	4.98	1572	71.20	61.25 - 61.75	61.75 - 62.25	99	5.58	1407 79.31
117	5.30	1689	76.49	62.25 - 62.75	62.75 - 63.25	70	3.95	1477 83.26
106	4.86	1795	81.30	63.25 - 63.75	63.75 - 64.25	65	3.66	1542 86.92
81	3.67	1876	84.96	64.25 - 64.75	64.75 - 65.25	51	2.87	1593 89.80
72	3.26	1948	88.22	65.25 - 65.75	65.75 - 66.25	43	2.42	1636 92.22
67	3.03	2015	91.26	66.25 - 66.75	66.75 - 67.25	26	1.47	1662 93.69
66	2.99	2081	94.25	67.25 - 67.75	67.75 - 68.25	32	1.80	1694 95.49
25	1.13	2106	95.38	68.25 - 68.75	68.75 - 69.25	19	1.07	1713 96.56
26	1.18	2132	96.56	69.25 - 69.75	69.75 - 70.25	19	1.07	1732 97.63
25	1.13	2157	97.69	70.25 - 70.75	70.75 - 71.25	16	.90	1748 98.53
15	.68	2172	98.37	71.25 - 71.75	71.75 - 72.25	9	.51	1757 99.04
17	.77	2189	99.14	72.25 - 72.75	72.75 - 73.25	5	.28	1762 99.32
8	.36	2197	99.50	73.25 - 73.75	73.75 - 74.25	6	.34	1768 99.66
4	.18	2201	99.68	74.25 - 74.75	74.75 - 75.25	2	.11	1770 99.77
4	.18	2205	99.86	75.25 - 75.75	75.75 - 76.25	2	.11	1772 99.89
1	.05	2206	99.91	76.25 - 76.75	76.75 - 77.25	2	.11	1774 100.00
2	.09	2208	100.00	77.25 - 77.75	77.75 - 78.25			

## (129) WRIST-INDEX FINGER LENGTH

The distance between the stylion landmark on the right wrist and the tip of the right index finger is measured with a Poech caliper. The subject places the palm on a table, the fingers together, and the thumb abducted. The middle finger is parallel to the long axis of the forearm. The two distal phalanges of the fingers lie on a flat surface 8 mm higher than the table.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
14.90	5.86	1ST	16.06
15.12	5.95	2ND	16.32
15.27	6.01	3RD	16.47
15.48	6.09	5TH	16.68
15.79	6.22	10TH	16.98
16.01	6.30	15TH	17.18
16.18	6.37	20TH	17.33
16.33	6.43	25TH	17.47
16.46	6.48	30TH	17.60
16.58	6.51	35TH	17.71
16.69	6.57	40TH	17.82
16.80	6.61	45TH	17.93
16.91	6.66	50TH	18.04
17.02	6.70	55TH	18.16
17.13	6.74	60TH	18.27
17.24	6.79	65TH	18.39
17.36	6.84	70TH	18.52
17.50	6.89	75TH	18.67
17.65	6.95	80TH	18.83
17.82	7.02	85TH	19.02
18.05	7.11	90TH	19.27
18.41	7.25	95TH	19.64
18.66	7.35	97TH	19.88
18.86	7.42	98TH	20.06
19.19	7.55	99TH	20.34
			8.01

# WRIST-INDEX FINGER LENGTH

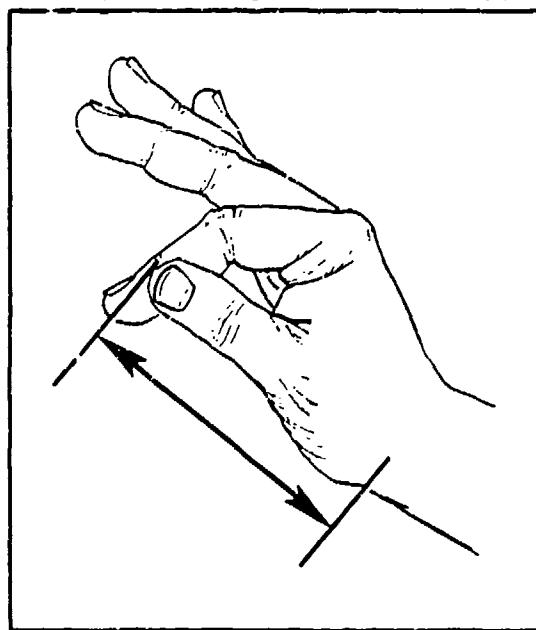
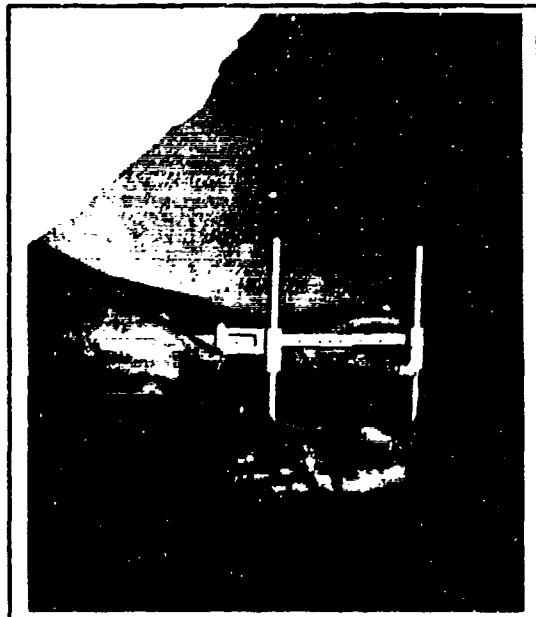
FEMALES		
	<u>CM</u>	<u>INCHES</u>
16.92	MEAN VALUE	6.66
.02	SE(MEAN)	.00
.89	STD DEVIATION	.35
.00	SE(STD DEV)	.00
14.00	MINIMUM	5.51
20.20	MAXIMUM	7.95
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	3.20
COEF. OF VARIATION	=	5.2%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
18.08	MEAN VALUE	7.12
.02	SE(MEAN)	.00
.91	STD DEVIATION	.36
.02	SE(STD DEV)	.00
14.80	MINIMUM	5.83
21.60	MAXIMUM	8.50
SYMMETRY---VETA I	=	.22
KURTOSIS---VETA II	=	3.27
COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
3	.14	3	.14	13.95 - 14.15		1	.06
3	.14	6	.27	14.15 - 14.35		2	.11
3	.14	9	.41	14.35 - 14.55		0	.00
5	.23	14	.63	14.55 - 14.75		3	.17
10	.45	24	1.09	14.75 - 14.95		0	.00
27	1.22	51	2.31	14.95 - 15.15		11	.62
28	1.27	79	3.58	15.15 - 15.35		26	1.47
44	1.99	123	5.57	15.35 - 15.55		48	2.71
76	3.44	199	9.01	15.55 - 15.75		66	3.72
94	4.26	293	13.27	15.75 - 15.95		81	4.57
129	5.84	422	19.11	15.95 - 16.15		109	6.14
145	6.57	567	25.68	16.15 - 16.35		121	6.82
184	8.33	751	34.01	16.35 - 16.55		121	6.82
191	8.65	942	42.66	16.55 - 16.75		166	9.36
196	8.88	1138	51.54	16.75 - 16.95		161	9.08
208	9.42	1346	60.96	16.95 - 17.15		164	9.24
190	8.61	1536	69.57	17.15 - 17.35		147	8.29
167	7.56	1703	77.13	17.35 - 17.55		132	7.44
146	6.61	1849	83.74	17.55 - 17.75		128	7.22
99	4.48	1948	88.22	17.75 - 17.95		128	7.22
70	3.17	2018	91.39	17.95 - 18.15		161	9.08
64	2.90	2082	94.29	18.15 - 18.35		164	9.24
42	1.90	2124	96.20	18.35 - 18.55		122	7.44
28	1.27	2152	97.46	18.55 - 18.75		147	8.29
24	1.09	2176	98.55	18.75 - 18.95		89	5.02
8	.36	2184	98.91	18.95 - 19.15		78	4.40
12	.54	2196	99.46	19.15 - 19.35		71	4.00
6	.27	2202	99.73	19.35 - 19.55		49	2.76
4	.18	2206	99.91	19.55 - 19.75		36	2.03
0	.00	2206	99.91	19.75 - 19.95		22	1.24
1	.05	2207	99.95	19.95 - 20.15		20	1.13
1	.05	2208	100.00	20.15 - 20.35		7	.39
				20.35 - 20.55		6	.34
				20.55 - 20.75		5	.28
				20.75 - 20.95		1	.06
				20.95 - 21.15		2	.11
				21.15 - 21.35		2	.11
				21.35 - 21.55		1	.06
				21.55 - 21.75		1	.06

## (130) WRIST-THUMBTIP LENGTH

The horizontal distance between the stylion landmark on the right wrist and the tip of the right thumb is measured with a Poech caliper. The subject rests the little finger side of the hand on a flat surface. The thumb is held straight and in line with the long axis of the forearm. The thumb rests on the first knuckle of the curved index finger.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
10.28	4.05	1ST	10.94 4.31
10.45	4.11	2ND	11.12 4.38
10.55	4.16	3RD	11.23 4.42
10.70	4.21	5TH	11.38 4.48
10.92	4.30	10TH	11.61 4.57
11.08	4.36	15TH	11.76 4.63
11.20	4.41	20TH	11.88 4.68
11.30	4.45	25TH	11.99 4.72
11.40	4.49	30TH	12.08 4.76
11.49	4.52	35TH	12.17 4.79
11.58	4.56	40TH	12.25 4.82
11.66	4.59	45TH	12.33 4.86
11.75	4.62	50TH	12.42 4.89
11.83	4.66	55TH	12.50 4.92
11.92	4.69	60TH	12.58 4.95
12.01	4.73	65TH	12.67 4.99
12.11	4.77	70TH	12.77 5.03
12.21	4.81	75TH	12.87 5.07
12.33	4.85	80TH	12.99 5.11
12.47	4.91	85TH	13.13 5.17
12.64	4.98	90TH	13.31 5.24
12.90	5.08	95TH	13.59 5.35
13.06	5.14	97TH	13.78 5.43
13.18	5.19	98TH	13.92 5.48
13.36	5.26	99TH	14.15 5.57

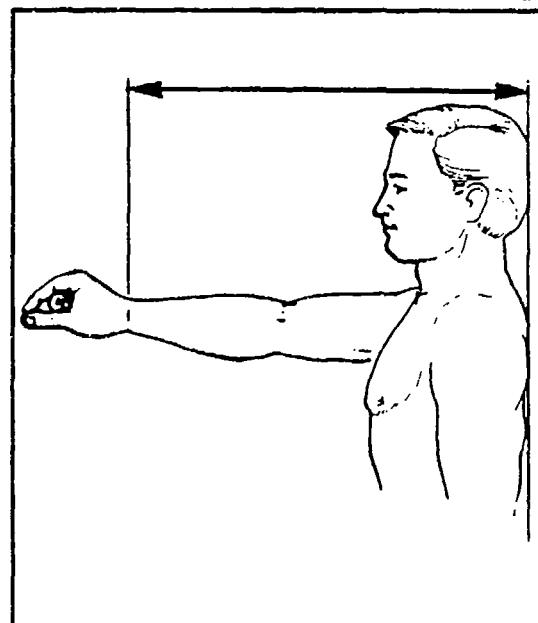
# WRIST-THUMBTIP LENGTH

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
11.76	MEAN VALUE	4.63	12.44	MEAN VALUE	4.90
.00	SE(MEAN)	.00	.02	SE(MEAN)	.00
.67	STD DEVIATION	.26	.67	STD DEVIATION	.27
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
9.60	MINIMUM	3.78	10.40	MINIMUM	4.09
14.20	MAXIMUM	5.59	15.10	MAXIMUM	5.94
SYMMETRY---VETA I	=	.13	SYMMETRY---VETA I	=	.23
KURTOSIS---VETA II	=	3.06	KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	5.7%	COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
1	.05	1	.05	9.55	-	9.65			
2	.09	3	.14	9.65	-	9.75			
1	.05	4	.18	9.75	-	9.85			
3	.14	7	.32	9.85	-	9.95			
2	.09	9	.41	9.95	-	10.05			
4	.18	13	.59	10.05	-	10.15			
4	.18	17	.77	10.15	-	10.25			
13	.59	30	1.36	10.25	-	10.35			
14	.63	44	1.99	10.35	-	10.45	2	.11	2
25	1.13	69	3.13	10.45	-	10.55	0	.00	2
32	1.45	101	4.57	10.55	-	10.65	1	.06	3
39	1.77	140	6.34	10.65	-	10.75	3	.17	6
37	1.68	177	8.02	10.75	-	10.85	4	.23	10
63	2.85	240	10.87	10.85	-	10.95	10	.56	20
55	2.49	295	13.36	10.95	-	11.05	7	.39	27
89	4.03	384	17.39	11.05	-	11.15	9	.51	36
94	4.26	478	21.65	11.15	-	11.25	21	1.18	57
115	5.21	593	26.86	11.25	-	11.35	25	1.41	82
116	5.25	709	32.11	11.35	-	11.45	37	2.09	119
141	6.39	850	38.50	11.45	-	11.55	40	2.25	159
137	6.20	987	44.70	11.55	-	11.65	45	2.54	204
133	6.02	1120	50.72	11.65	-	11.75	61	3.44	265
116	5.25	1236	55.98	11.75	-	11.85	60	3.38	325
112	5.07	1346	61.05	11.85	-	11.95	80	4.51	405
140	6.34	1488	67.39	11.95	-	12.05	96	5.41	501
109	4.94	1597	72.33	12.05	-	12.15	90	5.07	591
116	4.98	1707	77.31	12.15	-	12.25	108	6.09	699
97	4.39	1804	81.70	12.25	-	12.35	120	6.76	819
75	3.40	1879	85.10	12.35	-	12.45	101	5.69	920
66	2.99	1945	88.09	12.45	-	12.55	110	6.20	1030
49	2.22	1994	90.31	12.55	-	12.65	97	5.47	1127
51	2.31	2045	92.62	12.65	-	12.75	112	6.31	1239
43	1.95	2088	94.57	12.75	-	12.85	78	4.40	1317
14	.63	2102	95.20	12.85	-	12.95	68	3.83	1385
33	1.49	2135	96.69	12.95	-	13.05	79	4.45	1464
23	1.04	2158	97.74	13.05	-	13.15	56	3.16	1520
19	.86	2177	98.60	13.15	-	13.25	54	3.04	1574
10	.45	2187	99.05	13.25	-	13.35	35	1.97	1609
6	.27	2193	99.32	13.35	-	13.45	42	2.37	1651
4	.18	2197	99.50	13.45	-	13.55	28	1.58	1679
3	.14	2200	99.64	13.55	-	13.65	18	1.01	1697
2	.09	2202	99.73	13.65	-	13.75	22	1.24	1719
1	.05	2203	99.77	13.75	-	13.85	11	.62	1730
2	.09	2205	99.86	13.85	-	13.95	7	.39	1737
2	.09	2207	99.95	13.95	-	14.05	13	.73	1750
0	.00	2207	99.95	14.05	-	14.15	7	.39	1757
1	.05	2208	100.00	14.15	-	14.25	6	.34	1763
				14.25	-	14.35	3	.17	1766
				14.35	-	14.45	2	.11	1768
				14.45	-	14.55	1	.06	1769
				14.55	-	14.65	0	.00	1769
				14.65	-	14.75	1	.06	1770
				14.75	-	14.85	2	.11	1772
				14.85	-	14.95	1	.06	1773
				14.95	-	15.05	0	.00	1773
				15.05	-	15.15	1	.06	1774
									100.00

## (131) WRIST-WALL LENGTH

The horizontal distance between a back wall and the stylion landmark on the right wrist of the outstretched arm is measured on a wall scale. The subject stands erect in a corner looking straight ahead with the feet together and the heels 20 cm from the back wall. The buttocks and shoulders are against the wall. The right arm and hand with the palm down are stretched forward horizontally against a scale on the side wall. The thumb continues the horizontal line of the arm and the index finger curves around to touch the pad at the end of the thumb. The subject's right shoulder is held against the rear wall.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
55.30	21.77	1ST	60.69 23.90
55.89	22.00	2ND	61.36 24.16
56.30	22.16	3RD	61.83 24.34
56.89	22.40	5TH	62.51 24.61
57.89	22.79	10TH	63.65 25.06
58.60	23.07	15TH	64.46 25.38
59.19	23.30	20TH	65.12 25.64
59.71	23.51	25TH	65.70 25.86
60.18	23.69	30TH	66.22 26.07
60.62	23.87	35TH	66.70 26.26
61.05	24.04	40TH	67.16 26.44
61.47	24.20	45TH	67.61 26.62
61.89	24.36	50TH	68.05 26.79
62.31	24.53	55TH	68.49 26.96
62.73	24.70	60TH	68.94 27.14
63.18	24.87	65TH	69.40 27.32
63.65	25.06	70TH	69.89 27.52
64.16	25.26	75TH	70.42 27.73
64.74	25.49	80TH	71.02 27.96
65.41	25.75	85TH	71.71 28.23
66.26	26.09	90TH	72.60 28.58
67.52	26.58	95TH	73.96 29.12
68.34	26.91	97TH	74.88 29.48
68.95	27.15	98TH	75.58 29.75
69.91	27.52	99TH	76.73 30.21

# WRIST-WALL LENGTH

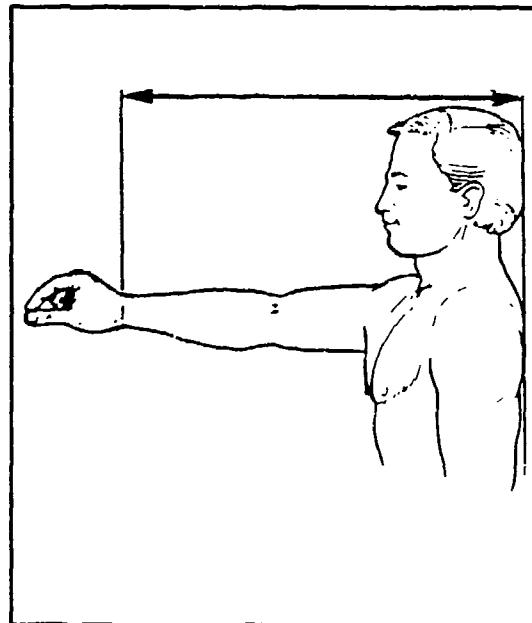
FEMALES		
CM	MEAN VALUE	INCHES
61.98	MEAN VALUE	24.40
.07	SE(MEAN)	.03
3.21	STD DEVIATION	1.26
.05	SE(STD DEV)	.02
50.80	MINIMUM	20.00
76.30	MAXIMUM	30.04
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	5.2%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
68.09	MEAN VALUE	26.81
.08	SE(MEAN)	.03
3.48	STD DEVIATION	1.37
.06	SE(STD DEV)	.02
56.50	MINIMUM	22.24
83.50	MAXIMUM	32.87
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	5.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	50.55 -	51.55		
2	.09	3	.14	51.55 -	52.55		
3	.14	6	.27	52.55 -	53.55		
6	.27	12	.54	53.55 -	54.55		
16	.72	28	1.27	54.55 -	55.55		
53	2.40	81	3.67	55.55 -	56.55		
94	4.26	175	7.93	56.55 -	57.55	1	.06
158	7.16	333	15.08	57.55 -	58.55	1	.06
178	8.06	511	23.14	58.55 -	59.55	2	.11
249	11.28	760	34.42	59.55 -	60.55	3	.23
243	11.01	1003	45.43	60.55 -	61.55	23	.39
278	12.59	1281	58.02	61.55 -	62.55	47	.86
244	11.05	1525	69.07	62.55 -	63.55	92	1.03
216	9.78	1741	78.85	63.55 -	64.55	108	1.12
171	7.74	1912	86.59	64.55 -	65.55	135	1.20
117	5.30	2029	91.89	65.55 -	66.55	178	1.20
81	3.67	2110	95.56	66.55 -	67.55	194	1.20
42	1.90	2152	97.46	67.55 -	68.55	205	1.20
26	1.18	2178	98.64	68.55 -	69.55	186	1.20
20	.91	2198	99.55	69.55 -	70.55	161	1.20
8	.36	2206	99.91	70.55 -	71.55	136	1.20
0	.00	2206	99.91	71.55 -	72.55	116	1.20
0	.00	2206	99.91	72.55 -	73.55	72	1.20
0	.00	2206	99.91	73.55 -	74.55	48	1.20
1	.05	2207	99.95	74.55 -	75.55	20	1.20
1	.05	2208	100.00	75.55 -	76.55	18	1.20
				76.55 -	77.55	11	1.20
				77.55 -	78.55	4	1.20
				78.55 -	79.55	2	1.20
				79.55 -	80.55	0	1.20
				80.55 -	81.55	0	1.20
				81.55 -	82.55	0	1.20
				82.55 -	83.55	2	1.20

## (132) WRIST-WALL LENGTH, EXTENDED

The horizontal distance between a back wall and the stylion landmark on the right wrist of the maximally outstretched arm is measured on a wall scale. The subject stands erect in a corner looking straight ahead with the feet together and the heels 20 cm from the back wall. The buttocks and left shoulder are against the wall. The right arm and hand with the palm down are stretched forward horizontally as far as possible against the side wall. The thumb continues the horizontal line of the arm and the index finger curves around to touch the pad at the end of the thumb. The subject's left shoulder is held against the rear wall.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
60.56	23.84	1ST	66.43 26.15
61.29	24.13	2ND	67.34 26.51
61.78	24.32	3RD	67.94 26.75
62.47	24.60	5TH	68.78 27.08
63.59	25.04	10TH	70.09 27.59
64.37	25.34	15TH	70.98 27.95
65.01	25.59	20TH	71.69 28.23
65.56	25.81	25TH	72.31 28.47
66.07	26.01	30TH	72.86 28.69
66.54	26.20	35TH	73.37 28.89
66.99	26.37	40TH	73.85 29.08
67.43	26.55	45TH	74.32 29.26
67.87	26.72	50TH	74.79 29.44
68.31	26.89	55TH	75.25 29.63
68.76	27.07	60TH	75.72 29.81
69.22	27.25	65TH	76.21 30.00
69.72	27.45	70TH	76.72 30.20
70.25	27.66	75TH	77.28 30.43
70.85	27.90	80TH	77.91 30.67
71.55	28.17	85TH	78.65 30.97
72.43	28.52	90TH	79.61 31.34
73.74	29.03	95TH	81.07 31.92
74.59	29.37	97TH	82.06 32.31
75.21	29.61	98TH	82.82 32.61
76.19	29.99	99TH	84.08 33.10

# WRIST-WALL LENGTH, EXTENDED

FEMALES			
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	
67.93	MEAN VALUE	26.74	
.07	SE(MEAN)	.03	
3.43	STD DEVIATION	1.35	
.05	SE(STD DEV)	.02	
56.00	MINIMUM	22.05	
84.50	MAXIMUM	33.27	
SYMMETRY---VETA I	=	.17	
KURTOSIS---VETA II	=	3.14	
COEF. OF VARIATION	=	5.1%	
NUMBER OF SUBJECTS	=	2208	

MALES			
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	
74.84	MEAN VALUE	29.47	
.09	SE(MEAN)	.03	
3.73	STD DEVIATION	1.47	
.06	SE(STD DEV)	.02	
63.00	MINIMUM	24.80	
90.30	MAXIMUM	35.55	
SYMMETRY---VETA I	=	.14	
KURTOSIS---VETA II	=	3.23	
COEF. OF VARIATION	=	5.0%	
NUMBER OF SUBJECTS	=	1774	

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	55.55 - 56.55			
1	.05	2	.09	56.55 - 57.55			
2	.09	4	.18	57.55 - 58.55			
6	.27	10	.45	58.55 - 59.55			
14	.63	24	1.09	59.55 - 60.55			
36	1.63	60	2.72	60.55 - 61.55			
48	2.17	108	4.89	61.55 - 62.55			
103	4.66	211	9.56	62.55 - 63.55			
158	7.16	369	16.71	63.55 - 64.55			
188	8.51	557	25.23	64.55 - 65.55			
238	10.78	795	36.01	65.55 - 66.55			
242	10.96	1037	46.97	66.55 - 67.55			
233	10.55	1270	57.52	67.55 - 68.55			
243	11.01	1513	68.52	68.55 - 69.55			
201	9.10	1714	77.63	69.55 - 70.55			
185	8.38	1899	86.01	70.55 - 71.55			
115	5.21	2014	91.21	71.55 - 72.55			
79	3.58	2093	94.79	72.55 - 73.55			
48	2.17	2141	96.97	73.55 - 74.55			
31	1.40	2172	98.37	74.55 - 75.55			
20	.91	2192	99.28	75.55 - 76.55			
8	.36	2200	99.64	76.55 - 77.55			
4	.18	2204	99.82	77.55 - 78.55			
2	.09	2206	99.91	78.55 - 79.55			
0	.00	2206	99.91	79.55 - 80.55			
1	.05	2207	99.95	80.55 - 81.55			
0	.00	2207	99.95	81.55 - 82.55			
0	.00	2207	99.95	82.55 - 83.55			
1	.05	2208	100.00	83.55 - 84.55			
				84.55 - 85.55			
				85.55 - 86.55			
				86.55 - 87.55			
				87.55 - 88.55			
				88.55 - 89.55			
				89.55 - 90.55			

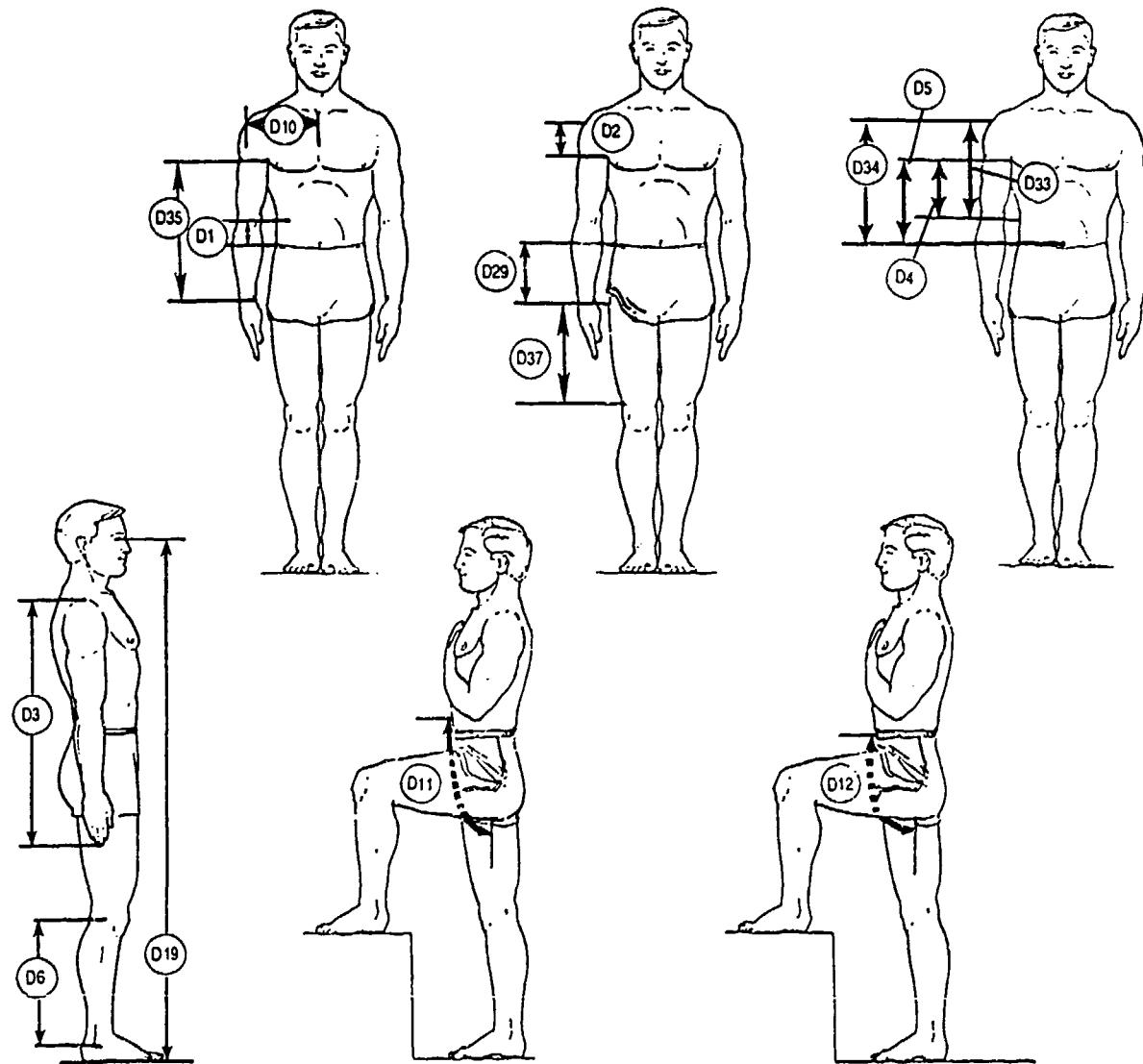
## CHAPTER V

### THE DERIVED DIMENSIONS

While logistics demand a reasonable limit to the number of dimensions that can be measured in an anthropometric survey, there is an almost infinite number of additional dimensions that can be calculated from the measured data. Some 60 additional dimensions, concentrated in areas applicable to clothing, workspace, and analog design, were derived from the measured dimensions in this survey. These are intended to meet some of the more specialized needs of designers and engineers in these fields, though users should be cautioned that calculated data may not be as consistently reliable as data obtained by direct measurement.

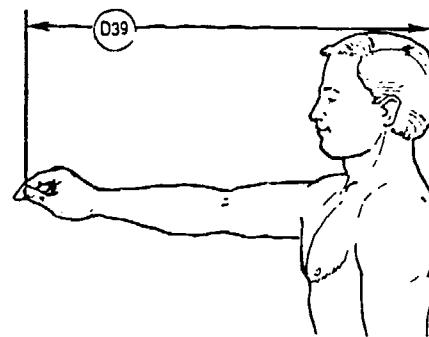
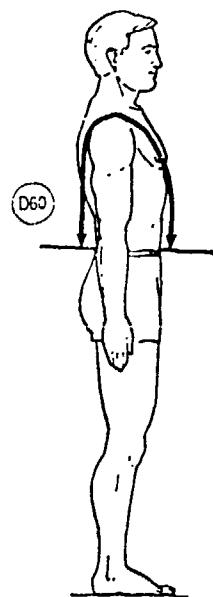
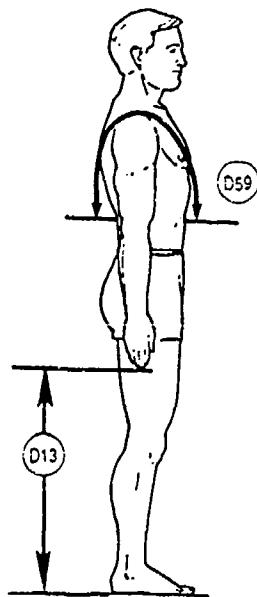
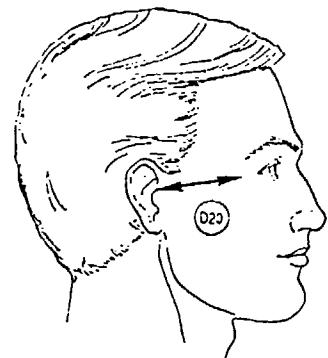
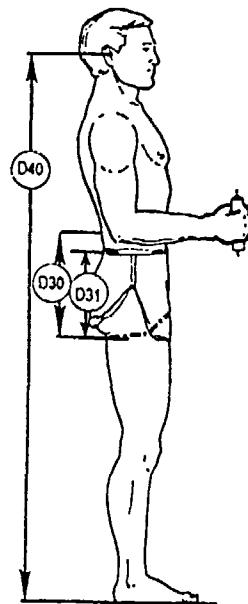
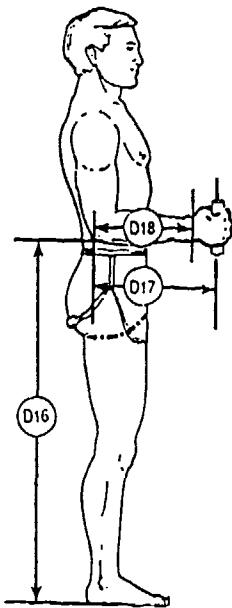
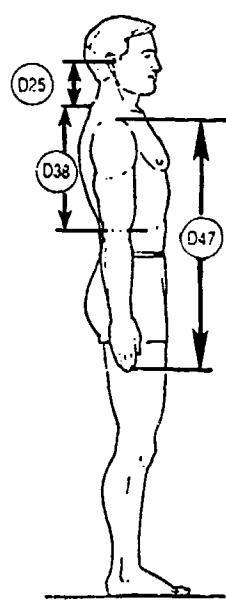
A visual index begins on the next page and is followed by the data pages, which include dimension descriptions, summary statistics, and percentile and frequency tables.

## VISUAL INDEX - DERIVED DIMENSIONS



- |       |  |       |  |
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| (D2)  | ACROMION-AXILLA LENGTH                           | (D19) | EYE HEIGHT                                     |
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| (D4)  | AXILLA-WAIST LENGTH (NATURAL<br>INDENTATION)     | (D33) | SHOULDER-WAIST LENGTH<br>(NATURAL INDENTATION) |
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| (D10) | CLAVICLE LINK                                    | (D37) | THIGH LINK                                     |
| (D11) | CROTCH LENGTH, ANTERIOR<br>(NATURAL INDENTATION) |       |  |

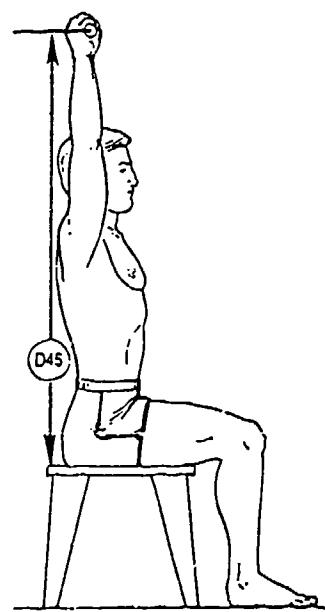
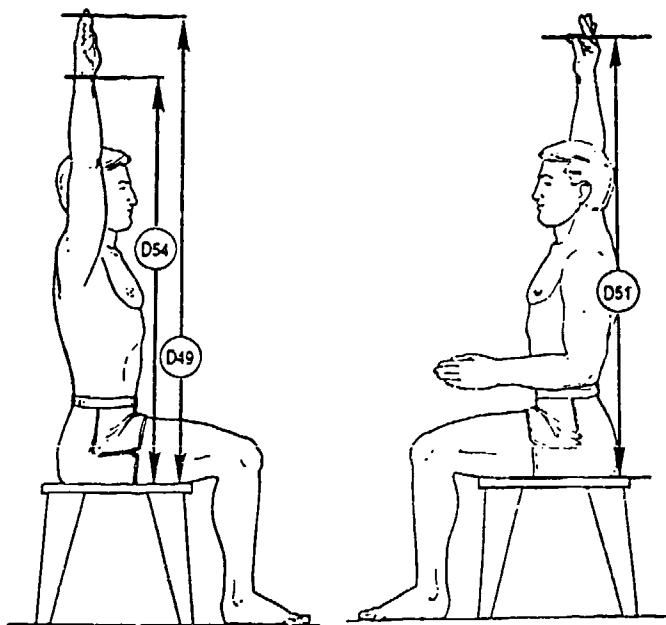
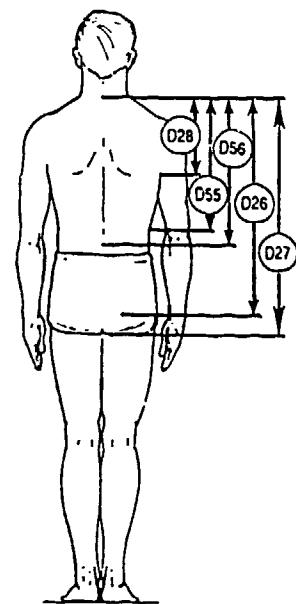
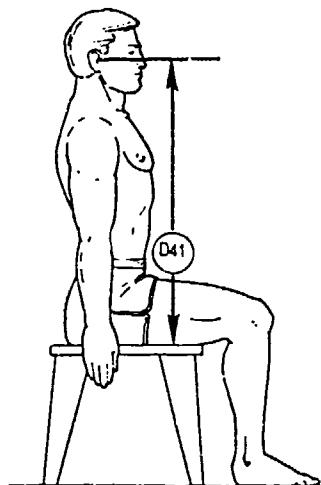
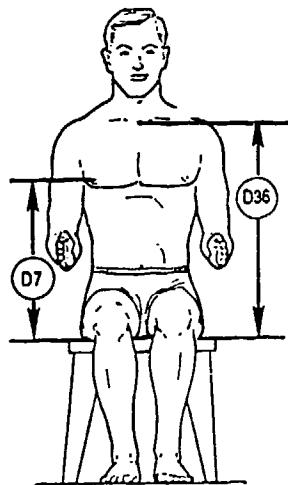
## VISUAL INDEX - DERIVED DIMENSIONS (Continued)



- (D13) DACTYLION HEIGHT
- (D16) ELBOW REST HEIGHT, STANDING
- (D17) ELBOW-CENTER OF GRIP LENGTH
- (D18) ELBOW-WRIST LENGTH
- (D20) EYE-TRAGON LINK

- (D25) NECK LINK
- (D30) RISE (NATURAL INDENTATION)
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- (D38) THORAX LINK
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- (D59) WAIST-WAIST (NATURAL INDENTATION) OVER SHOULDER
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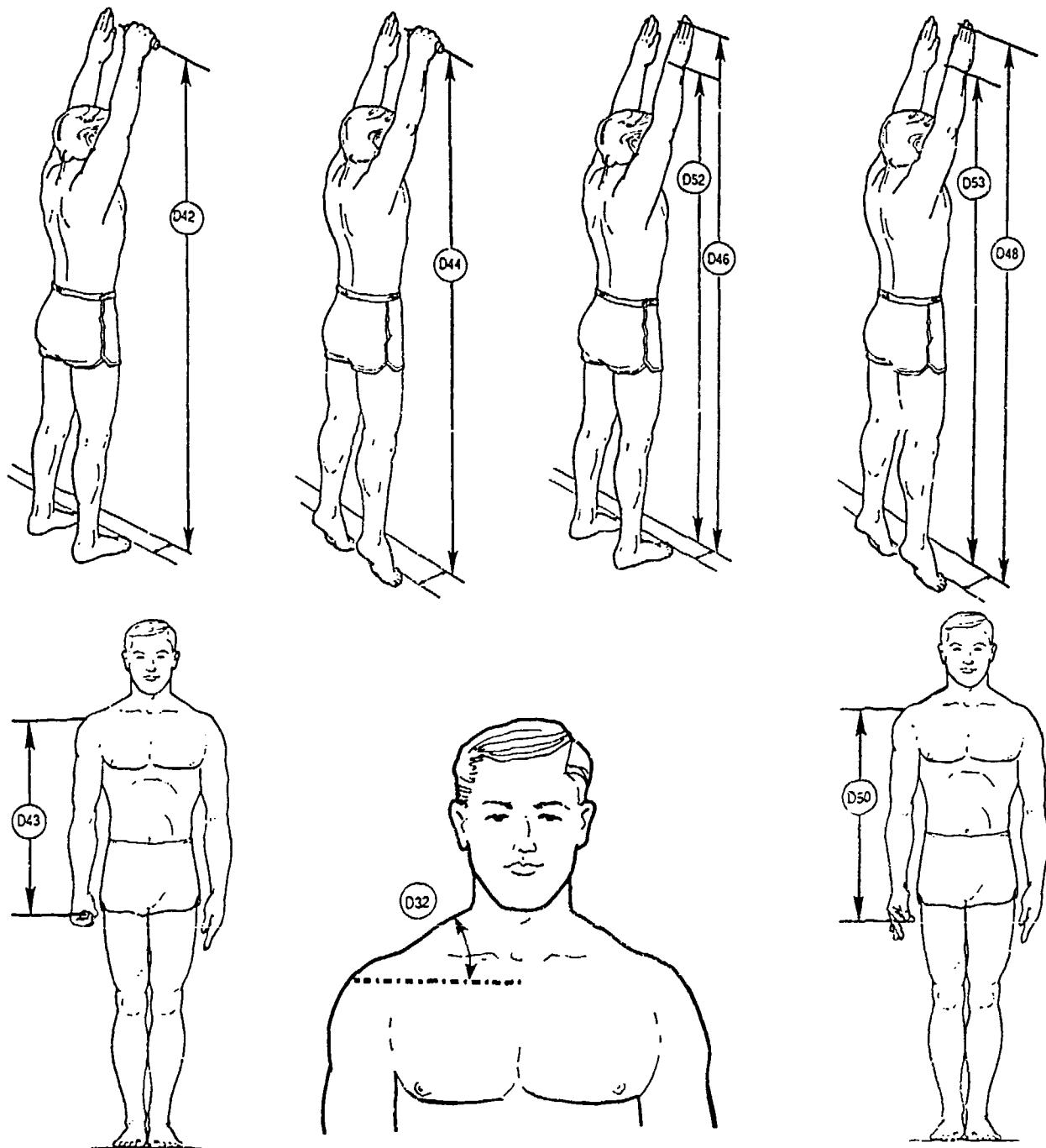
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- (D7) CHEST HEIGHT, SITTING
- (D26) NECK-BUTTOCK LENGTH
- (D27) NECK-GLUTEAL FURROW LENGTH
- (D28) NECK-SCYE LENGTH
- (D36) SUPRASTERNALE HEIGHT, SITTING
- (D41) TRAGION HEIGHT, SITTING
- (D45) VERTICAL GRIP REACH, SITTING

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- (D54) VERTICAL WRIST HEIGHT, SITTING
- (D55) WAIST BACK, VERTICAL (NATURAL INDENTATION)
- (D56) WAIST BACK, VERTICAL (OMPHALION)

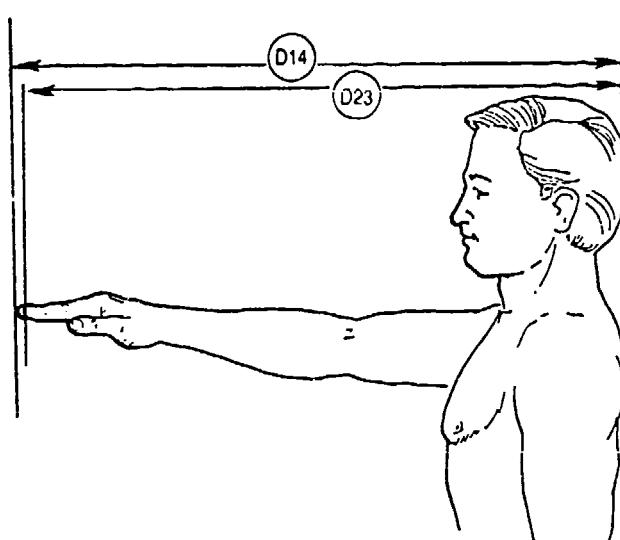
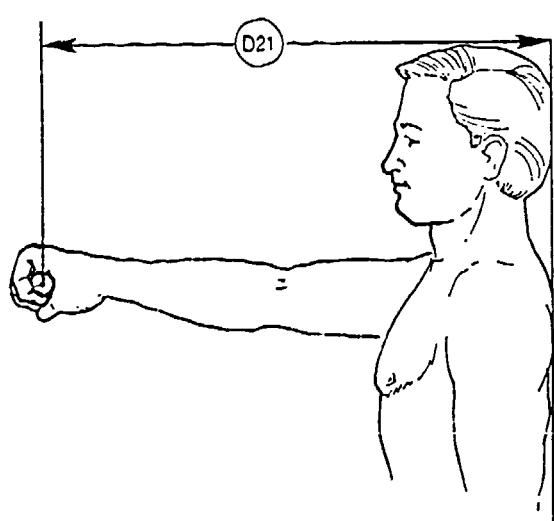
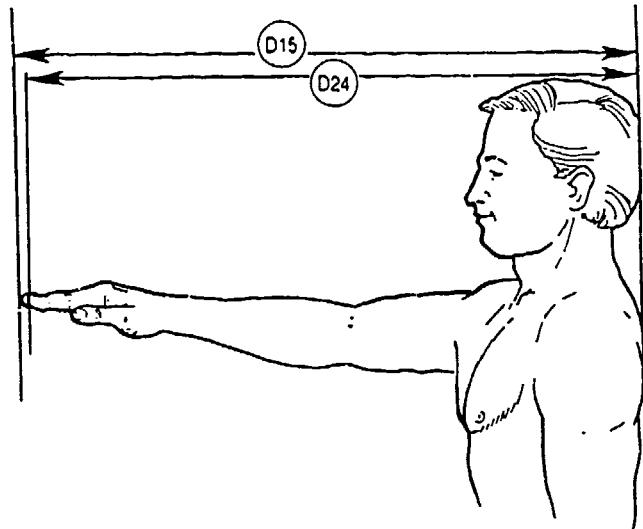
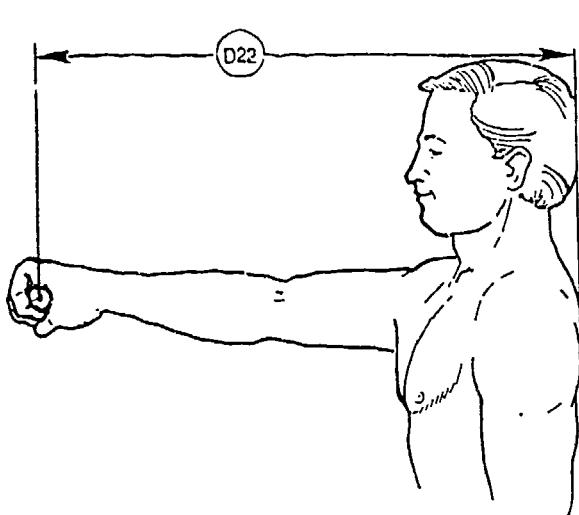
VISUAL INDEX - DERIVED DIMENSIONS (Continued)



- (D32) SHOULDER SLOPE
- (D42) VERTICAL GRIP REACH
- (D43) VERTICAL GRIP REACH DOWN
- (D44) VERTICAL GRIP REACH, EXTENDED
- (D46) VERTICAL INDEX FINGERTIP REACH

- (D48) VERTICAL INDEX FINGERTIP REACH, EXTENDED
- (D50) VERTICAL THUMBTIP REACH DOWN
- (D52) VERTICAL WRIST HEIGHT
- (D53) VERTICAL WRIST HEIGHT, EXTENDED

## VISUAL INDEX - DERIVED DIMENSIONS (Continued)

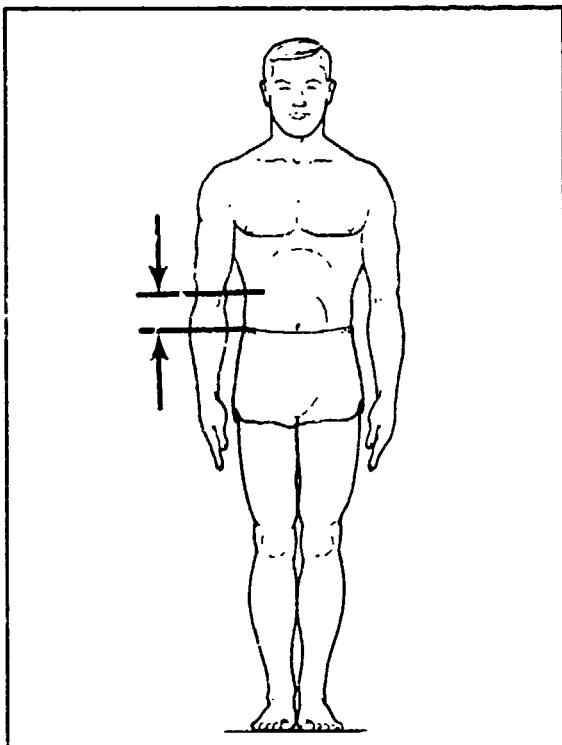


- (D14) DACTYLION REACH FROM WALL
- (D15) DACTYLION REACH FROM WALL,  
EXTENDED
- (D21) FUNCTIONAL GRIP REACH
- (D22) FUNCTIONAL GRIP REACH, EXTENDED
- (D23) INDEX FINGER REACH
- (D24) INDEX FINGER REACH, EXTENDED

- DERIVED VALUES, NOT ILLUSTRATED:**
- (D8) CHEST-WAIST DROP, NATURAL INDEN-  
TATION
  - (D9) CHEST-WAIST DROP, OMPHALION
  - (D57) WAIST-BUTTOCK DROP (NATURAL  
INDENTATION)
  - (D58) WAIST-BUTTOCK DROP (OMPHALION)

## (D1) ABDOMINAL LINK

The vertical distance between the inferior point of the right tenth rib and the iliocristale landmark on the top of the right side of the pelvis is calculated as follows: TENTH RIB HEIGHT minus ILOCRISTALE HEIGHT.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
2.16	.85		1ST	1.33	.52
2.61	1.03		2ND	1.77	.70
2.87	1.13		3RD	2.04	.80
3.22	1.27		5TH	2.39	.94
3.74	1.47		10TH	2.91	1.15
4.07	1.60		15TH	3.25	1.28
4.34	1.71		20TH	3.52	1.38
4.56	1.80		25TH	3.75	1.47
4.77	1.88		30TH	3.95	1.56
4.96	1.95		35TH	4.14	1.63
5.14	2.03		40TH	4.32	1.70
5.32	2.10		45TH	4.50	1.77
5.50	2.17		50TH	4.68	1.84
5.68	2.24		55TH	4.86	1.91
5.87	2.31		60TH	5.05	1.99
6.06	2.39		65TH	5.25	2.07
6.27	2.47		70TH	5.46	2.15
6.50	2.56		75TH	5.70	2.25
6.77	2.66		80TH	5.98	2.36
7.08	2.79		85TH	6.32	2.49
7.48	2.95		90TH	6.78	2.67
8.10	3.19		95TH	7.52	2.96
8.50	3.35		97TH	8.05	3.17
8.81	3.47		98TH	8.47	3.31
9.28	3.66		99TH	9.17	3.61

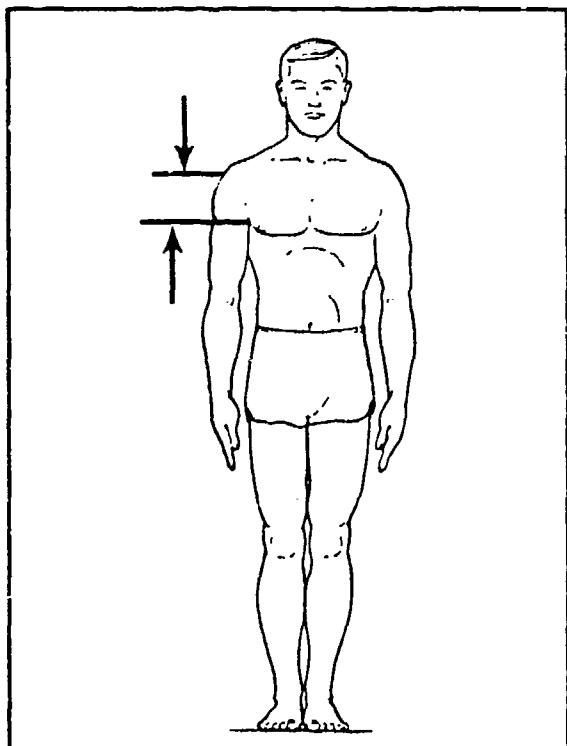
# ABDOMINAL LINK

FEMALES			MALES		
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
5.56	MEAN VALUE	2.19	4.78	MEAN VALUE	1.88
.03	SE(MEAN)	.00	.04	SE(MEAN)	.00
1.47	STD DEVIATION	.58	1.57	STD DEVIATION	.62
.02	SE(STD DEV)	.00	.03	SE(STD DEV)	.00
.60	MINIMUM	.24	.10	MINIMUM	.04
11.00	MAXIMUM	4.33	11.00	MAXIMUM	4.33
SYMMETRY---VETA I = .18					
KURTOSIS---VETA II = 3.24					
COEF. OF VARIATION = 26.5%					
NUMBER OF SUBJECTS = 2208					
SYMMETRY---VETA I = .41					
KURTOSIS---VETA II = 3.63					
COEF. OF VARIATION = 32.7%					
NUMBER OF SUBJECTS = 1774					

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	.05 - .25	3 .17	3	.17
0	.00	1	.05	.25 - .45	1 .06	4	.23
1	.05	2	.09	.45 - .65	1 .06	5	.28
0	.00	2	.09	.65 - .85	1 .06	6	.34
4	.18	6	.27	.85 - 1.05	2 .11	8	.45
2	.09	8	.36	1.05 - 1.25	10 .56	18	1.01
4	.18	12	.54	1.25 - 1.45	4 .23	22	1.24
6	.27	18	.82	1.45 - 1.65	6 .34	28	1.58
8	.36	26	1.18	1.65 - 1.85	6 .34	34	1.92
9	.41	35	1.59	1.85 - 2.05	15 .85	49	2.76
24	1.09	68	3.08	2.05 - 2.25	19 1.07	68	3.83
22	1.00	90	4.08	2.25 - 2.45	22 1.24	90	5.07
35	1.59	125	5.66	2.45 - 2.65	35 1.97	125	7.05
25	1.13	150	6.79	2.65 - 2.85	43 2.42	168	9.47
44	1.99	194	8.79	2.85 - 3.05	42 2.37	210	11.84
56	2.54	250	11.32	3.05 - 3.25	61 3.44	271	15.28
70	3.17	320	14.49	3.25 - 3.45	84 4.74	355	20.01
75	3.40	395	17.89	3.45 - 3.65	71 4.00	426	24.01
91	4.12	486	22.01	3.65 - 3.85	79 4.45	505	28.47
96	4.35	582	26.36	3.85 - 4.05	77 4.34	582	32.81
109	4.94	691	31.30	4.05 - 4.25	83 4.68	665	37.49
142	6.43	833	37.73	4.25 - 4.45	92 5.19	757	42.67
118	5.34	951	43.07	4.45 - 4.65	107 6.03	864	48.70
132	5.98	1083	49.05	4.65 - 4.85	95 5.36	959	54.06
122	5.53	1205	54.57	4.85 - 5.05	86 4.85	1045	58.91
112	5.07	1317	59.65	5.05 - 5.25	99 5.58	1144	64.49
121	5.48	1438	65.13	5.25 - 5.45	89 5.02	1233	69.50
103	4.66	1541	69.79	5.45 - 5.65	80 4.51	1313	74.01
86	3.89	1627	73.69	5.65 - 5.85	60 3.38	1382	77.90
87	3.94	1714	77.63	5.85 - 6.05	50 2.82	1442	81.29
74	3.35	1788	80.98	6.05 - 6.25	42 2.37	1492	84.10
83	3.76	1871	84.74	6.25 - 6.45	36 2.03	1534	86.47
66	2.99	1937	87.73	6.45 - 6.65	33 1.86	1570	88.50
51	2.31	1988	90.04	6.65 - 6.85	33 1.86	1603	90.36
45	2.04	2033	92.07	6.85 - 7.05	31 1.75	1636	92.22
42	1.90	2075	93.98	7.05 - 7.25	31 1.75	1667	93.97
18	.82	2093	94.79	7.25 - 7.45	11 .62	1678	94.59
23	1.04	2116	95.83	7.45 - 7.65	19 1.07	1697	95.66
23	1.04	2139	96.88	7.65 - 7.85	10 .56	1707	96.22
12	.54	2151	97.42	7.85 - 8.05	16 .90	1723	97.13
16	.72	2167	98.14	8.05 - 8.25	9 .51	1732	97.63
10	.45	2177	98.60	8.25 - 8.45	8 .45	1740	98.08
8	.36	2185	98.96	8.45 - 8.65	4 .23	1744	98.31
10	.45	2195	99.41	8.65 - 8.85	5 .28	1749	98.59
3	.14	2198	99.55	8.85 - 9.05	5 .28	1754	98.87
3	.14	2201	99.68	9.05 - 9.25	4 .23	1758	99.10
0	.00	2201	99.68	9.25 - 9.45	3 .17	1761	99.27
0	.00	2201	99.68	9.45 - 9.65	2 .11	1763	99.38
2	.09	2203	99.77	9.65 - 9.85	3 .17	1766	99.55
2	.09	2205	99.86	9.85 - 10.05	3 .17	1769	99.72
2	.09	2207	99.95	10.05 - 10.25	2 .11	1771	99.83
1	.05	2208	100.00	10.25 - 10.45	0 .00	1771	99.83
				10.45 - 10.65	1 .06	1772	99.89
				10.65 - 10.85	0 .00	1772	99.89
				10.85 - 11.05	2 .11	1774	100.00

## (D2) ACROMION-AXILLA LENGTH

The vertical distance between the acromion landmark on the tip of the right shoulder and the anterior-scye-on-the-torso landmark of a subject standing erect with the arms relaxed at the sides is calculated as follows: ACROMIAL HEIGHT minus AXILLA HEIGHT.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
7.86	3.10	1ST	9.90	3.90	
8.11	3.19	2ND	10.17	4.00	
8.27	3.26	3RD	10.33	4.07	
8.49	3.34	5TH	10.55	4.15	
8.83	3.48	10TH	10.89	4.29	
9.05	3.56	15TH	11.12	4.38	
9.23	3.63	20TH	11.30	4.45	
9.38	3.69	25TH	11.46	4.51	
9.52	3.75	30TH	11.61	4.57	
9.64	3.80	35TH	11.74	4.62	
9.76	3.84	40TH	11.87	4.67	
9.88	3.89	45TH	12.00	4.72	
9.99	3.93	50TH	12.13	4.77	
10.10	3.98	55TH	12.25	4.82	
10.22	4.02	60TH	12.39	4.88	
10.33	4.07	65TH	12.52	4.93	
10.46	4.12	70TH	12.67	4.99	
10.59	4.17	75TH	12.83	5.05	
10.75	4.23	80TH	13.01	5.12	
10.92	4.30	85TH	13.23	5.21	
11.15	4.39	90TH	13.50	5.32	
11.50	4.53	95TH	13.91	5.48	
11.73	4.62	97TH	14.17	5.58	
11.91	4.69	98TH	14.36	5.65	
12.20	4.80	99TH	14.65	5.77	

# ACROMION-AXILLA LENGTH

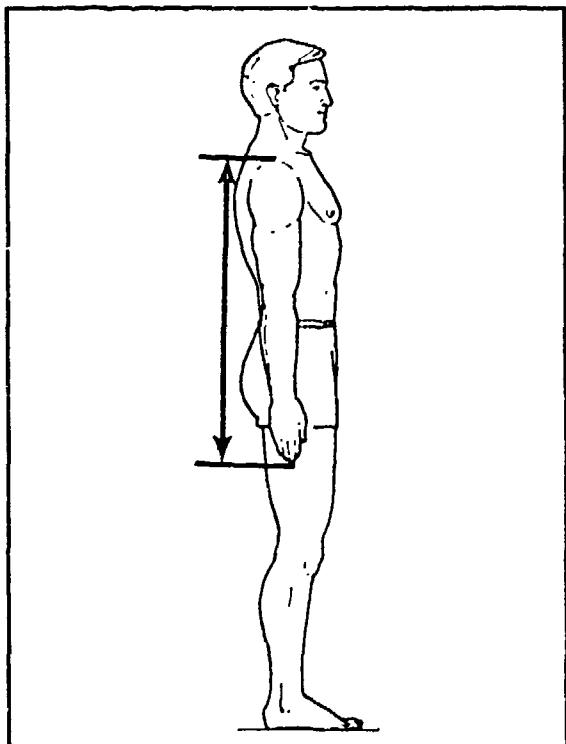
FEMALES		
<u>CM</u>	<u>INCHES</u>	
9.99	MEAN VALUE	3.93
.02	SE(MEAN)	.00
.91	STD DEVIATION	.36
.00	SE(STD DEV)	.00
6.80	MINIMUM	2.68
13.30	MAXIMUM	5.24
SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	9.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
12.16	MEAN VALUE	4.79
.C2	SE(MEAN)	.00
1.03	STD DEVIATION	.40
.02	SE(STD DEV)	.00
8.80	MINIMUM	3.46
16.60	MAXIMUM	6.54
SYMMETRY---VETA I	=	.22
KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	8.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	6.75 - 6.95			
1	.05	2	.09	6.95 - 7.15			
0	.00	2	.09	7.15 - 7.35			
3	.14	5	.23	7.35 - 7.55			
9	.41	14	.63	7.55 - 7.75			
14	.63	28	1.27	7.75 - 7.95			
18	.82	46	2.08	7.95 - 8.15			
38	1.72	84	3.80	8.15 - 8.35			
41	1.86	125	5.66	8.35 - 8.55			
55	2.49	180	8.15	8.55 - 8.75			
100	4.53	280	12.68	8.75 - 8.95	1	.06	1
112	5.07	392	17.75	8.95 - 9.15	0	.00	1
117	5.30	509	23.05	9.15 - 9.35	4	.23	5
175	7.93	684	30.98	9.35 - 9.55	3	.17	8
184	8.33	868	39.31	9.55 - 9.75	5	.28	.45
196	8.88	1064	48.19	9.75 - 9.95	7	.39	.73
202	9.15	1266	57.34	9.95 - 10.15	13	.73	1.13
178	8.06	1444	65.40	10.15 - 10.35	16	.90	1.86
182	8.24	1626	73.64	10.35 - 10.55	42	2.37	2.76
161	7.29	1787	80.93	10.55 - 10.75	47	2.65	5.13
112	5.07	1899	86.01	10.75 - 10.95	60	3.38	7.78
89	4.03	1988	90.04	10.95 - 11.15	80	4.51	11.16
70	3.17	2058	93.21	11.15 - 11.35	110	6.20	15.67
48	2.17	2106	95.38	11.35 - 11.55	123	6.93	20.80
40	1.81	2146	97.19	11.55 - 11.75	115	6.48	35.29
18	.82	2164	98.01	11.75 - 11.95	119	6.71	42.00
21	.95	2185	98.96	11.95 - 12.15	153	8.62	50.62
8	.36	2193	99.32	12.15 - 12.35	134	7.55	58.17
7	.32	2200	99.64	12.35 - 12.55	141	7.95	66.12
6	.27	2206	99.91	12.55 - 12.75	117	6.60	72.72
1	.05	2207	99.95	12.75 - 12.95	110	6.20	78.92
0	.00	2207	99.95	12.95 - 13.15	87	4.90	83.82
1	.05	2208	100.00	13.15 - 13.35	66	3.72	87.54
				13.35 - 13.55	59	3.33	90.87
				13.55 - 13.75	37	2.09	1649
				13.75 - 13.95	33	1.86	92.95
				13.95 - 14.15	39	2.20	1682
				14.15 - 14.35	20	1.13	94.81
				14.35 - 14.55	8	.45	1721
				14.55 - 14.75	12	.68	97.01
				14.75 - 14.95	3	.17	1741
				14.95 - 15.15	4	.23	98.14
				15.15 - 15.35	1	.06	1749
				15.35 - 15.55	2	.11	98.59
				15.55 - 15.75	1	.06	1761
				15.75 - 15.95	0	.00	99.27
				15.95 - 16.15	1	.06	1764
				16.15 - 16.35	0	.00	99.44
				16.35 - 16.55	0	.00	1768
				16.55 - 16.75	1	.06	99.66

### (D3) ARM LENGTH

The vertical distance between the acromion landmark on the tip of the right shoulder and the tip of the middle finger of a subject standing erect with the arms straight at the sides is calculated as follows: ACROMIAL HEIGHT minus WRIST HEIGHT plus HAND LENGTH.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
63.74	25.09	1ST	70.43 27.73
64.71	25.48	2ND	71.42 28.12
65.33	25.72	3RD	72.03 28.36
66.18	26.06	5TH	72.85 28.68
67.50	26.58	10TH	74.12 29.18
68.40	26.93	15TH	74.99 29.52
69.12	27.21	20TH	75.68 29.80
69.74	27.46	25TH	76.29 30.04
70.31	27.68	30TH	76.84 30.25
70.83	27.88	35TH	77.36 30.46
71.32	28.08	40TH	77.86 30.65
71.81	28.27	45TH	78.35 30.85
72.29	28.46	50TH	78.84 31.04
72.77	28.65	55TH	79.33 31.23
73.26	28.84	60TH	79.84 31.43
73.77	29.04	65TH	80.37 31.64
74.31	29.26	70TH	80.93 31.86
74.90	29.49	75TH	81.55 32.11
75.57	29.75	80TH	82.24 32.38
76.34	30.05	85TH	83.05 32.70
77.32	30.44	90TH	84.08 33.10
78.79	31.02	95TH	85.58 33.69
79.76	31.40	97TH	86.53 34.07
80.47	31.68	98TH	87.21 34.33
81.59	32.12	99TH	88.23 34.74

# ARM LENGTH

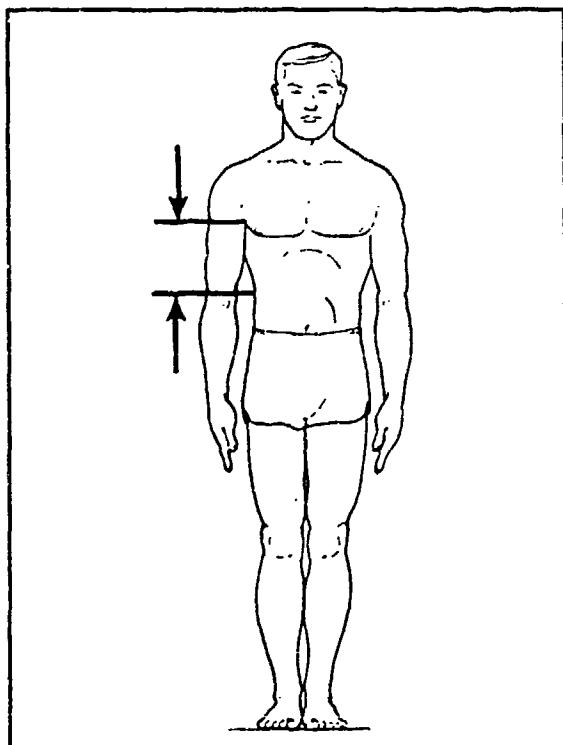
FEMALES		
	<u>CM</u>	<u>INCHES</u>
72.37	MEAN VALUE	28.49
.08	SE(MEAN)	.03
3.84	STD DEVIATION	1.51
.06	SE(STD DEV)	.02
57.90	MINIMUM	22.80
87.10	MAXIMUM	34.29
SYMMETRY---VETA I	=	.12
KURTOSIS---VETA II	=	3.12
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
78.97	MEAN VALUE	31.09
.09	SE(MEAN)	.04
3.86	STD DEVIATION	1.52
.06	SE(STD DEV)	.03
64.10	MINIMUM	25.24
95.90	MAXIMUM	37.76
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.21
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	57.55 - 58.55		1	.06
0	.00	1	.05	58.55 - 59.55		1	.06
0	.00	1	.05	59.55 - 60.55		1	.06
4	.18	5	.23	60.55 - 61.55		0	.00
7	.32	12	.54	61.55 - 62.55		2	.11
9	.41	21	.95	62.55 - 63.55		3	.17
16	.72	37	1.68	63.55 - 64.55		8	.45
34	1.54	71	3.22	64.55 - 65.55		20	1.13
54	2.45	125	5.66	65.55 - 66.55		36	2.03
94	4.26	219	9.92	66.55 - 67.55		70	3.95
130	5.89	349	15.81	67.55 - 68.55		136	7.67
172	7.79	521	23.60	68.55 - 69.55		217	12.23
212	9.60	733	33.20	69.55 - 70.55		333	18.77
206	9.33	939	42.53	70.55 - 71.55		483	27.23
233	10.55	1172	53.08	71.55 - 72.55		645	36.36
217	9.83	1389	62.91	72.55 - 73.55		827	46.62
201	9.10	1590	72.01	73.55 - 74.55		1013	57.10
170	7.70	1760	79.71	74.55 - 75.55		116	6.54
145	6.57	1905	86.28	75.55 - 76.55		150	8.46
101	4.57	2006	90.85	76.55 - 77.55		162	9.13
88	3.99	2094	94.84	77.55 - 78.55		182	10.26
46	2.08	2140	96.92	78.55 - 79.55		186	10.48
23	1.04	2163	97.96	79.55 - 80.55		170	9.58
22	1.00	2185	98.96	80.55 - 81.55		164	9.24
9	.41	2194	99.37	81.55 - 82.55		124	6.99
7	.32	2201	99.68	82.55 - 83.55		1561	87.99
4	.18	2205	99.86	83.55 - 84.55		64	3.61
1	.05	2206	99.91	84.55 - 85.55		54	3.04
0	.09	2206	99.91	85.55 - 86.55		43	2.42
2	.09	2208	100.00	86.55 - 87.55		27	1.52
				87.55 - 88.55		15	.85
				88.55 - 89.55		17	1.764
				89.55 - 90.55		3	.17
				90.55 - 91.55		4	.23
				91.55 - 92.55		1	.06
				92.55 - 93.55		0	.00
				93.55 - 94.55		0	.00
				94.55 - 95.55		1	.06
				95.55 - 96.55		0	.00
						1	.06
						1749	98.59
						1764	99.44
						1767	99.61
						1771	99.83
						1772	99.89
						1772	99.89
						1773	99.94
						1773	99.94
						1774	100.00

## (D4) AXILLA-WAIST LENGTH (NATURAL INDENTATION)

The vertical distance between the right anterior-scye-on-the-torso landmark and the level of the waist at its natural indentation is calculated as follows: AXILLA HEIGHT minus WAIST HEIGHT (NATURAL INDENTATION).



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
13.23	5.21	1ST	14.74 5.80
13.71	5.40	2ND	15.25 6.00
14.02	5.52	3RD	15.58 6.14
14.42	5.68	5TH	16.05 6.32
15.06	5.93	10TH	16.77 6.60
15.51	6.11	15TH	17.27 6.80
15.87	6.25	20TH	17.66 6.95
16.19	6.38	25TH	18.00 7.09
16.49	6.49	30TH	18.31 7.21
16.77	6.60	35TH	18.60 7.32
17.04	6.71	40TH	18.87 7.43
17.31	6.81	45TH	19.13 7.53
17.58	6.92	50TH	19.39 7.63
17.86	7.03	55TH	19.64 7.73
18.14	7.14	60TH	19.90 7.84
18.44	7.26	65TH	20.17 7.94
18.76	7.39	70TH	20.45 8.05
19.11	7.52	75TH	20.75 8.17
19.51	7.68	80TH	21.09 8.30
19.98	7.87	85TH	21.48 8.46
20.57	8.10	90TH	21.96 8.65
21.45	8.44	95TH	22.66 8.92
22.00	8.66	97TH	23.11 9.10
22.39	8.82	98TH	23.43 9.23
22.98	9.05	99TH	23.93 9.42

# AXILLA-WAIST LENGTH (NATURAL INDENTATION)

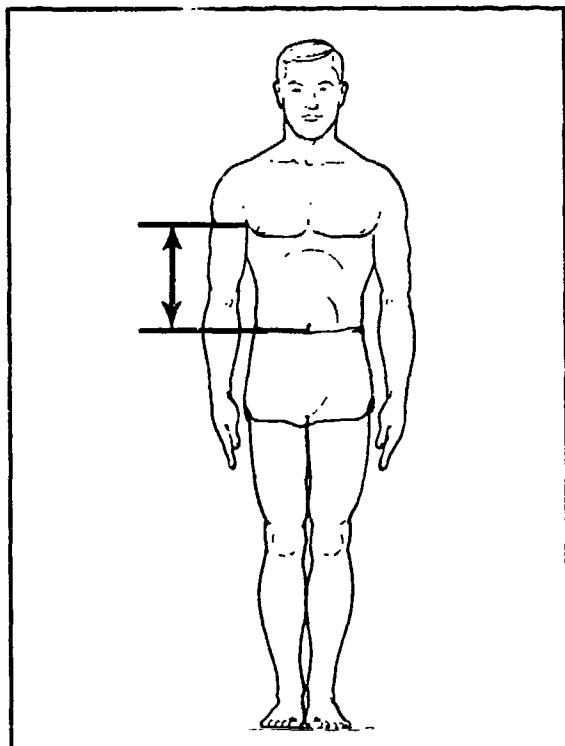
FEMALES		
<u>CM</u>	<u>INCHES</u>	
17.71	MEAN VALUE	6.97
.05	SE(MEAN)	.02
2.15	STD DEVIATION	.85
.03	SE(STD DEV)	.00
10.50	MINIMUM	4.13
26.80	MAXIMUM	10.55
SYMMETRY---VETA I	=	.31
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	12.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
19.38	MEAN VALUE	7.63
.05	SE(MEAN)	.02
2.00	STD DEVIATION	.79
.03	SE(STD DEV)	.00
13.40	MINIMUM	5.28
27.40	MAXIMUM	10.79
SYMMETRY---VETA I	=	.02
KURTOSIS---VETA II	=	2.90
COEF. OF VARIATION	=	10.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
				10.25 - 10.75	11.25 - 11.75	12.25 - 12.75	13.25 - 13.75
1	.05	1	.05	13.25 - 13.75	14.25 - 14.75	15.25 - 15.75	16.25 - 16.75
0	.00	1	.05	10.75 - 11.25	11.75 - 12.25	12.75 - 13.25	13.75 - 14.25
0	.00	1	.05	11.25 - 11.75	12.25 - 12.75	13.25 - 13.75	14.25 - 14.75
5	.23	6	.27	11.75 - 12.25	12.25 - 12.75	13.25 - 13.75	14.25 - 14.75
5	.23	11	.50	12.25 - 12.75	13.25 - 13.75	14.25 - 14.75	15.25 - 15.75
12	.54	23	1.04	12.75 - 13.25	13.75 - 14.25	14.75 - 15.25	15.75 - 16.25
21	.95	44	1.99	13.75 - 14.25	14.75 - 15.25	15.75 - 16.25	16.75 - 17.25
44	1.99	88	3.99	14.25 - 14.75	15.25 - 15.75	16.25 - 16.75	17.25 - 17.75
67	3.03	155	7.02	15.25 - 15.75	16.25 - 16.75	17.25 - 17.75	18.25 - 18.75
99	4.48	254	11.50	15.75 - 16.25	16.75 - 17.25	17.75 - 18.25	18.75 - 19.25
158	7.16	412	18.66	16.25 - 16.75	17.25 - 17.75	18.25 - 18.75	19.25 - 19.75
152	6.88	564	25.54	16.75 - 17.25	17.75 - 18.25	18.75 - 19.25	19.75 - 20.25
190	8.61	754	34.15	17.25 - 17.75	18.25 - 18.75	19.25 - 19.75	20.25 - 20.75
235	10.64	989	44.79	17.75 - 18.25	18.75 - 19.25	19.75 - 20.25	20.75 - 21.25
186	8.42	1175	53.22	18.25 - 18.75	19.25 - 19.75	20.25 - 20.75	21.25 - 21.75
189	8.56	1364	61.78	18.75 - 19.25	19.75 - 20.25	20.75 - 21.25	21.75 - 22.25
175	7.93	1539	69.70	19.25 - 19.75	20.25 - 20.75	21.25 - 21.75	22.25 - 22.75
152	6.88	1691	76.59	19.75 - 20.25	20.75 - 21.25	21.75 - 22.25	22.75 - 23.25
140	6.34	1831	82.93	20.25 - 20.75	21.25 - 21.75	22.25 - 22.75	23.25 - 23.75
116	5.25	1947	88.18	20.75 - 21.25	21.75 - 22.25	22.75 - 23.25	23.75 - 24.25
63	2.85	2010	91.03	21.25 - 21.75	22.25 - 22.75	23.25 - 23.75	24.25 - 24.75
60	2.72	2070	93.75	21.75 - 22.25	22.75 - 23.25	23.75 - 24.25	24.75 - 25.25
55	2.49	2125	96.24	22.25 - 22.75	23.25 - 23.75	24.25 - 24.75	25.25 - 25.75
36	1.63	2161	97.87	22.75 - 23.25	23.75 - 24.25	24.75 - 25.25	25.75 - 26.25
19	.86	2180	98.73	23.25 - 23.75	24.25 - 24.75	25.25 - 25.75	26.25 - 26.75
11	.50	2191	99.23	23.75 - 24.25	24.75 - 25.25	25.75 - 26.25	26.75 - 27.25
4	.18	2195	99.41	24.25 - 24.75	25.25 - 25.75	26.25 - 26.75	27.25 - 27.75
6	.27	2201	99.68	24.75 - 25.25	25.75 - 26.25	26.75 - 27.25	27.75 - 28.25
4	.18	2205	99.86	25.25 - 25.75	26.25 - 26.75	27.25 - 27.75	28.25 - 28.75
0	.00	2205	99.86	25.75 - 26.25	26.75 - 27.25	27.75 - 28.25	28.75 - 29.25
1	.05	2206	99.91	26.25 - 26.75	27.25 - 27.75	28.25 - 28.75	29.25 - 29.75
1	.05	2207	99.95	26.75 - 27.25	27.75 - 28.25	28.75 - 29.25	29.75 - 30.25
0	.00	2207	99.95	27.25 - 27.75	28.25 - 28.75	29.25 - 29.75	30.25 - 30.75
1	.05	2208	100.00	27.75 - 28.25	28.75 - 29.25	29.75 - 30.25	30.75 - 31.00

## (D5) AXILLA-WAIST LENGTH (OMPHALION)

The vertical distance between the anterior-scye-on-the-torso landmark and the level of the waist at the navel (omphalion) is calculated as follows: AXILLA HEIGHT minus WAIST HEIGHT (OMPHALION).



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
20.91	8.23	1ST	21.46 8.45
21.41	8.43	2ND	22.01 8.66
21.72	8.55	3RD	22.35 8.80
22.13	8.71	5TH	22.82 8.98
22.77	8.97	10TH	23.54 9.27
23.20	9.14	15TH	24.02 9.46
23.55	9.27	20TH	24.41 9.61
23.85	9.39	25TH	24.74 9.74
24.12	9.50	30TH	25.05 9.86
24.37	9.60	35TH	25.33 9.97
24.61	9.69	40TH	25.60 10.08
24.85	9.78	45TH	25.86 10.18
25.09	9.88	50TH	26.13 10.29
25.33	9.97	55TH	26.39 10.39
25.57	10.07	60TH	26.67 10.50
25.82	10.17	65TH	26.95 10.61
26.10	10.27	70TH	27.25 10.73
26.39	10.39	75TH	27.59 10.86
26.73	10.52	80TH	27.97 11.01
27.12	10.68	85TH	28.41 11.19
27.63	10.88	90TH	28.99 11.41
28.39	11.18	95TH	29.87 11.76
28.88	11.37	97TH	30.45 11.99
29.25	11.51	98TH	30.89 12.16
29.82	11.74	99TH	31.60 12.44

# AXILLA-WAIST LENGTH (OMPHALION)

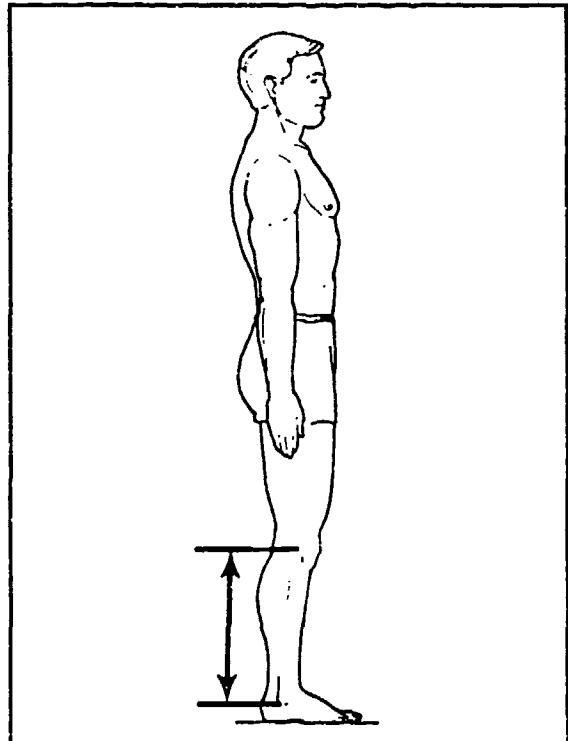
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
25.15	MEAN VALUE	9.90
.04	SE(MEAN)	.02
1.91	STD DEVIATION	.75
.03	SE(STD DEV)	.00
19.40	MINIMUM	7.64
32.90	MAXIMUM	12.95
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	7.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
26.21	MEAN VALUE	10.32
.05	SE(MEAN)	.02
2.13	STD DEVIATION	.84
.04	SE(STD DEV)	.00
19.00	MINIMUM	7.48
34.50	MAXIMUM	13.58
SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	2.15
COEF. OF VARIATION	=	8.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	
6	.27	6	.27	18.75 - 19.25	1	.06	1	.06
3	.14	9	.41	19.25 - 19.75	0	.00	1	.06
7	.32	16	.72	19.75 - 20.25	1	.06	2	.11
19	.86	35	1.59	20.25 - 20.75	2	.11	4	.23
30	1.36	65	2.94	20.75 - 21.25	10	.56	14	.79
54	2.45	119	5.39	21.25 - 21.75	11	.62	25	1.41
106	4.80	225	10.19	21.75 - 22.25	19	1.07	44	2.48
127	5.75	352	15.94	22.25 - 22.75	34	1.92	78	4.40
163	7.38	515	23.32	22.75 - 23.25	50	2.82	128	7.22
189	8.56	704	31.88	23.25 - 23.75	89	5.02	217	12.23
230	10.42	934	42.30	23.75 - 24.25	103	5.81	320	18.04
247	11.19	1181	53.49	24.25 - 24.75	126	7.10	446	25.14
225	10.19	1406	63.68	24.75 - 25.25	160	9.02	606	34.16
199	9.01	1605	72.69	25.25 - 25.75	155	8.74	761	42.90
170	7.70	1775	80.39	25.75 - 26.25	155	8.74	916	51.63
131	5.93	1906	86.32	26.25 - 26.75	170	9.58	1086	61.22
102	4.62	2008	90.94	26.75 - 27.25	147	8.29	1233	69.50
74	3.35	2082	94.29	27.25 - 27.75	139	7.84	1372	77.34
53	2.40	2135	96.69	27.75 - 28.25	107	6.03	1479	83.37
27	1.22	2162	97.92	28.25 - 28.75	97	5.47	1576	88.84
22	1.00	2184	98.91	28.75 - 29.25	59	3.33	1635	92.16
8	.36	2192	99.28	29.25 - 29.75	47	2.65	1682	94.81
8	.36	2200	99.64	29.75 - 30.25	28	1.58	1710	96.39
5	.23	2205	99.86	30.25 - 30.75	22	1.24	1732	97.63
2	.09	2207	99.95	30.75 - 31.25	17	.96	1749	98.59
0	.00	2207	99.95	31.25 - 31.75	11	.62	1760	99.21
0	.00	2207	99.95	31.75 - 32.25	5	.28	1765	99.49
1	.05	2208	100.00	32.25 - 32.75	2	.11	1767	99.61
				32.75 - 33.25	5	.28	1772	99.89
				33.25 - 33.75	1	.06	1773	99.94
				33.75 - 34.25	0	.00	1773	99.94
				34.25 - 34.75	1	.06	1774	100.00

## (D6) CALF LINK

The vertical distance between the lateral femoral epicondyle landmark on the side of the right knee and the lateral malleolus landmark on the outside of the right ankle is calculated as follows: LATERAL FEMORAL EPICONDYLE HEIGHT minus LATERAL MALLEOLUS HEIGHT.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
34.84	13.72	38.07	14.99
35.41	13.94	38.72	15.24
35.78	14.09	39.11	15.40
36.28	14.28	39.63	15.60
37.07	14.59	40.42	15.91
37.60	14.80	40.95	16.12
38.04	14.97	41.38	16.29
38.41	15.12	41.75	16.44
38.76	15.26	42.10	16.57
39.08	15.38	42.42	16.70
39.38	15.50	42.73	16.82
39.68	15.62	43.03	16.94
39.98	15.74	43.34	17.06
40.28	15.86	43.65	17.19
40.59	15.98	43.98	17.31
40.91	16.10	44.31	17.45
41.25	16.24	44.67	17.59
41.62	16.38	45.06	17.74
42.03	16.55	45.51	17.92
42.52	16.74	46.02	18.12
43.14	16.98	46.67	18.38
44.05	17.34	47.62	18.75
44.64	17.58	48.21	18.98
45.08	17.75	48.62	19.14
45.75	18.01	49.22	19.38

# CALF LINK

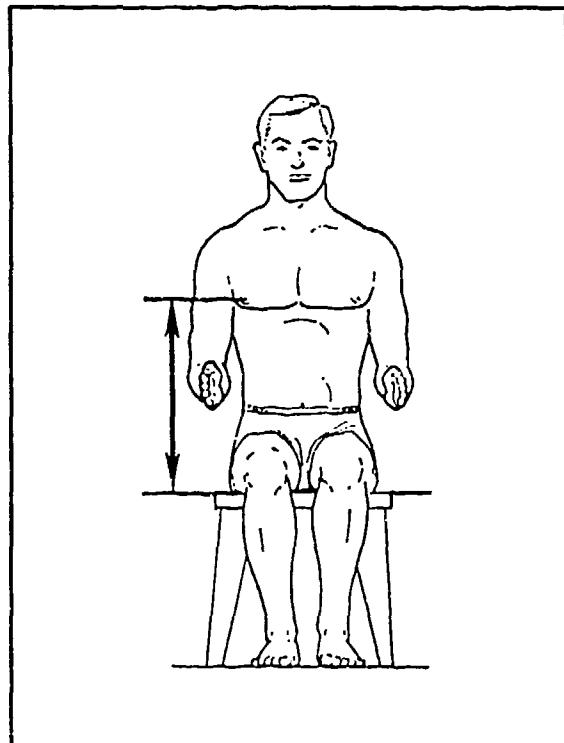
FEMALES		
	CM	INCHES
40.04	MEAN VALUE	15.77
.05	SE(MEAN)	.02
2.36	STD DEVIATION	.93
.04	SE(STD DEV)	.00
29.30	MINIMUM	11.54
50.90	MAXIMUM	20.04
SYMMETRY---VETA I	=	.16
KURTOSIS---VETA II	=	3.23
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	2208

MALES		
	CM	INCHES
43.45	MEAN VALUE	17.11
.06	SE(MEAN)	.02
2.45	STD DEVIATION	.96
.04	SE(STD DEV)	.02
33.80	MINIMUM	13.31
53.30	MAXIMUM	20.98
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
1	.05	1	.05	29.25	-	29.75		1	.06	1	.06
0	.00	1	.05	29.75	-	30.25		0	.00	1	.06
0	.00	1	.05	30.25	-	30.75		0	.00	1	.06
0	.00	1	.05	30.75	-	31.25		0	.00	1	.06
0	.00	1	.05	31.25	-	31.75		0	.00	1	.06
0	.00	1	.05	31.75	-	32.25		0	.00	1	.06
1	.05	2	.09	32.25	-	32.75		1	.06	2	.11
0	.00	2	.09	32.75	-	33.25		2	.11	4	.23
2	.09	4	.18	33.25	-	33.75		5	.28	9	.51
7	.32	11	.50	33.75	-	34.25		14	.28	14	.79
9	.41	20	.91	34.25	-	34.75		0	.00	1	.06
14	.63	34	1.54	34.75	-	35.25		0	.00	1	.06
28	1.27	62	2.81	35.25	-	35.75		0	.00	1	.06
47	2.13	109	4.94	35.75	-	36.25		1	.06	2	.11
48	2.17	157	7.11	36.25	-	36.75		2	.11	4	.23
92	4.17	249	11.28	36.75	-	37.25		5	.28	9	.51
120	5.43	369	16.71	37.25	-	37.75		5	.28	14	.79
131	5.93	500	22.64	37.75	-	38.25		9	.51	23	1.30
167	7.56	667	30.21	38.25	-	38.75		10	.56	33	1.86
170	7.70	837	37.91	38.75	-	39.25		24	1.35	57	3.21
180	8.15	1017	46.06	39.25	-	39.75		35	1.97	92	5.19
185	8.38	1202	54.44	39.75	-	40.25		60	3.38	152	8.57
176	7.97	1378	62.41	40.25	-	40.75		79	4.45	231	13.02
163	7.38	1541	69.79	40.75	-	41.25		103	5.81	334	18.83
153	6.93	1694	76.72	41.25	-	41.75		118	6.65	452	25.48
131	5.93	1825	82.65	41.75	-	42.25		129	7.27	581	32.75
104	4.71	1929	87.36	42.25	-	42.75		157	8.85	738	41.60
82	3.71	2011	91.08	42.75	-	43.25		116	6.54	854	48.14
60	2.72	2071	93.80	43.25	-	43.75		152	8.57	1006	56.71
42	1.90	2113	95.70	43.75	-	44.25		113	6.37	1119	63.08
36	1.63	2149	97.33	44.25	-	44.75		139	7.84	1258	70.91
23	1.04	2172	98.37	44.75	-	45.25		104	5.86	1362	76.78
14	.63	2186	99.00	45.25	-	45.75		91	5.13	1453	81.91
9	.41	2195	99.41	45.75	-	46.25		82	4.62	1535	86.53
3	.14	2198	99.55	46.25	-	46.75		69	3.89	1604	90.42
5	.23	2203	99.77	46.75	-	47.25		54	3.04	1658	93.46
1	.05	2204	99.82	47.25	-	47.75		42	2.37	1700	95.83
2	.09	2206	99.91	47.75	-	48.25		32	1.80	1732	97.63
1	.05	2207	99.95	48.25	-	48.75		12	.68	1744	98.31
0	.00	2207	99.95	48.75	-	49.25		11	.62	1755	98.93
0	.00	2207	99.95	49.25	-	49.75		6	.34	1761	99.27
0	.00	2207	99.95	49.75	-	50.25		7	.39	1768	99.66
0	.00	2207	99.95	50.25	-	50.75		0	.00	1768	99.66
1	.05	2208	100.00	50.75	-	51.25		3	.17	1771	99.83
				51.25	-	51.75		0	.00	1771	99.83
				51.75	-	52.25		1	.06	1772	99.89
				52.25	-	52.75		0	.00	1772	99.89
				52.75	-	53.25		0	.00	1772	99.89
				53.25	-	53.75		2	.11	1774	100.00

## (D7) CHEST HEIGHT, SITTING

The vertical distance between a sitting surface and the right nipple on men or the right bustpoint on women, sitting erect, is calculated as follows: SITTING HEIGHT minus (STATURE minus CHEST HEIGHT).



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
32.81	12.92	1ST	37.64 14.82
33.84	13.32	2ND	38.33 15.09
34.43	13.56	3RD	38.77 15.26
35.19	13.85	5TH	39.37 15.50
36.26	14.28	10TH	40.28 15.86
36.94	14.55	15TH	40.89 16.10
37.47	14.75	20TH	41.37 16.29
37.91	14.93	25TH	41.78 16.45
38.31	15.08	30TH	42.14 16.59
38.67	15.22	35TH	42.48 16.72
39.01	15.36	40TH	42.79 16.85
39.35	15.49	45TH	43.10 16.97
39.68	15.62	50TH	43.40 17.09
40.02	15.75	55TH	43.70 17.20
40.36	15.89	60TH	44.00 17.32
40.71	16.03	65TH	44.31 17.45
41.09	16.18	70TH	44.64 17.58
41.50	16.34	75TH	45.00 17.72
41.97	16.52	80TH	45.41 17.88
42.51	16.74	85TH	45.88 18.06
43.20	17.01	90TH	46.49 18.30
44.21	17.41	95TH	47.44 18.68
44.86	17.66	97TH	48.08 18.93
45.32	17.84	98TH	48.57 19.12
46.00	18.11	99TH	49.39 19.44

# CHEST HEIGHT, SITTING

FEMALES		
	<u>CM</u>	<u>INCHES</u>
39.70	MEAN VALUE	15.63
.06	SE(MEAN)	.02
2.74	STD DEVIATION	1.08
.04	SE(STD DEV)	.02
30.20	MINIMUM	11.89
50.30	MAXIMUM	19.80
SYMMETRY---VETA I	=	-.07
KURTOSIS---VETA II	=	3.21
COEF. OF VARIATION	=	6.9%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
43.40	MEAN VALUE	17.09
.06	SE(MEAN)	.02
2.45	STD DEVIATION	.96
.04	SE(STD DEV)	.02
34.70	MINIMUM	13.66
51.60	MAXIMUM	20.31
SYMMETRY---VETA I	=	.03
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	29.75 - 30.25		1	.06
1	.05	2	.09	30.25 - 30.75		1	.06
4	.18	6	.27	30.75 - 31.25		0	.00
2	.09	8	.36	31.25 - 31.75		2	.11
6	.27	14	.63	31.75 - 32.25		3	.17
7	.32	21	.95	32.25 - 32.75		3	.17
12	.54	33	1.49	32.75 - 33.25		11	.62
8	.36	41	1.86	33.25 - 33.75		2	.11
13	.59	54	2.45	33.75 - 34.25		4	.23
32	1.45	86	3.89	34.25 - 34.75		7	.39
28	1.27	114	5.16	34.75 - 35.25		10	.56
48	2.17	162	7.34	35.25 - 35.75		10	.56
62	2.81	224	10.14	35.75 - 36.25		27	1.18
75	3.40	299	13.54	36.25 - 36.75		31	1.75
95	4.30	394	17.84	36.75 - 37.25		52	2.93
108	4.89	502	22.74	37.25 - 37.75		77	4.34
145	6.57	647	29.30	37.75 - 38.25		115	6.48
150	6.79	942	42.66	38.25 - 38.75		167	9.41
188	8.51	1130	51.18	38.75 - 39.25		245	13.81
169	7.65	1299	58.83	39.25 - 39.75		333	18.77
149	6.75	1448	65.58	39.75 - 40.25		440	24.80
143	6.48	1591	72.06	40.25 - 40.75		566	31.91
138	6.25	1729	78.31	40.75 - 41.25		701	39.52
98	4.44	1827	82.74	41.25 - 41.75		845	47.63
94	4.26	1921	87.00	41.75 - 42.25		990	55.81
74	3.35	1995	90.35	42.25 - 42.75		1140	64.26
57	2.58	2052	92.93	42.75 - 43.25		1266	71.36
47	2.13	2099	95.06	43.25 - 43.75		1379	77.73
36	1.63	2135	96.69	43.75 - 44.25		1482	83.54
27	1.22	2162	97.92	44.25 - 44.75		1559	87.88
18	.82	2180	98.73	44.75 - 45.25		1618	91.21
12	.54	2192	99.28	45.25 - 45.75		1680	94.70
5	.23	2197	99.50	45.75 - 46.25		1709	96.34
5	.23	2202	99.73	46.25 - 46.75		1731	97.58
5	.23	2207	99.95	46.75 - 47.25		1744	98.31
0	.00	2207	99.95	47.25 - 47.75		1753	98.82
0	.00	2207	99.95	47.75 - 48.25		1761	99.27
0	.00	2207	99.95	48.25 - 48.75		1769	99.72
0	.00	2207	99.95	49.25 - 49.75		1772	99.89
1	.05	2208	100.00	50.25 - 50.75		1774	100.00

## (D8) CHEST-WAIST DROP (NATURAL INDENTATION)

The difference between the circumference of the chest and the circumference of the waist at the level of its natural indentation is calculated as follows: CHEST CIRCUMFERENCE minus WAIST CIRCUMFERENCE (NATURAL INDENTATION).

THE PERCENTILES					
FEMALES		MALES			
CM	INCHES	CM	INCHES		
10.30	4.06	1ST	6.66	2.62	
11.26	4.43	2ND	7.75	3.05	
11.87	4.67	3RD	8.43	3.32	
12.69	5.00	5TH	9.32	3.67	
13.93	5.49	10TH	10.64	4.19	
14.76	5.81	15TH	11.52	4.53	
15.41	6.07	20TH	12.20	4.80	
15.96	6.28	25TH	12.78	5.03	
16.45	6.48	30TH	13.30	5.24	
16.91	6.66	35TH	13.79	5.43	
17.34	6.83	40TH	14.24	5.61	
17.75	6.99	45TH	14.68	5.78	
18.16	7.15	50TH	15.12	5.95	
18.56	7.31	55TH	15.56	6.12	
19.98	7.47	60TH	16.00	6.30	
19.40	7.64	65TH	16.46	6.48	
19.85	7.82	70TH	16.95	6.67	
20.34	8.01	75TH	17.49	6.88	
20.89	8.23	80TH	18.09	7.12	
21.54	8.48	85TH	18.80	7.40	
22.37	8.81	90TH	19.70	7.76	
23.63	9.30	95TH	21.07	8.30	
24.46	9.64	97TH	21.99	8.66	
25.12	9.82	98TH	22.67	8.92	
26.17	10.30	99TH	23.76	9.35	

# CHEST-WAIST DROP (NATURAL INDENTATION)

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
18.16	MEAN VALUE	7.15	15.15	MEAN VALUE	5.96
.07	SE(MEAN)	.03	.08	SE(MEAN)	.03
3.31	STD DEVIATION	1.30	3.55	STD DEVIATION	1.40
.05	SE(STD DEV)	.02	.06	SE(STD DEV)	.02
5.80	MINIMUM	2.28	4.20	MINIMUM	1.65
31.00	MAXIMUM	12.20	29.70	MAXIMUM	11.69
SYMMETRY---VETA I	=	.05	SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.27	KURTOSIS---VETA II	=	3.28
COEF. OF VARIATION	=	18.2%	COEF. OF VARIATION	=	23.4%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	3.75	- 4.25	1	.06
0	.00	2	.09	4.25	- 4.75	0	.00
0	.00	2	.09	4.75	- 5.25	4	.23
0	.00	2	.09	5.25	- 5.75	3	.17
1	.05	3	.14	5.75	- 6.25	7	.39
1	.05	4	.18	6.25	- 6.75	3	.17
5	.23	9	.41	6.75	- 7.25	8	.45
4	.18	13	.59	7.25	- 7.75	9	.51
5	.23	18	.82	7.75	- 8.25	12	.68
12	.54	30	1.36	8.25	- 8.75	18	1.01
9	.41	39	1.77	8.75	- 9.25	17	.96
18	.82	57	2.58	9.25	- 9.75	29	1.63
29	1.31	86	3.89	9.75	- 10.25	38	2.14
29	1.31	115	5.21	10.25	- 10.75	43	2.42
36	1.63	151	6.84	10.75	- 11.25	47	2.65
50	2.26	201	9.10	11.25	- 11.75	58	3.27
56	2.54	257	11.64	11.75	- 12.25	55	3.10
65	2.94	322	14.58	12.25	- 12.75	72	4.06
82	3.71	404	18.30	12.75	- 13.25	82	4.62
107	4.85	511	23.14	13.25	- 13.75	80	4.96
112	5.07	623	28.22	13.75	- 14.25	103	5.81
115	5.21	738	33.42	14.25	- 14.75	99	5.58
114	5.16	852	38.59	14.75	- 15.25	116	6.54
132	5.98	984	44.57	15.25	- 15.75	109	6.14
141	6.39	1125	50.35	15.75	- 16.25	116	6.54
139	6.30	1264	57.25	16.25	- 16.75	116	6.54
143	6.48	1407	63.72	16.75	- 17.25	61	3.44
107	4.05	1514	68.57	17.25	- 17.75	47	2.65
121	5.48	1635	74.05	17.75	- 20.25	26	1.47
117	5.30	1752	79.35	20.25	- 20.75	29	1.63
86	3.89	1838	83.24	20.75	- 21.25	29	1.63
77	3.49	1915	86.73	21.25	- 21.75	21	1.18
66	2.99	1981	89.72	21.75	- 22.25	14	.79
57	2.58	2038	92.30	22.25	- 22.75	11	.62
36	.63	2074	93.93	22.75	- 23.25	16	.90
35	1.59	2109	95.52	23.25	- 23.75	5	.28
20	.91	2129	96.42	23.75	- 24.25	5	.28
22	1.00	2151	97.42	24.25	- 24.75	4	.23
14	.63	2165	98.05	24.75	- 25.25	0	.00
16	.72	2181	98.78	25.25	- 25.75	2	.11
6	.27	2187	99.05	25.75	- 26.25	0	.00
7	.32	2194	99.37	26.25	- 26.75	0	.00
4	.18	2198	99.55	26.75	- 27.25	0	.00
2	.09	2200	99.64	27.25	- 27.75	0	.00
2	.09	2202	99.73	27.75	- 28.25	3	.17
2	.09	2204	99.82	28.25	- 28.75	0	.00
1	.05	2205	99.86	28.75	- 29.25	0	.00
1	.05	2206	99.91	29.25	- 29.75	1	.06
0	.00	2206	99.91	29.75	- 30.25		
1	.05	2207	99.95	30.25	- 30.75		
1	.05	2208	100.00	30.75	- 31.25		

## (D9) CHEST-WAIST DROP (OMPHALION)

The difference between the circumference of the chest and the circumference of the waist at the level of the navel (omphalion) is calculated as follows: CHEST CIRCUMFERENCE minus WAIST CIRCUMFERENCE (OMPHALION).

THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
-2.76	-1.09	1ST	1.28 .50
-.69	-.27	2ND	2.83 1.11
.59	.23	3RD	3.77 1.48
2.28	.90	5TH	5.01 1.97
4.75	1.87	10TH	6.83 2.69
6.31	2.48	15TH	8.03 3.16
7.48	2.95	20TH	8.97 3.53
8.45	3.33	25TH	9.77 3.85
9.28	3.65	30TH	10.48 4.13
10.02	3.94	35TH	11.13 4.38
10.69	4.21	40TH	11.76 4.63
11.33	4.46	45TH	12.36 4.86
11.94	4.70	50TH	12.95 5.10
12.53	4.93	55TH	13.54 5.33
13.11	5.16	60TH	14.14 5.57
13.70	5.39	65TH	14.76 5.81
14.31	5.63	70TH	15.42 6.07
14.96	5.89	75TH	16.12 6.35
15.67	6.17	80TH	16.91 6.66
16.51	6.50	85TH	17.81 7.01
17.58	6.92	90TH	18.95 7.46
19.27	7.59	95TH	20.58 8.10
20.48	8.06	97TH	21.60 8.51
21.44	8.44	98TH	22.33 8.79
23.13	9.10	99TH	23.41 9.22

# CHEST-WAIST DROP (OMPHALION)

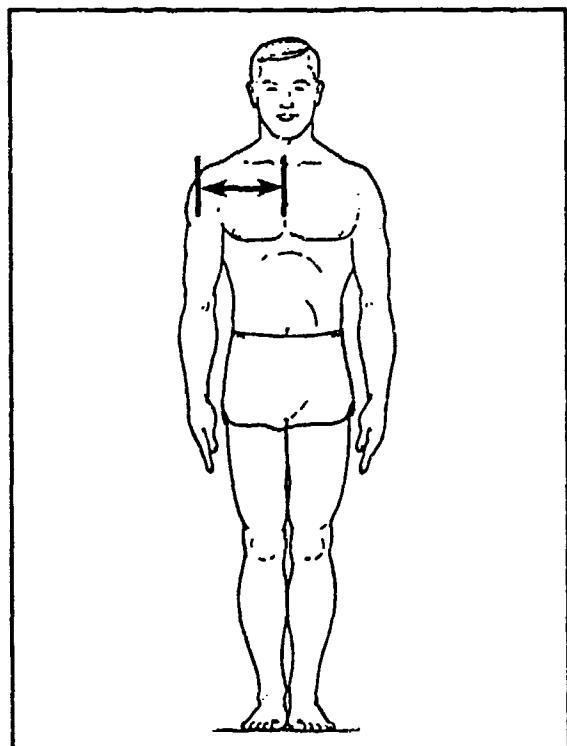
FEMALES		
<u>CM</u>	<u>INCHES</u>	
11.52	MEAN VALUE	4.54
.11	SE(MEAN)	.04
5.17	STD DEVIATION	2.03
.08	SE(STD DEV)	.03
-8.80	MINIMUM	-3.46
27.40	MAXIMUM	10.79
SYMMETRY---VETA I	=	-.40
KURTOSIS---VETA II	=	3.59
COEF. OF VARIATION	=	44.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
12.89	MEAN VALUE	5.08
.11	SE(MEAN)	.04
4.71	STD DEVIATION	1.86
.08	SE(STD DEV)	.03
-3.80	MINIMUM	-1.50
28.10	MAXIMUM	11.06
SYMMETRY---VETA I	=	-.10
KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	36.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
				-9.45	-8.45		
1	.05	1	.05	-9.45	-8.45		
1	.05	2	.09	-8.45	-7.45		
1	.05	3	.14	-7.45	-6.45		
3	.14	6	.27	-6.45	-5.45		
7	.32	13	.59	-5.45	-4.45		
3	.14	16	.72	-4.45	-3.45		
4	.18	20	.91	-3.45	-2.45		
15	.68	35	1.59	-2.45	-1.45		
13	.59	48	2.17	-1.45	-.45		
19	.86	67	3.03	-.45	.55		
21	.95	88	3.99	.55	1.55		
29	1.31	117	5.30	1.55	2.55		
41	1.86	158	7.16	2.55	3.55		
61	2.76	219	9.92	3.55	4.55		
57	2.58	276	12.50	4.55	5.55		
60	2.72	336	15.22	5.55	6.55		
111	5.03	447	20.24	6.55	7.55		
109	4.94	556	25.18	7.55	8.55		
141	6.39	697	31.57	8.55	9.55		
148	6.70	845	38.27	9.55	10.55		
190	8.61	1035	46.88	10.55	11.55		
193	8.74	1228	55.62	11.55	12.55		
202	9.15	1430	64.76	12.55	13.55		
167	7.56	1597	72.33	13.55	14.55		
148	6.70	1745	79.03	14.55	15.55		
129	5.84	1874	84.87	15.55	16.55		
108	4.99	1982	89.76	16.55	17.55		
78	3.53	2060	93.30	17.55	18.55		
53	2.40	2113	95.70	18.55	19.55		
27	1.22	2140	96.92	19.55	20.55		
27	1.22	2167	98.14	20.55	21.55		
17	.77	2184	98.91	21.55	22.55		
4	.18	2188	99.09	22.55	23.55		
8	.36	2196	99.46	23.55	24.55		
7	.32	2203	99.77	24.55	25.55		
1	.05	2204	99.82	25.55	26.55		
4	.18	2208	100.00	26.55	27.55		
				27.55	28.55		

## (D10) CLAVICLE LINK

The distance between the midline of the body and the acromion landmark on the tip of the right shoulder is calculated as one-half of BIACROMIAL BREADTH.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.89	6.26	1ST	17.76 6.99
16.20	6.38	2ND	17.98 7.08
16.39	6.45	3RD	18.12 7.13
16.63	6.55	5TH	18.33 7.22
16.98	6.69	10TH	18.65 7.34
17.21	6.77	15TH	18.88 7.43
17.38	6.84	20TH	19.06 7.50
17.53	6.90	25TH	19.21 7.56
17.66	6.95	30TH	19.35 7.62
17.79	7.00	35TH	19.48 7.67
17.90	7.05	40TH	19.60 7.72
18.01	7.09	45TH	19.72 7.76
18.12	7.13	50TH	19.83 7.81
18.23	7.18	55TH	19.95 7.85
18.34	7.22	60TH	20.06 7.90
18.45	7.27	65TH	20.18 7.95
18.57	7.31	70TH	20.31 7.99
18.70	7.36	75TH	20.44 8.05
18.85	7.42	80TH	20.59 8.11
19.01	7.49	85TH	20.76 8.17
19.22	7.57	90TH	20.98 8.26
19.51	7.68	95TH	21.30 8.39
19.69	7.75	97TH	21.51 8.47
19.82	7.80	98TH	21.66 8.53
20.00	7.87	99TH	21.92 8.63

# CLAVICLE LINK

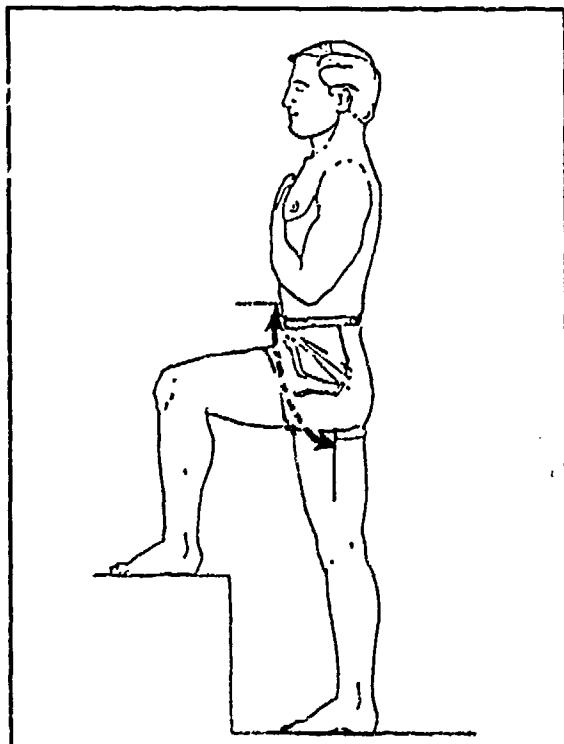
FEMALES		
<u>CM</u>	<u>INCHES</u>	
18.11	MEAN VALUE	7.13
.02	SE(MEAN)	.00
.87	STD DEVIATION	.34
.00	SE(STD DEV)	.00
15.00	MINIMUM	5.91
20.80	MAXIMUM	8.19
SYMMETRY---VETA I	=	-.16
KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
19.82	MEAN VALUE	7.80
.02	SE(MEAN)	.00
.90	STD DEVIATION	.35
.02	SE(STD DEV)	.00
16.50	MINIMUM	6.50
22.50	MAXIMUM	8.86
SYMMETRY---VETA I	=	-.05
KURTOSIS---VETA II	=	2.91
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	14.95 - 15.15			
2	.09	3	.14	15.15 - 15.35			
4	.18	7	.32	15.35 - 15.55			
9	.41	16	.72	15.55 - 15.75			
7	.32	23	1.04	15.75 - 15.95			
24	1.09	47	2.13	15.95 - 16.15			
11	.50	58	2.63	16.15 - 16.35			
33	1.49	91	4.12	16.35 - 16.55			
42	1.90	133	6.02	16.55 - 16.75			
57	2.58	190	8.61	16.75 - 16.95			
103	4.66	293	13.27	16.95 - 17.15			
123	5.57	416	18.84	17.15 - 17.35			
145	6.57	561	25.41	17.35 - 17.55			
178	8.06	739	33.47	17.55 - 17.75			
190	8.61	929	42.07	17.75 - 17.95			
219	9.92	1148	51.99	17.95 - 18.15			
216	9.78	1364	61.78	18.15 - 18.35			
171	7.74	1535	69.52	18.35 - 18.55			
145	6.57	1680	76.09	18.55 - 18.75			
134	6.07	1814	82.16	18.75 - 18.95			
127	5.75	1941	87.91	18.95 - 19.15			
105	4.76	2046	92.66	19.15 - 19.35			
71	3.22	2117	95.88	19.35 - 19.55			
42	1.90	2159	97.78	19.55 - 19.75			
22	1.00	2181	98.78	19.75 - 19.95			
14	.63	2195	99.41	19.95 - 20.15			
4	.18	2199	99.59	20.15 - 20.35			
4	.18	2203	99.77	20.35 - 20.55			
4	.18	2207	99.95	20.55 - 20.75			
1	.05	2208	100.00	20.75 - 20.95			
				20.95 - 21.15			
				21.15 - 21.35			
				21.35 - 21.55			
				21.55 - 21.75			
				21.75 - 21.95			
				21.95 - 22.15			
				22.15 - 22.35			
				22.35 - 22.55			

## (D11) CROTCH LENGTH, ANTERIOR (NATURAL INDENTATION)

The surface distance between the inner thigh landmark and the abdomen at the level of the waist at its natural indentation of a subject standing with one leg on a step is calculated as follows: CROTCH LENGTH (NATURAL INDENTATION) minus CROTCH LENGTH, POSTERIOR (NATURAL INDENTATION).



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
29.98	11.80	1ST	30.73 12.10
30.70	12.09	2ND	31.46 12.39
31.17	12.27	3RD	31.92 12.57
31.81	12.52	5TH	32.55 12.81
32.82	12.92	10TH	33.54 13.20
33.52	13.20	15TH	34.24 13.48
34.08	13.42	20TH	34.81 13.71
34.57	13.61	25TH	35.33 13.91
35.02	13.79	30TH	35.80 14.10
35.43	13.95	35TH	36.25 14.27
35.83	14.11	40TH	36.70 14.45
36.22	14.26	45TH	37.13 14.62
36.62	14.42	50TH	37.58 14.80
37.01	14.57	55TH	38.04 14.97
37.42	14.73	60TH	38.51 15.16
37.85	14.90	65TH	39.01 15.36
38.31	15.08	70TH	39.54 15.57
38.82	15.28	75TH	40.14 15.80
39.40	15.51	80TH	40.82 16.07
40.08	15.78	85TH	41.62 16.39
40.99	16.14	90TH	42.65 16.79
42.40	16.69	95TH	44.20 17.40
43.37	17.07	97TH	45.21 17.80
44.11	17.37	98TH	45.93 18.08
45.33	17.85	99TH	47.05 18.52

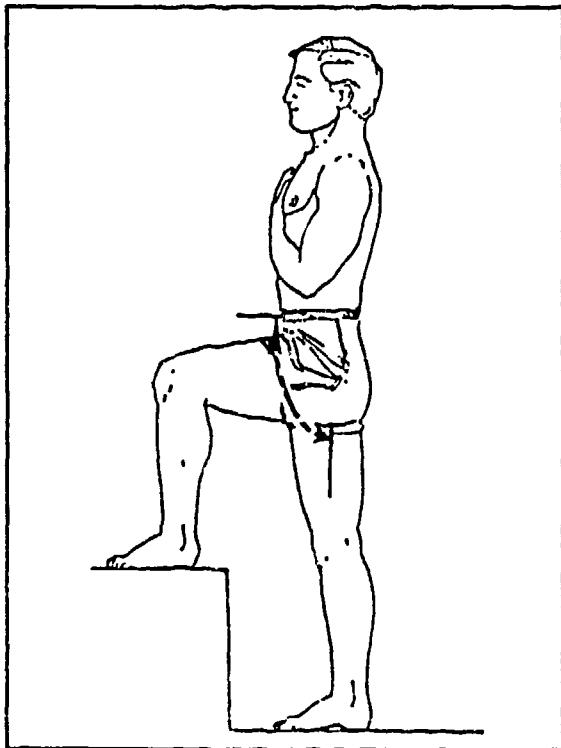
# CROTCH LENGTH, ANTERIOR (NATURAL INDENTATION)

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
36.80	MEAN VALUE	14.49	37.87	MEAN VALUE	14.91
.07	SE(MEAN)	.03	.08	SE(MEAN)	.03
3.22	STD DEVIATION	1.27	3.57	STD DEVIATION	1.40
.05	SE(STD DEV)	.02	.06	SE(STD DEV)	.02
27.20	MINIMUM	10.71	26.70	MINIMUM	10.51
50.00	MAXIMUM	19.69	50.80	MAXIMUM	20.00
SYMMETRY---VETA I = .34			SYMMETRY---VETA I = .41		
KURTOSIS---VETA II = 3.24			KURTOSIS---VETA II = 3.12		
COEF. OF VARIATION = 8.8%			COEF. OF VARIATION = 9.4%		
NUMBER OF SUBJECTS = 2208			NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	26.25 - 26.75	1	.06	1 .06
2	.09	3	.14	26.75 - 27.25	0 .00	1 .06	
0	.00	3	.14	27.25 - 27.75	0 .00	1 .06	
3	.14	6	.27	27.75 - 28.25	2 .11	3 .17	
4	.18	10	.45	28.25 - 28.75	0 .00	3 .17	
8	.36	18	.82	28.75 - 29.25	3 .17	6 .34	
10	.45	28	1.27	29.25 - 29.75	1 .06	7 .39	
17	.77	45	2.04	29.75 - 30.25	4 .23	11 .62	
24	1.09	69	3.13	30.25 - 31.25	14 .79	31 1.75	
36	1.63	105	4.76	31.25 - 31.75	15 .85	46 2.59	
42	1.90	147	6.66	31.75 - 32.25	23 1.30	69 3.89	
64	2.90	211	9.56	32.25 - 32.75	34 1.92	103 5.81	
77	3.49	288	13.04	32.75 - 33.25	36 2.03	139 7.84	
91	4.12	379	17.16	33.25 - 33.75	64 3.61	203 11.44	
86	3.89	465	21.06	33.75 - 34.25	65 3.66	268 15.11	
121	5.48	586	26.54	34.25 - 34.75	63 3.55	331 18.66	
150	6.79	736	33.33	34.75 - 35.25	91 5.13	422 23.79	
120	5.43	856	38.77	35.25 - 35.75	103 5.81	525 29.59	
140	6.34	996	45.11	35.75 - 36.25	94 5.30	619 34.89	
161	7.29	1157	52.40	36.25 - 36.75	110 6.20	729 41.09	
141	6.39	1298	58.79	36.75 - 37.25	93 5.24	822 46.34	
119	5.39	1417	64.18	37.25 - 37.75	95 5.36	917 51.69	
103	4.66	1520	68.84	37.75 - 38.25	102 5.75	1019 57.44	
120	5.43	1640	74.28	38.25 - 38.75	83 4.68	1102 62.12	
90	4.08	1730	78.35	38.75 - 39.25	94 5.30	1196 67.42	
95	4.30	1825	82.65	39.25 - 39.75	98 5.52	1294 72.94	
65	2.94	1890	85.60	39.75 - 40.25	63 3.55	1357 76.49	
73	3.31	1963	88.90	40.25 - 40.75	60 3.38	1417 79.88	
47	2.13	2010	91.03	40.75 - 41.25	47 2.65	1464 82.53	
48	2.17	2058	93.21	41.25 - 41.75	55 3.10	1519 85.63	
30	1.36	2088	94.57	41.75 - 42.25	42 2.37	1561 87.99	
34	1.54	2122	96.11	42.25 - 42.75	29 1.63	1590 89.63	
18	.82	2140	96.92	42.75 - 43.25	26 1.47	1616 91.09	
17	.77	2157	97.69	43.25 - 43.75	37 2.09	1653 93.18	
12	.54	2169	98.23	43.75 - 44.25	38 2.14	1691 95.32	
7	.32	2176	98.55	44.25 - 44.75	19 1.07	1710 96.39	
7	.32	2183	98.87	44.75 - 45.25	16 .90	1726 97.29	
9	.41	2192	99.28	45.25 - 45.75	9 .51	1735 97.80	
3	.14	2195	99.41	45.75 - 46.25	9 .51	1744 98.31	
6	.27	2201	99.68	46.25 - 46.75	9 .51	1753 98.82	
2	.09	2203	99.77	46.75 - 47.25	5 .28	1758 99.10	
2	.09	2205	99.86	47.25 - 47.75	4 .23	1762 99.32	
1	.05	2206	99.91	47.75 - 48.25	3 .17	1765 99.49	
1	.05	2207	99.95	48.25 - 48.75	1 .06	1766 99.55	
0	.00	2207	99.95	48.75 - 49.25	3 .17	1769 99.72	
0	.00	2207	99.95	49.25 - 49.75	3 .17	1772 99.89	
1	.05	2208	100.00	49.75 - 50.25	0 .00	1772 99.89	
				50.25 - 50.75	1 .06	1773 99.94	
				50.75 - 51.25	1 .06	1774 100.00	

## (D12) CROTCH LENGTH ANTERIOR (OMPHALION)

The surface distance between the inner thigh landmark and the abdomen at the level of the waist at the navel (omphalion) of a subject standing with one leg on a step is calculated as follows: CROTCH LENGTH (OMPHALION) minus CROTCH LENGTH POSTERIOR (OMPHALION).



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
24.73	9.74	1ST	26.03 10.25
25.27	9.95	2ND	26.71 10.51
25.63	10.09	3RD	27.14 10.68
26.15	10.30	5TH	27.73 10.92
26.98	10.62	10TH	28.66 11.28
27.55	10.85	15TH	29.31 11.54
28.01	11.03	20TH	29.83 11.74
28.40	11.18	25TH	30.29 11.92
28.75	11.32	30TH	30.70 12.09
29.08	11.45	35TH	31.10 12.24
29.39	11.57	40TH	31.47 12.39
29.69	11.69	45TH	31.85 12.54
29.98	11.80	50TH	32.22 12.68
30.28	11.92	55TH	32.60 12.83
30.58	12.04	60TH	32.99 12.99
30.89	12.16	65TH	33.40 13.15
31.22	12.29	70TH	33.84 13.32
31.58	12.43	75TH	34.33 13.51
32.00	12.60	80TH	34.88 13.73
32.49	12.79	85TH	35.54 13.99
33.14	13.05	90TH	36.40 14.33
34.17	13.45	95TH	37.71 14.85
34.90	13.74	97TH	38.60 15.20
35.48	13.97	98TH	39.27 15.46
36.48	14.36	99TH	40.34 15.88

# CROTCH LENGTH ANTERIOR (OMPHALION)

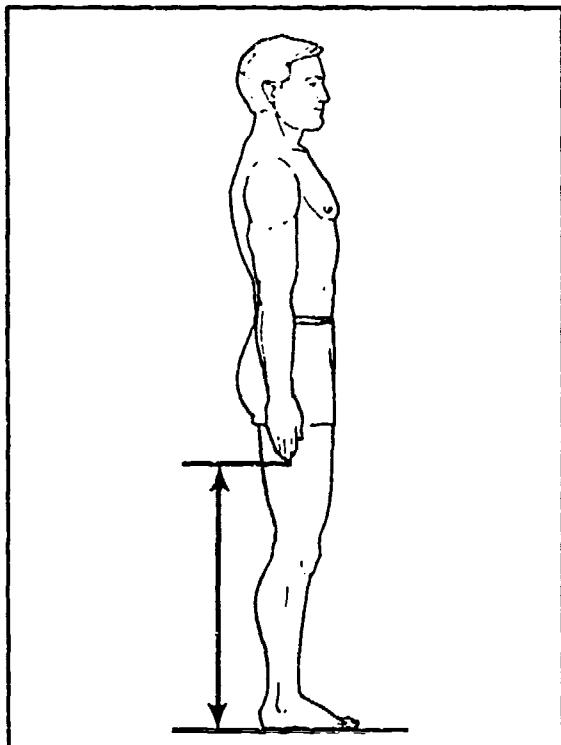
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
30.05	MEAN VALUE	11.83
.05	SE(MEAN)	.02
2.46	STD DEVIATION	.97
.04	SE(STD DEV)	.00
21.40	MINIMUM	8.43
42.60	MAXIMUM	16.77
SYMMETRY---VETA I	=	.29
KURTOSIS---VETA II	=	3.71
COEF. OF VARIATION	=	8.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
32.41	MEAN VALUE	12.76
.07	SE(MEAN)	.03
3.04	STD DEVIATION	1.20
.05	SE(STD DEV)	.02
24.40	MINIMUM	9.61
45.00	MAXIMUM	17.72
SYMMETRY---VETA I	=	.38
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	9.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	21.25 - 21.75			
0	.00	1	.05	21.75 - 22.25			
2	.09	3	.14	22.25 - 22.75			
3	.14	6	.27	22.75 - 23.25			
3	.14	9	.41	23.25 - 23.75			
7	.32	16	.72	23.75 - 24.25			
7	.32	23	1.04	24.25 - 24.75			
18	.82	41	1.86	24.75 - 25.25			
34	1.54	75	3.40	25.25 - 25.75			
38	1.72	113	5.12	25.75 - 26.25			
67	3.03	180	8.15	26.25 - 26.75			
78	3.53	258	11.68	26.75 - 27.25			
107	4.85	365	16.53	27.25 - 27.75			
155	7.02	520	23.55	27.75 - 28.25			
163	7.38	683	30.93	28.25 - 28.75			
153	6.93	836	37.86	28.75 - 29.25			
196	8.88	1032	46.74	29.25 - 29.75			
175	7.93	1207	54.66	29.75 - 30.25			
169	7.65	1376	62.32	30.25 - 30.75			
178	8.06	1554	70.38	30.75 - 31.25			
132	5.98	1686	76.36	31.25 - 31.75			
122	5.53	1808	81.88	31.75 - 32.25			
118	5.34	1926	87.23	32.25 - 32.75			
80	3.62	2006	90.85	32.75 - 33.25			
53	2.40	2059	93.25	33.25 - 33.75			
52	2.36	2111	95.61	33.75 - 34.25			
28	1.27	2139	96.88	34.25 - 34.75			
20	.91	2159	97.78	34.75 - 35.25			
16	.72	2175	98.51	35.25 - 35.75			
5	.23	2180	98.73	35.75 - 36.25			
9	.41	2189	99.14	36.25 - 36.75			
6	.27	2195	99.41	36.75 - 37.25			
5	.23	2200	99.64	37.25 - 37.75			
2	.09	2202	99.73	37.75 - 38.25			
2	.09	2204	99.82	38.25 - 38.75			
1	.05	2205	99.86	38.75 - 39.25			
1	.05	2206	99.91	39.25 - 39.75			
0	.00	2206	99.91	39.75 - 40.25			
0	.00	2206	99.91	40.25 - 40.75			
0	.00	2206	99.91	40.75 - 41.25			
0	.00	2206	99.91	41.25 - 41.75			
1	.05	2207	99.95	41.75 - 42.25			
1	.05	2208	100.00	42.25 - 42.75			
				42.75 - 43.25			
				43.25 - 43.75			
				43.75 - 44.25			
				44.25 - 44.75			
				44.75 - 45.25			

### (D13) DACTYLION HEIGHT

The vertical distance between a standing surface and the tip of the right middle finger (dactylion) of a subject standing erect with the arms and hands straight at the sides is calculated as follows: WRIST HEIGHT minus HAND LENGTH.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
53.18	20.94	1ST	56.24 22.14
53.90	21.22	2ND	57.43 22.61
54.40	21.42	3RD	58.15 22.89
55.13	21.71	5TH	59.08 23.26
56.33	22.18	10TH	60.46 23.80
57.18	22.51	15TH	61.37 24.16
57.87	22.78	20TH	62.08 24.44
58.47	23.02	25TH	62.70 24.69
59.02	23.24	30TH	63.26 24.91
59.52	23.43	35TH	63.77 25.11
60.01	23.62	40TH	64.27 25.30
60.47	23.81	45TH	64.75 25.49
60.94	23.99	50TH	65.23 25.68
61.40	24.17	55TH	65.71 25.87
61.87	24.36	60TH	66.20 26.06
62.35	24.55	65TH	66.71 26.26
62.86	24.75	70TH	67.25 26.48
63.41	24.96	75TH	67.85 26.71
64.02	25.21	80TH	68.51 26.97
64.73	25.48	85TH	69.27 27.27
65.63	25.84	90TH	70.24 27.65
66.96	26.36	95TH	71.63 28.20
67.84	26.71	97TH	72.50 28.54
68.49	26.97	98TH	73.10 28.78
69.54	27.38	99TH	73.99 29.13

# DACTYLION HEIGHT

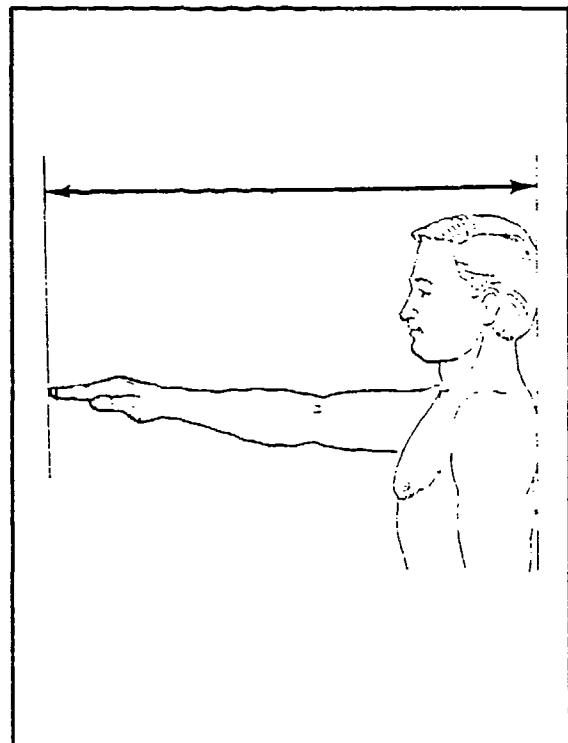
FEMALES		
<u>CM</u>	<u>INCHES</u>	
60.99	MEAN VALUE	24.01
.08	SE(MEAN)	.03
3.58	STD DEVIATION	1.41
.05	SE(STD DEV)	.02
49.20	MINIMUM	19.37
74.70	MAXIMUM	29.41
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	2.91
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
65.28	MEAN VALUE	25.70
.09	SE(MEAN)	.04
3.79	STD DEVIATION	1.49
.06	SE(STD DEV)	.03
52.50	MINIMUM	20.67
78.90	MAXIMUM	31.06
SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	2.96
COEF. OF VARIATION	=	5.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	48.55 - 49.55			
3	.14	4	.18	49.55 - 50.55			
1	.05	5	.23	50.55 - 51.55			
5	.23	10	.45	51.55 - 52.55			
22	1.00	32	1.45	52.55 - 53.55			
36	1.63	68	3.08	53.55 - 54.55			
65	2.94	133	6.02	54.55 - 55.55			
93	4.21	226	10.24	55.55 - 56.55			
147	6.66	373	16.89	56.55 - 57.55			
207	9.38	580	26.27	57.55 - 58.55			
213	9.65	793	35.91	58.55 - 59.55			
220	9.96	1013	45.88	59.55 - 60.55			
238	10.78	1251	56.66	60.55 - 61.55			
223	10.10	1474	66.76	61.55 - 62.55			
201	9.10	1675	75.86	62.55 - 63.55			
176	7.97	1851	83.83	63.55 - 64.55			
124	5.62	1975	89.45	64.55 - 65.55			
100	4.53	2075	93.98	65.55 - 66.55			
62	2.81	2137	96.78	66.55 - 67.55			
25	1.13	2152	97.92	67.55 - 68.55			
24	1.09	2186	99.00	68.55 - 69.55			
12	.54	2198	99.55	69.55 - 70.55			
4	.18	2202	99.73	70.55 - 71.55			
4	.18	2206	99.91	71.55 - 72.55			
1	.05	2207	99.95	72.55 - 73.55			
0	.00	2207	99.95	73.55 - 74.55			
1	.05	2208	100.00	74.55 - 75.55			
				75.55 - 76.55			
				76.55 - 77.55			
				77.55 - 78.55			
				78.55 - 79.55			

## (D14) DACTYLION REACH FROM WALL

The horizontal distance between the plane of the back and the tip of the right middle finger of a subject standing erect with the back against a wall and the arm, hand, and fingers extended forward horizontally is calculated as follows: WRIST-WALL LENGTH plus HAND LENGTH.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
71.80	28.27	1ST	78.72 30.99
72.56	28.57	2ND	79.52 31.31
73.08	28.77	3RD	80.08 31.53
73.81	29.06	5TH	80.88 31.84
75.03	29.54	10TH	82.19 32.36
75.90	29.88	15TH	83.13 32.73
76.61	30.16	20TH	83.89 33.03
77.24	30.41	25TH	84.56 33.29
77.81	30.63	30TH	85.17 33.53
78.35	30.85	35TH	85.74 33.75
78.87	31.05	40TH	86.28 33.97
79.37	31.25	45TH	86.81 34.18
79.88	31.45	50TH	87.34 34.38
80.39	31.65	55TH	87.87 34.59
80.91	31.86	60TH	88.41 34.81
81.46	32.07	65TH	88.97 35.03
82.04	32.30	70TH	89.57 35.26
82.66	32.54	75TH	90.22 35.52
83.37	32.82	80TH	90.95 35.81
84.19	33.15	85TH	91.81 36.15
85.23	33.56	90TH	92.91 36.58
86.77	34.16	95TH	94.59 37.24
87.77	34.55	97TH	95.71 37.68
88.49	34.84	98TH	96.56 38.02
89.62	35.28	99TH	97.95 38.56

# DACTYLION REACH FROM WALL

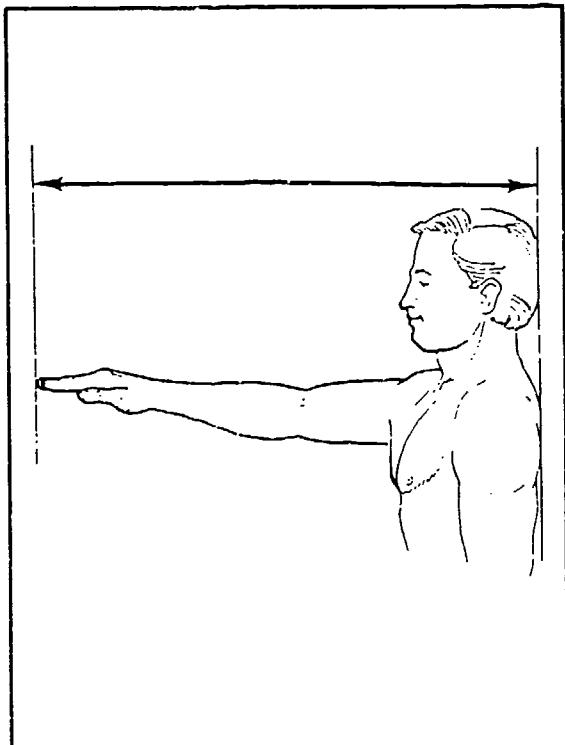
FEMALES		
<u>CM</u>	<u>INCHES</u>	
80.03	MEAN VALUE	31.51
.08	SE(MEAN)	.03
3.94	STD DEVIATION	1.55
.06	SE(STD DEV)	.02
66.20	MINIMUM	26.06
97.80	MAXIMUM	38.50
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
87.47	MEAN VALUE	34.44
.10	SE(MEAN)	.04
4.21	STD DEVIATION	1.66
.07	SE(STD DEV)	.03
72.60	MINIMUM	28.58
106.30	MAXIMUM	41.85
SYMMETRY---VETA I	=	.22
KURTOSIS---VETA II	=	3.27
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	65.55 - 66.55			
0	.00	1	.05	66.55 - 67.55			
1	.05	2	.09	67.55 - 68.55			
5	.23	7	.32	68.55 - 69.55			
6	.27	13	.59	69.55 - 70.55			
7	.32	20	.91	70.55 - 71.55			
17	.77	37	1.68	71.55 - 72.55			
48	2.17	85	3.85	72.55 - 73.55	1	.06	1
80	3.62	165	7.47	73.55 - 74.55	1	.06	2
120	5.43	285	12.91	74.55 - 75.55	2	.11	4
150	6.79	435	19.70	75.55 - 76.55	2	.11	6
172	7.79	607	27.49	76.55 - 77.55	4	.23	10
196	8.88	803	36.37	77.55 - 78.55	6	.34	16
225	10.19	1028	46.56	78.55 - 79.55	20	1.13	36
225	10.19	1253	56.75	79.55 - 80.55	28	1.58	64
198	8.97	1451	65.72	80.55 - 81.55	67	3.78	131
187	8.47	1638	74.18	81.55 - 82.55	79	4.45	210
152	6.88	1790	81.07	82.55 - 83.55	112	6.31	322
127	5.75	1917	86.82	83.55 - 84.55	127	7.16	449
107	4.85	2024	91.67	84.55 - 85.55	143	8.06	592
72	3.26	2096	94.93	85.55 - 86.55	177	9.98	769
41	1.86	2137	96.78	86.55 - 87.55	144	8.12	913
26	1.18	2163	97.96	87.55 - 88.55	172	9.70	1085
24	1.09	2187	99.05	88.55 - 89.55	146	8.23	1231
11	.50	2198	99.55	89.55 - 90.55	138	7.78	1369
7	.32	2205	99.86	90.55 - 91.55	111	6.26	1480
1	.05	2206	99.91	91.55 - 92.55	95	5.36	1575
0	.00	2206	99.91	92.55 - 93.55	62	3.49	1637
0	.00	2206	99.91	93.55 - 94.55	52	2.93	1689
0	.00	2206	99.91	94.55 - 95.55	32	1.80	1721
1	.05	2207	99.95	95.55 - 96.55	19	1.07	1740
0	.00	2207	99.95	96.55 - 97.55	11	.62	1751
1	.05	2208	100.00	97.55 - 98.55	11	.62	1762
				98.55 - 99.55	4	.23	1766
				99.55 - 100.55	5	.28	1771
				100.55 - 101.55	1	.06	1772
				101.55 - 102.55	0	.00	1772
				102.55 - 103.55	0	.00	1772
				103.55 - 104.55	0	.00	1772
				104.55 - 105.55	0	.00	1772
				105.55 - 106.55	2	.11	1774
							100.00

## (D15) DACTYLION REACH FROM WALL, EXTENDED

The horizontal distance between the plane of the back and the tip of the right middle finger of a subject standing erect with the left shoulder against a wall and the right shoulder, arm, hand, and fingers extended forward horizontally as far as possible is calculated as follows:  
WRIST-WALL LENGTH, EXTENDED plus HAND LENGTH.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
76.91	30.28	1ST	84.28 33.18
77.87	30.66	2ND	85.34 33.60
78.50	30.90	3RD	86.05 33.88
79.36	31.25	5TH	87.03 34.27
80.73	31.79	10TH	88.59 34.88
81.68	32.16	15TH	89.65 35.30
82.45	32.46	20TH	90.50 35.63
83.12	32.72	25TH	91.22 35.92
83.72	32.96	30TH	91.87 36.17
84.28	33.18	35TH	92.47 36.41
84.82	33.39	40TH	93.04 36.63
85.35	33.60	45TH	93.59 36.85
85.87	33.81	50TH	94.13 37.06
86.40	34.01	55TH	94.67 37.27
86.93	34.23	60TH	95.22 37.49
87.49	34.45	65TH	95.79 37.71
88.08	34.68	70TH	96.39 37.95
88.73	34.93	75TH	97.05 38.21
89.45	35.22	80TH	97.79 38.50
90.30	35.55	85TH	98.67 38.85
91.37	35.97	90TH	99.81 39.30
92.98	36.60	95TH	101.61 40.00
94.02	37.02	97TH	102.86 40.50
94.80	37.32	98TH	103.84 40.88
96.01	37.80	99TH	105.50 41.54

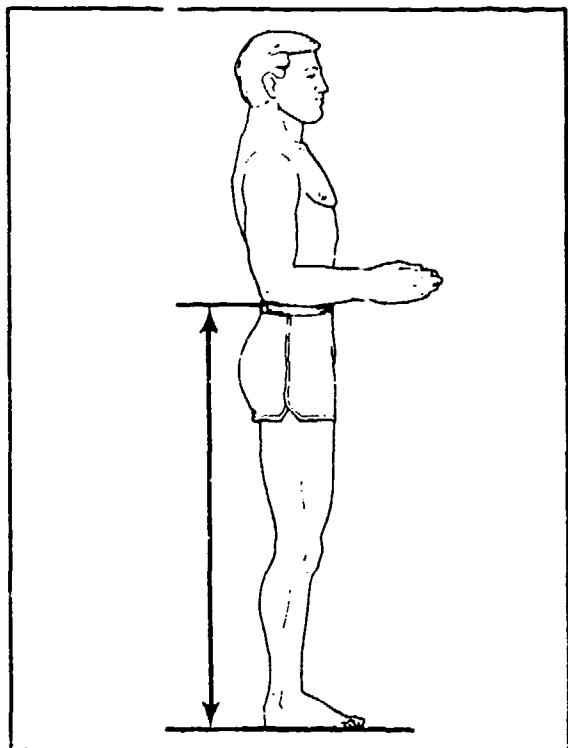
# DACTYLION REACH FROM WALL, EXTENDED

FEMALES			MALES		
	<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>
85.98	MEAN VALUE	33.85	94.22	MEAN VALUE	37.09
.09	SE(MEAN)	.13	.11	SE(MEAN)	.04
4.13	STD DEVIATION	1.63	4.43	STD DEVIATION	1.75
.06	SE(STD DEV)	.02	.07	SE(STD DEV)	.03
71.40	MINIMUM	28.11	79.10	MINIMUM	31.14
105.70	MAXIMUM	41.61	113.10	MAXIMUM	44.53
SYMMETRY---VETA I	=	.16	SYMMETRY---VETA I	=	.17
KURTOSIS---VETA II	=	3.14	KURTOSIS---VETA II	=	3.28
COEF. OF VARIATION	=	4.8%	COEF. OF VARIATION	=	4.7%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	70.55 - 71.55		1	.06
0	.00	1	.05	71.55 - 72.55		1	.06
1	.05	2	.09	72.55 - 73.55		2	.11
3	.14	5	.23	73.55 - 74.55		1	.06
6	.27	11	.50	74.55 - 75.55		4	.23
4	.18	15	.68	75.55 - 76.55		13	.73
21	.95	36	1.63	76.55 - 77.55		13	.73
27	1.22	63	2.85	77.55 - 78.55		22	1.24
53	2.40	116	5.25	78.55 - 79.55		35	1.97
81	3.67	197	8.92	79.55 - 80.55		69	3.89
124	5.62	321	14.54	80.55 - 81.55		109	6.14
140	6.34	461	20.88	81.55 - 82.55		163	9.19
170	7.70	631	28.58	82.55 - 83.55		261	14.71
208	9.42	839	38.00	83.55 - 84.55		371	20.91
205	9.28	1044	47.28	84.55 - 85.55		485	27.34
193	8.74	1237	56.02	85.55 - 86.55		630	35.51
188	8.51	1425	64.54	86.55 - 87.55		790	44.53
199	9.01	1624	73.55	87.55 - 88.55		960	54.11
160	7.25	1784	80.80	88.55 - 89.55		1110	62.57
143	6.48	1927	87.27	89.55 - 90.55		1255	70.74
81	3.67	2008	90.94	90.55 - 91.55		1380	77.79
74	3.35	2082	94.29	91.55 - 92.55		1494	84.22
49	2.22	2131	96.51	92.55 - 93.55		1574	88.73
23	1.04	2154	97.55	93.55 - 94.55		1637	92.28
23	1.04	2177	98.60	94.55 - 95.55		1688	95.15
17	.77	2194	99.37	95.55 - 96.55		1721	97.01
8	.36	2202	99.73	96.55 - 97.55		1734	97.75
2	.09	2204	99.82	97.55 - 98.55		1747	98.48
0	.00	2204	99.82	98.55 - 99.55		1755	98.93
3	.14	2207	99.95	99.55 - 100.55		1766	99.55
0	.00	2207	99.95	100.55 - 101.55		1770	99.77
0	.00	2207	99.95	101.55 - 102.55		1772	99.89
0	.00	2207	99.95	102.55 - 103.55		1772	99.89
0	.00	2207	99.95	103.55 - 104.55		1772	99.89
0	.00	2207	99.95	104.55 - 105.55		1772	99.89
1	.05	2208	100.00	105.55 - 106.55		1772	99.89
				106.55 - 107.55		1772	99.89
				107.55 - 108.55		1772	99.89
				108.55 - 109.55		1772	99.89
				109.55 - 110.55		1772	99.89
				110.55 - 111.55		1772	99.89
				111.55 - 112.55		1772	99.89
				112.55 - 113.55		1774	100.00

## (D16) ELBOW REST HEIGHT, STANDING

The vertical distance between a standing surface and the lowest point of the right elbow of a subject standing erect with the right elbow flexed 90 degrees is calculated as follows:  
ELBOW REST HEIGHT plus STATURE minus SITTING HEIGHT.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
89.51	35.24	1ST	96.18 37.87
90.80	35.75	2ND	97.56 38.41
91.58	36.06	3RD	98.40 38.74
92.63	36.47	5TH	99.52 39.18
94.20	37.09	10TH	101.21 39.85
95.24	37.50	15TH	102.34 40.29
96.06	37.82	20TH	103.23 40.64
96.77	38.10	25TH	104.00 40.95
97.41	38.35	30TH	104.70 41.22
98.00	38.58	35TH	105.35 41.48
98.57	38.81	40TH	105.97 41.72
99.12	39.02	45TH	106.57 41.96
99.67	39.24	50TH	107.18 42.20
100.23	39.46	55TH	107.78 42.43
100.79	39.68	60TH	108.40 42.68
101.38	39.92	65TH	109.05 42.93
102.02	40.16	70TH	109.73 43.20
102.71	40.44	75TH	110.47 43.49
103.49	40.74	80TH	111.31 43.82
104.41	41.11	85TH	112.28 44.20
105.60	41.57	90TH	113.50 44.68
107.40	42.28	95TH	115.28 45.39
108.59	42.75	97TH	116.41 45.83
109.47	43.10	98TH	117.21 46.15
110.87	43.65	99TH	118.41 46.62

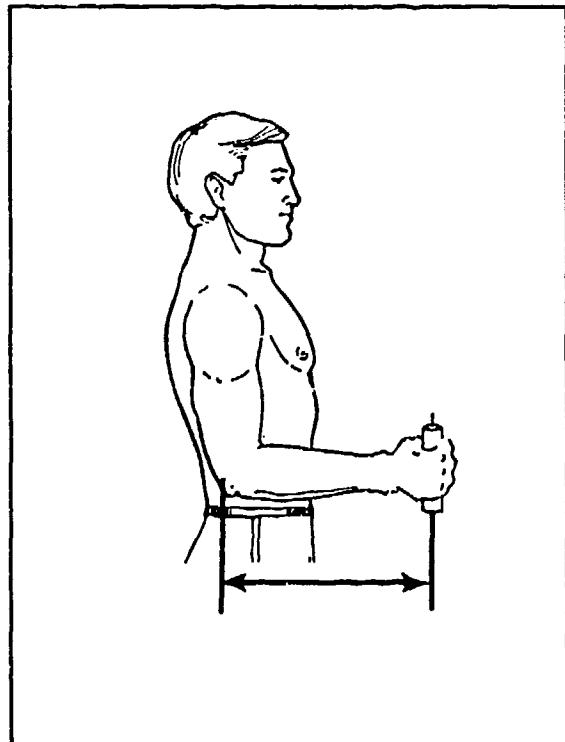
# ELBOW REST HEIGHT, STANDING

FEMALES			MALES		
<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>	
99.79	MEAN VALUE	39.29	107.25	MEAN VALUE	42.22
.10	SE(MEAN)	.04	.11	SE(MEAN)	.04
4.48	STD DEVIATION	1.76	4.81	STD DEVIATION	1.89
.07	SE(STD DEV)	.03	.08	SE(STD DEV)	.03
85.60	MINIMUM	33.70	88.80	MINIMUM	34.96
118.50	MAXIMUM	46.65	126.10	MAXIMUM	49.65
SYMMETRY---VETA I	=	.13	SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.07	KURTOSIS---VETA II	=	3.18
COEF. OF VARIATION	=	4.5%	COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
3	.14	3	.14	85.55 - 86.55		1	.06
1	.05	4	.18	86.55 - 87.55		0	.00
8	.36	12	.54	87.55 - 88.55		1	.06
10	.45	22	1.00	88.55 - 89.55		1	.06
24	1.09	46	2.08	89.55 - 90.55		3	.17
16	.72	62	2.81	90.55 - 91.55		7	.39
34	1.54	96	4.35	91.55 - 92.55		7	.39
69	3.13	165	7.47	92.55 - 93.55		14	.79
87	3.94	252	11.41	93.55 - 94.55		21	1.18
118	5.34	370	16.76	94.55 - 95.55		32	1.80
169	7.65	539	24.41	95.55 - 96.55		51	2.87
166	7.52	705	31.93	96.55 - 97.55		56	3.16
184	8.33	889	40.26	97.55 - 98.55		147	8.29
193	8.74	1082	49.00	98.55 - 99.55		203	11.44
185	8.38	1267	57.38	99.55 - 100.55		293	16.52
169	7.65	1436	65.04	100.55 - 101.55		389	21.93
184	8.33	1620	73.37	101.55 - 102.55		494	27.85
163	7.38	1783	80.75	102.55 - 103.55		5.92	6.08
117	5.30	1900	86.05	103.55 - 104.55		640	36.08
82	3.71	1982	89.76	104.55 - 105.55		783	44.14
73	3.31	2055	93.07	105.55 - 106.55		945	53.27
56	2.54	2111	95.61	106.55 - 107.55		1098	61.09
35	1.59	2146	97.19	107.55 - 108.55		1233	69.50
20	.91	2166	98.10	108.55 - 109.55		1342	75.65
16	.72	2182	98.82	109.55 - 110.55		1443	81.34
14	.63	2196	99.46	110.55 - 111.55		1532	86.36
4	.18	2200	99.64	111.55 - 112.55		1600	90.19
6	.27	2206	99.91	112.55 - 113.55		1651	93.07
0	.00	2206	99.91	113.55 - 114.55		1693	95.43
1	.05	2207	99.95	114.55 - 115.55		1725	97.24
0	.00	2207	99.95	115.55 - 116.55		1745	98.37
0	.00	2207	99.95	116.55 - 117.55		1759	99.15
1	.05	2208	100.00	117.55 - 118.55		1766	99.55
				118.55 - 119.55		1768	99.66
				119.55 - 120.55		1769	99.72
				120.55 - 121.55		1771	99.83
				121.55 - 122.55		1771	99.83
				122.55 - 123.55		1772	99.89
				123.55 - 124.55		1773	99.94
				124.55 - 125.55		1774	100.00

## (D17) ELBOW-CENTER OF GRIP LENGTH

The horizontal distance between the posterior point of the right elbow flexed 90 degrees and the center of a 1-1/4" diameter dowel gripped vertically in the right hand is calculated as follows: FOREARM-HAND LENGTH minus HAND LENGTH plus WRIST-CENTER OF GRIP LENGTH.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
28.93	11.39	1ST	32.26 12.70
29.35	11.56	2ND	32.64 12.85
29.63	11.67	3RD	32.89 12.95
30.02	11.82	5TH	33.23 13.08
30.63	12.06	10TH	33.78 13.30
31.04	12.22	15TH	34.16 13.45
31.37	12.35	20TH	34.47 13.57
31.66	12.47	25TH	34.75 13.68
31.92	12.57	30TH	35.00 13.78
32.17	12.66	35TH	35.24 13.87
32.40	12.75	40TH	35.47 13.97
32.62	12.84	45TH	35.70 14.05
32.84	12.93	50TH	35.92 14.14
33.06	13.02	55TH	36.15 14.23
33.29	13.10	60TH	36.39 14.33
33.52	13.20	65TH	36.63 14.42
33.77	13.29	70TH	36.89 14.52
34.04	13.40	75TH	37.18 14.64
34.34	13.52	80TH	37.50 14.76
34.69	13.66	85TH	37.87 14.91
35.15	13.84	90TH	38.35 15.10
35.84	14.11	95TH	39.06 15.38
36.29	14.29	97TH	39.51 15.55
36.64	14.42	98TH	39.83 15.68
37.20	14.64	99TH	40.33 15.88

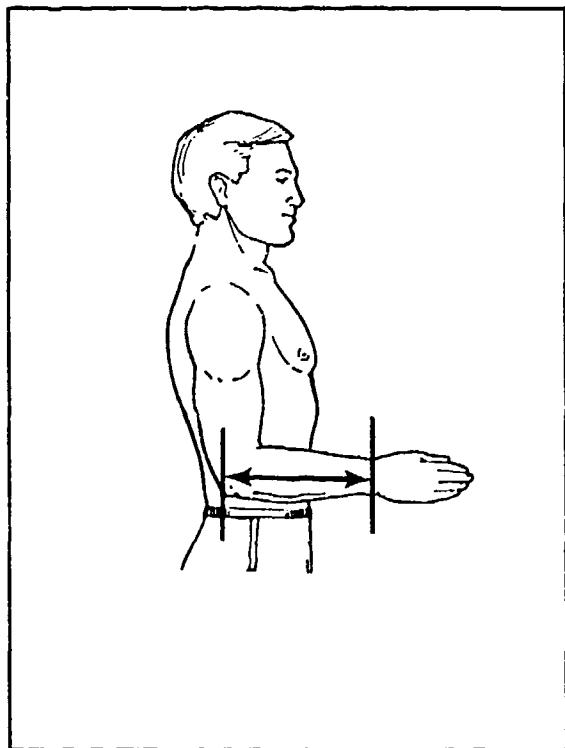
# ELBOW-CENTER OF GRIP LENGTH

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
32.88	MEAN VALUE	12.94	36.00	MEAN VALUE	14.17
.04	SE(MEAN)	.00	.04	SE(MEAN)	.02
1.77	STD DEVIATION	.70	1.79	STD DEVIATION	.70
.03	SE(STD DEV)	.00	.03	SE(STD DEV)	.00
23.70	MINIMUM	9.33	29.30	MINIMUM	11.54
41.30	MAXIMUM	16.26	43.60	MAXIMUM	17.17
SYMMETRY---VETA I	=	.10	SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.41	KURTOSIS---VETA II	=	3.33
COEF. OF VARIATION	=	5.4%	COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	23.25 - 23.75		2	.11
0	.00	1	.05	23.75 - 24.25		1	.06
0	.00	1	.05	24.25 - 24.75			.17
0	.00	1	.05	24.75 - 25.25			
0	.00	1	.05	25.25 - 25.75			
0	.00	1	.05	25.75 - 26.25			
0	.00	1	.05	26.25 - 26.75			
0	.00	1	.05	26.75 - 27.25			
1	.05	2	.09	27.25 - 27.75			
6	.27	8	.36	27.75 - 28.25			
8	.36	16	.72	28.25 - 28.75			
21	.95	37	1.68	28.75 - 29.25			
34	1.54	71	3.22	29.25 - 29.75			
64	2.90	135	6.11	29.75 - 30.25			
114	5.16	249	11.28	30.25 - 30.75			
165	7.47	414	18.75	30.75 - 31.25		0	.00
186	8.42	600	27.17	31.25 - 31.75			
202	9.15	802	36.32	31.75 - 32.25		4	.23
241	10.91	1043	47.24	32.25 - 32.75		8	.45
256	11.59	1299	58.83	32.75 - 33.25		26	1.47
243	11.01	1542	69.84	33.25 - 33.75		47	2.55
194	8.79	1736	78.62	33.75 - 34.25		85	4.79
169	7.65	1905	86.28	34.25 - 34.75		102	5.75
111	5.03	2016	91.30	34.75 - 35.25		151	8.51
76	3.44	2092	94.75	35.25 - 35.75		205	11.56
46	2.08	2138	97.83	35.75 - 36.25		188	10.60
30	1.36	2168	98.19	36.25 - 36.75		193	10.88
21	.95	2189	99.14	36.75 - 37.25		188	10.60
11	.50	2200	99.64	37.25 - 37.75		148	8.34
1	.05	2201	99.68	37.75 - 38.25		126	7.10
6	.27	2207	99.95	38.25 - 38.75		115	6.48
0	.00	2207	99.95	38.75 - 39.25			1591
0	.00	2207	99.95	39.25 - 39.75		4.17	89.68
0	.00	2207	99.95	39.75 - 40.25		36	2.03
0	.00	2207	99.95	40.25 - 40.75		33	1.86
0	.00	2207	99.95	40.75 - 41.25		21	1.18
0	.00	2207	99.95	41.25 - 41.75			1755
0	.00	2207	99.95	41.75 - 42.25		7	.39
0	.00	2207	99.95	42.25 - 42.75		3	.17
1	.05	2208	100.00	42.75 - 43.25		6	.34
				43.25 - 43.75		1	.06

## (D18) ELBOW-WRIST LENGTH

The horizontal distance between the posterior point of the right elbow flexed 90 degrees and the stylion landmark on the right wrist of a subject standing with the forearm and hand held horizontally is calculated as follows: FOREARM-HAND LENGTH minus HAND LENGTH.



THE PERCENTILES					
FEMALES		MALES			
CM	INCHES	1ST	CM	INCHES	
22.94	9.03	2ND	25.79	10.15	
23.26	9.16	3RD	26.09	10.27	
23.47	9.24	5TH	26.30	10.35	
23.78	9.36	10TH	26.60	10.47	
24.28	9.56	15TH	27.09	10.66	
24.64	9.70	20TH	27.44	10.80	
24.93	9.81	25TH	27.72	10.91	
25.18	9.91	30TH	27.97	11.01	
25.41	10.00	35TH	28.19	11.10	
25.62	10.09	40TH	28.40	11.18	
25.83	10.17	45TH	28.60	11.26	
26.03	10.25	50TH	28.80	11.34	
26.22	10.32	55TH	28.99	11.41	
26.42	10.40	60TH	29.18	11.49	
26.62	10.48	65TH	29.38	11.57	
26.83	10.56	70TH	29.58	11.65	
27.05	10.65	75TH	29.80	11.73	
27.29	10.74	80TH	30.03	11.82	
27.56	10.85	85TH	30.30	11.93	
27.86	10.97	90TH	30.61	12.05	
28.26	11.12	95TH	31.01	12.21	
28.83	11.35	97TH	31.61	12.45	
29.21	11.50	98TH	32.02	12.61	
29.49	11.61	99TH	32.33	12.73	
29.93	11.78		32.84	12.93	

# ELBOW-WRIST LENGTH

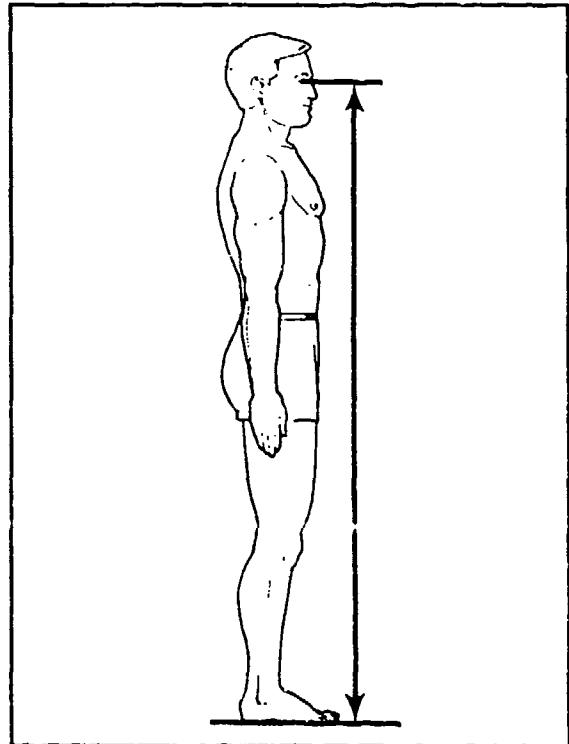
FEMALES		
<u>CM</u>	<u>INCHES</u>	
26.25	MEAN VALUE	10.33
.03	SE(MEAN)	.00
1.54	STD DEVIATION	.61
.02	SE(STD DEV)	.00
17.00	MINIMUM	6.69
33.40	MAXIMUM	13.15
SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.53
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
29.03	MEAN VALUE	11.43
.04	SE(MEAN)	.00
1.54	STD DEVIATION	.61
.03	SE(STD DEV)	.00
22.60	MINIMUM	8.90
35.00	MAXIMUM	13.78
SYMMETRY---VETA I	=	.17
KURTOSIS---VETA II	=	3.32
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct		
1	.05	1	.05	16.75	-	16.75			
0	.00	1	.05	17.25	-	17.75			
0	.00	1	.05	17.75	-	18.25			
0	.00	1	.05	18.25	-	18.75			
0	.00	1	.05	18.75	-	19.25			
0	.00	1	.05	19.25	-	19.75			
0	.00	1	.05	19.75	-	20.25			
0	.00	1	.05	20.25	-	20.75			
0	.00	1	.05	20.75	-	21.25			
2	.09	3	.14	21.25	-	21.75			
4	.18	7	.32	21.75	-	22.25			
10	.45	17	.77	22.25	-	22.75			
21	.95	38	1.72	22.75	-	23.25			
52	2.36	90	4.08	23.25	-	23.75			
126	5.71	216	9.78	23.75	-	24.25			
160	7.25	376	17.03	24.25	-	24.75			
226	10.24	602	27.26	24.75	-	25.25			
247	11.19	849	38.45	25.25	-	25.75			
253	11.46	1102	49.91	25.75	-	26.25			
285	12.91	1387	62.82	26.25	-	26.75			
242	10.96	1629	73.78	26.75	-	27.25			
212	9.60	1841	83.38	27.25	-	27.75			
159	7.20	2000	90.58	27.75	-	28.25			
94	4.26	2094	94.84	28.25	-	28.75			
52	2.36	2146	97.19	28.75	-	29.25			
36	1.63	2182	98.82	29.25	-	29.75			
10	.45	2192	99.28	29.75	-	30.25			
8	.36	2200	99.64	30.25	-	30.75			
5	.23	2205	99.86	30.75	-	31.25			
1	.05	2206	99.91	31.25	-	31.75			
1	.05	2207	99.95	31.75	-	32.25			
0	.00	2207	99.95	32.25	-	32.75			
0	.00	2207	99.95	32.75	-	33.25			
1	.05	2208	100.00	33.25	-	33.75			
				33.75	-	34.25			
				34.25	-	34.75			
				34.75	-	35.25			

## (D19) EYE HEIGHT

The vertical distance between a standing surface and the outer corner of the right eye of a subject standing erect with the head in the Frankfort plane is calculated as follows: EYE HEIGHT, SITTING plus STATURE minus SITTING HEIGHT.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
137.39	54.09	1ST	148.40 58.43
139.07	54.75	2ND	150.22 59.14
140.11	55.16	3RD	151.33 59.58
141.52	55.72	5TH	152.82 60.17
143.67	56.56	10TH	155.08 61.05
145.13	57.14	15TH	156.60 61.65
146.29	57.59	20TH	157.82 62.13
147.30	57.99	25TH	158.88 62.55
148.21	58.35	30TH	159.84 62.93
149.06	58.68	35TH	160.73 63.28
149.87	59.00	40TH	161.59 63.62
150.66	59.32	45TH	162.42 63.95
151.45	59.63	50TH	163.26 64.28
152.24	59.94	55TH	164.10 64.61
153.05	60.26	60TH	164.96 64.94
153.90	60.59	65TH	165.85 65.30
154.79	60.94	70TH	166.79 65.67
155.77	61.33	75TH	167.82 66.07
156.86	61.76	80TH	168.97 66.52
158.14	62.26	85TH	170.29 67.04
159.75	62.90	90TH	171.94 67.69
162.13	63.83	95TH	174.29 68.62
163.65	64.43	97TH	175.73 69.18
164.75	64.86	98TH	176.72 69.57
166.43	65.52	99TH	178.15 70.14

# EYE HEIGHT

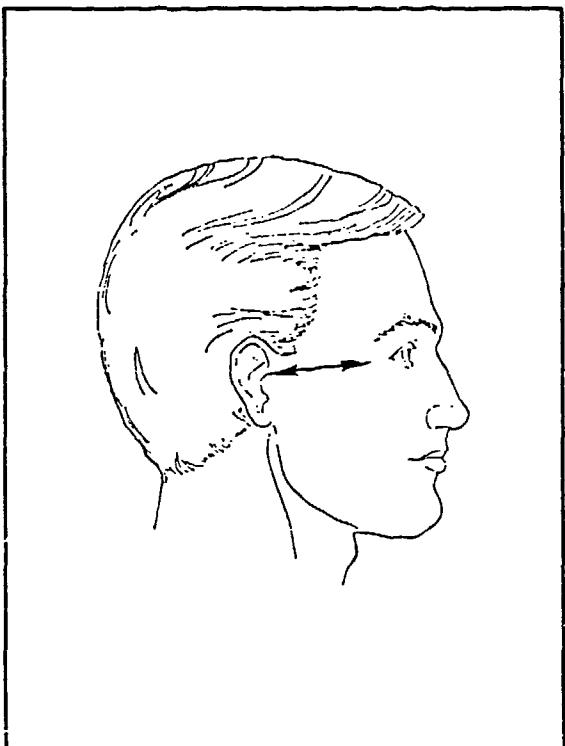
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
151.61	MEAN VALUE	59.69
.13	SE(MEAN)	.05
6.25	STD DEVIATION	2.46
.09	SE(STD DEV)	.04
132.50	MINIMUM	52.17
175.30	MAXIMUM	69.02
SYMMETRY---VETA I	=	.12
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
163.39	MEAN VALUE	64.32
.16	SE(MEAN)	.06
6.57	STD DEVIATION	2.59
.11	SE(STD DEV)	.04
138.10	MINIMUM	54.37
191.20	MAXIMUM	75.28
SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	3.17
COEF. OF VARIATION	=	4.0%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
3	.14	3	.14	131.75 - 133.25			
2	.09	5	.23	133.25 - 134.75			
9	.41	14	.63	134.75 - 136.25			
10	.45	24	1.09	136.25 - 137.75			
23	1.04	47	2.13	137.75 - 139.25	1	.06	1
39	1.77	86	3.89	139.25 - 140.75	0	.00	1
47	2.13	133	6.02	140.75 - 142.25	1	.06	2
82	3.71	215	9.74	142.25 - 143.75	0	.00	2
111	5.03	326	14.76	143.75 - 145.25	2	.11	4
163	7.38	489	22.15	145.25 - 146.75	7	.39	11
186	8.42	675	30.57	146.75 - 148.25	5	.28	16
212	9.60	887	40.17	148.25 - 149.75	12	.68	28
188	8.51	1075	48.69	149.75 - 151.25	26	1.47	54
194	8.79	1269	57.47	151.25 - 152.75	29	1.63	83
203	9.19	1472	66.67	152.75 - 154.25	56	3.16	139
175	7.93	1647	74.59	154.25 - 155.75	78	4.40	217
158	7.16	1805	81.75	155.75 - 157.25	81	4.57	298
126	5.71	1931	87.45	157.25 - 158.75	130	7.33	428
82	3.71	2013	91.17	158.75 - 160.25	139	7.84	567
69	3.13	2082	94.29	160.25 - 161.75	164	9.24	731
50	2.26	2132	96.56	161.75 - 163.25	152	8.57	883
30	1.36	2162	97.92	163.25 - 164.75	170	9.58	1053
23	1.04	2185	98.96	164.75 - 166.25	149	8.40	1202
13	.59	2198	99.55	166.25 - 167.75	125	7.05	1327
3	.14	2201	99.68	167.75 - 169.25	107	6.03	1434
0	.00	2201	99.68	169.25 - 170.75	93	5.24	1527
5	.23	2206	99.91	170.75 - 172.25	86	4.85	1613
1	.05	2207	99.95	172.25 - 177.75	57	3.21	1670
0	.00	2207	99.95	173.75 - 175.25	43	2.42	1713
1	.05	2208	100.00	175.25 - 176.75	27	1.52	1740
				176.75 - 178.25	17	.96	1757
				178.25 - 179.75	4	.23	1761
				179.75 - 181.25	4	.23	1765
				181.25 - 182.75	6	.34	1771
				182.75 - 184.25	1	.06	1772
				184.25 - 185.75	0	.00	1772
				185.75 - 187.25	0	.00	1772
				187.25 - 188.75	0	.00	1772
				188.75 - 190.25	1	.06	1773
				190.25 - 191.75	1	.06	1774
							100.00

## (D20) EYE-TRAGION LINK

The distance between the ectoorbitale landmark near the outer corner of the eye and the tragion landmark on the cartilaginous flap of flesh in front of the earhole is calculated using the distance formula for the points: ECTOORBITALE and TRAGION.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
4.90	1.93	1ST	5.37	2.11	
5.01	1.97	2ND	5.47	2.15	
5.08	2.00	3RD	5.54	2.18	
5.17	2.03	5TH	5.63	2.22	
5.30	2.09	10TH	5.77	2.27	
5.39	2.12	15TH	5.86	2.31	
5.45	2.15	20TH	5.94	2.34	
5.51	2.17	25TH	6.00	2.36	
5.56	2.19	30TH	6.06	2.39	
5.61	2.21	35TH	6.11	2.41	
5.66	2.23	40TH	6.16	2.43	
5.70	2.24	45TH	6.21	2.45	
5.74	2.26	50TH	6.26	2.46	
5.79	2.28	55TH	6.30	2.48	
5.83	2.30	60TH	6.35	2.50	
5.88	2.31	65TH	6.40	2.52	
5.92	2.33	70TH	6.45	2.54	
5.97	2.35	75TH	6.50	2.56	
6.03	2.38	80TH	6.56	2.58	
6.10	2.40	85TH	6.63	2.61	
6.19	2.44	90TH	6.72	2.65	
6.31	2.49	95TH	6.85	2.70	
6.40	2.52	97TH	6.94	2.73	
6.46	2.54	98TH	7.00	2.76	
6.55	2.58	99TH	7.11	2.80	

# EYE-TRAGION LINK

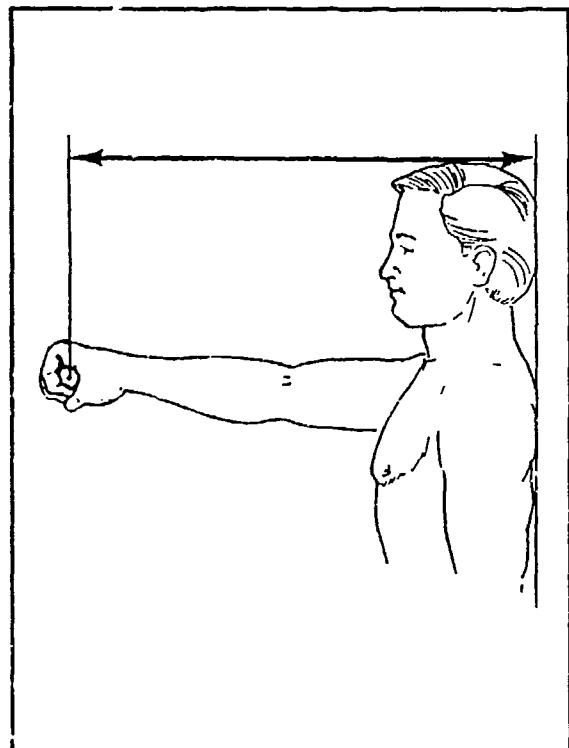
FEMALES		
<u>CM</u>	<u>INCHES</u>	
5.74	MEAN VALUE	2.26
.00	SE(MEAN)	.00
.35	STD DEVIATION	.14
.00	SE(STD DEV)	.00
4.30	MINIMUM	1.69
7.00	MAXIMUM	2.76
SYMMETRY---VETA I	=	-.07
KURTOSIS---VETA II	=	3.23
COEF. OF VARIATION	=	6.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
6.25	MEAN VALUE	2.46
.00	SE(MEAN)	.00
.37	STD DEVIATION	.14
.00	SE(STD DEV)	.00
5.00	MINIMUM	1.97
7.40	MAXIMUM	2.91
SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	2.92
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	4.25 -	4.35	1	.06
2	.09	3	.14	4.35 -	4.45	0	.00
0	.00	3	.14	4.45 -	4.55	3	.17
0	.00	3	.14	4.55 -	4.65	9	.51
3	.14	6	.27	4.65 -	4.75	32	1.80
11	.50	17	.77	4.75 -	4.85	63	3.55
12	.54	29	1.31	4.85 -	4.95	18	1.01
21	.95	50	2.26	4.95 -	5.05	132	7.44
53	2.40	103	4.66	5.05 -	5.15	130	7.33
65	2.94	168	7.61	5.15 -	5.25	186	10.48
198	4.89	276	12.50	5.25 -	5.35	201	11.33
171	7.74	447	20.24	5.35 -	5.45	175	9.86
175	7.93	622	28.17	5.45 -	5.55	130	7.33
250	11.32	872	39.49	5.55 -	5.65	30	1.69
233	10.55	1105	50.05	5.65 -	5.75	32	1.80
260	11.78	1365	61.82	5.75 -	5.85	63	3.55
253	11.46	1618	73.28	5.85 -	5.95	132	7.44
191	8.65	1809	81.93	5.95 -	6.05	130	7.33
138	6.25	1947	88.18	6.05 -	6.15	186	10.48
106	4.80	2053	92.98	6.15 -	6.25	201	11.33
75	3.40	2128	96.38	6.25 -	6.35	175	9.86
32	1.45	2160	97.83	6.35 -	6.45	173	9.75
26	1.18	2186	99.00	6.45 -	6.55	154	8.68
14	.63	2200	99.64	6.55 -	6.65	141	7.95
5	.23	2205	99.86	6.65 -	6.75	95	5.36
0	.00	2205	99.86	6.75 -	6.85	63	3.55
2	.09	2207	99.95	6.85 -	6.95	35	1.97
1	.05	2208	100.00	6.95 -	7.05	23	1.30
				7.05 -	7.15	13	.73
				7.15 -	7.25	8	.45
				7.25 -	7.35	2	.11
				7.35 -	7.45	2	.11

## (D21) FUNCTIONAL GRIP REACH

The horizontal distance between the vertical plane of the back and the center of a 1-1/4" diameter dowel gripped in the right hand of a subject standing erect with the back against a wall and the arm and hand extended forward horizontally is calculated as follows:  
WRIST-WALL LENGTH plus WRIST-CENTER OF GRIP LENGTH.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
61.51	24.22	67.26	26.48
62.12	24.46	68.04	26.79
62.55	24.63	68.55	26.99
63.19	24.88	69.28	27.28
64.26	25.30	70.45	27.74
65.03	25.60	71.27	28.06
65.66	25.85	71.93	28.32
66.22	26.07	72.52	28.55
66.72	26.27	73.05	28.76
67.19	26.45	73.54	28.95
67.64	26.63	74.02	29.14
68.08	26.80	74.49	29.33
68.51	26.97	74.95	29.51
68.95	27.15	75.42	29.69
69.40	27.32	75.90	29.88
69.86	27.50	76.40	30.08
70.34	27.69	76.92	30.29
70.87	27.90	77.50	30.51
71.46	28.14	78.15	30.77
72.15	28.41	78.91	31.07
73.03	28.75	79.87	31.45
74.36	29.27	81.31	32.01
75.24	29.62	82.25	32.38
75.90	29.88	82.94	32.65
76.97	30.30	84.03	33.08

# FUNCTIONAL GRIP REACH

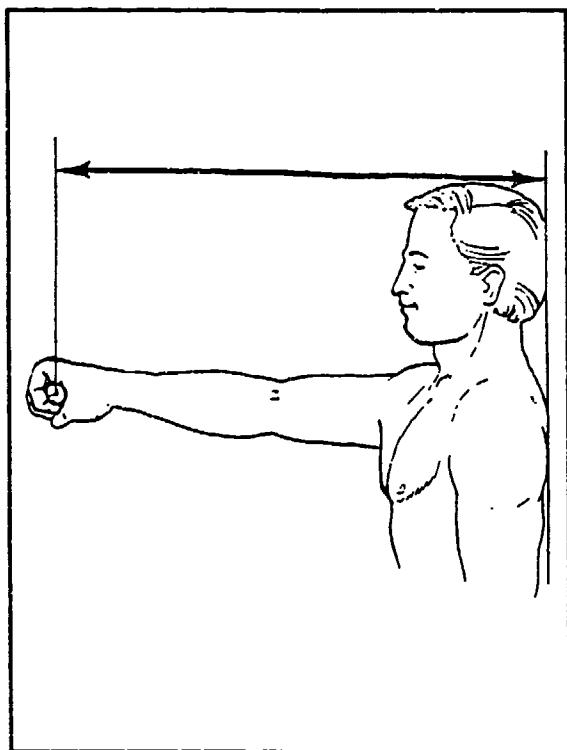
FEMALES		
<u>CM</u>	<u>INCHES</u>	
6.61	MEAN VALUE	27.01
.07	SE(MEAN)	.03
3.39	STD DEVIATION	1.33
.05	SE(STD DEV)	.02
57.50	MINIMUM	22.64
83.20	MAXIMUM	32.76
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
75.07	MEAN VALUE	29.55
.09	SE(MEAN)	.03
3.68	STD DEVIATION	1.45
.06	SE(STD DEV)	.02
62.60	MINIMUM	24.65
92.10	MAXIMUM	36.26
SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct		
1	.05	1	.05	56.55	-	57.55			
2	.09	3	.14	57.55	-	58.55			
3	.14	6	.27	58.55	-	59.55			
4	.18	10	.45	59.55	-	60.55			
10	.45	20	.91	60.55	-	61.55			
37	1.68	57	2.58	61.55	-	62.55			
76	3.44	133	6.02	62.55	-	63.55			
130	5.89	263	11.91	63.55	-	64.55			
150	6.79	413	18.70	64.55	-	65.55			
222	10.05	635	28.76	65.55	-	66.55			
212	9.60	847	38.36	66.55	-	67.55			
259	11.73	1106	50.09	67.55	-	68.55			
257	11.64	1363	61.73	68.55	-	69.55			
228	10.33	1591	72.06	69.55	-	70.55			
199	9.01	1790	81.07	70.55	-	71.55			
140	6.34	1930	87.41	71.55	-	72.55			
110	4.98	2040	92.39	72.55	-	73.55			
78	3.53	2118	95.92	73.55	-	74.55			
36	1.63	2154	97.55	74.55	-	75.55			
25	1.13	2179	98.69	75.55	-	76.55			
16	.72	2195	99.41	76.55	-	77.55			
6	.27	2201	99.68	77.55	-	78.55			
5	.23	2206	99.91	78.55	-	79.55			
0	.00	2206	99.91	79.55	-	80.55			
0	.00	2206	99.91	80.55	-	81.55			
0	.00	2206	99.91	81.55	-	82.55			
2	.09	2208	100.00	82.55	-	83.55			
				83.55	-	84.55			
				84.55	-	85.55			
				85.55	-	86.55			
				86.55	-	87.55			
				87.55	-	88.55			
				88.55	-	89.55			
				89.55	-	90.55			
				90.55	-	91.55			
				91.55	-	92.55			

## (D22) FUNCTIONAL GRIP REACH, EXTENDED

The horizontal distance between the vertical plane of the back and the center of a 1-1/4" diameter dowel gripped in the right hand of a subject standing erect with the left shoulder against a wall and the right shoulder, arm, and hand extended forward horizontally as far as possible is calculated as follows: WRIST-WALL LENGTH, EXTENDED plus WRIST-CENTER OF GRIP LENGTH.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
66.55	26.20	1ST	72.88 28.69
67.40	26.54	2ND	73.88 29.09
67.96	26.76	3RD	74.53 29.34
68.73	27.06	5TH	75.43 29.70
69.96	27.54	10TH	76.83 30.25
70.80	27.87	15TH	77.79 30.63
71.48	28.14	20TH	78.54 30.92
72.07	28.37	25TH	79.19 31.18
72.60	28.58	30TH	79.77 31.41
73.09	28.78	35TH	80.30 31.62
73.56	28.96	40TH	80.81 31.82
74.02	29.14	45TH	81.30 32.01
74.48	29.32	50TH	81.78 32.20
74.94	29.50	55TH	82.27 32.39
75.40	29.69	60TH	82.76 32.58
75.89	29.88	65TH	83.27 32.78
76.40	30.08	70TH	83.80 32.99
76.96	30.30	75TH	84.39 33.22
77.59	30.55	80TH	85.05 33.49
78.33	30.84	85TH	85.83 33.79
79.28	31.21	90TH	86.84 34.19
80.70	31.77	95TH	88.41 34.81
81.65	32.15	97TH	89.50 35.24
82.36	32.42	98TH	90.33 35.56
83.50	32.87	99TH	91.73 36.11

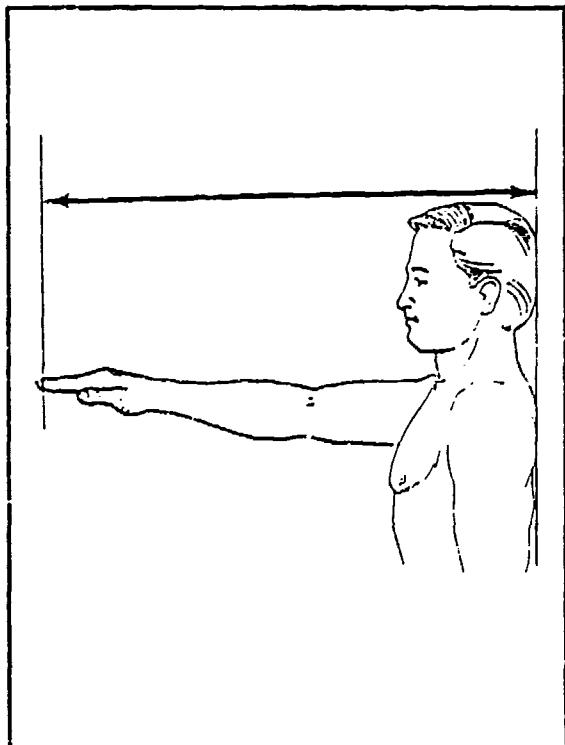
# FUNCTIONAL GRIP REACH, EXTENDED

FEMALES			MALES		
	<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>
74.56	MEAN VALUE	29.35	81.82	MEAN VALUE	32.21
.08	SE(MEAN)	.03	.09	SE(MEAN)	.04
3.61	STD DEVIATION	1.42	3.91	STD DEVIATION	1.54
.05	SE(STD DEV)	.02	.07	SE(STD DEV)	.03
62.60	MINIMUM	24.65	68.70	MINIMUM	27.05
92.40	MAXIMUM	36.38	98.60	MAXIMUM	38.82
SYMMETRY---VETA I	=	.17	SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.15	KURTOSIS---VETA II	=	3.27
COEF. OF VARIATION	=	4.8%	COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumP	CumPPct	CENTIMETERS		F	FPct	CumP	CumPPct
2	.09	2	.09	62.55	- 63.55	2	.11	2	.11
1	.05	3	.14	63.55	- 64.55	0	.00	2	.11
7	.32	10	.45	64.55	- 65.55	4	.23	6	.34
13	.59	23	1.04	65.55	- 66.55	6	.34	12	.68
22	1.00	45	2.04	66.55	- 67.55	19	1.07	31	1.75
40	1.81	85	3.85	67.55	- 68.55	26	1.47	57	3.21
84	3.80	169	7.65	68.55	- 69.55	36	2.03	93	5.24
125	5.66	294	13.32	69.55	- 70.55	52	2.93	145	8.17
171	7.74	465	21.06	70.55	- 71.55	91	5.13	236	13.30
198	8.97	663	30.03	71.55	- 72.55	114	6.43	350	19.73
244	11.05	907	41.08	72.55	- 73.55	146	8.23	496	27.96
213	9.65	1120	50.72	73.55	- 74.55	181	10.20	677	38.16
210	9.51	1330	60.24	74.55	- 75.55	178	10.03	855	48.20
250	11.32	1580	71.56	75.55	- 76.55	180	10.15	1035	58.34
183	8.29	1763	79.85	76.55	- 77.55	171	9.64	1206	67.98
148	6.70	1911	86.55	77.55	- 78.55	144	8.12	1350	76.10
105	4.76	2016	91.30	78.55	- 79.55	126	7.10	1476	83.20
75	3.40	2091	94.70	79.55	- 80.55	97	5.47	1573	88.67
55	2.49	2146	97.19	80.55	- 81.55	76	4.28	1649	92.95
24	1.09	2170	98.28	81.55	- 82.55	47	2.65	1696	95.60
18	.82	2188	99.09	82.55	- 83.55	31	1.75	1727	97.35
12	.54	2200	99.64	83.55	- 84.55	16	.90	1743	98.25
4	.18	2204	99.82	84.55	- 85.55	11	.62	1754	98.87
1	.05	2205	99.86	85.55	- 86.55	12	.68	1766	99.55
1	.05	2206	99.91	86.55	- 87.55	4	.23	1770	99.77
1	.05	2207	99.95	87.55	- 88.55	2	.11	1772	99.89
0	.00	2207	99.95	88.55	- 89.55	0	.00	1772	99.89
0	.00	2207	99.95	89.55	- 90.55	0	.00	1772	99.89
0	.00	2207	99.95	90.55	- 91.55	1	.06	1773	99.94
1	.05	2208	100.00	91.55	- 92.55	1	.06	1774	100.00

## (D23) INDEX FINGER REACH

The horizontal distance between the vertical plane of the back and the tip of the right index finger of a subject standing erect with the back against a wall and the arm, hand, and fingers extended forward horizontally is calculated as follows: WRIST-WALL LENGTH plus WRIST-INDEX FINGER LENGTH.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
70.80	27.87		77.37	30.46	
71.57	28.18		78.21	30.79	
72.08	28.38		78.78	31.02	
72.82	28.67		79.60	31.34	
74.02	29.14		80.94	31.87	
74.87	29.48		81.88	32.24	
75.57	29.75		82.65	32.54	
76.19	29.99		83.31	32.80	
76.75	30.22		83.92	33.04	
77.28	30.42		84.48	33.26	
77.78	30.62		85.02	33.47	
78.28	30.82		85.54	33.68	
78.78	31.01		86.06	33.88	
79.28	31.21		86.59	34.09	
79.79	31.41		87.12	34.30	
80.32	31.62		87.67	34.52	
80.89	31.85		88.26	34.75	
81.50	32.09		88.89	35.00	
82.19	32.36		89.61	35.28	
83.00	32.68		90.45	35.61	
84.02	33.08		91.53	36.04	
85.52	33.67		93.17	36.68	
86.49	34.05		94.28	37.12	
87.20	34.33		95.11	37.45	
88.30	34.76		96.48	37.98	

# INDEX FINGER REACH

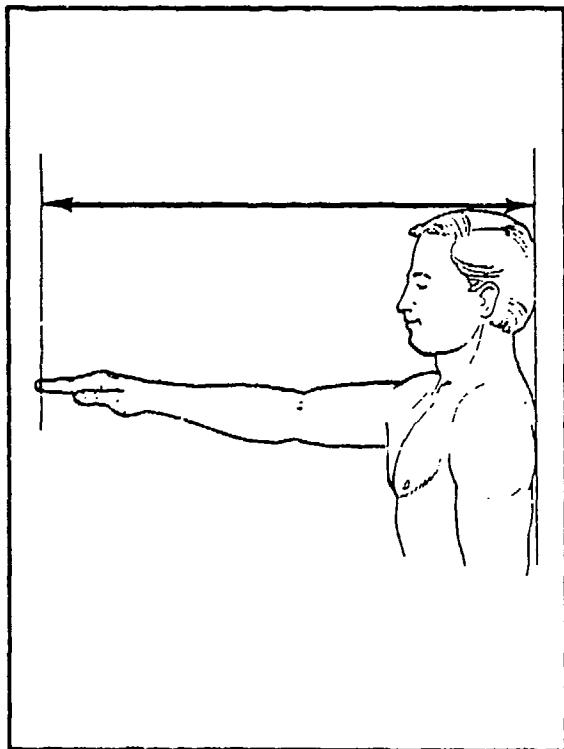
FEMALES		
<u>CM</u>	<u>INCHES</u>	
78.90	MEAN VALUE	31.06
.08	SE(MEAN)	.03
3.87	STD DEVIATION	1.52
.06	SE(STD DEV)	.02
65.90	MINIMUM	25.94
96.50	MAXIMUM	37.99
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.05
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
86.18	MEAN VALUE	33.93
.10	SE(MEAN)	.04
4.14	STD DEVIATION	1.63
.07	SE(STD DEV)	.03
71.60	MINIMUM	28.19
105.10	MAXIMUM	41.38
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
1	.05	1	.05	65.55 - 66.55				1	.06	1	.06
1	.05	2	.09	66.55 - 67.55				1	.06	2	.11
4	.18	6	.27	67.55 - 68.55				3	.17	5	.28
7	.32	13	.59	68.55 - 69.55				1	.06	6	.34
8	.36	21	.95	69.55 - 70.55				4	.23	10	.56
20	.91	41	1.86	70.55 - 71.55				10	.56	20	1.13
49	2.22	90	4.08	71.55 - 72.55				18	1.01	38	2.14
80	3.62	170	7.70	72.55 - 73.55				1	.06	2	.11
129	5.84	299	13.54	73.55 - 74.55				3	.17	5	.28
133	6.02	432	19.57	74.55 - 75.55				1	.06	6	.34
197	8.92	629	28.49	75.55 - 76.55				4	.23	10	.56
198	8.97	827	37.45	76.55 - 77.55				10	.56	20	1.13
222	10.05	1049	47.51	77.55 - 78.55				18	1.01	38	2.14
236	10.69	1285	58.20	78.55 - 79.55				1	.06	2	.11
206	9.33	1491	67.53	79.55 - 80.55				3	.17	5	.28
171	7.74	1662	75.27	80.55 - 81.55				1	.06	6	.34
159	7.20	1821	82.47	81.55 - 82.55				4	.23	10	.56
119	5.39	1940	87.86	82.55 - 83.55				10	.56	20	1.13
100	4.53	2040	92.39	83.55 - 84.55				18	1.01	38	2.14
66	2.99	2106	95.38	84.55 - 85.55				1	.06	2	.11
38	1.72	2144	97.10	85.55 - 86.55				3	.17	5	.28
30	1.36	2174	98.46	86.55 - 87.55				1	.06	6	.34
17	.77	2191	99.23	87.55 - 88.55				4	.23	10	.56
9	.41	2200	99.64	88.55 - 89.55				10	.56	20	1.13
5	.23	2205	99.86	89.55 - 90.55				18	1.01	38	2.14
1	.05	2206	99.91	90.55 - 91.55				1	.06	2	.11
0	.00	2206	99.91	91.55 - 92.55				3	.17	5	.28
0	.00	2206	99.91	92.55 - 93.55				1	.06	6	.34
1	.05	2207	99.95	93.55 - 94.55				4	.23	10	.56
0	.00	2207	99.95	94.55 - 95.55				10	.56	20	1.13
1	.05	2208	100.00	95.55 - 96.55				18	1.01	38	2.14
				96.55 - 97.55				1	.06	2	.11
				97.55 - 98.55				3	.17	5	.28
				98.55 - 99.55				1	.06	6	.34
				99.55 - 100.55				4	.23	10	.56
				100.55 - 101.55				10	.56	20	1.13
				101.55 - 102.55				18	1.01	38	2.14
				102.55 - 103.55				1	.06	2	.11
				103.55 - 104.55				3	.17	5	.28
				104.55 - 105.55				1	.06	6	.34

## (D24) INDEX FINGER REACH, EXTENDED

The horizontal distance between the vertical plane of the back and the tip of the right index finger of a subject standing erect with the left shoulder against a wall and the right shoulder, arm, hand, and fingers extended forward horizontally as far as possible is calculated as follows: WRIST-WALL LENGTH, EXTENDED plus WRIST-INDEX FINGER LENGTH.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
75.92	29.89	83.19	32.75
76.86	30.26	84.18	33.14
77.47	30.50	84.85	33.41
78.32	30.84	85.81	33.78
79.68	31.37	87.34	34.39
80.61	31.74	88.40	34.80
81.37	32.03	89.24	35.13
82.03	32.29	89.97	35.42
82.63	32.53	90.62	35.68
83.18	32.75	91.22	35.91
83.71	32.96	91.79	36.14
84.23	33.16	92.34	36.35
84.74	33.36	92.88	36.57
85.26	33.57	93.42	36.78
85.79	33.78	93.96	36.99
86.34	33.99	94.53	37.22
86.92	34.22	95.12	37.45
87.55	34.47	95.77	37.70
88.26	34.75	96.50	37.99
89.09	35.07	97.36	38.33
90.14	35.49	98.47	38.77
91.72	36.11	100.22	39.46
92.76	36.52	101.45	39.94
93.53	36.82	102.40	40.32
94.74	37.30	104.02	40.95

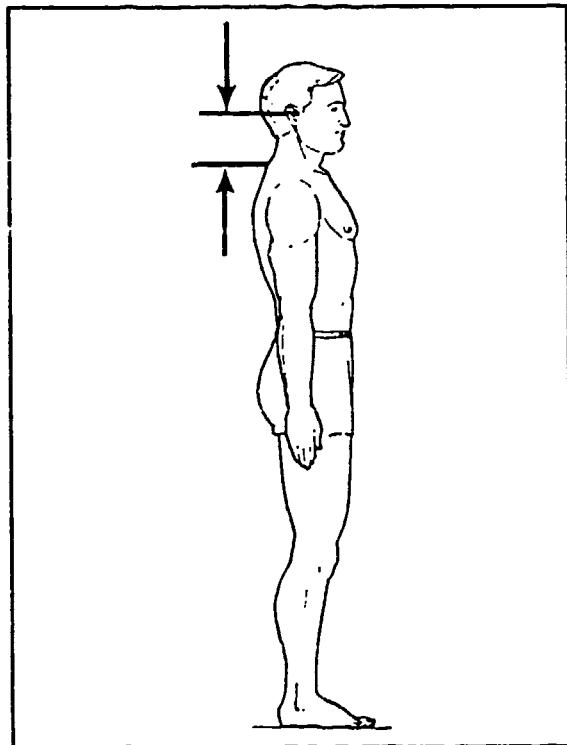
# INDEX FINGER REACH, EXTENDED

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
84.85	MEAN VALUE	33.41	92.93	MEAN VALUE	36.59
.09	SE(MEAN)	.03	.10	SE(MEAN)	.04
4.07	STD DEVIATION	1.60	4.38	STD DEVIATION	1.72
.06	SE(STD DEV)	.02	.07	SE(STD DEV)	.03
71.10	MINIMUM	27.99	78.10	MINIMUM	30.75
103.80	MAXIMUM	40.87	111.40	MAXIMUM	43.86
SYMMETRY---VETA I	=	.15	SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.11	KURTOSIS---VETA II	=	3.28
COEF. OF VARIATION	=	4.8%	COEF. OF VARIATION	=	4.7%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct
1	.05	1	.05	70.55 - 71.55		2	.11	2	.11
1	.05	2	.09	71.55 - 72.55		1	.06	3	.17
3	.14	5	.23	72.55 - 73.55		2	.11	5	.28
4	.18	9	.41	73.55 - 74.55		1	.06	6	.34
8	.36	17	.77	74.55 - 75.55		3	.17	9	.51
19	.86	36	1.63	75.55 - 76.55		17	.96	26	1.47
33	1.49	69	3.13	76.55 - 77.55		22	1.24	48	2.71
47	2.13	116	5.25	77.55 - 78.55		1	.06	3	.17
87	3.94	203	9.19	78.55 - 79.55		29	1.63	77	4.34
116	5.25	319	14.45	79.55 - 80.55		43	2.42	120	6.76
157	7.11	476	21.56	80.55 - 81.55		56	3.16	176	9.92
175	7.93	651	29.48	81.55 - 82.55		114	6.43	290	16.35
207	9.38	858	38.86	82.55 - 83.55		102	5.75	392	22.10
207	9.38	1065	48.23	83.55 - 84.55		124	6.99	516	29.09
200	9.06	1265	57.29	84.55 - 85.55		161	9.08	677	38.16
198	8.97	1463	66.26	85.55 - 86.55		164	9.24	841	47.41
183	8.29	1646	74.55	86.55 - 87.55		168	9.47	1009	56.88
167	7.56	1813	82.11	87.55 - 88.55		145	8.17	1154	65.05
137	6.20	1950	88.32	88.55 - 89.55		144	8.12	1298	73.17
71	3.22	2021	91.53	89.55 - 90.55		125	7.05	1423	80.21
74	3.35	2095	94.88	90.55 - 91.55		104	5.86	1527	86.08
42	1.50	2137	96.78	91.55 - 92.55		78	4.40	1605	90.47
24	1.09	2161	97.87	92.55 - 93.55		51	2.87	1656	93.35
21	.95	2182	98.82	93.55 - 94.55		48	2.71	1704	96.05
15	.68	2197	99.50	94.55 - 95.55		11	.62	1769	99.72
6	.27	2203	99.77	95.55 - 96.55		2	.11	1771	99.83
1	.05	2204	99.82	96.55 - 97.55		1	.06	1772	99.89
1	.05	2205	99.86	97.55 - 98.55		0	.00	1772	99.89
2	.09	2207	99.95	98.55 - 99.55		7	.39	1751	98.70
0	.00	2207	99.95	99.55 - 100.55		7	.39	1758	99.10
0	.00	2207	99.95	100.55 - 101.55		11	.62	1769	99.72
0	.00	2207	99.95	101.55 - 102.55		24	1.35	1728	97.41
0	.00	2207	99.95	102.55 - 103.55		16	.90	1744	98.31
1	.05	2208	100.00	103.55 - 104.55		7	.39	1751	98.70
				104.55 - 105.55		11	.62	1769	99.72
				105.55 - 106.55		2	.11	1771	99.83
				106.55 - 107.55		1	.06	1772	99.89
				107.55 - 108.55		0	.00	1772	99.89
				108.55 - 109.55		0	.00	1772	99.89
				109.55 - 110.55		0	.00	1772	99.89
				110.55 - 111.55		2	.11	1774	100.00

## (D25) NECK LINK

The vertical distance between the cervicale landmark at the base of the back of the neck and the tragion landmark on the cartilaginous flap of flesh in front of the earhole is calculated as follows: STATURE minus TRAGION-TOP OF HEAD minus CERVICALE HEIGHT.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
7.37	2.90	7.79	3.07
7.63	3.00	8.15	3.21
7.80	3.07	8.37	3.30
8.04	3.17	8.67	3.41
8.42	3.31	9.11	3.59
8.68	3.42	9.40	3.70
8.88	3.50	9.62	3.79
9.06	3.57	9.81	3.86
9.22	3.63	9.98	3.93
9.37	3.69	10.14	3.99
9.51	3.75	10.29	4.05
9.65	3.80	10.43	4.11
9.79	3.85	10.57	4.16
9.92	3.91	10.71	4.22
10.06	3.96	10.85	4.27
10.20	4.02	10.99	4.33
10.35	4.07	11.14	4.39
10.51	4.14	11.31	4.45
10.69	4.21	11.49	4.52
10.90	4.29	11.70	4.61
11.16	4.40	11.96	4.71
11.56	4.55	12.35	4.86
11.82	4.65	12.60	4.96
12.02	4.73	12.78	5.03
12.33	4.85	13.06	5.14

# NECK LINK

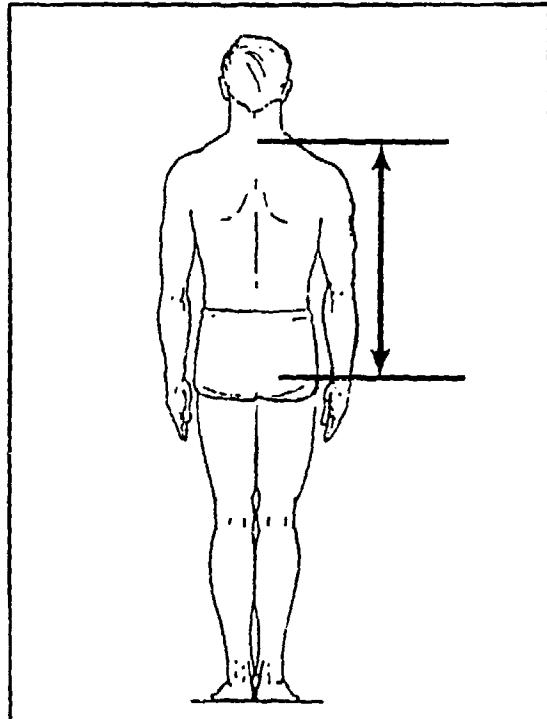
FEMALES		
CM	INCHES	
9.79	MEAN VALUE	3.86
.02	SE(MEAN)	.00
1.07	STD DEVIATION	.42
.02	SE(STD DEV)	.00
5.90	MINIMUM	2.32
13.30	MAXIMUM	5.24
SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	10.9%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	INCHES	
10.55	MEAN VALUE	4.15
.03	SE(MEAN)	.00
1.12	STD DEVIATION	.44
.02	SE(STD DEV)	.00
6.80	MINIMUM	2.68
14.60	MAXIMUM	5.75
SYMMETRY---VETA I	=	-.09
KURTOSIS---VETA II	=	3.13
COEF. OF VARIATION	=	10.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	5.75 - 5.95		2	.11
1	.05	2	.09	5.95 - 6.15		1	.06
1	.05	3	.14	6.15 - 6.35		2	.11
0	.00	3	.14	6.35 - 6.55		1	.11
1	.05	4	.18	6.55 - 6.75		4	.23
2	.09	6	.27	6.75 - 6.95		8	.45
6	.27	12	.54	6.95 - 7.15		9	.51
9	.41	21	.95	7.15 - 7.35		8	.45
13	.59	34	1.54	7.35 - 7.55		15	.85
24	1.09	58	2.63	7.55 - 7.75		26	1.47
38	1.72	96	4.35	7.75 - 7.95		28	1.58
33	1.49	129	5.84	7.95 - 8.15		32	1.80
60	2.72	189	8.56	8.15 - 8.35		49	2.76
82	3.71	271	12.27	8.35 - 8.55		119	6.71
92	4.17	363	16.44	8.55 - 8.75		136	7.67
115	5.21	478	21.65	8.75 - 8.95		111	6.26
129	5.84	607	27.49	8.95 - 9.15		108	6.09
152	6.88	759	34.38	9.15 - 9.35		49	3.04
165	7.47	924	41.85	9.35 - 9.55		54	5.30
153	6.93	1077	48.78	9.55 - 9.75		94	4.68
157	7.11	1234	55.89	9.75 - 9.95		83	5.92
165	7.47	1399	63.36	9.95 - 10.15		111	6.26
155	7.02	1554	70.38	10.15 - 10.35		116	6.54
142	6.43	1696	76.81	10.35 - 10.55		119	6.71
98	4.44	1794	81.25	10.55 - 10.75		136	7.67
100	4.53	1894	85.78	10.75 - 10.95		105	5.92
73	3.31	1967	89.09	10.95 - 11.15		128	7.22
74	3.35	2041	92.44	11.15 - 11.35		123	6.93
54	2.45	2095	94.88	11.35 - 11.55		97	5.47
36	1.63	2131	96.51	11.55 - 11.75		79	4.45
33	1.49	2164	98.01	11.75 - 11.95		49	2.76
11	.50	2175	98.51	11.95 - 12.15		53	2.99
10	.45	2185	98.96	12.15 - 12.35		47	2.65
9	.41	2194	99.37	12.35 - 12.55		28	1.58
2	.09	2196	99.46	12.55 - 12.75		25	1.41
5	.23	2201	99.68	12.75 - 12.95		12	.68
2	.09	2203	99.77	12.95 - 13.15		8	.45
5	.23	2208	100.00	13.15 - 13.35		4	.23
				13.35 - 13.55		4	.23
				13.55 - 13.75		2	.11
				13.75 - 13.95		2	.11
				13.95 - 14.15		1	.06
				14.15 - 14.35		1	.06
				14.35 - 14.55		0	.00
				14.55 - 14.75		1	.06
							100.00

## (D26) NECK-BUTTOCK LENGTH

The vertical distance between the cervicale landmark at the base of the back of the neck and the level of the maximum protrusion of the right buttock is calculated as follows:  
CERVICALE HEIGHT minus BUTTOCK HEIGHT.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
50.01	19.69	1ST	55.50 21.85
50.76	19.99	2ND	56.48 22.23
51.25	20.18	3RD	57.09 22.48
51.92	20.44	5TH	57.90 22.80
52.97	20.86	10TH	59.14 23.28
53.70	21.14	15TH	59.95 23.60
54.29	21.37	20TH	60.59 23.85
54.81	21.58	25TH	61.13 24.07
55.27	21.76	30TH	61.61 24.26
55.71	21.93	35TH	62.05 24.43
56.12	22.09	40TH	62.47 24.59
56.52	22.25	45TH	62.86 24.75
56.92	22.41	50TH	63.25 24.90
57.33	22.57	55TH	63.64 25.06
57.74	22.73	60TH	64.04 25.21
58.16	22.90	65TH	64.44 25.37
58.61	23.07	70TH	64.86 25.54
59.09	23.26	75TH	65.32 25.71
59.63	23.48	80TH	65.82 25.91
60.26	23.72	85TH	66.41 26.14
61.04	24.03	90TH	67.14 26.43
62.17	24.48	95TH	68.24 26.86
62.88	24.76	97TH	68.95 27.14
63.39	24.96	98TH	69.47 27.35
64.16	25.26	99TH	70.30 27.68

# NECK-BUTTOCK LENGTH

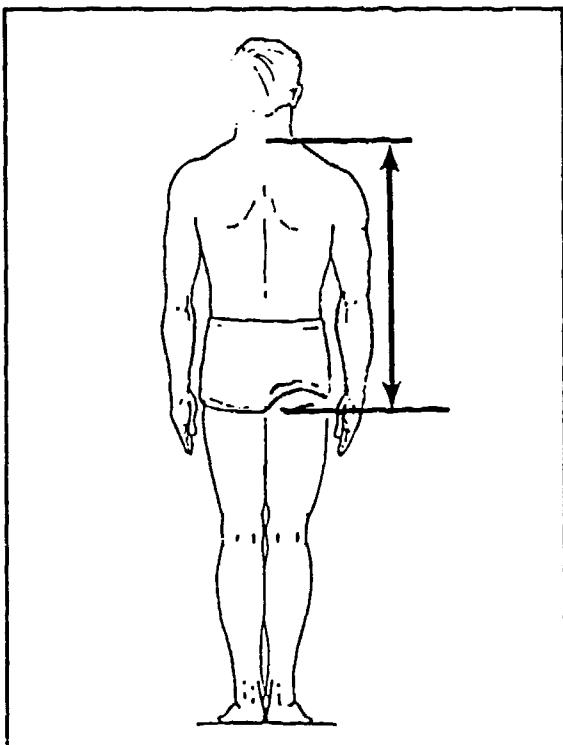
FEMALES		
<u>CM</u>	<u>INCHES</u>	
56.96	MEAN VALUE	22.43
.07	SE(MEAN)	.03
3.10	STD DEVIATION	1.22
.05	SE(STD DEV)	.02
47.80	MINIMUM	18.82
67.30	MAXIMUM	26.50
SYMMETRY---VETA I	=	.06
KURTOSIS---VETA II	=	2.79
COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
63.19	MEAN VALUE	24.88
.07	SE(MEAN)	.03
3.13	STD DEVIATION	1.23
.05	SE(STD DEV)	.02
52.70	MINIMUM	20.75
72.80	MAXIMUM	28.66
SYMMETRY---VETA I	=	-.10
KURTOSIS---VETA II	=	2.98
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
3	.14	3	.14	47.75 - 48.25				1	.06	1	.06
3	.14	6	.27	48.25 - 48.75				0	.00	1	.06
2	.09	8	.36	48.75 - 49.25				1	.06	2	.11
10	.45	18	.82	49.25 - 49.75				4	.23	6	.31
11	.50	29	1.31	49.75 - 50.25				2	.11	8	.45
11	.50	40	1.81	50.25 - 50.75				6	.34	14	.79
20	.91	60	2.72	50.75 - 51.25				8	.45	22	1.24
40	1.81	100	4.53	51.25 - 51.75				9	.51	31	1.75
43	1.95	143	6.48	51.75 - 52.25				9	.51	40	2.25
60	2.72	203	9.19	52.25 - 52.75				21	1.18	61	3.44
53	2.40	256	11.59	52.75 - 53.25				21	1.18	82	4.62
75	3.40	331	14.99	53.25 - 53.75				23	1.30	105	5.92
101	4.57	432	19.57	53.75 - 54.25				35	1.97	140	7.89
127	5.75	559	25.32	54.25 - 54.75				44	2.48	184	10.37
107	4.85	666	30.16	54.75 - 55.25				48	2.71	232	13.08
124	5.62	790	35.78	55.25 - 55.75				56	3.16	288	16.23
122	5.53	912	41.30	55.75 - 56.25				98	5.52	386	21.76
131	5.93	1043	47.24	56.25 - 56.75				83	4.68	469	26.44
147	6.66	1190	53.89	56.75 - 57.25				35	1.97	566	31.91
133	6.02	1323	59.92	57.25 - 57.75				97	5.47	1218	68.66
126	5.71	1449	65.63	57.75 - 58.25				114	6.43	1308	73.71
130	5.89	1579	71.51	58.25 - 58.75				90	5.07	1409	79.43
116	5.25	1695	76.77	58.75 - 59.25				77	5.52	1409	79.43
89	4.03	1784	80.80	59.25 - 59.75				77	4.34	1486	83.77
98	4.44	1882	85.24	59.75 - 60.25				51	2.87	1537	86.64
83	3.76	1965	88.99	60.25 - 60.75				64	3.61	1601	90.25
46	2.08	2011	91.08	60.75 - 61.25				49	2.76	1650	93.01
55	2.49	2066	93.57	61.25 - 61.75				37	2.09	1687	95.10
42	1.90	2108	95.47	61.75 - 62.25				26	1.47	1713	96.56
28	1.27	2136	96.74	62.25 - 62.75				25	1.41	1738	97.97
20	.91	2156	97.64	62.75 - 63.25				107	6.03	996	56.14
19	.86	2175	98.51	63.25 - 63.75				117	6.60	1113	62.74
14	.63	2189	99.14	63.75 - 64.25				105	5.92	1218	68.66
8	.36	2197	99.50	64.25 - 64.75				9	.51	1762	99.32
5	.23	2202	99.73	64.75 - 65.25				5	.28	1767	99.61
4	.18	2206	99.91	65.25 - 65.75				3	.17	1770	99.77
0	.03	2206	99.91	65.75 - 66.25				2	.11	1772	99.69
1	.05	2207	99.95	66.25 - 66.75				1	.06	1773	99.94
0	.00	2207	99.95	66.75 - 67.25				1	.06	1774	100.00
1	.05	2208	100.00	67.25 - 67.75							

## (D27) NECK-GLUTEAL FURROW LENGTH

The vertical distance between the cervicale landmark at the base of the back of the neck and the gluteal furrow landmark at the juncture of the right buttock with the back of the thigh is calculated as follows: CERVICALE HEIGHT minus GLUTEAL FURROW HEIGHT.



THE PERCENTILES			
FEMALES		MALES	
CM	INCHES	CM	INCHES
59.35	23.37	1ST	62.77 24.71
60.16	23.68	2ND	63.72 25.09
60.65	23.88	3RD	64.32 25.32
61.33	24.14	5TH	65.12 25.64
62.36	24.55	10TH	66.35 26.12
63.07	24.83	15TH	67.17 26.45
63.65	25.06	20TH	67.82 26.70
64.15	25.26	25TH	68.37 26.92
64.61	25.44	30TH	68.86 27.11
65.04	25.61	35TH	69.31 27.29
65.45	25.77	40TH	69.73 27.45
65.86	25.93	45TH	70.14 27.62
66.26	26.09	50TH	70.55 27.77
66.68	26.25	55TH	70.95 27.93
67.10	26.42	60TH	71.35 28.09
67.53	26.59	65TH	71.77 28.26
68.00	26.77	70TH	72.21 28.43
68.51	26.97	75TH	72.68 28.62
69.08	27.20	80TH	73.21 28.82
69.74	27.46	85TH	73.82 29.06
70.56	27.78	90TH	74.58 29.36
71.75	28.25	95TH	75.72 29.81
72.48	28.53	97TH	76.45 30.10
72.99	28.73	98TH	76.99 30.31
73.72	29.02	99TH	77.84 30.64

# NECK-GLUTEAL FURROW LENGTH

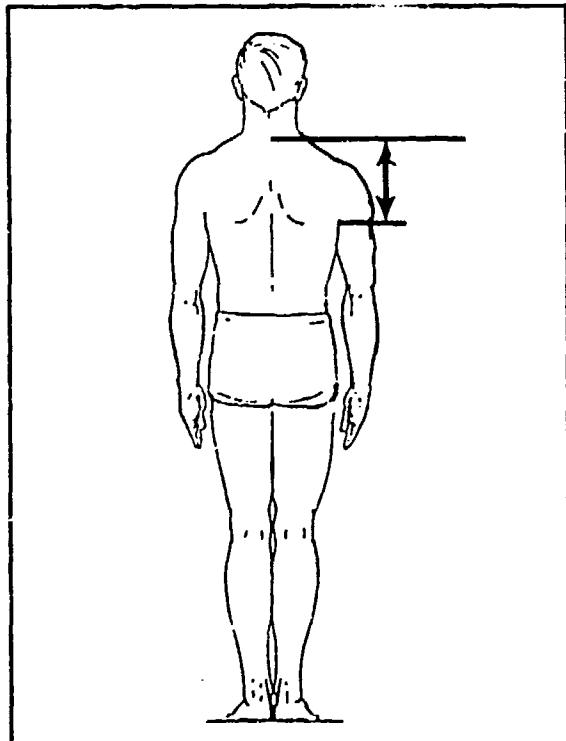
FEMALES		
CM	MEAN VALUE	INCHES
66.36	MEAN VALUE	26.13
.07	SE(MEAN)	.03
3.14	STD DEVIATION	1.24
.05	SE(STD DEV)	.02
56.90	MINIMUM	22.40
76.80	MAXIMUM	30.24
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	2.81
COEF. OF VARIATION	=	4.7%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
70.50	MEAN VALUE	27.75
.08	SE(MEAN)	.03
3.21	STD DEVIATION	1.26
.05	SE(STD DEV)	.02
59.90	MINIMUM	23.58
82.70	MAXIMUM	32.56
SYMMETRY---VETA I	=	-.08
KURTOSIS---VETA II	=	3.08
COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	56.75 - 57.25			
1	.05	3	.14	57.25 - 57.75			
5	.23	8	.36	57.75 - 58.25			
4	.18	12	.54	58.25 - 58.75			
7	.32	19	.86	58.75 - 59.25			
11	.50	30	1.36	59.25 - 59.75			
21	.95	51	2.31	59.75 - 60.25			
21	.95	72	3.26	60.25 - 60.75			
24	1.09	96	4.35	60.75 - 61.25			
42	1.90	138	6.25	61.25 - 61.75			
69	3.13	207	9.38	61.75 - 62.25			
69	3.13	276	12.50	62.25 - 62.75			
84	3.80	360	16.30	62.75 - 63.25			
93	4.21	453	20.52	63.25 - 63.75			
123	5.57	576	26.09	63.75 - 64.25			
133	6.02	709	32.11	64.25 - 64.75			
132	5.98	841	38.09	64.75 - 65.25			
125	5.66	966	43.75	65.25 - 65.75			
146	6.61	1112	50.36	65.75 - 66.25			
110	4.98	1222	55.34	66.25 - 66.75			
123	5.57	1345	60.91	66.75 - 67.25			
138	6.25	1483	67.16	67.25 - 67.75			
118	5.34	1601	72.51	67.75 - 68.25			
103	4.66	1704	77.17	68.25 - 68.75			
94	4.26	1798	81.43	68.75 - 69.25			
93	4.21	1891	85.64	69.25 - 69.75			
69	3.13	1960	88.77	69.75 - 70.25			
51	2.31	2011	91.08	70.25 - 70.75			
59	2.67	2070	93.75	70.75 - 71.25			
27	1.22	2097	94.97	71.25 - 71.75			
34	1.54	2131	96.51	71.75 - 72.25			
23	1.04	2154	97.55	72.25 - 72.75			
17	.77	2171	98.32	72.75 - 73.25			
17	.77	2188	99.09	73.25 - 73.75			
7	.32	2195	99.41	73.75 - 74.25			
7	.32	2202	99.73	74.25 - 74.75			
1	.05	2203	99.77	74.75 - 75.25			
3	.14	2206	99.91	75.25 - 75.75			
1	.05	2207	99.95	75.75 - 76.25			
0	.00	2207	99.95	76.25 - 76.75			
1	.05	2208	100.00	76.75 - 77.25			
				77.25 - 77.75			
				77.75 - 78.25			
				78.25 - 78.75			
				78.75 - 79.25			
				79.25 - 79.75			
				79.75 - 80.25			
				80.25 - 80.75			
				80.75 - 81.25			
				81.25 - 81.75			
				81.75 - 82.25			
				82.25 - 82.75			
				82.75 - 83.25			
				83.25 - 83.75			
				83.75 - 84.25			
				84.25 - 84.75			
				84.75 - 85.25			
				85.25 - 85.75			
				85.75 - 86.25			
				86.25 - 86.75			
				86.75 - 87.25			
				87.25 - 87.75			
				87.75 - 88.25			
				88.25 - 88.75			
				88.75 - 89.25			
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				90.75 - 91.25			
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				92.25 - 92.75			
				92.75 - 93.25			
				93.25 - 93.75			
				93.75 - 94.25			
				94.25 - 94.75			
				94.75 - 95.25			
				95.25 - 95.75			
				95.75 - 96.25			
				96.25 - 96.75			
				96.75 - 97.25			
				97.25 - 97.75			
				97.75 - 98.25			
				98.25 - 98.75			
				98.75 - 99.25			
				99.25 - 99.75			
				99.75 - 100.25			

## (D28) NECK-SCYE LENGTH

The vertical distance between the cervicale landmark at the base of the neck and the anterior scye landmark at the bottom of the axillary fold is calculated as follows:  
CERVICALE HEIGHT minus AXILLA HEIGHT.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
14.36	5.65	1ST	16.67 6.56
14.75	5.81	2ND	17.01 6.70
14.99	5.90	3RD	17.24 6.79
15.30	6.02	5TH	17.55 6.91
15.77	6.21	10TH	18.04 7.10
16.08	6.33	15TH	18.37 7.23
16.33	6.43	2 TH	18.64 7.34
16.54	6.51	25TH	18.87 7.43
16.73	6.59	30TH	19.08 7.51
16.91	6.66	35TH	19.28 7.59
17.08	6.72	40TH	19.46 7.66
17.25	6.79	45TH	19.64 7.73
17.41	6.86	50TH	19.82 7.80
17.58	6.92	55TH	20.00 7.87
17.75	6.99	60TH	20.18 7.94
17.93	7.06	65TH	20.37 8.02
18.12	7.13	70TH	20.57 8.10
18.32	7.21	75TH	20.78 8.18
18.55	7.31	80TH	21.02 8.28
18.82	7.41	85TH	21.31 8.39
19.16	7.54	90TH	21.67 8.53
19.65	7.74	95TH	22.22 8.75
19.96	7.86	97TH	22.59 8.89
20.18	7.94	98TH	22.87 9.00
20.50	8.07	99TH	23.32 9.18

# NECK-SCYE LENGTH

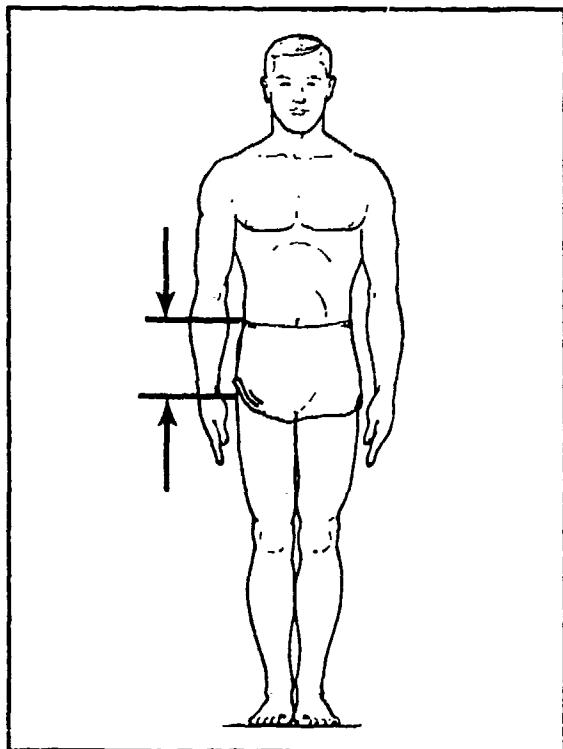
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
17.43	MEAN VALUE	6.86
.03	SE(MEAN)	.00
1.32	STD DEVIATION	.52
.02	SE(STD DEV)	.00
12.10	MINIMUM	4.76
21.40	MAXIMUM	8.43
SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	3.00
COEF. OF VARIATION	=	7.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
19.85	MEAN VALUE	7.82
.03	SE(MEAN)	.00
1.42	STD DEVIATION	.56
.02	SE(STD DEV)	.00
14.90	MINIMUM	5.87
27.30	MAXIMUM	10.75
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.36
COEF. OF VARIATION	=	7.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	
1	.05	1	.05	11.75 - 12.25				
1	.05	2	.09	12.25 - 12.75				
0	.00	2	.09	12.75 - 13.25				
4	.18	6	.27	13.25 - 13.75				
10	.45	16	.72	13.75 - 14.25				
29	1.31	45	2.04	14.25 - 14.75				
66	2.99	111	5.03	14.75 - 15.25				
94	4.26	205	9.28	15.25 - 15.75				
197	8.92	402	18.21	15.75 - 16.25				
270	12.23	672	30.43	16.25 - 16.75	1	.06	1	.06
306	13.86	978	44.29	16.75 - 17.25	1	.06	2	.11
354	16.03	1332	60.33	17.25 - 17.75	5	.28	7	.39
298	13.50	1630	73.82	17.75 - 18.25	124	6.99	21	1.18
218	9.87	1848	83.70	18.25 - 18.75	152	8.57	34	3.10
169	7.65	2017	91.35	18.75 - 19.25	211	11.89	602	33.93
100	4.53	2117	95.88	19.25 - 19.75	261	14.71	863	48.65
51	2.31	2168	98.19	19.75 - 20.25	238	13.42	1101	62.06
28	1.27	2196	99.46	20.25 - 20.75	208	11.72	1309	73.79
11	.50	2207	99.95	20.75 - 21.25	178	10.03	1487	83.82
1	.05	2208	100.00	21.25 - 21.75	122	5.88	1609	90.70
				21.75 - 22.25	75	4.23	1684	94.93
				22.25 - 22.75	52	2.93	1736	97.86
				22.75 - 23.25	18	1.01	1754	98.87
				23.25 - 23.75	12	.68	1766	99.55
				23.75 - 24.25	3	.17	1769	99.72
				24.25 - 24.75	3	.17	1772	99.89
				24.75 - 25.25	1	.06	1773	99.94
				25.25 - 25.75	0	.00	1773	99.94
				25.75 - 26.25	0	.00	1773	99.94
				26.25 - 26.75	0	.00	1773	99.94
				26.75 - 27.25	0	.00	1773	99.94
				27.25 - 27.75	1	.0t	1774	100.00

## (D29) PELVIC LINK

The vertical distance between the iliocristale landmark on the right side of the pelvis and the level of the trochanterion landmark on the right hip is calculated as follows:  
ILIOCISTALE HEIGHT minus TROCHANTERION HEIGHT.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
9.05	3.56	1ST	10.76	4.24	
9.53	3.75	2ND	11.27	4.44	
9.83	3.87	3RD	11.57	4.56	
10.22	4.02	5TH	11.97	4.71	
10.81	4.25	10TH	12.54	4.94	
11.19	4.40	15TH	12.92	5.09	
11.48	4.52	20TH	13.22	5.20	
11.73	4.62	25TH	13.47	5.30	
11.95	4.71	30TH	13.70	5.39	
12.16	4.79	35TH	13.91	5.48	
12.35	4.86	40TH	14.11	5.56	
12.53	4.93	45TH	14.30	5.63	
12.72	5.01	50TH	14.50	5.71	
12.90	5.08	55TH	14.69	5.78	
13.09	5.15	60TH	14.89	5.86	
13.28	5.23	65TH	15.10	5.94	
13.49	5.31	70TH	15.32	6.03	
13.71	5.40	75TH	15.55	6.12	
13.96	5.50	80TH	15.82	6.23	
14.26	5.61	85TH	16.13	6.35	
14.65	5.77	90TH	16.52	6.50	
15.24	6.00	95TH	17.08	6.72	
15.65	6.16	97TH	17.43	6.86	
15.96	6.28	98TH	17.68	6.96	
16.47	6.48	99TH	18.04	7.10	

# PELVIC LINK

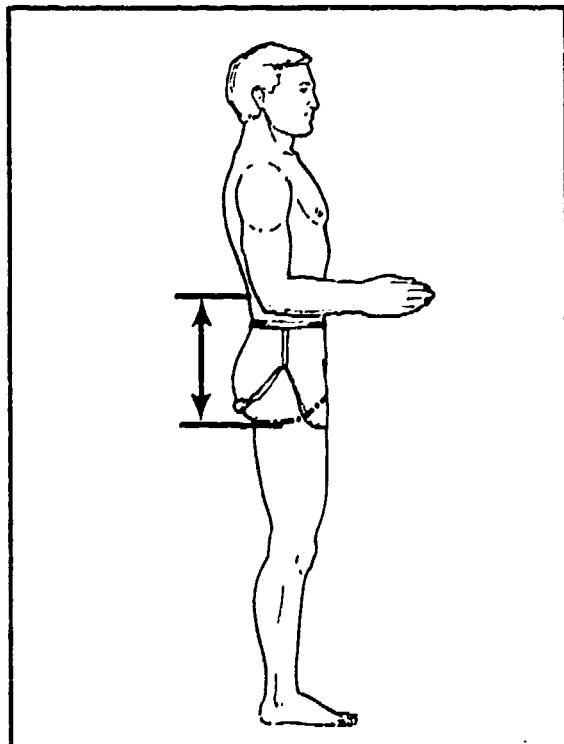
FEMALES		
	<u>CM</u>	<u>INCHES</u>
12.72	MEAN VALUE	5.01
.03	SE(MEAN)	.00
1.52	STD DEVIATION	.60
.02	SE(STD DEV)	.00
8.10	MINIMUM	3.19
18.10	MAXIMUM	7.13
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.21
COEF. OF VARIATION	=	11.9%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
14.51	MEAN VALUE	5.71
.04	SE(MEAN)	.00
1.56	STD DEVIATION	.61
.03	SE(STD DEV)	.00
7.10	MINIMUM	2.80
20.60	MAXIMUM	8.11
SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	3.26
COEF. OF VARIATION	=	10.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumP	CumPPct	CENTIMETERS				F	FPct	CumP	CumPPct
3	.14	3	.14	6.75 - 7.25	7.25 - 7.75	7.75 - 8.25	8.25 - 8.75	1	.06	1	.06
7	.12	10	.45	8.25 - 8.75	8.75 - 9.25	9.25 - 9.75	9.75 - 10.25	0	.00	0	.00
21	.35	31	1.40	10.25 - 10.75	10.75 - 11.25	11.25 - 11.75	11.75 - 12.25	2	.11	2	.11
33	1.49	64	2.90	12.25 - 12.75	12.75 - 13.25	13.25 - 13.75	13.75 - 14.25	4	.23	4	.23
61	2.76	125	5.66	14.25 - 14.75	14.75 - 15.25	15.25 - 15.75	15.75 - 16.25	9	.51	9	.51
81	3.67	206	9.33	16.25 - 16.75	16.75 - 17.25	17.25 - 17.75	17.75 - 18.25	16	.90	16	.90
133	6.02	339	15.35	18.25 - 18.75	18.75 - 19.25	19.25 - 19.75	19.75 - 20.25	21	1.18	21	1.18
213	9.65	552	25.00	20.25 - 20.75	20.75 - 21.25	21.25 - 21.75	21.75 - 22.25	33	1.86	33	1.86
283	12.82	835	37.82	22.25 - 22.75	22.75 - 23.25	23.25 - 23.75	23.75 - 24.25	54	3.04	54	3.04
296	13.41	1131	51.22	24.25 - 24.75	24.75 - 25.25	25.25 - 25.75	25.75 - 26.25	99	5.58	99	5.58
279	12.64	1410	63.86	26.25 - 26.75	26.75 - 27.25	27.25 - 27.75	27.75 - 28.25	120	6.76	120	6.76
285	12.91	1695	76.77	28.25 - 28.75	28.75 - 29.25	29.25 - 29.75	29.75 - 30.25	215	12.12	215	12.12
177	8.02	1872	84.78	30.25 - 30.75	30.75 - 31.25	31.25 - 31.75	31.75 - 32.25	199	11.22	199	11.22
146	6.61	2018	91.39	32.25 - 32.75	32.75 - 33.25	33.25 - 33.75	33.75 - 34.25	240	13.53	240	13.53
84	3.80	2102	95.20	34.25 - 34.75	34.75 - 35.25	35.25 - 35.75	35.75 - 36.25	234	13.19	234	13.19
47	2.13	2149	97.33	36.25 - 36.75	36.75 - 37.25	37.25 - 37.75	37.75 - 38.25	178	10.03	178	10.03
27	1.22	2176	98.55	38.25 - 38.75	38.75 - 39.25	39.25 - 39.75	39.75 - 40.25	118	6.65	118	6.65
20	.91	2196	99.46	40.25 - 40.75	40.75 - 41.25	41.25 - 41.75	41.75 - 42.25	105	5.92	105	5.92
7	.32	2203	99.77	42.25 - 42.75	42.75 - 43.25	43.25 - 43.75	43.75 - 44.25	67	3.78	67	3.78
2	.09	2205	99.86	44.25 - 44.75	44.75 - 45.25	45.25 - 45.75	45.75 - 46.25	46	2.59	46	2.59
3	.14	2208	100.00	46.25 - 46.75	46.75 - 47.25	47.25 - 47.75	47.75 - 48.25	19	1.07	19	1.07
				48.25 - 48.75	48.75 - 49.25	49.25 - 49.75	49.75 - 50.25	7	.39	7	.39
				50.25 - 50.75	50.75 - 51.25	51.25 - 51.75	51.75 - 52.25	2	.11	2	.11
				52.25 - 52.75	52.75 - 53.25	53.25 - 53.75	53.75 - 54.25	0	.00	0	.00
				54.25 - 54.75	54.75 - 55.25	55.25 - 55.75	55.75 - 56.25	1771	99.83	1771	99.83
				56.25 - 56.75	56.75 - 57.25	57.25 - 57.75	57.75 - 58.25	1773	99.94	1773	99.94
				58.25 - 58.75	58.75 - 59.25	59.25 - 59.75	59.75 - 60.25	1773	99.94	1773	99.94
				60.25 - 60.75	60.75 - 61.25	61.25 - 61.75	61.75 - 62.25	1	.06	1	.06
				62.25 - 62.75	62.75 - 63.25	63.25 - 63.75	63.75 - 64.25	1774	100.00	1774	100.00

## (D30) RISE (NATURAL INDENTATION)

The vertical distance between the level of the waist at its natural indentation and the crotch of a subject standing erect is calculated as follows: WAIST HEIGHT (NATURAL INDENTATION) minus CROTCH HEIGHT.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
22.92	9.02	1ST	24.20 9.53
23.66	9.32	2ND	24.75 9.74
24.11	9.49	3RD	25.10 9.88
24.68	9.72	5TH	25.58 10.07
25.53	10.05	10TH	26.31 10.36
26.09	10.27	15TH	26.81 10.55
26.53	10.44	20TH	27.20 10.71
26.91	10.59	25TH	27.54 10.84
27.25	10.73	30TH	27.84 10.96
27.57	10.85	35TH	28.13 11.07
27.88	10.98	40TH	28.39 11.18
28.18	11.09	45TH	28.65 11.28
28.48	11.21	50TH	28.91 11.38
28.78	11.33	55TH	29.17 11.49
29.09	11.45	60TH	29.44 11.59
29.41	11.58	65TH	29.72 11.70
29.75	11.71	70TH	30.02 11.82
30.12	11.86	75TH	30.34 11.95
30.54	12.03	80TH	30.71 12.09
31.03	12.22	85TH	31.16 12.27
31.64	12.45	90TH	31.74 12.50
32.51	12.80	95TH	32.65 12.86
33.04	13.01	97TH	33.29 13.11
33.41	13.15	98TH	33.78 13.30
33.93	13.36	99TH	34.61 13.63

# RISE (NATURAL INDENTATION)

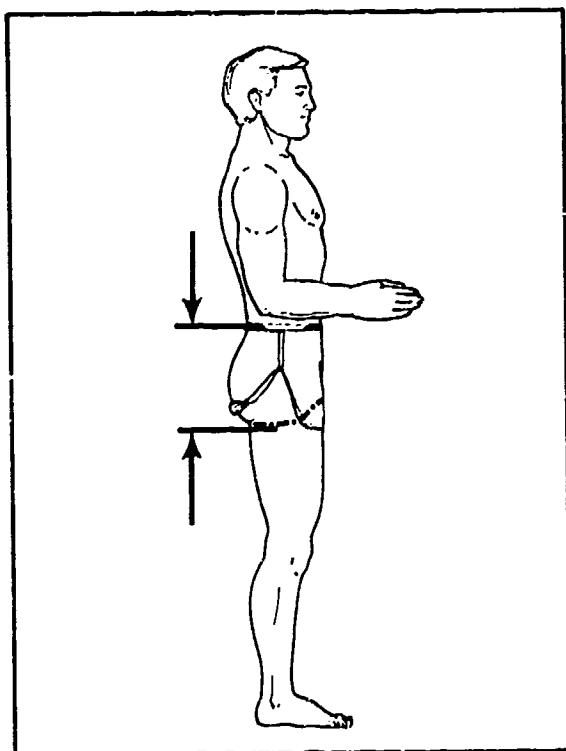
FEMALES	
CM	INCHES
28.52	MEAN VALUE      11.23
.05	SE(MEAN)      .02
2.37	STD DEVIATION    .93
.04	SE(STD DEV)    .00
19.60	MINIMUM      7.72
37.50	MAXIMUM      14.76
SYMMETRY---VETA I	= .03
KURTOSIS---VETA II	= 3.01
COEF. OF VARIATION	= 8.3%
NUMBER OF SUBJECTS	= 2208

MALES	
CM	INCHES
28.99	MEAN VALUE      11.41
.05	SE(MEAN)      .02
2.15	STD DEVIATION    .84
.04	SE(STD DEV)    .00
22.00	MINIMUM      8.66
37.80	MAXIMUM      14.88
SYMMETRY---VETA I	= .25
KURTOSIS---VETA II	= 3.36
COEF. OF VARIATION	= 7.4%
NUMBER OF SUBJECTS	= 1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	19.25 - 19.75		1	.06
0	.00	1	.05	19.75 - 20.25		2	.11
0	.00	1	.05	20.25 - 20.75		1	.06
0	.00	1	.05	20.75 - 21.25		5	.28
5	.23	6	.27	21.25 - 21.75		10	.56
1	.05	7	.32	21.75 - 22.25		32	1.80
10	.45	17	.77	22.25 - 22.75		41	2.31
16	.72	33	1.49	22.75 - 23.25		52	2.93
11	.50	44	1.99	23.25 - 23.75		92	5.19
35	1.59	79	3.58	23.75 - 24.25		104	5.86
44	1.99	123	5.57	24.25 - 24.75		145	8.17
61	2.76	184	8.33	24.75 - 25.25		161	9.08
80	3.62	264	11.96	25.25 - 25.75		176	9.92
101	4.57	365	16.52	25.75 - 26.25		178	10.03
130	5.89	495	22.42	26.25 - 26.75		154	8.68
150	6.79	645	29.21	26.75 - 27.25		130	7.33
178	8.06	823	37.27	27.25 - 27.75		125	7.05
188	8.51	1011	45.79	27.75 - 28.25		94	5.30
208	9.42	1219	55.21	28.25 - 28.75		145	8.17
175	7.93	1394	63.13	28.75 - 29.25		166	9.92
160	7.25	1554	70.38	29.25 - 29.75		176	9.92
137	6.20	1691	76.59	29.75 - 30.25		178	10.03
129	5.84	1820	82.43	30.25 - 30.75		154	8.68
111	5.03	1931	87.45	30.75 - 31.25		130	7.33
77	3.49	2008	90.94	31.25 - 31.75		125	7.05
62	2.81	2070	93.75	31.75 - 32.25		94	5.30
45	2.04	2115	95.79	32.25 - 32.75		151	8.17
40	1.81	2155	97.60	32.75 - 33.25		166	9.92
27	1.22	2182	98.82	33.25 - 33.75		176	9.92
14	.63	2196	99.46	33.75 - 34.25		178	10.03
4	.18	2200	99.64	34.25 - 34.75		154	8.68
4	.18	2204	99.82	34.75 - 35.25		130	7.33
1	.05	2205	99.86	35.25 - 35.75		125	7.05
1	.05	2206	99.91	35.75 - 36.25		94	5.30
1	.05	2207	99.95	36.25 - 36.75		151	8.17
0	.00	2207	99.95	36.75 - 37.25		166	9.92
1	.05	2208	100.00	37.25 - 37.75		176	9.92
				37.75 - 38.25		178	10.03

## (D31) RISE (OMPHALION)

The vertical distance between the level of the waist at the navel (omphalion) and the crotch of a subject standing erect is calculated as follows: WAIST HEIGHT (OMPHALION) minus CROTCH HEIGHT.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
16.65	6.55	17.99	7.08
17.21	6.78	18.43	7.26
17.56	6.91	18.73	7.37
18.02	7.10	19.15	7.54
18.72	7.37	19.82	7.80
19.18	7.55	20.28	7.98
19.54	7.69	20.64	8.12
19.85	7.82	20.95	8.25
20.13	7.93	21.22	8.36
20.38	8.02	21.48	8.45
20.62	8.12	21.71	8.55
20.86	8.21	21.94	8.64
21.08	8.30	22.17	8.73
21.31	8.39	22.39	8.81
21.55	8.48	22.61	8.90
21.79	8.58	22.84	8.99
22.04	8.68	23.09	9.09
22.31	8.78	23.35	9.19
22.62	8.91	23.64	9.31
22.98	9.05	23.99	9.44
23.43	9.23	24.43	9.62
24.11	9.49	25.12	9.89
24.56	9.67	25.59	10.08
24.89	9.80	25.97	10.22
25.41	10.01	26.60	10.47

# RISE (OMPHALION)

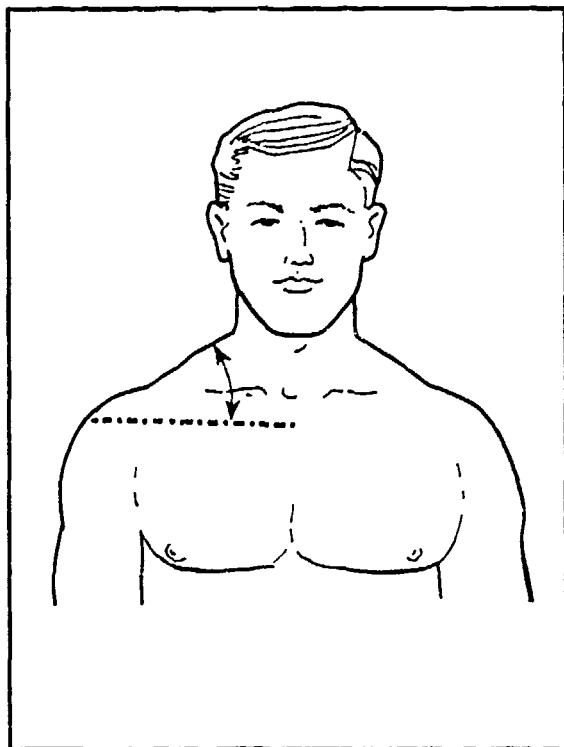
FEMALES		
<u>CM</u>	<u>INCHES</u>	
21.08	MEAN VALUE	8.30
.04	SE(MEAN)	.02
1.85	STD DEVIATION	.73
.03	SE(STD DEV)	.00
13.70	MINIMUM	5.39
27.60	MAXIMUM	10.87
SYMMETRY---VETA I	=	-.04
KURTOSIS---VETA II	=	3.20
COEF. OF VARIATION	=	8.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
22.16	MEAN VALUE	8.72
.04	SE(MEAN)	.02
1.81	STD DEVIATION	.71
.03	SE(STD DEV)	.00
16.90	MINIMUM	6.65
29.10	MAXIMUM	11.46
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.13
COEF. OF VARIATION	=	8.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	13.25 - 13.75			
1	.05	2	.09	13.75 - 14.25			
1	.05	3	.14	14.25 - 14.75			
0	.00	3	.14	14.75 - 15.25			
4	.18	7	.32	15.25 - 15.75			
4	.18	11	.50	15.75 - 16.25			
13	.59	24	1.09	16.25 - 16.75			
27	1.22	51	2.31	16.75 - 17.25		6	.34
31	1.40	82	3.71	17.25 - 17.75		9	.51
56	2.54	138	6.25	17.75 - 18.25		7	.39
81	3.67	219	9.92	18.25 - 18.75		36	2.03
127	5.75	346	15.67	18.75 - 19.25		44	2.48
156	7.07	502	22.74	19.25 - 19.75		55	3.10
208	9.42	710	32.16	19.75 - 20.25		85	4.79
229	10.37	939	42.53	20.25 - 20.75		137	7.72
244	11.05	1183	53.58	20.75 - 21.25		186	10.48
252	11.41	1435	64.99	21.25 - 21.75		174	9.81
195	8.83	1630	73.82	21.75 - 22.25		175	9.86
181	8.20	1811	82.02	22.25 - 22.75		206	11.61
131	5.93	1942	87.95	22.75 - 23.25		172	9.70
113	5.12	2055	93.07	23.25 - 23.75		136	7.67
61	2.76	2116	95.83	23.75 - 24.25		131	7.38
37	1.68	2153	97.51	24.25 - 24.75		87	4.90
25	1.13	2178	98.64	24.75 - 25.25		52	2.93
18	.82	2196	99.46	25.25 - 25.75		36	2.03
6	.27	2202	99.73	25.75 - 26.25		14	.79
3	.14	2205	99.86	26.25 - 26.75		8	.45
2	.09	2207	99.95	26.75 - 27.25		10	.56
1	.05	2208	100.00	27.25 - 27.75		3	.17
				27.75 - 28.25		3	.17
				28.25 - 28.75		0	.00
				28.75 - 29.25		4	.11

## (D32) SHOULDER SLOPE

The degree of the slope of the right shoulder of a subject standing erect with the arms relaxed at the sides is calculated as follows: Arcsin of the quotient: (NECK HEIGHT, LATERAL minus ACROMIAL HEIGHT) divided by SHOULDER LENGTH.



THE PERCENTILES

FEMALES		MALES		
DEGREES	RADIANS	DEGREES	RADIANS	
16.25	.28	1ST	17.70	.31
17.44	.30	2ND	18.57	.32
18.18	.32	3RD	19.15	.33
19.19	.33	5TH	19.98	.35
20.70	.36	10TH	21.32	.37
21.71	.38	15TH	22.27	.39
22.49	.39	20TH	23.03	.40
23.16	.40	25TH	23.69	.41
23.76	.41	30TH	24.30	.42
24.30	.42	35TH	24.85	.43
24.82	.43	40TH	25.39	.44
25.31	.44	45TH	25.90	.45
25.79	.45	50TH	26.41	.46
26.28	.46	55TH	26.93	.47
26.76	.47	60TH	27.44	.48
27.27	.48	65TH	27.97	.49
27.79	.49	70TH	28.53	.50
28.36	.49	75TH	29.14	.51
28.99	.51	80TH	29.80	.52
29.73	.52	85TH	30.57	.53
30.66	.54	90TH	31.52	.55
32.04	.56	95TH	32.90	.57
32.95	.58	97TH	33.76	.59
33.62	.59	98TH	34.38	.60
34.70	.61	99TH	35.33	.62

# SHOULDER SLOPE

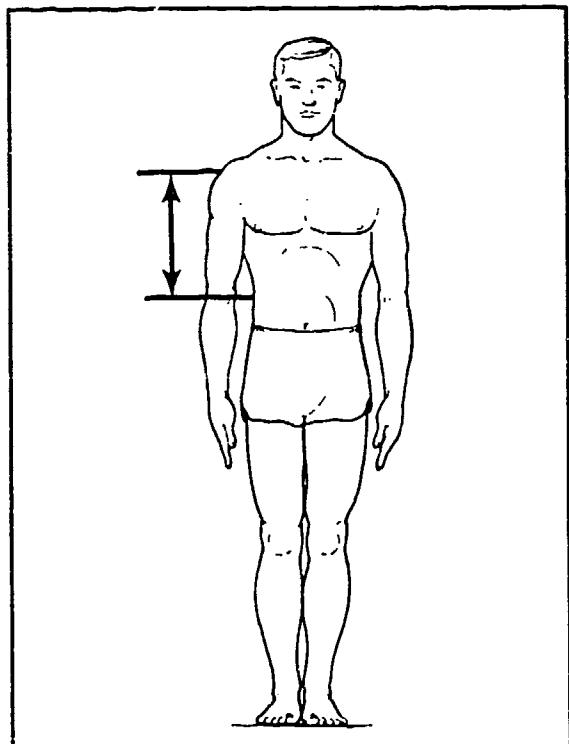
FEMALES		
<u>DEGREES</u>	<u>RADIANS</u>	
25.74	MEAN VALUE .45	
.08	SE(MEAN) .00	
3.88	STD DEVIATION .07	
.06	SE(STD DEV) .00	
12.00	MINIMUM .21	
40.00	MAXIMUM .70	
SYMMETRY---VETA I	= -.05	
KURTOSIS---VETA II	= 3.04	
COEF. OF VARIATION	= 15.1%	
NUMBER OF SUBJECTS	= 22C8	

MALES		
<u>DEGREES</u>	<u>RADIANS</u>	
26.42	MEAN VALUE .46	
.09	SE(MEAN) .00	
3.96	STD DEVIATION .07	
.07	SE(STD DEV) .00	
10.00	MINIMUM .17	
42.00	MAXIMUM .73	
SYMMETRY---VETA I	= -.02	
KURTOSIS---VETA II	= 3.12	
COEF. OF VARIATION	= 15.0%	
NUMBER OF SUBJECTS	= 1774	

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	DEGREES	F	FPct	CumF
2	.09	2	.09	2.25 - 2.35			
4	.18	6	.27	2.35 - 2.45			
7	.32	13	.59	2.45 - 2.55			
24	1.09	37	1.68	2.55 - 2.65			
55	2.49	92	4.17	2.65 - 2.75			
92	4.17	184	8.33	2.75 - 2.85			
145	6.57	329	14.90	2.85 - 2.95			
176	7.97	505	22.87	2.95 - 3.05			
189	8.56	694	31.43	3.05 - 3.15			
179	8.11	873	39.54	3.15 - 3.25			
175	7.93	1048	47.46	3.25 - 3.35			
121	5.48	1169	52.94	3.35 - 3.45			
142	6.43	1311	59.38	3.45 - 3.55			
127	5.75	1438	65.13	3.55 - 3.65			
129	5.84	1567	70.97	3.65 - 3.75			
138	6.25	1705	77.22	3.75 - 3.85			
112	5.07	1817	82.29	3.85 - 3.95			
101	4.57	1918	86.87	3.95 - 4.05			
95	4.30	2013	91.17	4.05 - 4.15			
69	3.13	2082	94.29	4.15 - 4.25			
55	2.49	2137	96.78	4.25 - 4.35			
34	1.54	2171	98.32	4.35 - 4.45			
23	1.04	2194	99.37	4.45 - 4.55			
5	.23	2199	99.59	4.55 - 4.65			
3	.14	2202	99.73	4.65 - 4.75			
5	.23	2207	99.95	4.75 - 4.85			
0	.00	2207	99.95	4.85 - 4.95			
1	.05	2208	100.00	4.95 - 5.05			
				5.05 - 5.15			
				5.15 - 5.25			
				5.25 - 5.35			

## (D33) SHOULDER-WAIST LENGTH (NATURAL INDENTATION)

The vertical distance between the acromion landmark on the tip of the right shoulder and the level of the waist at its natural indentation of a subject standing erect is calculated as follows: ACROMIAL HEIGHT minus WAIST HEIGHT (NATURAL INDENTATION).



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
22.33	8.79	1ST	26.40 10.40
23.08	9.09	2ND	26.95 10.61
23.51	9.25	3RD	27.32 10.75
24.05	9.47	5TH	27.82 10.95
24.82	9.77	10TH	28.62 11.27
25.33	9.97	15TH	29.17 11.48
25.72	10.13	20TH	29.61 11.66
26.07	10.26	25TH	29.99 11.81
26.39	10.39	30TH	30.33 11.94
26.69	10.51	35TH	30.65 12.07
26.98	10.62	40TH	30.95 12.19
27.27	10.73	45TH	31.24 12.30
27.56	10.85	50TH	31.53 12.41
27.86	10.97	55TH	31.82 12.53
28.17	11.09	60TH	32.11 12.64
28.49	11.22	65TH	32.41 12.76
28.85	11.36	70TH	32.72 12.88
29.24	11.51	75TH	33.07 13.02
29.69	11.69	80TH	33.45 13.17
30.21	11.90	85TH	33.90 13.35
30.89	12.16	90TH	34.46 13.57
31.89	12.55	95TH	35.31 13.90
32.51	12.80	97TH	35.86 14.12
32.95	12.97	98TH	36.28 14.28
33.60	13.23	99TH	36.95 14.55

# SHOULDER-WAIST LENGTH (NATURAL INDENTATION)

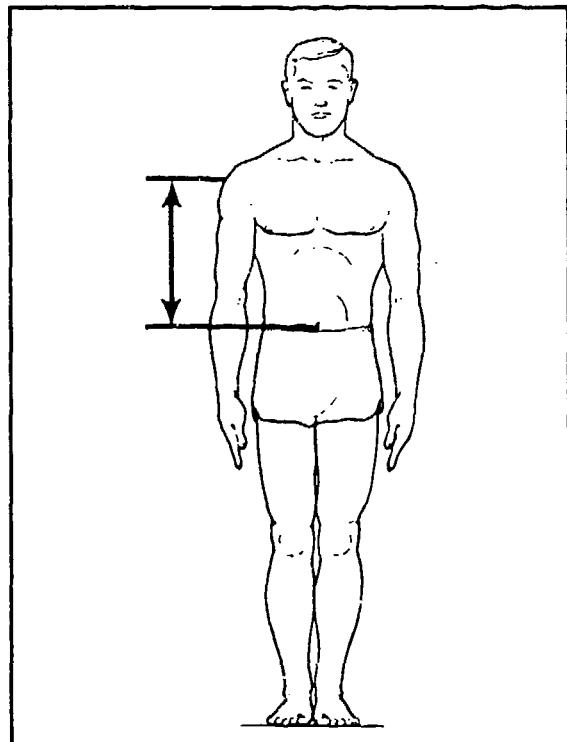
FEMALES		
<u>CM</u>	<u>INCHES</u>	
27.70	MEAN VALUE	10.91
.05	SE(MEAN)	.02
2.39	STD DEVIATION	.94
.04	SE(STD DEV)	.00
18.00	MINIMUM	7.09
37.00	MAXIMUM	14.57
SYMMETRY---VETA I	=	.24
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	8.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
31.54	MEAN VALUE	12.42
.05	SE(MEAN)	.02
2.26	STD DEVIATION	.89
.04	SE(STD DEV)	.00
24.40	MINIMUM	9.61
38.80	MAXIMUM	15.28
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	2.88
COEF. OF VARIATION	=	7.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	17.75 - 18.25		1	.06
0	.00	1	.05	18.25 - 18.75		0	.01
0	.00	1	.05	18.75 - 19.25		6	.34
0	.00	1	.05	19.25 - 19.75		5	.28
0	.00	1	.05	19.75 - 20.25		16	.90
2	.09	3	.14	20.25 - 20.75		30	1.69
3	.14	6	.27	20.75 - 21.25		58	.58
3	.14	9	.41	21.25 - 21.75		12	.68
12	.54	21	.95	21.75 - 22.25		1	.06
7	.32	28	1.27	22.25 - 22.75		1	.06
21	.95	49	2.22	22.75 - 23.25		7	.39
36	1.63	85	3.85	23.25 - 23.75		28	1.58
56	2.54	141	6.39	23.75 - 24.25		140	7.89
63	2.85	204	9.24	24.25 - 24.75		192	10.82
111	5.03	315	14.27	24.75 - 25.25		266	14.99
127	5.75	442	20.02	25.25 - 25.75		368	20.74
158	7.16	600	27.17	25.75 - 26.25		520	29.31
194	8.79	794	35.96	26.25 - 26.75		667	37.60
194	8.79	988	44.75	26.75 - 27.25		820	46.22
201	9.10	1189	53.85	27.25 - 27.75		954	53.78
159	7.20	1348	61.05	27.75 - 28.25		1108	62.46
164	7.43	1512	68.48	28.25 - 28.75		1239	69.84
145	6.57	1657	75.05	28.75 - 29.25		1368	77.11
139	6.30	1796	81.34	29.25 - 29.75		1472	82.98
91	4.12	1887	85.46	29.75 - 30.25		1570	88.50
91	4.12	1978	89.58	30.25 - 30.75		1638	92.33
54	2.45	2032	92.03	30.75 - 31.25		1678	94.59
50	2.26	2082	94.29	31.25 - 31.75		1715	96.67
39	1.77	2121	96.06	31.75 - 32.25		1741	98.14
34	1.54	2155	97.60	32.25 - 32.75		1752	98.76
22	1.00	2177	98.60	32.75 - 33.25		1762	99.32
14	.63	2191	99.23	33.25 - 33.75		1767	99.61
5	.23	2196	99.46	33.75 - 34.25		1771	99.83
6	.27	2202	99.73	34.25 - 34.75		1773	99.94
0	.00	2202	99.73	34.75 - 35.25		1774	100.00
1	.05	2203	99.77	35.25 - 35.75			
3	.14	2206	99.91	35.75 - 36.25			
1	.05	2207	99.95	36.25 - 36.75			
1	.05	2208	100.00	36.75 - 37.25			
				37.25 - 37.75			
				37.75 - 38.25			
				38.25 - 38.75			
				38.75 - 39.25			

## (D34) SHOULDER-WAIST LENGTH (OMPHALION)

The vertical distance between the acromion landmark on the tip of the right shoulder and the level of the waist at the navel (omphalion) of a subject standing erect is calculated as follows: ACROMIAL HEIGHT minus WAIST HEIGHT (OMPHALION).



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
30.15	11.87	1ST	32.65	12.85	
30.69	12.08	2ND	33.29	13.11	
31.04	12.22	3RD	33.70	13.27	
31.53	12.41	5TH	34.27	13.49	
32.28	12.71	10TH	35.15	13.84	
32.80	12.91	15TH	35.74	14.07	
33.21	13.07	20TH	36.22	14.26	
33.57	13.22	25TH	36.63	14.42	
33.90	13.35	30TH	37.00	14.57	
34.21	13.47	35TH	37.34	14.70	
34.50	13.58	40TH	37.67	14.83	
34.79	13.70	45TH	37.99	14.95	
35.07	13.81	50TH	38.30	15.08	
35.36	13.92	55TH	38.62	15.20	
35.65	14.04	60TH	38.94	15.33	
35.96	14.16	65TH	39.28	15.46	
36.29	14.29	70TH	39.63	15.60	
36.65	14.43	75TH	40.02	15.76	
37.05	14.59	80TH	40.47	15.93	
37.52	14.77	85TH	40.99	16.14	
38.13	15.01	90TH	41.67	16.40	
39.06	15.38	95TH	42.72	16.82	
39.67	15.62	97TH	43.43	17.10	
40.12	15.80	98TH	43.98	17.31	
40.85	16.08	99TH	44.88	17.67	

# SHOULDER-WAIST LENGTH (OMPHALION)

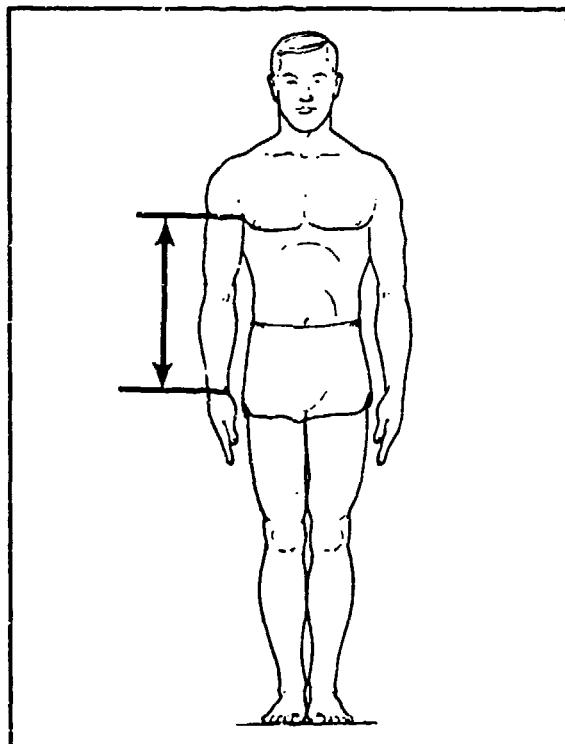
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
35.15	MEAN VALUE	13.84
.05	SE(MEAN)	.02
2.28	STD DEVIATION	.90
.03	SE(STD DEV)	.00
27.80	MINIMUM	10.94
44.20	MAXIMUM	17.40
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	6.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
38.37	MEAN VALUE	15.11
.06	SE(MEAN)	.02
2.56	STD DEVIATION	1.01
.04	SE(STD DEV)	.02
30.50	MINIMUM	12.01
48.30	MAXIMUM	19.02
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.19
COEF. OF VARIATION	=	6.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	27.75 - 28.25		1	.06
1	.05	3	.14	28.25 - 28.75		1	.06
3	.14	6	.27	28.75 - 29.25		4	.23
6	.27	12	.54	29.25 - 29.75		6	.34
12	.54	24	1.09	29.75 - 30.25		8	.45
21	.95	45	2.04	30.25 - 30.75		14	.79
44	1.99	89	4.03	30.75 - 31.25		19	1.07
54	2.45	143	6.48	31.25 - 31.75		32	1.80
66	2.99	209	9.47	31.75 - 32.25		71	4.00
110	4.98	319	14.45	32.25 - 32.75		80	4.51
132	5.98	451	20.43	32.75 - 33.25		130	7.33
129	5.84	580	26.27	33.25 - 33.75		137	7.72
206	9.33	786	35.60	33.75 - 34.25		140	7.89
203	9.19	989	44.79	34.25 - 34.75		106	5.98
188	8.51	1177	53.31	34.75 - 35.25		119	6.71
181	8.20	1358	61.50	35.25 - 35.75		145	8.17
190	8.61	1548	70.11	35.75 - 36.25		124	6.99
150	6.79	1698	76.90	36.25 - 36.75		130	7.33
117	5.30	1815	82.20	36.75 - 37.25		137	7.72
106	4.80	1921	87.00	37.25 - 37.75		140	7.89
81	3.67	2002	90.67	37.75 - 38.25		106	5.98
68	3.08	2070	93.75	38.25 - 38.75		119	6.71
43	1.95	2113	95.70	38.75 - 39.25		127	7.16
33	1.49	2146	97.19	39.25 - 39.75		131	7.38
23	1.04	2169	98.23	39.75 - 40.25		87	4.90
15	.68	2184	98.91	40.25 - 40.75		73	4.11
13	.59	2197	99.50	40.75 - 41.25		75	4.23
4	.18	2201	99.68	41.25 - 41.75		18	1.01
2	.09	2203	99.77	41.75 - 42.25		13	.73
2	.09	2205	99.86	42.25 - 42.75		6	.34
1	.05	2206	99.91	42.75 - 43.25		2	.12
1	.05	2207	99.95	43.25 - 43.75		5	.28
1	.05	2208	100.00	43.75 - 44.25		2	.11
				44.25 - 44.75		0	.00
				44.75 - 45.25		1	.06
				45.25 - 45.75			
				45.75 - 46.25			
				46.25 - 46.75			
				46.75 - 47.25			
				47.25 - 47.75			
				47.75 - 48.25			
				48.25 - 48.75			

## (D35) SLEEVE INSEAM

The vertical distance between the right anterior-scye-on-the-torso landmark and the stylion landmark on the right wrist of a subject standing erect with the arms straight at the sides is calculated as follows: AXILLA HEIGHT minus WRIST HEIGHT.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
37.79	14.88	1ST	40.94 16.12
38.47	15.15	2ND	41.58 16.37
38.92	15.32	3RD	42.02 16.54
39.54	15.57	5TH	42.64 16.79
40.54	15.96	10TH	43.63 17.18
41.24	16.24	15TH	44.32 17.45
41.80	16.46	20TH	44.88 17.67
42.29	16.65	25TH	45.38 17.86
42.73	16.82	30TH	45.82 18.04
43.14	16.98	35TH	46.23 18.20
43.53	17.14	40TH	46.62 18.36
43.91	17.29	45TH	47.00 18.51
44.28	17.43	50TH	47.38 18.65
44.66	17.58	55TH	47.76 18.80
45.04	17.73	60TH	48.15 18.96
45.44	17.89	65TH	48.55 19.11
45.86	18.05	70TH	48.97 19.28
46.31	18.23	75TH	49.42 19.46
46.82	18.43	80TH	49.94 19.66
47.41	18.66	85TH	50.53 19.89
48.15	18.96	90TH	51.28 20.19
49.25	19.39	95TH	52.40 20.63
49.97	19.67	97TH	53.13 20.92
50.50	19.88	98TH	53.67 21.13
51.34	20.21	99TH	54.53 21.47

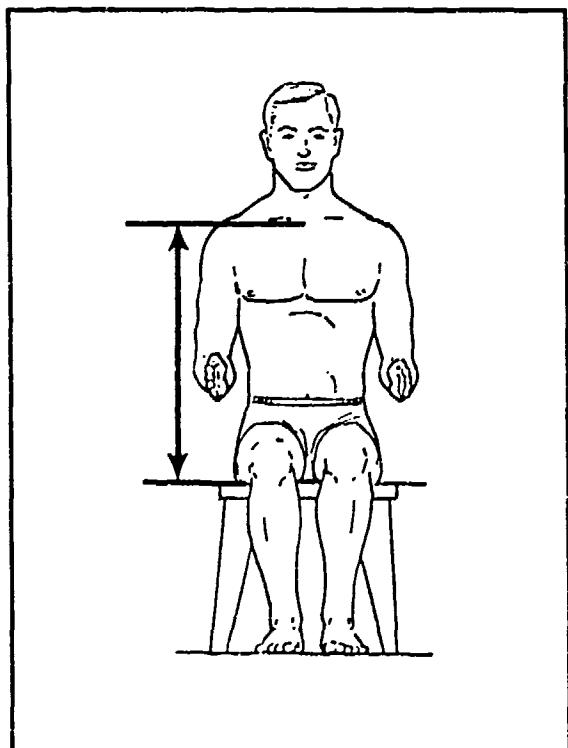
# SLEEVE INSEAM

FEMALES			MALES		
	CM	INCHES		CM	INCHES
44.33	MEAN VALUE	17.45	47.43	MEAN VALUE	18.67
.06	SE(MEAN)	.02	.07	SE(MEAN)	.03
2.95	STD DEVIATION	1.16	2.97	STD DEVIATION	1.17
.04	SE(STD DEV)	.02	.05	SE(STD DEV)	.02
32.60	MINIMUM	12.83	36.90	MINIMUM	14.53
55.30	MAXIMUM	21.77	59.00	MAXIMUM	23.23
SYMMETRY---VETA I	=	.10	SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	3.03	KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	6.7%	COEF. OF VARIATION	=	6.3%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
1	.05	1	.05	32.25	-	32.75		1	.06
0	.00	1	.05	32.75	-	33.25		0	.00
0	.00	1	.05	33.25	-	33.75		1	.06
0	.00	1	.05	33.75	-	34.25		1	.06
0	.00	1	.05	34.25	-	34.75		1	.06
0	.00	1	.05	34.75	-	35.25		1	.06
1	.05	2	.09	35.25	-	35.75		4	.23
3	.14	5	.23	35.75	-	36.25		9	.51
2	.09	7	.32	36.25	-	36.75		13	.73
3	.14	10	.45	36.75	-	37.25		23	1.30
7	.32	17	.77	37.25	-	37.75		1	.06
21	.95	38	1.72	37.75	-	38.25		2	.11
23	1.04	61	2.76	38.25	-	38.75		3	.17
25	1.13	86	3.89	38.75	-	39.25		4	.23
39	1.77	125	5.66	39.25	-	39.75		5	.28
46	2.08	171	7.74	39.75	-	40.25		9	.51
70	3.17	241	10.91	40.25	-	40.75		13	.73
108	4.89	349	15.81	40.75	-	41.25		23	1.30
80	3.62	429	19.43	41.25	-	41.75		40	2.25
104	4.71	533	24.14	41.75	-	42.25		72	4.06
120	5.43	653	29.57	42.25	-	42.75		102	5.75
139	6.30	792	35.87	42.75	-	43.25		138	7.78
147	6.66	939	42.53	43.25	-	43.75		189	10.65
159	7.20	1098	49.73	43.75	-	44.25		261	14.71
148	6.70	1246	56.43	44.25	-	44.75		327	18.43
159	7.20	1405	63.63	44.75	-	45.25		413	23.28
131	5.93	1536	69.57	45.25	-	45.75		517	29.14
119	5.39	1655	74.95	45.75	-	46.25		617	34.78
99	4.48	1754	79.44	46.25	-	46.75		717	40.42
82	3.71	1836	83.15	46.75	-	47.25		837	47.18
80	3.62	1916	86.78	47.25	-	47.75		964	54.34
78	3.53	1994	90.31	47.75	-	48.25		1092	61.56
66	2.99	2060	93.30	48.25	-	48.75		1204	67.87
35	1.59	2095	94.88	48.75	-	49.25		1324	74.63
34	1.54	2129	96.42	49.25	-	49.75		1418	79.93
30	1.36	2159	97.78	49.75	-	50.25		1477	83.26
13	.59	2172	98.37	50.25	-	50.75		1542	86.92
12	.54	2184	98.91	50.75	-	51.25		1595	89.91
9	.41	2193	99.32	51.25	-	51.75		1641	92.50
4	.18	2197	99.50	51.75	-	52.25		1664	93.80
5	.23	2202	99.73	52.25	-	52.75		1691	95.32
1	.05	2203	99.77	52.75	-	53.25		1724	97.18
2	.09	2205	99.86	53.25	-	53.75		1742	98.20
1	.05	2206	99.91	53.75	-	54.25		1753	98.82
1	.05	2207	99.95	54.25	-	54.75		1762	99.32
0	.00	2207	99.95	54.75	-	55.25		1767	99.61
1	.05	2208	100.00	55.25	-	55.75		1773	99.94
				55.75	-	56.25		1774	100.00
				56.25	-	56.75			
				56.75	-	57.25			
				57.25	-	57.75			
				57.75	-	58.25			
				58.25	-	58.75			
				58.75	-	59.25			

## (D36) SUPRASTERNALE HEIGHT, SITTING

The vertical distance between a sitting surface and the suprasternal landmark on the lowest point of the notch at the top of the breastbone of a subject sitting erect is calculated as follows: SUPRASTERNALE HEIGHT minus (STATURE minus SITTING HEIGHT).



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
49.77	19.59	1ST	53.14 20.92
50.26	19.79	2ND	54.01 21.27
50.60	19.92	3RD	54.54 21.47
51.09	20.12	5TH	55.22 21.74
51.93	20.44	10TH	56.22 22.13
52.53	20.68	15TH	56.87 22.39
53.02	20.87	20TH	57.39 22.59
53.45	21.04	25TH	57.83 22.77
53.85	21.20	30TH	58.22 22.92
54.22	21.34	35TH	58.59 23.07
54.57	21.48	40TH	58.94 23.21
54.91	21.62	45TH	59.28 23.34
55.26	21.75	50TH	59.62 23.47
55.60	21.89	55TH	59.97 23.61
55.95	22.03	60TH	60.31 23.75
56.30	22.17	65TH	60.68 23.89
56.68	22.32	70TH	61.06 24.04
57.09	22.48	75TH	61.48 24.21
57.54	22.65	80TH	61.95 24.39
58.05	22.85	85TH	62.50 24.61
58.69	23.11	90TH	63.19 24.88
59.60	23.46	95TH	64.19 25.27
60.17	23.69	97TH	64.81 25.52
60.57	23.85	98TH	65.25 25.69
61.17	24.08	99TH	65.90 25.95

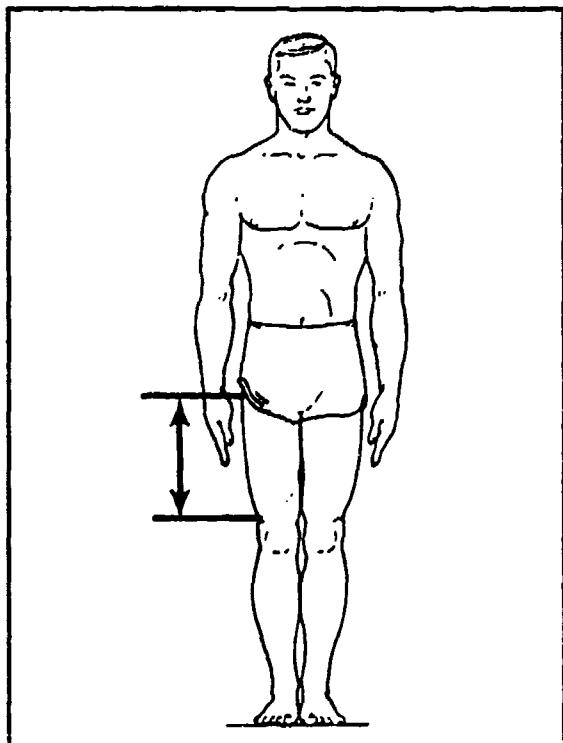
# SUPRASTERNAL HEIGHT, SITTING

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
55.29	MEAN VALUE	21.77	59.65	MEAN VALUE	23.48
.06	SE(MEAN)	.02	.06	SE(MEAN)	.03
2.59	STD DEVIATION	1.02	2.71	STD DEVIATION	1.07
.04	SE(STD DEV)	.02	.05	SE(STD DEV)	.02
46.50	MINIMUM	18.31	50.40	MINIMUM	19.84
64.10	MAXIMUM	25.24	68.40	MAXIMUM	26.93
SYMMETRY---VETA I	=	.06	SYMMETRY---VETA I	=	-.02
KURTOSIS---VETA II	=	2.77	KURTOSIS---VETA II	=	2.98
COEF. OF VARIATION	=	4.7%	COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	46.25	- 46.75		
0	.00	2	.09	46.75	- 47.25		
0	.00	2	.09	47.25	- 47.75		
4	.18	6	.27	47.75	- 48.25		
5	.23	11	.50	48.25	- 48.75		
1	.05	12	.54	48.75	- 49.25		
9	.41	21	.95	49.25	- 49.75		
22	1.00	43	1.95	49.75	- 50.25		
38	1.72	81	3.67	50.25	- 50.75	2	.11
46	2.08	127	5.75	50.75	- 51.25	1	.06
57	2.58	184	8.33	51.25	- 51.75	0	.00
81	3.67	265	12.00	51.75	- 52.25	3	.17
100	4.53	365	16.53	52.25	- 52.75	4	.23
119	5.39	484	21.92	52.75	- 53.25	12	.68
159	7.20	643	29.12	53.25	- 53.75	6	.34
158	7.16	801	36.28	53.75	- 54.25	11	.62
159	7.20	960	43.48	54.25	- 54.75	19	1.07
151	6.84	1111	50.32	54.75	- 55.25	34	1.92
141	6.39	1252	56.70	55.25	- 55.75	39	2.20
170	7.70	1422	64.40	55.75	- 56.25	63	3.55
145	6.57	1567	70.97	56.25	- 56.75	74	4.17
121	5.48	1688	76.45	56.75	- 57.25	64	3.61
117	5.30	1805	81.75	57.25	- 57.75	78	4.40
102	4.62	1907	86.37	57.75	- 58.25	106	5.98
80	3.62	1987	89.99	58.25	- 58.75	146	8.23
76	3.44	2063	93.43	58.75	- 59.25	129	7.27
60	2.72	2123	96.15	59.25	- 59.75	127	7.16
26	1.18	2149	97.33	59.75	- 60.25	125	7.05
29	1.31	2178	98.64	60.25	- 60.75	130	7.33
8	.36	2186	99.00	60.75	- 61.25	111	6.26
8	.36	2194	99.37	61.25	- 61.75	109	6.14
8	.36	2202	99.73	61.75	- 62.25	91	5.13
3	.14	2205	99.86	62.25	- 62.75	65	3.66
0	.00	2205	99.86	62.75	- 63.25	49	2.76
0	.00	2205	99.86	63.25	- 63.75	44	2.48
3	.14	2208	100.00	63.75	- 64.25	43	2.42
				64.25	- 64.75	30	1.69
				64.75	- 65.25	29	1.63
				65.25	- 65.75	8	.45
				65.75	- 66.25	12	.68
				66.25	- 66.75	5	.28
				66.75	- 67.25	1	.06
				67.25	- 67.75	3	.17
				67.75	- 68.25	0	.00
				68.25	- 68.75	1	.06

## (D37) THIGH LINK

The vertical distance between the trochanterion landmark on the right thigh and the lateral femoral epicondyle landmark on the right side of the knee is calculated as follows:  
TROCHANTERION HEIGHT minus LATERAL FEMORAL EPICONDYLE HEIGHT.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
34.84	13.72	1ST	36.82 14.50
35.39	13.93	2ND	37.61 14.81
35.76	14.08	3RD	38.07 14.99
36.27	14.28	5TH	38.67 15.23
37.08	14.60	10TH	39.55 15.57
37.64	14.82	15TH	40.12 15.80
38.08	14.99	20TH	40.58 15.97
38.47	15.14	25TH	40.97 16.13
38.81	15.28	30TH	41.33 16.27
39.13	15.41	35TH	41.66 16.40
39.43	15.52	40TH	41.98 16.53
39.72	15.64	45TH	42.29 16.65
40.01	15.75	50TH	42.60 16.77
40.30	15.87	55TH	42.92 16.90
40.60	15.98	60TH	43.24 17.02
40.90	16.10	65TH	43.58 17.16
41.23	16.23	70TH	43.95 17.30
41.58	16.37	75TH	44.34 17.46
41.97	16.53	80TH	44.79 17.63
42.44	16.71	85TH	45.31 17.84
43.04	16.95	90TH	45.96 18.09
43.97	17.31	95TH	46.90 18.47
44.61	17.56	97TH	47.48 18.69
45.10	17.76	98TH	47.88 18.85
45.92	18.08	99TH	48.45 19.07

# THIGH LINK

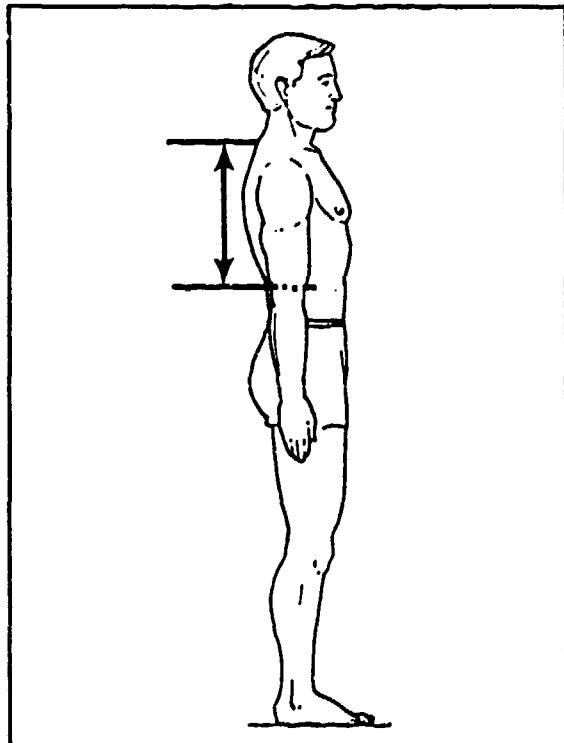
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
40.05	MEAN VALUE	15.77
.05	SE(MEAN)	.02
2.35	STD DEVIATION	.92
.04	SE(STD DEV)	.00
31.40	MINIMUM	12.36
50.40	MAXIMUM	19.84
SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.38
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
42.67	MEAN VALUE	16.80
.06	SE(MEAN)	.02
2.51	STD DEVIATION	.99
.04	SE(STD DEV)	.02
34.30	MINIMUM	13.50
53.60	MAXIMUM	21.10
SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
1	.05	1	.05	31.25 - 31.75			
0	.00	1	.05	31.75 - 32.25			
1	.05	2	.09	32.25 - 32.75			
1	.05	3	.14	32.75 - 33.25			
3	.14	6	.27	33.25 - 33.75			
5	.23	11	.50	33.75 - 34.25			
7	.32	18	.82	34.25 - 34.75			
18	.82	36	1.63	34.75 - 35.25			
32	1.45	68	3.08	35.25 - 35.75			
41	1.86	109	4.94	35.75 - 36.25			
53	2.40	162	7.34	36.25 - 36.75			
86	3.89	248	11.23	36.75 - 37.25			
116	5.25	364	16.49	37.25 - 37.75			
119	5.39	483	21.88	37.75 - 38.25			
139	6.30	622	28.17	38.25 - 38.75			
186	8.42	808	36.59	38.75 - 39.25			
196	8.88	1004	45.47	39.25 - 39.75			
189	8.56	1193	54.03	39.75 - 40.25			
216	9.51	1403	63.54	40.25 - 40.75			
157	7.11	1560	70.65	40.75 - 41.25			
142	6.43	1702	77.08	41.25 - 41.75			
133	6.02	1835	83.11	41.75 - 42.25			
115	5.21	1950	88.32	42.25 - 42.75			
66	2.99	2016	91.30	42.75 - 43.25			
56	2.54	2072	93.84	43.25 - 43.75			
47	2.13	2119	95.97	43.75 - 44.25			
30	1.36	2149	97.33	44.25 - 44.75			
23	1.04	2172	98.37	44.75 - 45.25			
11	.50	2183	98.87	45.25 - 45.75			
9	.41	2192	99.28	45.75 - 46.25			
3	.14	2195	99.41	46.25 - 46.75			
3	.14	2198	99.55	46.75 - 47.25			
5	.23	2203	99.77	47.25 - 47.75			
2	.09	2205	99.86	47.75 - 48.25			
1	.05	2206	99.91	48.25 - 48.75			
1	.05	2207	99.95	48.75 - 49.25			
0	.00	2207	99.95	49.25 - 49.75			
0	.00	2207	99.95	49.75 - 50.25			
1	.05	2208	100.00	50.25 - 50.75			
				50.75 - 51.25			
				51.25 - 51.75			
				51.75 - 52.25			
				52.25 - 52.75			
				52.75 - 53.25			
				53.25 - 53.75			

## (D38) THORAX LINK

The vertical distance between the cervicale landmark at the base of the back of the neck and the level of the inferior point of the right tenth rib is calculated as follows:  
CERVICALE HEIGHT minus TENTH RIB HEIGHT.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
31.81	12.53	1ST	34.69 13.66
32.28	12.71	2ND	35.30 13.90
32.58	12.83	3RD	35.69 14.05
33.02	13.00	5TH	36.21 14.25
33.71	13.27	10TH	37.01 14.57
34.19	13.46	15TH	37.55 14.78
34.58	13.62	20TH	37.98 14.95
34.93	13.75	25TH	38.34 15.10
35.23	13.87	30TH	38.67 15.23
35.52	13.98	35TH	38.98 15.35
35.79	14.09	40TH	39.27 15.46
36.06	14.20	45TH	39.55 15.57
36.32	14.30	50TH	39.83 15.68
36.59	14.40	55TH	40.10 15.79
36.86	14.51	60TH	40.38 15.90
37.13	14.62	65TH	40.67 16.01
37.43	14.73	70TH	40.98 16.13
37.74	14.86	75TH	41.31 16.26
38.10	15.00	80TH	41.68 16.41
38.51	15.16	85TH	42.10 16.58
39.03	15.37	90TH	42.64 16.79
39.79	15.67	95TH	43.43 17.10
40.29	15.86	97TH	43.94 17.30
40.65	16.00	98TH	44.31 17.44
41.22	16.23	99TH	44.88 17.67

# THORAX LINK

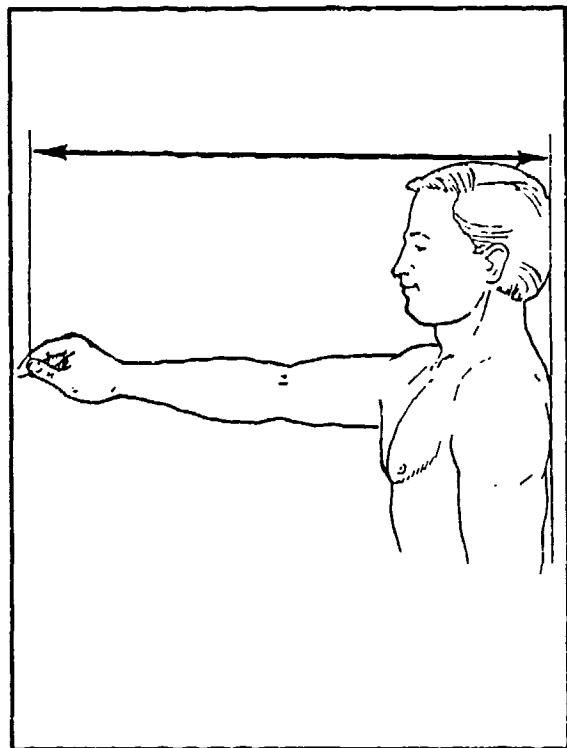
FEMALES		
CM	MEAN VALUE	INCHES
36.36	MEAN VALUE	14.31
.04	SE(MEAN)	.02
2.06	STD DEVIATION	.81
.03	SE(STD DEV)	.00
29.90	MINIMUM	11.77
44.60	MAXIMUM	17.56
SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	2.94
COEF. OF VARIATION	=	5.7%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
39.82	MEAN VALUE	15.68
.05	SE(MEAN)	.02
2.18	STD DEVIATION	.86
.04	SE(STD DEV)	.00
33.60	MINIMUM	13.23
48.80	MAXIMUM	19.21
SYMMETRY---VETA I	=	.03
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	5.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
1	.05	1	.05	29.75	-	30.25		1	.06	1	.06
3	.14	4	.18	30.25	-	30.75		9	.51	10	.56
7	.32	11	.50	30.75	-	31.25		7	.39	17	.96
7	.32	18	.82	31.25	-	31.75		18	1.01	35	1.97
26	1.18	44	1.99	31.75	-	32.25		27	1.52	62	3.49
38	1.72	82	3.71	32.25	-	32.75		33	1.86	95	5.36
49	2.22	131	5.93	32.75	-	33.25		42	2.37	137	7.72
86	3.89	217	9.83	33.25	-	37.75		63	3.55	200	11.27
136	6.16	353	15.99	33.75	-	34.25		97	5.47	297	16.74
136	6.16	489	22.15	34.25	-	34.75		111	6.26	408	23.00
189	8.56	678	30.71	34.75	-	35.25		129	7.27	537	30.27
195	8.83	873	39.54	35.25	-	35.75		176	9.92	713	40.19
197	8.92	1070	48.46	35.75	-	36.25		163	9.19	876	49.38
194	8.79	1264	57.25	36.25	-	36.75		156	8.79	1032	58.17
217	9.83	1481	67.07	36.75	-	37.25		59	3.33	1667	93.97
187	8.47	1668	75.54	37.25	-	37.75		66	3.72	1608	90.64
137	6.20	1805	81.75	37.75	-	38.25		151	8.51	1183	66.69
135	6.11	1940	87.86	38.25	-	38.75		128	7.22	1311	73.90
93	4.21	2033	92.07	38.75	-	39.25		126	7.10	1437	81.00
56	2.54	2089	94.61	39.25	-	39.75		105	5.92	1542	86.92
51	2.31	2140	96.92	39.75	-	40.25		59	3.33	1708	96.28
29	1.31	2169	98.23	40.25	-	40.75		41	2.31	1773	97.97
18	.82	2187	99.05	40.75	-	41.25		30	1.69	1738	98.87
9	.41	2196	99.46	41.25	-	41.75		16	.90	1754	99.38
5	.23	2201	99.68	41.75	-	42.25		9	.51	1763	99.66
5	.23	2206	99.91	42.25	-	42.75		5	.28	1768	99.77
1	.05	2207	99.95	42.75	-	43.25		2	.11	1770	99.94
0	.00	2207	99.95	43.25	-	43.75		3	.17	1773	99.94
0	.00	2207	99.95	43.75	-	44.25		0	.00	1773	99.94
1	.05	2208	100.00	44.25	-	44.75		1	.06	1774	100.00

## (D39) THUMBTIP REACH, EXTENDED

The horizontal distance between the vertical plane of the back and the tip of the right thumb of a subject standing erect with the left shoulder against a wall and the right shoulder, arm, and hand extended forward horizontally as far as possible with the thumb lying on the first knuckle of the forefinger is calculated as follows: WRIST-WALL LENGTH, EXTENDED plus WRIST-THUMBTIP LENGTH.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
71.15	28.01	1ST	77.92 30.68
72.05	28.36	2ND	78.89 31.06
72.63	28.60	3RD	79.55 31.32
73.45	28.92	5TH	80.48 31.68
74.16	29.43	10TH	81.96 32.27
75.66	30.79	15TH	82.97 32.67
76.38	30.07	20TH	83.78 32.98
77.02	30.32	25TH	84.48 33.26
77.59	30.55	30TH	85.10 33.50
78.12	30.76	35TH	85.67 33.73
78.63	30.96	40TH	86.22 33.94
79.12	31.15	45TH	86.74 34.15
79.61	31.34	50TH	87.25 34.35
80.10	31.54	55TH	87.76 34.55
80.60	31.73	60TH	88.28 34.76
81.12	31.94	65TH	88.81 34.97
81.66	32.15	70TH	89.38 35.19
82.26	32.39	75TH	89.99 35.43
82.93	32.65	80TH	90.68 35.70
83.70	32.95	85TH	91.49 36.02
84.69	33.34	90TH	92.54 36.43
86.17	33.92	95TH	94.18 37.08
87.14	34.31	97TH	95.33 37.53
87.86	34.59	98TH	96.22 37.88
89.00	35.04	99TH	97.74 38.48

# THUMBTIP REACH, EXTENDED

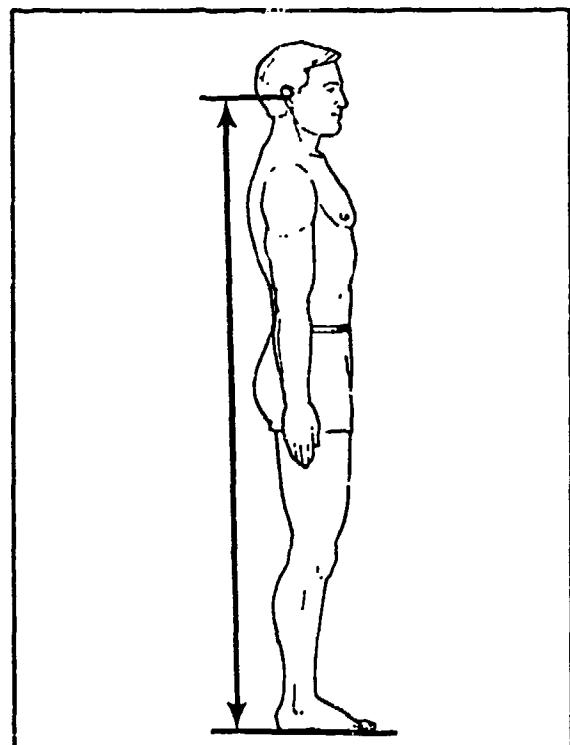
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
.08	SE(MEAN)	.03
3.85	STD DEVIATION	1.52
.06	SE(STD DEV)	.02
66.70	MINIMUM	26.26
97.70	MAXIMUM	38.46
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.08
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
.10	SE(MEAN)	.04
4.16	STD DEVIATION	1.64
.07	SE(STD DEV)	.03
73.40	MINIMUM	28.90
104.60	MAXIMUM	41.18
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	66.55 - 67.55		1	.06
1	.05	3	.14	67.55 - 68.55		2	.11
3	.14	6	.27	68.55 - 69.55		3	.17
9	.41	15	.68	69.55 - 70.55		6	.34
11	.50	26	1.18	70.55 - 71.55		9	.51
33	1.49	59	2.67	71.55 - 72.55			
48	2.17	107	4.85	72.55 - 73.55			
81	3.67	188	8.51	73.55 - 74.55			
131	5.93	319	14.45	74.55 - 75.55			
148	6.70	467	21.15	75.55 - 76.55			
194	8.79	661	29.94	76.55 - 77.55			
212	9.60	873	39.54	77.55 - 78.55			
218	9.87	1091	49.41	78.55 - 79.55			
206	9.33	1297	58.74	79.55 - 80.55			
224	10.14	1521	68.89	80.55 - 81.55			
182	8.24	1703	77.13	81.55 - 82.55			
163	7.38	1866	84.51	82.55 - 83.55			
105	4.76	1971	89.27	83.55 - 84.55			
87	3.94	2058	93.21	84.55 - 85.55			
62	2.81	2120	96.01	85.55 - 86.55			
37	1.68	2157	97.69	86.55 - 87.55			
17	.77	2174	98.46	87.55 - 88.55			
19	.86	2193	99.32	88.55 - 89.55			
11	.50	2204	99.82	89.55 - 90.55			
0	.00	2204	99.82	90.55 - 91.55			
2	.09	2206	99.91	91.55 - 92.55			
1	.05	2207	99.95	92.55 - 93.55			
0	.00	2207	99.95	93.55 - 94.55			
0	.00	2207	99.95	94.55 - 95.55			
0	.00	2207	99.95	95.55 - 96.55			
0	.00	2207	99.95	96.55 - 97.55			
1	.05	2208	100.00	97.55 - 98.55			
				98.55 - 99.55			
				99.55 - 100.55			
				100.55 - 101.55			
				101.55 - 102.55			
				102.55 - 103.55			
				103.55 - 104.55			
				104.55 - 105.55			

## (D40) TRAGION HEIGHT

The vertical distance between a standing surface and the tragion landmark on the cartilaginous flap of flesh in front of the right earhole of a subject standing erect with head in the Frankfort plane is calculated as follows: STATURE minus TRAGION-OF HEAD.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
136.31	53.66	1ST	147.44 58.05
138.12	54.38	2ND	149.24 58.76
139.21	54.81	3RD	150.36 59.20
140.65	55.37	5TH	151.86 59.79
142.79	56.22	10TH	154.15 60.69
144.21	56.78	15TH	155.70 61.30
145.34	57.22	20TH	156.93 61.78
146.33	57.61	25TH	158.00 62.20
147.21	57.96	30TH	158.96 62.58
148.04	58.28	35TH	159.86 62.94
148.84	58.60	40TH	160.72 63.28
149.61	58.90	45TH	161.56 63.60
150.39	59.21	50TH	162.39 63.93
151.18	59.52	55TH	163.23 64.26
151.99	59.84	60TH	164.08 64.60
152.83	60.17	65TH	164.96 64.95
153.73	60.52	70TH	165.90 65.32
154.71	60.91	75TH	166.92 65.72
155.82	61.35	80TH	168.05 66.16
157.11	61.86	85TH	169.37 66.68
158.75	62.50	90TH	171.01 67.33
161.16	63.45	95TH	173.39 68.26
162.67	64.04	97TH	174.87 68.85
163.75	64.47	98TH	175.91 69.26
165.36	65.10	99TH	177.45 69.86

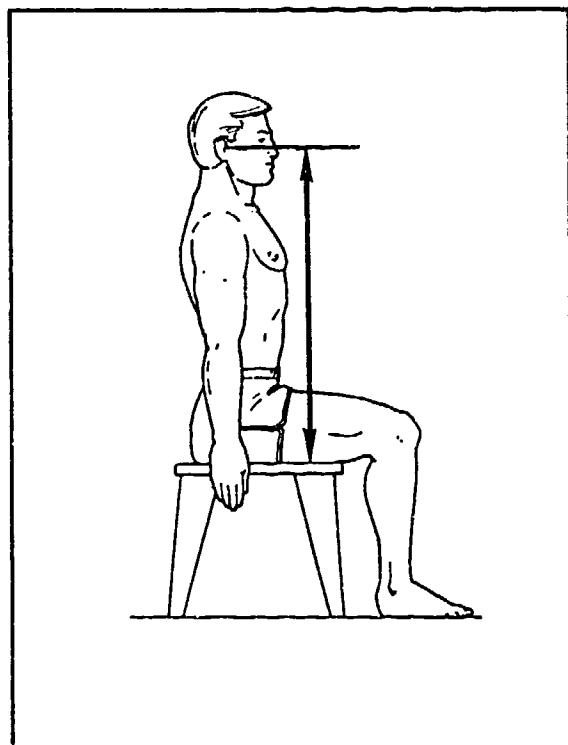
# TRAGION HEIGHT

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
150.59	MEAN VALUE	59.29	162.49	MEAN VALUE	63.97
.13	SE(MEAN)	.05	.16	SE(MEAN)	.06
6.23	STD DEVIATION	2.45	6.54	STD DEVIATION	2.58
.09	SE(STD DEV)	.04	.11	SE(STD DEV)	.04
131.50	MINIMUM	51.77	137.10	MINIMUM	53.98
173.90	MAXIMUM	68.46	190.30	MAXIMUM	74.92
SYMMETRY---VETA I	=	.12	SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.02	KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	4.1%	COEF. OF VARIATION	=	4.0%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
3	.14	3	.14	130.75 - 132.25		1	.06
4	.18	7	.32	132.25 - 133.75		0	.00
6	.27	13	.59	133.75 - 135.25		0	.00
13	.59	26	1.18	135.25 - 136.75		1	.06
21	.95	47	2.13	136.75 - 138.25		5	.28
33	1.49	80	3.62	138.25 - 139.75		8	.45
48	2.17	128	5.80	139.75 - 141.25		9	.51
82	3.71	210	9.51	141.25 - 142.75		25	1.41
116	5.25	326	14.76	142.75 - 144.25		31	1.75
162	7.34	488	22.10	144.25 - 145.75		51	2.87
198	8.97	686	31.07	145.75 - 147.25		84	4.74
198	8.97	884	40.04	147.25 - 148.75		74	4.17
184	8.33	1068	48.37	148.75 - 150.25		130	7.33
220	9.96	1288	58.33	150.25 - 151.75		145	8.17
197	8.92	1485	67.26	151.75 - 153.25		155	8.74
168	7.61	1653	74.86	153.25 - 154.75		151	8.51
149	6.75	1802	81.61	154.75 - 156.25		176	9.92
127	5.75	1929	87.36	156.25 - 157.75		143	8.06
86	3.89	2015	91.26	157.75 - 159.25		126	7.10
67	3.03	2082	94.29	159.25 - 160.75		115	6.48
54	2.45	2136	96.74	160.75 - 162.25		115	6.48
28	1.27	2164	98.01	162.25 - 163.75		91	5.13
19	.86	2183	98.87	163.75 - 165.25		61	3.44
15	.68	2198	99.55	165.25 - 166.75		40	2.25
2	.09	2200	99.64	166.75 - 168.25		32	1.80
2	.09	2202	99.73	168.25 - 169.75		13	.73
5	.23	2207	99.95	169.75 - 171.25		9	.51
0	.00	2207	99.95	171.25 - 172.75		3	.17
1	.05	2208	100.00	172.75 - 174.25		5	.28
				174.25 - 175.75		1	.06
				175.75 - 177.25		1	.06
				177.25 - 178.75		1	.06
				178.75 - 180.25		0	.00
				180.25 - 181.75		0	.00
				181.75 - 183.25		1	.06
				183.25 - 184.75		0	.00
				184.75 - 186.25		0	.00
				186.25 - 187.75		1	.06
				187.75 - 189.25		1	.06
				189.25 - 190.75		1	.06

## (D41) TRAGION HEIGHT, SITTING

The vertical distance between a sitting surface and the tragion landmark on the cartilaginous flap of flesh in front of the right earhole of a subject sitting erect with the head in the Frankfort plane is calculated as follows: SITTING HEIGHT minus TRAGION-TOP OF HEAD.



THE PERCENTILES			
FEMALES		MALES	
CM	INCHES	CM	INCHES
65.48	25.78	1ST	70.14 27.61
66.27	26.09	2ND	71.17 28.02
66.78	26.29	3RD	71.81 28.27
67.48	26.57	5TH	72.66 28.60
68.59	27.01	10TH	73.93 29.10
69.37	27.31	15TH	74.77 29.44
69.99	27.55	20TH	75.43 29.70
70.54	27.77	25TH	76.01 29.92
71.03	27.96	30TH	76.52 30.13
71.49	28.15	35TH	77.00 30.31
71.93	28.32	40TH	77.45 30.49
72.36	28.49	45TH	77.89 30.66
72.79	28.66	50TH	78.32 30.83
73.22	28.83	55TH	78.75 31.01
73.66	29.00	60TH	79.19 31.18
74.11	29.18	65TH	79.65 31.36
74.59	29.37	70TH	80.13 31.55
75.11	29.57	75TH	80.64 31.75
75.69	29.80	80TH	81.22 31.97
76.36	30.06	85TH	81.87 32.23
77.19	30.39	90TH	82.68 32.55
78.41	30.87	95TH	83.83 33.01
79.17	31.17	97TH	84.53 33.28
79.71	31.38	98TH	85.02 33.47
80.52	31.70	99TH	85.71 33.74

# TRAGION HEIGHT, SITTING

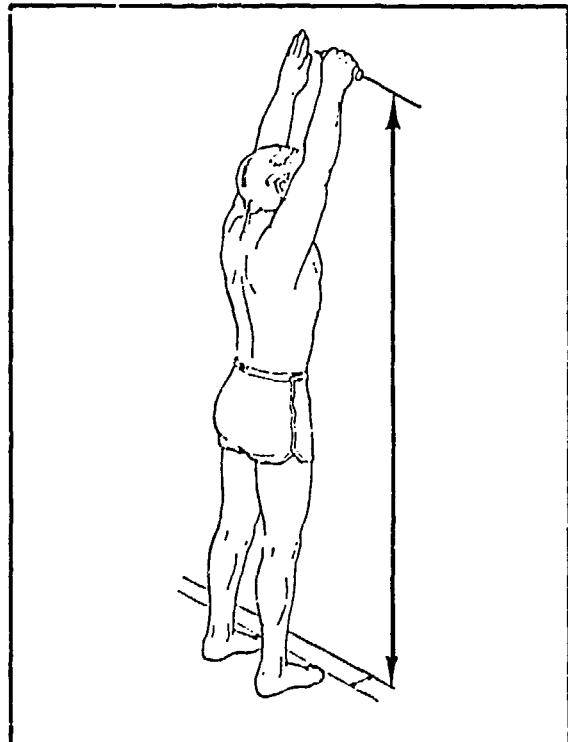
FEMALES		
	CM	INCHES
72.85	MEAN VALUE	28.68
.07	SE(MEAN)	.03
3.31	STD DEVIATION	1.30
.05	SE(STD DEV)	.02
63.00	MINIMUM	24.80
84.00	MAXIMUM	33.07
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	2.81
COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	2208

MALES		
	CM	INCHES
78.30	MEAN VALUE	30.83
.08	SE(MEAN)	.03
3.38	STD DEVIATION	1.33
.06	SE(STD DEV)	.02
67.70	MINIMUM	26.65
89.30	MAXIMUM	35.16
SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	2.89
COEF. OF VARIATION	=	4.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
3	.14	3	.14	62.75	-	63.25		1	.06	1	.06
1	.05	4	.18	63.25	-	63.75		2	.11	3	.17
3	.14	7	.32	63.75	-	64.25		1	.06	4	.23
4	.18	11	.50	64.25	-	64.75		3	.17	7	.39
8	.36	19	.86	64.75	-	65.25		4	.23	11	.62
6	.27	25	1.13	65.25	-	65.75		8	.45	19	1.07
18	.82	43	1.95	65.75	-	66.25		9	.51	28	1.58
29	1.31	72	3.26	66.25	-	66.75		13	.73	41	2.31
25	1.13	97	4.39	66.75	-	67.25		11	.62	52	2.93
24	1.09	121	5.48	67.25	-	67.75		12	.68	64	3.61
53	2.40	174	7.88	67.75	-	68.25		18	1.01	82	4.62
59	2.67	233	10.55	68.25	-	68.75		34	1.92	116	6.54
61	2.76	294	13.32	68.75	-	69.25		38	2.14	154	8.68
99	4.48	393	17.80	69.25	-	69.75		51	2.87	205	11.56
101	4.57	494	22.37	69.75	-	70.25		72	4.06	277	15.61
106	4.80	600	27.17	70.25	-	70.75		60	3.38	337	19.00
127	9.75	727	32.93	70.75	-	71.25		71	4.00	408	23.00
116	5.25	843	38.18	71.25	-	71.75		88	4.96	496	27.96
123	5.57	966	43.75	71.75	-	72.25		111	5.51	576	32.47
131	5.93	1097	49.68	72.25	-	72.75		110	6.20	656	36.98
135	6.11	1232	55.80	72.75	-	73.25		111	6.26	766	43.18
113	5.12	1345	60.91	73.25	-	73.75		111	6.26	877	49.44
126	5.71	1471	66.62	73.75	-	74.25		96	5.41	973	54.85
104	4.71	1575	71.33	74.25	-	74.75		94	5.30	1067	60.15
94	4.26	1669	75.59	74.75	-	75.25		102	5.75	1169	65.90
96	4.35	1765	79.94	75.25	-	75.75		80	4.51	1265	71.31
103	4.66	1868	84.60	75.75	-	76.25		80	4.51	1347	75.93
71	3.22	1939	87.82	76.25	-	76.75		111	6.26	1428	80.50
60	2.72	1999	90.53	76.75	-	77.25		96	5.41	1485	83.71
40	1.81	2039	92.35	77.25	-	77.75		94	5.30	1557	87.77
45	2.04	2084	94.38	77.75	-	78.25		102	5.75	1610	90.76
37	1.68	2121	96.06	78.25	-	78.75		53	2.99	1652	93.12
24	1.09	2145	97.15	78.75	-	79.25		42	2.37	1683	94.87
24	1.09	2169	98.23	79.25	-	79.75		31	1.75	1707	96.22
12	.54	2181	98.78	79.75	-	80.25		24	1.35	1728	97.41
8	.36	2189	99.14	80.25	-	80.75		21	1.18	1748	98.53
7	.32	2196	99.46	80.75	-	81.25		20	1.13	1757	99.04
5	.23	2201	99.68	81.25	-	81.75		9	.51	1762	99.32
3	.14	2204	99.82	81.75	-	82.25		5	.28	1767	99.61
2	.09	2206	99.91	82.25	-	82.75		2	.11	1769	99.72
0	.00	2206	99.91	82.75	-	83.25		1	.06	1770	99.77
0	.00	2206	99.91	83.25	-	83.75		0	.00	1772	99.89
2	.09	2208	100.00	83.75	-	84.25		1	.06	1773	99.94
				84.25	-	84.75		1	.06	1774	100.00

## (D42) VERTICAL GRIP REACH

The vertical distance between a standing surface and the center of a 1-1/4" diameter dowel gripped horizontally in the right hand of a subject standing erect with the shoulder, arm, and hand held straight overhead is calculated as follows: OVERHEAD FINGERTIP REACH minus HAND LENGTH plus WRIST-CENTER OF GRIP LENGTH.



THE PERCENTILES			
FEMALES		MALES	
CM	INCHES	CM	INCHES
174.63	68.75	1ST	189.28 74.52
177.23	69.78	2ND	192.01 75.60
178.79	70.39	3RD	193.66 76.25
180.83	71.19	5TH	195.84 77.10
183.85	72.38	10TH	199.08 78.38
185.85	73.17	15TH	201.25 79.23
187.43	73.79	20TH	202.96 79.91
188.81	74.33	25TH	204.46 80.49
190.05	74.82	30TH	205.80 81.02
191.21	75.28	35TH	207.05 81.52
192.32	75.72	40TH	208.25 81.99
193.41	76.15	45TH	209.43 82.45
194.50	76.57	50TH	210.59 82.91
195.60	77.01	55TH	211.77 83.38
196.73	77.45	60TH	212.97 83.85
197.90	77.91	65TH	214.23 84.34
199.16	78.41	70TH	215.55 84.86
200.53	78.95	75TH	216.99 85.43
202.07	79.56	80TH	218.60 86.06
203.87	80.26	85TH	220.45 86.79
206.14	81.16	90TH	222.76 87.70
209.44	82.46	95TH	226.04 88.99
211.51	83.27	97TH	228.03 89.77
212.96	83.84	98TH	229.39 90.31
215.10	84.68	99TH	231.31 91.07

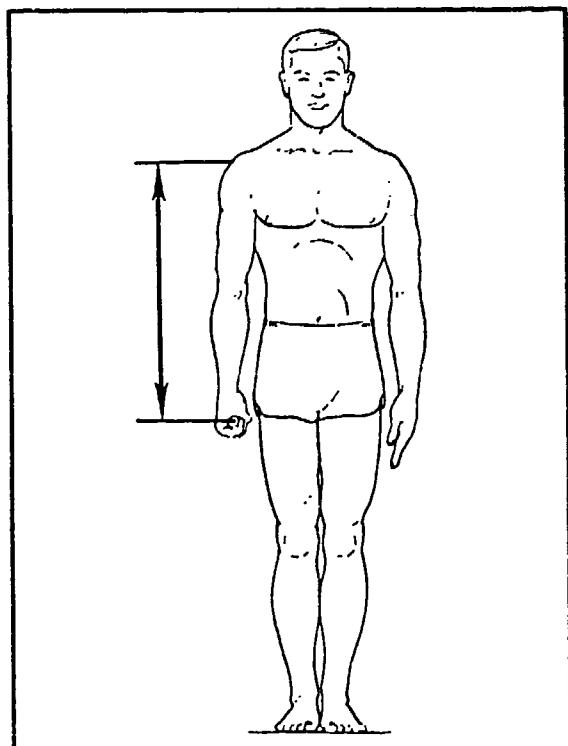
# VERTICAL GRIP REACH

FEMALES			MALES		
	<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>
194.73	MEAN VALUE	76.67	210.74	MEAN VALUE	82.97
.19	SE(MEAN)	.07	.22	SE(MEAN)	.09
8.71	STD DEVIATION	3.43	9.24	STD DEVIATION	3.64
.13	SE(STD DEV)	.05	.16	SE(STD DEV)	.06
162.20	MINIMUM	63.86	169.90	MINIMUM	66.89
226.00	MAXIMUM	88.98	253.40	MAXIMUM	99.76
SYMMETRY---VETA I	=	.07	SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.01	KURTOSIS---VETA II	=	3.28
COEF. OF VARIATION	=	4.5%	COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	.1	.05	161.55 - 163.55		1	.06
1	.05	2	.09	163.55 - 165.55		0	.00
1	.05	3	.14	165.55 - 167.55		0	.00
2	.09	5	.23	167.55 - 169.55		0	.00
2	.09	7	.32	169.55 - 171.55		2	.11
7	.32	14	.63	171.55 - 173.55		7	.39
18	.82	32	1.45	173.55 - 175.55		8	.45
16	.72	48	2.17	175.55 - 177.55		11	.62
27	1.22	75	3.40	177.55 - 179.55		20	1.13
46	2.08	121	5.48	179.55 - 181.55		29	1.63
88	3.99	209	9.47	181.55 - 183.55		64	3.61
108	4.89	317	14.36	183.55 - 185.55		48	2.71
141	6.39	458	20.74	185.55 - 187.55		112	6.31
161	7.29	619	28.03	187.55 - 189.55		81	4.57
194	8.79	813	36.82	189.55 - 191.55		117	6.60
208	9.42	1021	46.24	191.55 - 193.55		117	6.60
183	8.29	1204	54.53	193.55 - 195.55		145	8.17
190	8.61	1394	63.13	195.55 - 197.55		146	8.17
174	7.88	1568	71.01	197.55 - 199.55		146	8.17
147	6.66	1715	77.67	199.55 - 201.55		129	7.27
133	6.02	1848	83.70	201.55 - 203.55		121	6.82
123	5.57	1971	89.27	203.55 - 205.55		99	5.58
67	3.03	2038	92.30	205.55 - 207.55		90	5.07
70	3.17	2108	95.47	207.55 - 209.55		75	4.23
37	1.68	2145	97.15	209.55 - 211.55		75	4.23
25	1.13	2170	98.28	211.55 - 213.55		16	.90
17	.77	2187	99.05	213.55 - 215.55		4	.23
12	.54	2199	99.59	215.55 - 217.55		5	.28
4	.18	2203	99.77	217.55 - 219.55		3	.17
2	.09	2205	99.86	219.55 - 221.55		0	.00
1	.05	2206	99.91	221.55 - 223.55		0	.00
1	.05	2207	99.95	223.55 - 225.55		1	.06
1	.05	2208	100.00	225.55 - 227.55		1	.06
				227.55 - 229.55		29	1.63
				229.55 - 231.55		16	.90
				231.55 - 233.55		4	.23
				233.55 - 235.55		5	.28
				235.55 - 237.55		3	.17
				237.55 - 239.55		0	.00
				239.55 - 241.55		1	.06
				241.55 - 243.55		0	.00
				243.55 - 245.55		0	.00
				245.55 - 247.55		0	.00
				247.55 - 249.55		0	.00
				249.55 - 251.55		1	.06
				251.55 - 253.55		1	.06

## (D43) VERTICAL GRIP REACH DOWN

The vertical distance between the acromion landmark on the tip of the right shoulder and the center of a 1-1/4" diameter dowel gripped perpendicularly in the right hand of a subject standing erect with the arms held straight at the sides is calculated as follows: ACROMIAL HEIGHT minus WRIST HEIGHT plus WRIST-CENTER OF GRIP LENGTH.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
53.55	21.08	59.08	23.26
54.42	21.43	59.95	23.60
54.97	21.64	60.50	23.82
55.71	21.93	61.23	24.11
56.84	22.38	62.36	24.55
57.61	22.68	63.13	24.85
58.21	22.92	63.74	25.09
58.74	23.13	64.28	25.31
59.21	23.31	64.76	25.50
59.65	23.48	65.21	25.67
60.07	23.65	65.65	25.84
60.48	23.81	66.07	26.01
60.88	23.97	66.49	26.18
61.29	24.13	66.92	26.35
61.70	24.29	67.35	26.52
62.14	24.46	67.81	26.70
62.60	24.64	68.29	26.89
63.10	24.84	68.81	27.09
63.66	25.06	69.40	27.32
64.32	25.32	70.09	27.59
65.16	25.65	70.96	27.94
66.42	26.15	72.23	28.44
67.25	26.48	73.04	28.75
67.86	26.72	73.61	28.98
68.82	27.09	74.49	29.33

# VERTICAL GRIP REACH DOWN

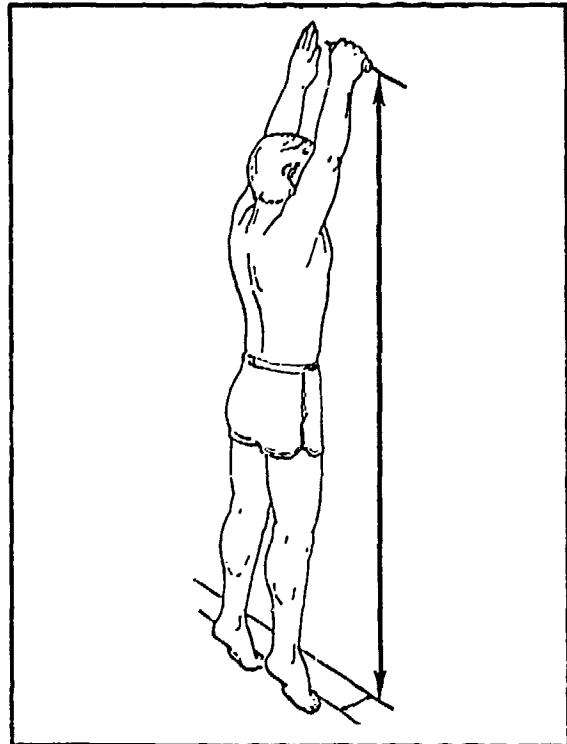
FEMALES		
<u>CM</u>	<u>INCHES</u>	
60.95	MEAN VALUE	24.00
.07	SE(MEAN)	.03
3.27	STD DEVIATION	1.29
.05	SE(STD DEV)	.02
49.20	MINIMUM	19.37
73.50	MAXIMUM	28.94
SYMMETRY---VETA I	=	.12
KURTOSIS---VETA II	=	3.12
COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
66.57	MEAN VALUE	26.21
.08	SE(MEAN)	.03
3.33	STD DEVIATION	1.31
.06	SE(STD DEV)	.02
54.10	MINIMUM	21.30
81.40	MAXIMUM	32.05
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.17
COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	48.55 - 49.55			
0	.00	1	.05	49.55 - 50.55			
2	.09	3	.14	50.55 - 51.55			
6	.27	9	.41	51.55 - 52.55			
17	.77	26	1.18	52.55 - 53.55			
23	1.04	49	2.22	53.55 - 54.55	1	.06	1 .06
47	2.13	96	4.35	54.55 - 55.55	1	.06	2 .11
82	3.71	178	8.06	55.55 - 56.55	1	.06	3 .17
152	6.88	330	14.95	56.55 - 57.55	1	.06	4 .23
177	8.02	507	22.96	57.55 - 58.55	4	.23	8 .45
271	12.27	778	35.24	58.55 - 59.55	16	.90	24 1.35
242	10.96	1020	46.20	59.55 - 60.55	36	2.03	60 3.38
263	11.91	1283	58.11	60.55 - 61.55	46	2.59	106 5.98
236	10.69	1519	68.80	61.55 - 62.55	85	4.79	191 10.77
213	9.65	1732	78.44	62.55 - 63.55	136	7.67	327 18.43
179	8.11	1911	86.55	63.55 - 64.55	164	9.24	491 27.68
120	5.43	2031	91.98	64.55 - 65.55	191	10.77	682 38.44
87	3.94	2118	95.92	65.55 - 66.55	217	12.23	899 50.68
40	1.81	2158	97.74	66.55 - 67.55	208	11.72	1107 62.40
23	1.04	2181	98.78	67.55 - 68.55	195	10.99	1302 73.39
12	.54	2193	99.32	68.55 - 69.55	154	8.68	1456 82.07
8	.36	2201	99.68	69.55 - 70.55	106	5.98	1562 88.05
3	.14	2204	99.82	70.55 - 71.55	77	4.34	1639 92.39
3	.14	2207	99.95	71.55 - 72.55	58	3.27	1697 95.66
1	.05	2208	100.00	72.55 - 73.55	42	2.37	1739 98.03
				73.55 - 74.55	23	1.30	1762 99.32
				74.55 - 75.55	7	.39	1769 99.72
				75.55 - 76.55	3	.17	1772 99.89
				76.55 - 77.55	0	.00	1772 99.89
				77.55 - 78.55	0	.00	1772 99.89
				78.55 - 79.55	1	.06	1773 99.94
				79.55 - 80.55	0	.00	1773 99.94
				80.55 - 81.55	1	.06	1774 100.00

## (D44) VERTICAL GRIP REACH, EXTENDED

The vertical distance between a standing surface and the center of a 1-1/4" diameter dowel gripped horizontally in the right hand of a subject standing on the toes and reaching straight overhead as far as possible is calculated as follows: OVERHEAD FINGERTIP REACH, EXTENDED minus HAND LENGTH plus WRIST-CENTER OF GRIP LENGTH.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
183.10	72.09	1ST	198.56 78.17
185.83	73.16	2ND	201.29 79.25
187.46	73.80	3RD	202.94 79.90
189.59	74.64	5TH	205.13 80.76
192.73	75.88	10TH	208.40 82.05
194.80	76.69	15TH	210.60 82.91
196.43	77.34	20TH	212.34 83.60
197.85	77.89	25TH	213.86 84.20
199.13	78.40	30TH	215.24 84.74
200.32	78.87	35TH	216.52 85.24
201.46	79.32	40TH	217.75 85.73
202.58	79.76	45TH	218.96 86.20
203.70	80.20	50TH	220.16 86.68
204.83	80.64	55TH	221.38 87.16
205.92	81.09	60TH	222.62 87.65
207.19	81.57	65TH	223.91 88.16
208.47	82.08	70TH	225.29 88.70
209.88	82.63	75TH	226.78 89.28
211.47	83.25	80TH	228.46 89.94
213.31	83.98	85TH	230.39 90.70
215.65	84.90	90TH	232.80 91.65
219.05	86.24	95TH	236.25 93.01
221.19	87.08	97TH	238.35 93.84
222.70	87.68	98TH	239.80 94.41
224.93	88.55	99TH	241.86 95.22

# VERTICAL GRIP REACH, EXTENDED

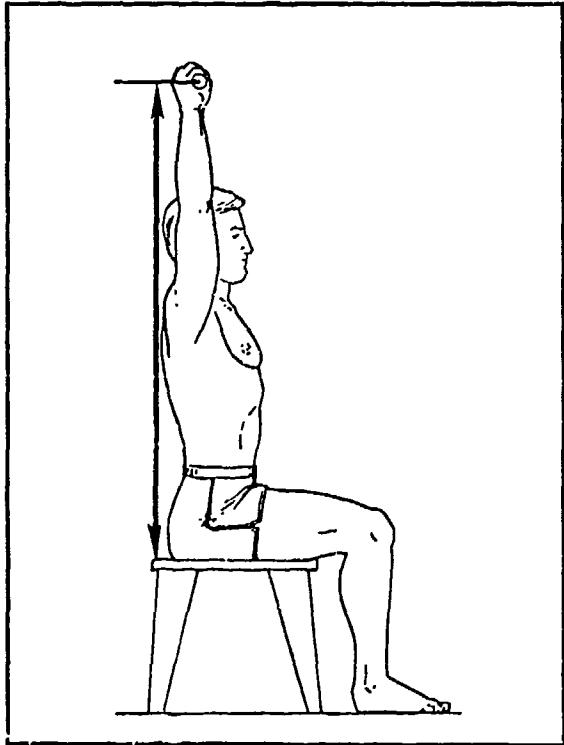
FEMALES		
	CM	INCHES
203.92	MEAN VALUE	80.28
.19	SE(MEAN)	.08
8.97	STD DEVIATION	3.53
.13	SE(STD DEV)	.05
172.10	MINIMUM	67.76
235.50	MAXIMUM	92.72
SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	2208

MALES		
	CM	INCHES
220.40	MEAN VALUE	86.77
.22	SE(MEAN)	.09
9.47	STD DEVIATION	3.73
.16	SE(STD DEV)	.06
181.70	MINIMUM	71.54
266.90	MAXIMUM	105.08
SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	3.23
COEF. OF VARIATION	=	4.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	171.55 - 173.55		1	.06
1	.05	3	.14	173.55 - 175.55		1	.06
2	.09	5	.23	175.55 - 177.55		1	.06
0	.00	5	.23	177.55 - 179.55		1	.06
10	.45	15	.68	179.55 - 181.55		1	.06
11	.50	26	1.18	181.55 - 183.55		1	.06
13	.59	39	1.77	183.55 - 185.55		1	.06
21	.95	60	2.72	185.55 - 187.55		1	.06
43	1.95	103	4.66	187.55 - 189.55		1	.06
72	3.26	175	7.93	189.55 - 191.55		2	.11
96	4.35	271	12.27	191.55 - 193.55		3	.17
101	4.57	372	16.85	193.55 - 195.55		7	.39
166	7.52	538	24.37	195.55 - 197.55		11	.62
173	7.84	711	32.20	197.55 - 199.55		12	1.30
189	8.56	900	40.76	199.55 - 201.55		36	2.03
208	9.42	1108	50.18	201.55 - 203.55		59	3.33
165	7.47	1273	57.65	203.55 - 205.55		99	5.58
184	8.33	1457	65.99	205.55 - 207.55		149	8.40
158	7.16	1615	73.14	207.55 - 209.55		212	11.95
156	7.07	1771	80.21	209.55 - 211.55		298	16.80
120	5.43	1891	85.64	211.55 - 213.55		423	23.84
91	4.12	1982	89.76	213.55 - 215.55		559	31.51
71	3.22	2053	92.98	215.55 - 217.55		690	38.90
67	3.03	2120	96.01	217.55 - 219.55		844	47.58
35	1.59	2155	97.60	219.55 - 221.55		989	55.75
17	.77	2172	98.37	221.55 - 223.55		1139	64.21
17	.77	2189	99.14	223.55 - 225.55		1255	70.74
7	.32	2196	99.46	225.55 - 227.55		1375	77.51
6	.27	2202	99.73	227.55 - 229.55		1472	82.98
4	.18	2206	99.91	229.55 - 231.55		1553	87.54
0	.00	2206	99.91	231.55 - 233.55		1619	91.26
2	.09	2208	100.00	233.55 - 235.55		1672	94.25
				235.55 - 237.55		1705	96.11
				237.55 - 239.55		1743	98.25
				239.55 - 241.55		1752	98.76
				241.55 - 243.55		1763	99.38
				243.55 - 245.55		1770	99.77
				245.55 - 247.55		1771	99.83
				247.55 - 249.55		1771	99.83
				249.55 - 251.55		1772	99.89
				251.55 - 253.55		1772	99.89
				253.55 - 255.55		1772	99.89
				255.55 - 257.55		1773	99.94
				257.55 - 259.55		1773	99.94
				259.55 - 261.55		1773	99.94
				261.55 - 263.55		1773	99.94
				263.55 - 265.55		1773	99.94
				265.55 - 267.55		1774	100.00

## (D45) VERTICAL GRIP REACH, SITTING

The vertical distance between a sitting surface and the center of a 1-1/4" diameter dowel gripped horizontally in the right hand of a subject sitting erect with the arm held straight overhead is calculated as follows: OVERHEAD FINGERTIP REACH, SITTING minus HAND LENGTH plus WRIST-CENTER OF GRIP LENGTH.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
109.24	43.01	1ST	117.75 46.36
110.60	43.54	2ND	119.64 47.10
111.48	43.89	3RD	120.74 47.53
112.69	44.36	5TH	122.14 48.09
114.57	45.11	10TH	124.15 48.88
115.86	45.61	15TH	125.45 49.39
116.87	46.01	20TH	126.46 49.79
117.76	46.36	25TH	127.34 50.13
118.54	46.67	30TH	128.12 50.44
119.27	46.96	35TH	128.84 50.73
119.96	47.23	40TH	129.54 51.00
120.62	47.49	45TH	130.22 51.27
121.28	47.75	50TH	130.90 51.54
121.93	48.01	55TH	131.59 51.81
122.59	48.27	60TH	132.29 52.08
123.27	48.53	65TH	133.02 52.37
123.99	48.81	70TH	133.80 52.68
124.75	49.12	75TH	134.64 53.01
125.61	49.45	80TH	135.60 53.38
126.59	49.84	85TH	136.70 53.82
127.82	50.32	90TH	138.08 54.36
129.61	51.03	95TH	140.05 55.14
130.76	51.48	97TH	141.25 55.61
131.60	51.81	98TH	142.06 55.93
132.90	52.32	99TH	143.20 56.38

# VERTICAL GRIP REACH, SITTING

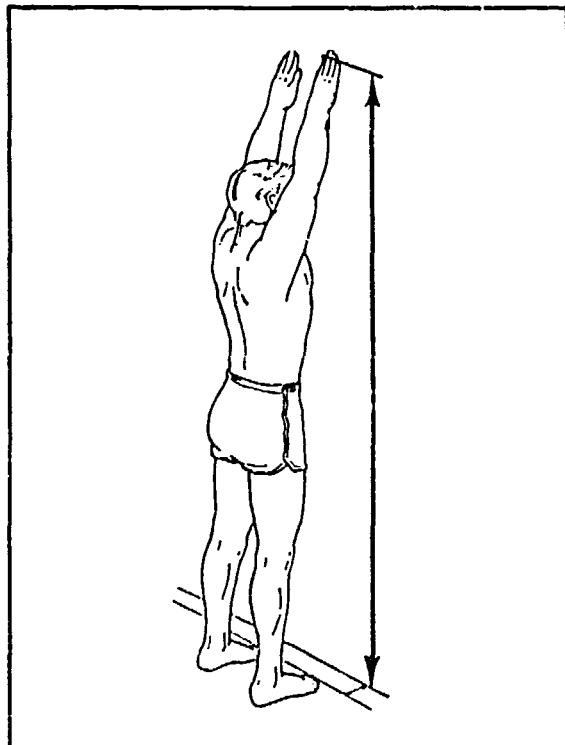
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
121.23	MEAN VALUE	47.73
.11	SE(MEAN)	.04
5.13	STD DEVIATION	2.02
.08	SE(STD DEV)	.03
103.00	MINIMUM	40.55
138.60	MAXIMUM	54.57
SYMMETRY---VETA I	=	-.03
KURTOSIS---VETA II	=	2.94
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
130.98	MEAN VALUE	51.57
.13	SE(MEAN)	.05
5.45	STD DEVIATION	2.15
.09	SE(STD DEV)	.04
106.40	MINIMUM	41.89
155.10	MAXIMUM	61.06
SYMMETRY---VETA I	=	-.02
KURTOSIS---VETA II	=	3.23
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	102.55 - 103.55			
0	.00	1	.05	103.55 - 104.55			
2	.09	3	.14	104.55 - 105.55			
3	.14	6	.27	105.55 - 106.55			
1	.05	7	.32	106.55 - 107.55			
9	.41	16	.72	107.55 - 108.55			
8	.36	24	1.09	108.55 - 109.55			
19	.86	43	1.95	109.55 - 110.55			
26	1.18	69	3.13	110.55 - 111.55			
35	1.59	104	4.71	111.55 - 112.55			
41	1.86	145	6.57	112.55 - 113.55			
62	2.81	207	9.38	113.55 - 114.55			
81	3.67	288	13.04	114.55 - 115.55			
108	4.89	396	17.93	115.55 - 116.55			
134	6.07	530	24.00	116.55 - 117.55			
138	6.25	668	30.25	117.55 - 118.55			
175	7.93	843	38.18	118.55 - 119.55			
153	6.93	996	45.11	119.55 - 120.55			
158	7.16	1154	52.26	120.55 - 121.55			
163	7.38	1317	59.65	121.55 - 122.55			
161	7.29	1478	66.94	122.55 - 123.55			
139	6.30	1617	73.23	123.55 - 124.55			
141	6.39	1758	79.62	124.55 - 125.55			
126	5.71	1884	85.33	125.55 - 126.55			
83	3.76	1967	89.09	126.55 - 127.55			
77	3.49	2044	92.57	127.55 - 128.55			
52	2.36	2096	94.93	128.55 - 129.55			
42	1.90	2138	96.83	129.55 - 130.55			
23	1.04	2161	97.87	130.55 - 131.55			
21	.95	2182	98.82	131.55 - 132.55			
7	.32	2189	99.14	132.55 - 133.55			
10	.45	2199	99.59	133.55 - 134.55			
5	.23	2204	99.82	134.55 - 135.55			
2	.09	2206	99.91	135.55 - 136.55			
1	.05	2207	99.95	136.55 - 137.55			
0	.00	2207	99.95	137.55 - 138.55			
1	.05	2208	100.00	138.55 - 139.55			
				139.55 - 140.55			
				140.55 - 141.55			
				141.55 - 142.55			
				142.55 - 143.55			
				143.55 - 144.55			
				144.55 - 145.55			
				145.55 - 146.55			
				146.55 - 147.55			
				147.55 - 148.55			
				148.55 - 149.55			
				149.55 - 150.55			
				150.55 - 151.55			
				151.55 - 152.55			
				152.55 - 153.55			
				153.55 - 154.55			
				154.55 - 155.55			

## (D46) VERTICAL INDEX FINGERTIP REACH

The vertical distance between a standing surface and the tip of the right index finger of a subject standing erect with the right shoulder, arm, and fingers stretched straight overhead is calculated as follows: OVERHEAD FINGERTIP REACH minus HAND LENGTH plus WRIST-INDEX FINGER LENGTH.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
183.76	72.35	1ST	199.37 78.49
186.51	73.43	2ND	202.21 79.61
188.17	74.08	3RD	203.93 80.29
190.33	74.93	5TH	206.19 81.18
193.53	76.19	10TH	209.58 82.51
195.66	77.03	15TH	211.84 83.40
197.33	77.69	20TH	213.64 84.11
198.79	78.26	25TH	215.21 84.73
200.10	78.78	30TH	216.62 85.29
201.33	79.26	35TH	217.95 85.81
202.50	79.73	40TH	219.22 86.31
203.65	80.18	45TH	220.45 86.79
204.80	80.63	50TH	221.69 87.28
205.96	81.09	55TH	222.94 87.77
207.15	81.55	60TH	224.22 88.27
208.39	82.04	65TH	225.54 88.80
209.71	82.56	70TH	226.95 89.35
211.15	83.13	75TH	228.47 89.95
212.78	83.77	80TH	230.18 90.62
214.67	84.51	85TH	232.13 91.39
217.06	85.46	90TH	234.56 92.35
220.53	86.82	95TH	237.98 93.69
222.71	87.68	97TH	240.02 94.50
224.24	88.28	98TH	241.40 95.04
226.50	89.17	99TH	243.30 95.79

# VERTICAL INDEX FINGERTIP REACH

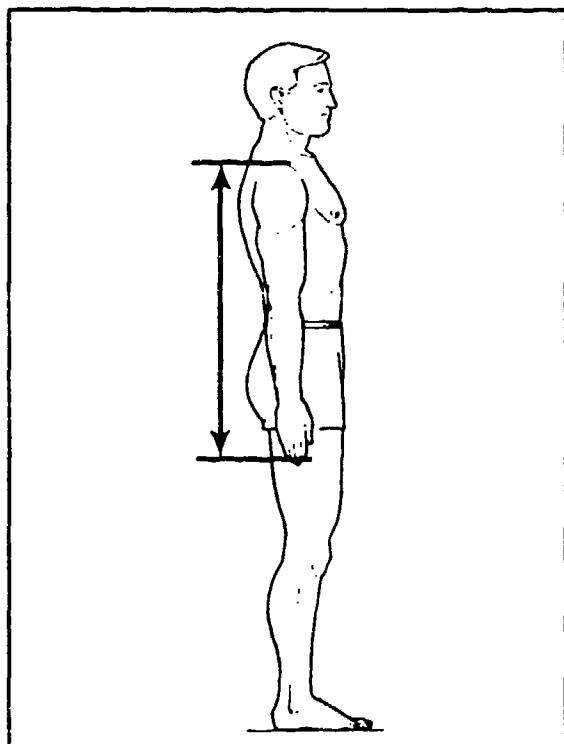
FEMALES		
	CM	INCHES
205.02	MEAN VALUE	80.72
.20	SE(MEAN)	.08
9.20	STD DEVIATION	3.62
.14	SE(STD DEV)	.05
170.90	MINIMUM	67.28
237.40	MAXIMUM	93.46
SYMMETRY---VETA I	=	.06
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	2208

MALES		
	CM	INCHES
221.85	MEAN VALUE	87.34
.23	SE(MEAN)	.09
9.71	STD DEVIATION	3.82
.16	SE(STD DEV)	.06
178.90	MINIMUM	70.43
266.40	MAXIMUM	104.88
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.29
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
1	.05	1	.05	169.55 - 171.55				1	.06	1	.06
1	.05	2	.09	171.55 - 173.55				0	.00	1	.06
1	.05	3	.14	173.55 - 175.55				0	.00	1	.06
1	.05	4	.18	175.55 - 177.55				0	.00	1	.06
1	.05	5	.23	177.55 - 179.55				0	.00	2	.11
8	.36	13	.59	179.55 - 181.55				1	.06	1	.06
7	.32	20	.91	181.55 - 183.55				0	.00	1	.06
16	.72	36	1.63	183.55 - 185.55				0	.00	1	.06
17	.77	53	2.40	185.55 - 187.55				0	.00	1	.06
32	1.45	85	3.85	187.55 - 189.55				0	.00	1	.06
55	2.49	140	6.34	189.55 - 191.55				1	.06	2	.11
85	3.85	225	10.19	191.55 - 193.55				0	.00	2	.11
106	4.80	331	14.99	193.55 - 195.55				2	.11	4	.23
133	6.02	464	21.01	195.55 - 197.55				8	.45	12	.68
152	6.88	616	27.90	197.55 - 199.55				6	.34	18	1.01
188	8.51	804	36.41	199.55 - 201.55				10	.56	28	1.58
196	8.88	1000	45.29	201.55 - 203.55				21	1.18	49	2.76
177	8.02	1177	53.31	203.55 - 205.55				28	1.58	77	4.34
164	7.43	1341	60.73	205.55 - 207.55				49	2.76	126	7.10
186	8.42	1527	69.16	207.55 - 209.55				50	2.82	176	9.92
131	5.93	1658	75.09	209.55 - 211.55				66	3.72	242	13.64
145	6.57	1803	81.66	211.55 - 213.55				106	5.98	348	19.62
129	5.84	1932	87.50	213.55 - 215.55				126	7.10	474	26.72
76	3.44	2008	90.94	215.55 - 217.55				121	6.82	595	33.54
71	3.22	2079	94.16	217.55 - 219.55				123	6.93	718	40.47
50	2.26	2129	96.42	219.55 - 221.55				160	9.02	878	49.49
28	1.27	2157	97.69	221.55 - 223.55				153	8.62	1031	58.12
17	.77	2174	98.46	223.55 - 225.55				119	5.71	1150	64.83
19	.86	2193	99.32	225.55 - 227.55				133	7.50	1283	72.32
7	.32	2200	99.64	227.55 - 229.55				107	6.03	1390	78.35
4	.18	2204	99.82	229.55 - 231.55				88	4.96	1478	83.31
1	.05	2205	99.86	231.55 - 233.55				86	4.85	1564	88.16
1	.05	2206	99.91	233.55 - 235.55				70	3.95	1634	92.11
2	.09	2208	100.00	235.55 - 237.55				48	2.71	1682	94.81
				237.55 - 239.55				28	1.58	1710	96.39
				239.55 - 241.55				34	1.92	1744	98.31
				241.55 - 243.55				15	.85	1759	99.15
				243.55 - 245.55				4	.23	1763	99.38
				245.55 - 247.55				4	.23	1767	99.61
				247.55 - 249.55				4	.23	1771	99.83
				249.55 - 251.55				0	.00	1771	99.83
				251.55 - 253.55				1	.05	1772	99.89
				253.55 - 255.55				0	.00	1772	99.89
				255.55 - 257.55				0	.00	1772	99.89
				257.55 - 259.55				0	.00	1772	99.89
				259.55 - 261.55				0	.00	1772	99.89
				261.55 - 263.55				1	.06	1772	99.89
				263.55 - 265.55				1	.06	1773	99.94
				265.55 - 267.55				1	.06	1774	100.00

## (D47) VERTICAL INDEX FINGERTIP REACH DOWN

The vertical distance between the acromion landmark on the tip of the right shoulder and the tip of the right index finger of a subject standing erect with the arms, hands, and fingers held straight down at the sides is calculated as follows: ACROMIAL HEIGHT minus WRIST HEIGHT plus WRIST-INDEX FINGER LENGTH.



THE PERCENTILES					
FEMALES		MALES			
CM	INCHES		CM	INCHES	
62.72	24.69	1ST	69.25	27.26	
63.70	25.08	2ND	70.25	27.66	
64.32	25.32	3RD	70.86	27.90	
65.16	25.65	5TH	71.68	28.22	
66.47	26.17	10TH	72.92	28.71	
67.36	26.52	15TH	73.77	29.04	
68.06	26.80	20TH	74.45	29.31	
68.68	27.04	25TH	75.04	29.55	
69.23	27.26	30TH	75.59	29.76	
69.75	27.46	35TH	76.10	29.96	
70.24	27.65	40TH	76.59	30.15	
70.71	27.84	45TH	77.07	30.34	
71.18	28.03	50TH	77.56	30.53	
71.66	28.21	55TH	78.05	30.73	
72.14	28.40	60TH	78.55	30.92	
72.65	28.60	65TH	79.07	31.13	
73.18	28.81	70TH	79.63	31.35	
73.76	29.04	75TH	80.24	31.59	
74.41	29.30	80TH	80.93	31.86	
75.17	29.59	85TH	81.72	32.17	
76.13	29.97	90TH	82.72	32.57	
77.57	30.54	95TH	84.15	33.13	
78.51	30.91	97TH	85.03	33.48	
79.20	31.18	98TH	85.65	33.72	
80.28	31.61	99TH	86.53	34.07	

# VERTICAL INDEX FINGERTIP REACH DOWN

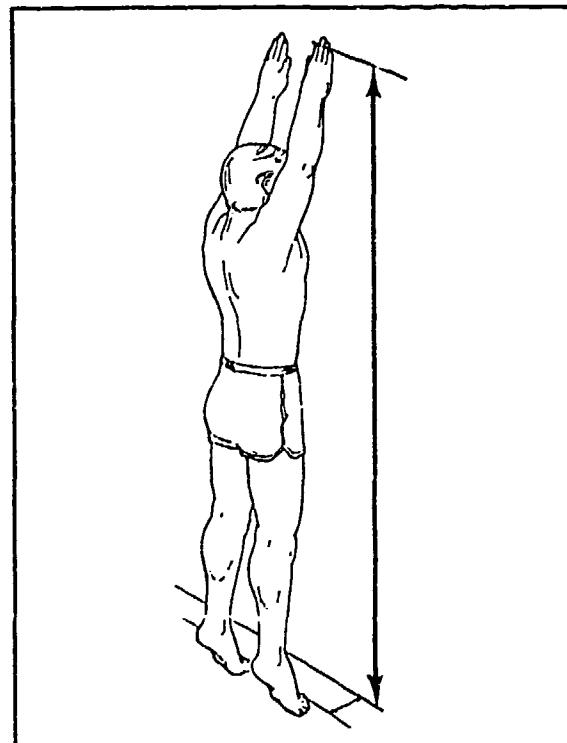
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
71.24	MEAN VALUE	28.05
.08	SE(MEAN)	.03
3.76	STD DEVIATION	1.48
.06	SE(STD DEV)	.02
57.60	MINIMUM	22.68
85.80	MAXIMUM	33.78
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	3.09
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
77.68	MEAN VALUE	30.58
.09	SE(MEAN)	.04
3.80	STD DEVIATION	1.49
.06	SE(STD DEV)	.03
63.10	MINIMUM	24.84
94.10	MAXIMUM	37.05
SYMMETRY---VETA I	=	.12
KURTOSIS---VETA II	=	3.18
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
				57.55 - 58.55	58.55 - 59.55	59.55 - 60.55	60.55 - 61.55
1	.05	1	.05	57.55 - 58.55	58.55 - 59.55	59.55 - 60.55	60.55 - 61.55
0	.00	1	.05	58.55 - 59.55	59.55 - 60.55	60.55 - 61.55	61.55 - 62.55
2	.09	3	.14	59.55 - 60.55	60.55 - 61.55	61.55 - 62.55	62.55 - 63.55
6	.27	9	.41	60.55 - 61.55	61.55 - 62.55	62.55 - 63.55	63.55 - 64.55
12	.54	21	.95	61.55 - 62.55	62.55 - 63.55	63.55 - 64.55	64.55 - 65.55
20	.91	41	1.86	62.55 - 63.55	63.55 - 64.55	64.55 - 65.55	65.55 - 66.55
35	1.59	76	3.44	63.55 - 64.55	64.55 - 65.55	65.55 - 66.55	66.55 - 67.55
51	2.31	127	5.75	64.55 - 65.55	65.55 - 66.55	66.55 - 67.55	67.55 - 68.55
102	4.62	229	10.37	65.55 - 66.55	66.55 - 67.55	67.55 - 68.55	68.55 - 69.55
131	5.93	360	16.30	66.55 - 67.55	67.55 - 68.55	68.55 - 69.55	69.55 - 70.55
180	8.15	540	24.46	67.55 - 68.55	68.55 - 69.55	69.55 - 70.55	70.55 - 71.55
202	9.15	742	33.61	68.55 - 69.55	69.55 - 70.55	70.55 - 71.55	71.55 - 72.55
223	10.10	965	43.70	69.55 - 70.55	70.55 - 71.55	71.55 - 72.55	72.55 - 73.55
240	10.87	1205	54.57	70.55 - 71.55	71.55 - 72.55	72.55 - 73.55	73.55 - 74.55
210	9.51	1415	64.09	71.55 - 72.55	72.55 - 73.55	73.55 - 74.55	74.55 - 75.55
199	9.01	1614	73.10	72.55 - 73.55	73.55 - 74.55	74.55 - 75.55	75.55 - 76.55
175	7.93	1789	81.02	73.55 - 74.55	74.55 - 75.55	75.55 - 76.55	76.55 - 77.55
133	6.02	1922	87.05	74.55 - 75.55	75.55 - 76.55	76.55 - 77.55	77.55 - 78.55
105	4.76	2027	91.80	75.55 - 76.55	76.55 - 77.55	77.55 - 78.55	78.55 - 79.55
80	3.62	2107	95.43	76.55 - 77.55	77.55 - 78.55	78.55 - 79.55	79.55 - 80.55
44	1.99	2151	97.42	77.55 - 78.55	78.55 - 79.55	79.55 - 80.55	80.55 - 81.55
21	.95	2172	98.37	78.55 - 79.55	79.55 - 80.55	80.55 - 81.55	81.55 - 82.55
19	.86	2191	99.23	79.55 - 80.55	80.55 - 81.55	81.55 - 82.55	82.55 - 83.55
6	.27	2197	99.50	80.55 - 81.55	81.55 - 82.55	82.55 - 83.55	83.55 - 84.55
4	.18	2201	99.68	81.55 - 82.55	82.55 - 83.55	83.55 - 84.55	84.55 - 85.55
4	.18	2205	99.86	82.55 - 83.55	83.55 - 84.55	84.55 - 85.55	85.55 - 86.55
1	.05	2206	99.91	83.55 - 84.55	84.55 - 85.55	85.55 - 86.55	86.55 - 87.55
1	.05	2207	99.95	84.55 - 85.55	85.55 - 86.55	86.55 - 87.55	87.55 - 88.55
1	.05	2208	100.00	85.55 - 86.55	86.55 - 87.55	87.55 - 88.55	88.55 - 89.55
				86.55 - 87.55	87.55 - 88.55	88.55 - 89.55	89.55 - 90.55
				87.55 - 88.55	88.55 - 89.55	89.55 - 90.55	90.55 - 91.55
				88.55 - 89.55	89.55 - 90.55	90.55 - 91.55	91.55 - 92.55
				89.55 - 90.55	90.55 - 91.55	91.55 - 92.55	92.55 - 93.55
				90.55 - 91.55	91.55 - 92.55	92.55 - 93.55	93.55 - 94.55
				91.55 - 92.55	92.55 - 93.55	93.55 - 94.55	94.55 - 95.55
				92.55 - 93.55	93.55 - 94.55	94.55 - 95.55	95.55 - 96.55
				93.55 - 94.55	94.55 - 95.55	95.55 - 96.55	96.55 - 97.55
				95.55 - 96.55	96.55 - 97.55	97.55 - 98.55	98.55 - 99.55
				96.55 - 97.55	97.55 - 98.55	98.55 - 99.55	99.55 - 100.00

## (D48) VERTICAL INDEX FINGERTIP REACH, EXTENDED

The vertical distance between a standing surface and the tip of the right index finger of a subject standing on the tips of the toes and reaching overhead as far as possible with the arms, hands, and fingers straight and parallel is calculated as follows: OVERHEAD FINGERTIP REACH, EXTENDED minus HAND LENGTH plus WRIST-INDEX FINGER LENGTH.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
192.50	75.79	1ST	208.78 82.20
195.27	76.88	2ND	211.56 83.29
196.94	77.54	3RD	213.27 83.96
199.14	78.40	5TH	215.52 84.85
202.41	79.69	10TH	218.94 86.20
204.58	80.54	15TH	221.24 87.10
206.31	81.22	20TH	223.07 87.82
207.81	81.81	25TH	224.67 88.45
209.16	82.35	30TH	226.11 89.02
210.42	82.84	35TH	227.46 89.55
211.64	83.32	40TH	228.75 90.06
212.82	83.79	45TH	230.01 90.56
214.00	84.25	50TH	231.28 91.05
215.20	84.72	55TH	232.55 91.56
216.42	85.21	60TH	233.85 92.07
217.70	85.71	65TH	235.20 92.60
219.05	86.24	70TH	236.64 93.16
220.53	86.82	75TH	238.20 93.78
222.20	87.48	80TH	239.95 94.47
224.12	88.24	85TH	241.97 95.26
226.55	89.19	90TH	244.51 96.26
230.07	90.58	95TH	248.14 97.69
232.25	91.44	97TH	250.38 98.57
233.77	92.04	98TH	251.94 99.19
236.00	92.91	99TH	254.18 100.07

# VERTICAL INDEX FINGERTIP REACH, EXTENDED

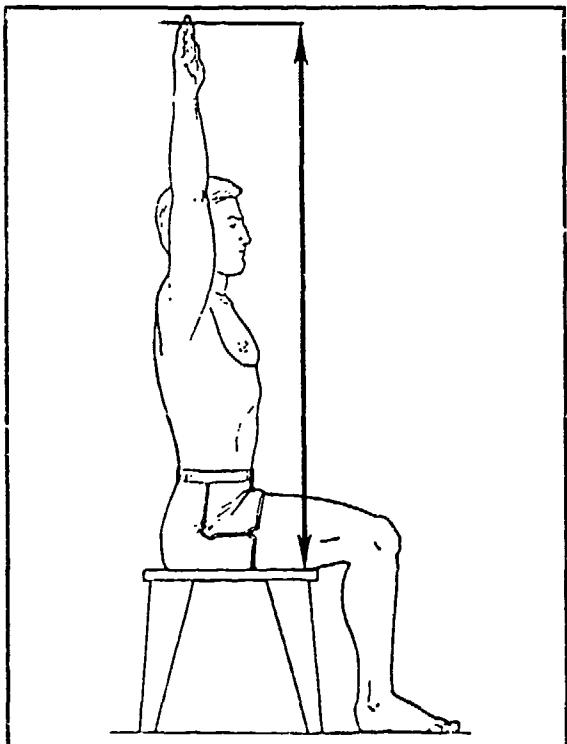
FEMALES		
<u>CM</u>	<u>INCHES</u>	
214.22	MEAN VALUE	84.34
.20	SE(MEAN)	.08
9.46	STD DEVIATION	3.72
.14	SE(STD DEV)	.06
180.80	MINIMUM	71.18
246.90	MAXIMUM	97.20
SYMMETRY---VETA I	=	.06
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
231.51	MEAN VALUE	91.14
.24	SE(MEAN)	.09
9.95	STD DEVIATION	3.92
.17	SE(STD DEV)	.07
190.70	MINIMUM	75.08
279.90	MAXIMUM	110.20
SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
				179.55 - 181.55	181.55 - 183.55	183.55 - 185.55	185.55 - 187.55
1	.05	1	.05	179.55 - 181.55	181.55 - 183.55	183.55 - 185.55	185.55 - 187.55
2	.09	3	.14	181.55 - 183.55	183.55 - 185.55	185.55 - 187.55	187.55 - 189.55
0	.00	3	.14	183.55 - 185.55	185.55 - 187.55	187.55 - 189.55	189.55 - 191.55
2	.09	5	.23	185.55 - 187.55	187.55 - 189.55	189.55 - 191.55	191.55 - 193.55
4	.18	9	.41	187.55 - 189.55	189.55 - 191.55	191.55 - 193.55	193.55 - 195.55
10	.45	19	.86	189.55 - 191.55	191.55 - 193.55	193.55 - 195.55	195.55 - 197.55
10	.45	29	1.31	191.55 - 193.55	193.55 - 195.55	195.55 - 197.55	197.55 - 199.55
16	.72	45	2.04	193.55 - 195.55	195.55 - 197.55	197.55 - 199.55	199.55 - 201.55
25	1.13	70	3.17	195.55 - 197.55	197.55 - 199.55	199.55 - 201.55	201.55 - 203.55
45	2.04	115	5.21	197.55 - 199.55	199.55 - 201.55	201.55 - 203.55	203.55 - 205.55
77	3.49	192	8.70	199.55 - 201.55	201.55 - 203.55	203.55 - 205.55	205.55 - 207.55
85	3.85	277	12.55	201.55 - 203.55	203.55 - 205.55	205.55 - 207.55	207.55 - 209.55
110	4.98	387	17.53	203.55 - 205.55	205.55 - 207.55	207.55 - 209.55	209.55 - 211.55
149	6.75	536	24.28	205.55 - 207.55	207.55 - 209.55	209.55 - 211.55	211.55 - 213.55
163	7.38	699	31.66	207.55 - 209.55	209.55 - 211.55	211.55 - 213.55	213.55 - 215.55
190	8.61	889	40.26	209.55 - 211.55	211.55 - 213.55	213.55 - 215.55	215.55 - 217.55
196	8.88	1085	49.14	211.55 - 213.55	213.55 - 215.55	215.55 - 217.55	217.55 - 219.55
148	6.70	1233	55.84	213.55 - 215.55	215.55 - 217.55	217.55 - 219.55	219.55 - 221.55
176	7.97	1409	63.81	215.55 - 217.55	217.55 - 219.55	219.55 - 221.55	221.55 - 223.55
158	7.16	1567	70.97	217.55 - 219.55	219.55 - 221.55	221.55 - 223.55	223.55 - 225.55
153	6.93	1720	77.90	219.55 - 221.55	221.55 - 223.55	223.55 - 225.55	225.55 - 227.55
129	5.84	1849	83.74	221.55 - 223.55	223.55 - 225.55	225.55 - 227.55	227.55 - 229.55
95	4.30	1944	88.04	223.55 - 225.55	225.55 - 227.55	227.55 - 229.55	229.55 - 231.55
76	3.44	2020	91.49	225.55 - 227.55	227.55 - 229.55	229.55 - 231.55	231.55 - 233.55
59	2.67	2079	94.16	227.55 - 229.55	229.55 - 231.55	231.55 - 233.55	233.55 - 235.55
55	2.49	2134	96.65	229.55 - 231.55	231.55 - 233.55	233.55 - 235.55	235.55 - 237.55
29	1.31	2163	97.96	231.55 - 233.55	233.55 - 235.55	235.55 - 237.55	237.55 - 239.55
13	.59	2176	98.55	233.55 - 235.55	235.55 - 237.55	237.55 - 239.55	239.55 - 241.55
15	.68	2191	99.23	235.55 - 237.55	237.55 - 239.55	239.55 - 241.55	241.55 - 243.55
7	.32	2198	99.55	237.55 - 239.55	239.55 - 241.55	241.55 - 243.55	243.55 - 245.55
5	.23	2203	99.77	239.55 - 241.55	241.55 - 243.55	243.55 - 245.55	245.55 - 247.55
1	.05	2204	99.82	241.55 - 243.55	243.55 - 245.55	245.55 - 247.55	247.55 - 249.55
3	.14	2207	99.95	243.55 - 245.55	245.55 - 247.55	247.55 - 249.55	249.55 - 251.55
1	.05	2208	100.00	245.55 - 247.55	247.55 - 249.55	249.55 - 251.55	251.55 - 253.55

## (D49) VERTICAL INDEX FINGERTIP REACH, SITTING

The vertical distance between a sitting surface and the tip of the right index finger of a subject sitting erect and raising the right shoulder, arm, and fingers straight overhead is calculated as follows: OVERHEAD FINGERTIP REACH, SITTING minus HAND LENGTH plus WRIST-INDEX FINGER LENGTH.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
118.78	46.76	1ST	128.17	50.46	
120.11	47.29	2ND	129.98	51.17	
121.01	47.64	3RD	131.08	51.61	
122.27	48.14	5TH	132.51	52.17	
124.28	48.93	10TH	134.65	53.01	
125.67	49.48	15TH	136.06	53.57	
126.78	49.91	20TH	137.17	54.00	
127.74	50.29	25TH	138.13	54.38	
128.61	50.63	30TH	138.99	54.72	
129.40	50.94	35TH	139.78	55.03	
130.15	51.24	40TH	140.55	55.33	
130.87	51.52	45TH	141.29	55.63	
131.59	51.81	50TH	142.03	55.92	
132.30	52.08	55TH	142.77	56.21	
133.01	52.37	60TH	143.52	56.51	
133.74	52.65	65TH	144.31	56.81	
134.51	52.96	70TH	145.14	57.14	
135.33	53.28	75TH	146.04	57.50	
136.25	53.64	80TH	147.06	57.90	
137.31	54.06	85TH	148.23	58.36	
138.63	54.58	90TH	149.69	58.93	
140.59	55.35	95TH	151.81	59.77	
141.86	55.85	97TH	153.13	60.29	
142.81	56.22	98TH	154.05	60.65	
144.32	56.82	99TH	155.40	61.18	

# VERTICAL INDEX FINGERTIP REACH, SITTING

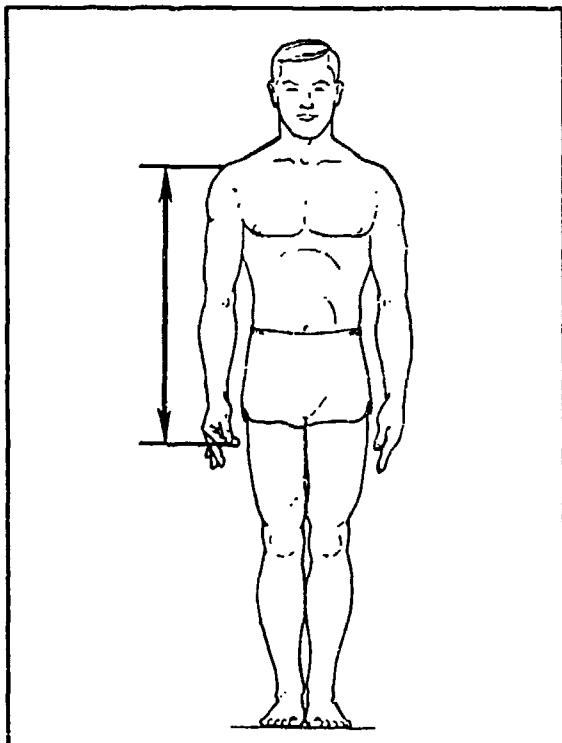
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
131.53	MEAN VALUE	51.78
.12	SE(MEAN)	.05
5.55	STD DEVIATION	2.19
.08	SE(STD DEV)	.03
111.70	MINIMUM	43.98
149.90	MAXIMUM	59.02
SYMMETRY---VETA I	=	-.03
KURTOSIS---VETA II	=	2.92
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
142.09	MEAN VALUE	55.94
.14	SE(MEAN)	.05
5.87	STD DEVIATION	2.31
.10	SE(STD DEV)	.04
115.40	MINIMUM	45.43
168.10	MAXIMUM	66.18
SYMMETRY---VETA I	=	-.03
KURTOSIS---VETA II	=	3.28
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				<u>CENTIMETERS</u>		MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct		
1	.05	1	.05	110.75	- 112.25				
1	.05	2	.09	112.25	- 113.75				
2	.09	4	.18	113.75	- 115.25				
4	.18	8	.36	115.25	- 116.75	1	.06		
7	.32	15	.68	116.75	- 118.25	0	.00		
23	1.04	38	1.72	118.25	- 119.75	0	.00		
39	1.77	77	3.49	119.75	- 121.25	0	.00		
48	2.17	125	5.66	121.25	- 122.75	0	.00		
85	3.85	210	9.51	122.75	- 124.25	4	.23		
115	5.21	325	14.72	124.25	- 125.75	2	.11		
160	7.25	485	21.97	125.75	- 127.25	5	.28		
208	9.42	693	31.39	127.25	- 128.75	10	.56		
220	9.96	913	41.35	128.75	- 130.25	14	.79		
215	9.74	1128	51.09	130.25	- 131.75	35	1.97		
229	10.37	1357	61.46	131.75	- 133.25	41	2.31		
216	9.78	1573	71.24	133.25	- 134.75	71	4.00		
187	8.47	1760	79.71	134.75	- 136.25	93	5.24		
162	7.34	1922	87.05	136.25	- 137.75	115	6.48		
110	4.98	2032	92.03	137.75	- 139.25	185	10.43		
77	3.49	2109	95.52	139.25	- 140.75	163	9.19		
46	2.08	2155	97.60	140.75	- 142.25	152	8.57		
25	1.13	2180	98.73	142.25	- 143.75	206	11.61		
13	.59	2193	99.32	143.75	- 145.25	169	9.53		
10	.45	2203	99.77	145.25	- 146.75	137	7.72		
4	.18	2207	99.95	146.75	- 148.25	99	5.58		
0	.00	2207	99.95	148.25	- 149.75	91	5.13		
1	.05	2208	100.00	149.75	- 151.25	84	4.74		
				151.25	- 152.75	32	1.80		
				152.75	- 154.25	35	1.97		
				154.25	- 155.75	16	.90		
				155.75	- 157.25	7	.39		
				157.25	- 158.75	4	.23		
				158.75	- 160.25	2	.11		
				160.25	- 161.75	0	.00		
				161.75	- 163.25	0	.00		
				163.25	- 164.75	0	.00		
				164.75	- 166.25	0	.00		
				166.25	- 167.75	0	.00		
				167.75	- 169.25	1	.06		
						1774	100.00		

## (D50) VERTICAL THUMBTIP REACH DOWN

The vertical distance between the acromion landmark on the tip of the right shoulder and the tip of the right thumb of a subject standing erect with the arms held straight down and the thumb lying on the first knuckle of the index finger is calculated as follows:  
**ACROMIAL HEIGHT minus WRIST HEIGHT plus WRIST-THUMBTIP LENGTH.**



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
58.11	23.88	64.15	25.26
58.98	23.22	65.02	25.60
59.55	23.44	65.58	25.82
60.33	23.75	66.33	26.11
61.57	24.24	67.51	26.58
62.41	24.57	68.31	26.90
63.09	24.84	68.97	27.15
63.67	25.07	69.54	27.38
64.20	25.27	70.06	27.58
64.68	25.47	70.55	27.77
65.15	25.65	71.01	27.96
65.60	25.83	71.47	28.14
66.04	26.00	71.93	28.32
66.49	26.18	72.39	28.50
66.94	26.35	72.87	28.69
67.41	26.54	73.36	28.88
67.91	26.74	73.88	29.09
68.45	26.95	74.45	29.31
69.05	27.19	75.09	29.56
69.76	27.46	75.83	29.85
70.66	27.82	76.76	30.22
72.01	28.35	78.11	30.75
72.90	28.70	78.95	31.08
73.57	28.97	79.55	31.32
74.65	29.39	80.45	31.67

# VERTICAL THUMBTIP REACH DOWN

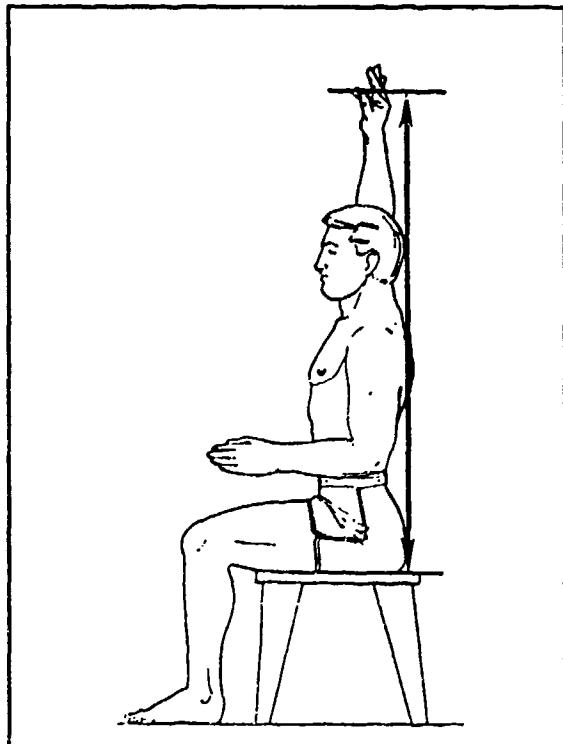
FEMALES		
	<u>CM</u>	<u>INCHES</u>
66.09	MEAN VALUE	26.02
.08	SE(MEAN)	.03
3.55	STD DEVIATION	1.40
.05	SE(STD DEV)	.02
53.20	MINIMUM	20.94
79.50	MAXIMUM	31.30
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
72.04	MEAN VALUE	28.36
.08	SE(MEAN)	.03
3.58	STD DEVIATION	1.41
.06	SE(STD DEV)	.02
58.40	MINIMUM	22.99
87.30	MAXIMUM	34.37
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.13
COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
P	FPct	CumP	CumFPct	CENTIMETERS		P	FPct
1	.05	1	.05	52.55 - 53.55		1	.06
0	.00	1	.05	53.55 - 54.55		0	.00
0	.00	1	.05	54.55 - 55.55		2	.11
7	.32	8	.36	55.55 - 56.55		0	.00
5	.23	13	.59	56.55 - 57.55		1	.06
19	.86	32	1.45	57.55 - 58.55		2	.11
34	1.54	66	2.99	58.55 - 59.55		0	.00
48	2.17	114	5.16	59.55 - 60.55		3	.17
106	4.80	220	9.96	60.55 - 61.55		3	.17
134	6.07	354	16.03	61.55 - 62.55		4	.23
172	7.79	526	23.82	62.55 - 63.55		8	.45
230	10.42	756	34.24	63.55 - 64.55		13	.73
242	10.96	998	45.20	64.55 - 65.55		29	1.63
227	10.28	1225	55.48	65.55 - 66.55		53	2.99
236	10.69	1461	66.17	66.55 - 67.55		82	4.62
207	9.38	1668	75.54	67.55 - 68.55		104	5.86
173	7.84	1841	83.38	68.55 - 69.55		145	8.17
137	6.20	1978	89.58	69.55 - 70.55		172	9.70
89	4.03	2067	93.61	70.55 - 71.55		204	11.50
69	3.13	2136	96.74	71.55 - 72.55		204	11.50
29	1.31	2165	98.05	72.55 - 73.55		172	9.70
16	.72	2181	98.78	73.55 - 74.55		173	9.75
14	.63	2195	99.41	74.55 - 75.55		132	7.44
7	.32	2202	99.73	75.55 - 76.55		95	5.36
3	.14	2205	99.86	76.55 - 77.55		56	3.16
1	.05	2206	99.91	77.55 - 78.55		62	3.49
2	.09	2208	100.00	78.55 - 79.55		35	1.97
				79.55 - 80.55		23	1.30
				80.55 - 81.55		6	.34
				81.55 - 82.55		2	.11
				82.55 - 83.55		2	.11
				83.55 - 84.55		0	.00
				84.55 - 85.55		0	.00
				85.55 - 86.55		1	.06
				86.55 - 87.55		1	.06

## (D51) VERTICAL THUMBTIP REACH, SITTING

The vertical distance between a sitting surface and the tip of the right thumb of a subject sitting erect with the right shoulder, arm, and hand held straight overhead with the thumb lying on the first knuckle of the index finger is calculated as follows: OVERHEAD FINGERTIP REACH, SITTING minus HAND LENGTH plus WRIST-THUMBTIP LENGTH.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
113.96	44.87	1ST	122.95 48.41
115.30	45.39	2ND	124.76 49.12
116.18	45.74	3RD	125.84 49.54
117.41	46.22	5TH	127.24 50.09
119.36	46.99	10TH	129.29 50.90
120.71	47.52	15TH	130.64 51.43
121.77	47.94	20TH	131.70 51.85
122.70	48.31	25TH	132.62 52.21
123.53	48.63	30TH	133.44 52.54
124.30	48.94	35TH	134.21 52.84
125.02	49.22	40TH	134.94 53.13
125.72	49.50	45TH	135.66 53.41
126.42	49.77	50TH	136.38 53.69
127.10	50.04	55TH	137.10 53.98
127.80	50.31	60TH	137.83 54.27
128.51	50.59	65TH	138.60 54.57
129.25	50.89	70TH	139.42 54.89
130.06	51.20	75TH	140.30 55.24
130.95	51.56	80TH	141.30 55.63
131.98	51.96	85TH	142.45 56.08
133.26	52.47	90TH	143.88 56.65
135.15	53.21	95TH	145.93 57.45
136.36	53.69	97TH	147.18 57.95
137.26	54.04	98TH	148.04 58.28
138.66	54.59	99TH	149.26 58.76

# VERTICAL THUMBTIP REACH, SITTING

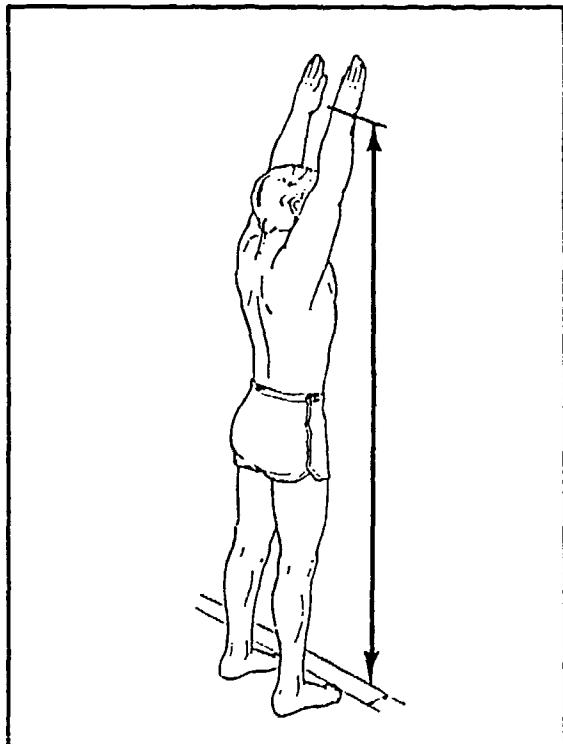
FEMALES		
CM	MEAN VALUE	INCHES
126.37	MEAN VALUE	49.75
.11	SE(MEAN)	.04
5.36	STD DEVIATION	2.11
.08	SE(STD DEV)	.03
107.40	MINIMUM	42.28
144.30	MAXIMUM	56.81
SYMMETRY---VETA I	=	-.04
KURTOSIS---VETA II	=	2.91
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
136.44	MEAN VALUE	53.72
.13	SE(MEAN)	.05
5.68	STD DEVIATION	2.24
.10	SE(STD DEV)	.04
110.70	MINIMUM	43.58
161.30	MAXIMUM	63.50
SYMMETRY---VETA I	=	-.03
KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	CENTIMETERS			
1	.05	1	.05	106.55 - 107.55			
1	.05	2	.09	107.55 - 108.55			
0	.00	2	.09	108.55 - 109.55			
2	.09	4	.18	109.55 - 110.55			
3	.14	7	.32	110.55 - 111.55			
4	.18	11	.50	111.55 - 112.55			
6	.27	17	.77	112.55 - 113.55			
11	.50	28	1.27	113.55 - 114.55			
23	1.04	51	2.31	114.55 - 115.55			
29	1.31	80	3.62	115.55 - 116.55			
37	1.68	117	5.30	116.55 - 117.55			
40	1.81	157	7.11	117.55 - 118.55			
68	3.08	225	10.19	118.55 - 119.55			
73	3.31	298	13.50	119.55 - 120.55			
109	4.94	407	18.43	120.55 - 121.55			
127	5.75	534	24.18	121.55 - 122.55			
136	6.16	670	30.34	122.55 - 123.55			
152	6.88	822	37.23	123.55 - 124.55			
153	6.93	975	44.16	124.55 - 125.55			
156	7.07	1131	51.22	125.55 - 126.55			
140	6.34	1271	57.56	126.55 - 127.55			
161	7.29	1432	64.86	127.55 - 128.55			
146	6.61	1578	71.47	128.55 - 129.55			
133	6.02	1711	77.49	129.55 - 130.55			
125	5.66	1836	83.15	130.55 - 131.55			
98	4.44	1934	87.59	131.55 - 132.55			
77	3.49	2011	91.08	132.55 - 133.55			
62	2.81	2073	93.89	133.55 - 134.55			
50	2.26	2123	96.15	134.55 - 135.55			
23	1.04	2146	97.19	135.55 - 136.55			
26	1.18	2172	98.37	136.55 - 137.55			
15	.68	2187	99.05	137.55 - 138.55			
4	.18	2191	99.23	138.55 - 139.55			
8	.36	2199	99.59	139.55 - 140.55			
8	.36	2207	99.95	140.55 - 141.55			
0	.00	2207	99.95	141.55 - 142.55			
0	.00	2207	99.95	142.55 - 143.55			
1	.05	2208	100.00	143.55 - 144.55			
				144.55 - 145.55			
				145.55 - 146.55			
				146.55 - 147.55			
				147.55 - 148.55			
				148.55 - 149.55			
				149.55 - 150.55			
				150.55 - 151.55			
				151.55 - 152.55			
				152.55 - 153.55			
				153.55 - 154.55			
				154.55 - 155.55			
				155.55 - 156.55			
				156.55 - 157.55			
				157.55 - 158.55			
				158.55 - 159.55			
				159.55 - 160.55			
				160.55 - 161.55			

## (D52) VERTICAL WRIST HEIGHT

The vertical distance between a standing surface and the stylion landmark on the right wrist of a subject standing erect with the shoulder, arm, and hand held straight overhead is calculated as follows: OVERHEAD FINGERTIP REACH minus HAND LENGTH.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
168.38	66.29		1ST	182.72	71.94
170.93	67.29		2ND	185.42	73.00
172.46	67.90		3RD	187.04	73.64
174.46	68.68		5TH	189.17	74.47
177.42	69.85		10TH	192.33	75.72
179.39	70.62		15TH	194.44	76.55
180.94	71.24		20TH	196.11	77.21
182.29	71.77		25TH	197.57	77.78
183.51	72.25		30TH	198.89	78.30
184.64	72.69		35TH	200.12	78.79
185.74	73.12		40TH	201.30	79.25
186.80	73.54		45TH	202.45	79.71
187.87	73.96		50TH	203.61	80.16
188.95	74.39		55TH	204.77	80.62
190.06	74.82		60TH	205.96	81.09
191.21	75.28		65TH	207.19	81.57
192.44	75.76		70TH	208.51	82.09
193.79	76.29		75TH	209.93	82.65
195.30	76.89		80TH	211.52	83.28
197.07	77.58		85TH	213.35	84.00
199.30	78.46		90TH	215.62	84.89
202.55	79.75		95TH	218.81	86.15
204.59	80.55		97TH	220.72	86.90
206.03	81.12		98TH	222.00	87.40
208.16	81.95		99TH	223.76	88.09

# VERTICAL WRIST HEIGHT

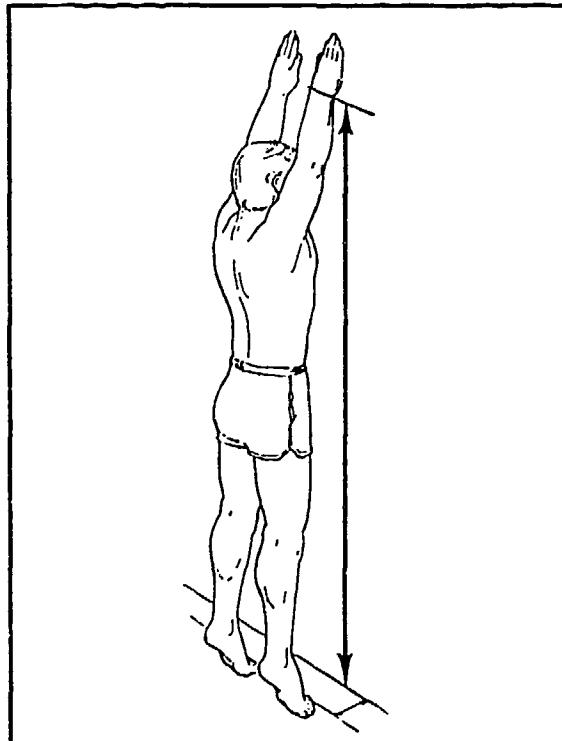
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
188.10	MEAN VALUE	74.06
.18	SE(MEAN)	.07
8.55	STD DEVIATION	3.37
.13	SE(STD DEV)	.05
156.00	MINIMUM	61.42
218.10	MAXIMUM	85.87
SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.00
COEF. OF VARIATION	=	4.68
NUMBER OF SUBJECTS	=	2206

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
203.76	MEAN VALUE	80.22
.22	SE(MEAN)	.08
9.07	STD DEVIATION	3.57
.15	SE(STD DEV)	.06
163.80	MINIMUM	64.49
244.80	MAXIMUM	96.38
SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.26
COEF. OF VARIATION	=	4.48
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
				155.55 - 157.55	157.55 - 159.55	161.55 - 163.55	163.55 - 165.55
1	.05	1	.05	155.55 - 157.55	157.55 - 159.55	161.55 - 163.55	163.55 - 165.55
1	.05	2	.09	157.55 - 159.55	159.55 - 161.55	161.55 - 163.55	165.55 - 167.55
1	.05	3	.14	159.55 - 161.55	161.55 - 163.55	163.55 - 165.55	167.55 - 169.55
2	.09	5	.23	161.55 - 163.55	163.55 - 165.55	165.55 - 167.55	169.55 - 171.55
3	.14	8	.36	163.55 - 165.55	165.55 - 167.55	167.55 - 169.55	171.55 - 173.55
10	.45	18	.82	165.55 - 167.55	167.55 - 169.55	169.55 - 171.55	173.55 - 175.55
12	.54	30	1.36	167.55 - 169.55	169.55 - 171.55	171.55 - 173.55	175.55 - 177.55
20	.91	50	2.26	169.55 - 171.55	171.55 - 173.55	173.55 - 175.55	177.55 - 179.55
33	1.49	83	3.76	171.55 - 173.55	173.55 - 175.55	175.55 - 177.55	179.55 - 181.55
52	2.36	135	6.11	173.55 - 175.55	175.55 - 177.55	177.55 - 179.55	181.55 - 183.55
95	4.30	230	10.42	175.55 - 177.55	177.55 - 179.55	179.55 - 181.55	183.55 - 185.55
116	5.25	346	15.67	177.55 - 179.55	179.55 - 181.55	181.55 - 183.55	185.55 - 187.55
153	6.93	499	22.60	179.55 - 181.55	181.55 - 183.55	183.55 - 185.55	187.55 - 189.55
178	8.06	677	30.66	181.55 - 183.55	183.55 - 185.55	185.55 - 187.55	189.55 - 191.55
211	9.56	888	40.22	183.55 - 185.55	185.55 - 187.55	187.55 - 189.55	191.55 - 193.55
207	9.38	1095	49.59	185.55 - 187.55	187.55 - 189.55	189.55 - 191.55	193.55 - 195.55
178	8.06	1273	57.65	187.55 - 189.55	189.55 - 191.55	191.55 - 193.55	195.55 - 197.55
177	8.02	1450	65.67	189.55 - 191.55	191.55 - 193.55	193.55 - 195.55	197.55 - 199.55
168	7.61	1618	73.28	191.55 - 193.55	193.55 - 195.55	195.55 - 197.55	199.55 - 201.55
158	7.16	1776	80.43	193.55 - 195.55	195.55 - 197.55	197.55 - 199.55	201.55 - 203.55
128	5.80	1904	86.23	195.55 - 197.55	197.55 - 199.55	199.55 - 201.55	203.55 - 205.55
99	4.48	2003	90.72	197.55 - 199.55	199.55 - 201.55	201.55 - 203.55	205.55 - 207.55
74	3.35	2077	94.07	199.55 - 201.55	201.55 - 203.55	203.55 - 205.55	207.55 - 209.55
46	2.08	2123	96.15	201.55 - 203.55	203.55 - 205.55	205.55 - 207.55	209.55 - 211.55
36	1.63	2159	97.78	203.55 - 205.55	205.55 - 207.55	207.55 - 209.55	211.55 - 213.55
19	.86	2178	98.64	205.55 - 207.55	207.55 - 209.55	209.55 - 211.55	213.55 - 215.55
18	.82	2196	99.46	207.55 - 209.55	209.55 - 211.55	211.55 - 213.55	215.55 - 217.55
4	.18	2200	99.64	209.55 - 211.55	211.55 - 213.55	213.55 - 215.55	217.55 - 219.55
5	.23	2205	99.86	211.55 - 213.55	213.55 - 215.55	215.55 - 217.55	219.55 - 221.55
0	.00	2205	99.86	213.55 - 215.55	215.55 - 217.55	217.55 - 219.55	221.55 - 223.55
2	.09	2207	99.95	215.55 - 217.55	217.55 - 219.55	219.55 - 221.55	223.55 - 225.55
1	.05	2208	100.00	217.55 - 219.55	219.55 - 221.55	221.55 - 223.55	225.55 - 227.55

## (D53) VERTICAL WRIST HEIGHT, EXTENDED

The vertical distance between a standing surface and the styilon landmark on the right wrist of a subject standing on the toes and reaching straight overhead as far as possible is calculated as follows: OVERHEAD FINGERTIP REACH, EXTENDED minus HAND LENGTH.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
177.23	69.78	1ST	191.89 75.55
179.68	70.74	2ND	194.58 76.61
181.19	71.33	3RD	196.23 77.26
183.18	72.12	5TH	198.41 78.11
186.21	73.31	10TH	201.67 79.40
188.25	74.11	15TH	203.85 80.26
189.87	74.75	20TH	205.58 80.94
191.28	75.31	25TH	207.08 81.53
192.56	75.81	30TH	208.44 82.06
193.74	76.28	35TH	209.70 82.56
194.88	76.73	40TH	210.90 83.03
195.99	77.16	45TH	212.08 83.50
197.10	77.60	50TH	213.25 83.96
198.23	78.04	55TH	214.44 84.42
199.37	78.49	60TH	215.64 84.90
200.56	78.96	65TH	216.90 85.39
201.82	79.46	70TH	218.23 85.92
203.20	80.00	75TH	219.68 86.49
204.75	80.61	80TH	221.31 87.13
206.55	81.32	85TH	223.19 87.87
208.81	82.21	90TH	225.56 88.80
212.11	83.51	95TH	228.99 90.15
214.17	84.32	97TH	231.13 91.00
215.64	84.90	98TH	232.64 91.59
217.82	85.75	99TH	234.85 92.46

# VERTICAL WRIST HEIGHT, EXTENDED

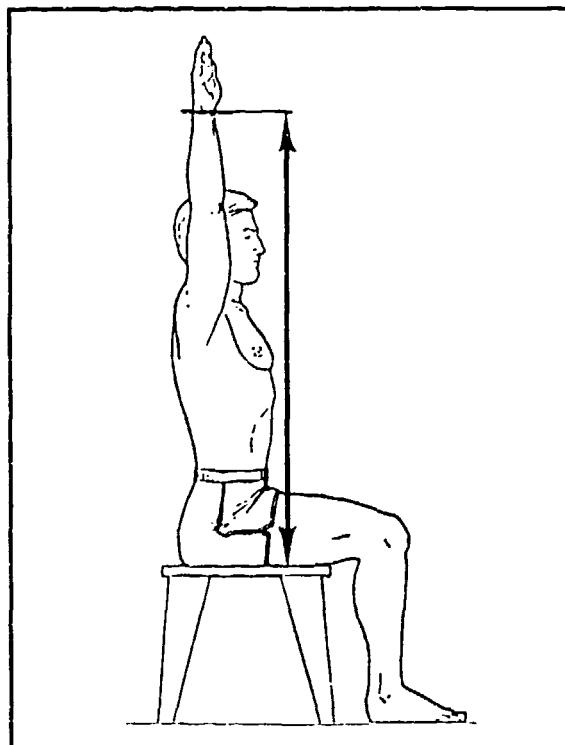
FEMALES		
	CM	INCHES
197.30	MEAN VALUE	77.68
.19	SE(MEAN)	.07
8.81	STD DEVIATION	3.47
.13	SE(STD DEV)	.05
165.90	MINIMUM	65.31
227.60	MAXIMUM	89.61
SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.00
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	2208

MALES		
	CM	INCHES
213.42	MEAN VALUE	84.02
.22	SE(MEAN)	.09
9.31	STD DEVIATION	3.66
.16	SE(STD DEV)	.06
175.60	MINIMUM	69.13
258.30	MAXIMUM	101.69
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.20
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
3	.14	3	.14	165.55 - 167.55			
0	.00	3	.14	167.55 - 169.55			
1	.05	4	.18	169.55 - 171.55			
2	.09	6	.27	171.55 - 173.55			
10	.45	16	.72	173.55 - 175.55			
10	.45	26	1.18	175.55 - 177.55	1	.06	1
15	.68	41	1.86	177.55 - 179.55	0	.00	1
27	1.22	68	3.08	179.55 - 181.55	0	.00	1
49	2.22	117	5.30	181.55 - 183.55	1	.06	2
77	3.49	194	8.79	183.55 - 185.55	1	.06	3
97	4.39	291	13.18	185.55 - 187.55	1	.06	4
115	5.21	406	18.39	187.55 - 189.55	5	.28	9
172	7.79	578	26.18	189.55 - 191.55	7	.39	16
189	8.56	767	34.74	191.55 - 193.55	10	.56	26
210	9.51	977	44.25	193.55 - 195.55	17	.96	43
178	8.06	1155	52.31	195.55 - 197.55	30	1.69	73
187	8.47	1342	60.78	197.55 - 199.55	43	2.42	116
162	7.34	1504	68.12	199.55 - 201.55	43	2.42	159
169	7.65	1673	75.77	201.55 - 203.55	90	5.07	249
143	6.48	1816	82.25	203.55 - 205.55	105	5.92	354
116	5.25	1932	87.50	205.55 - 207.55	124	6.99	478
83	3.76	2015	91.26	207.55 - 209.55	128	7.22	606
65	2.94	2080	94.20	209.55 - 211.55	161	9.08	767
56	2.54	2136	96.74	211.55 - 213.55	141	7.95	908
33	1.49	2169	98.23	213.55 - 215.55	166	9.36	1074
11	.50	2180	98.73	215.55 - 217.55	123	6.93	1197
16	.72	2196	99.46	217.55 - 219.55	123	6.93	1320
5	.23	2201	99.68	219.55 - 221.55	101	5.69	1421
3	.14	2204	99.82	221.55 - 223.55	95	5.36	1516
2	.09	2206	99.91	223.55 - 225.55	80	4.51	1596
1	.05	2207	99.95	225.55 - 227.55	58	3.27	1654
1	.05	2208	100.00	227.55 - 229.55	36	2.03	1690
				229.55 - 231.55	44	2.48	1734
				231.55 - 233.55	16	.90	1750
				233.55 - 235.55	9	.51	1759
				235.55 - 237.55	10	.56	1769
				237.55 - 239.55	2	.11	1771
				239.55 - 241.55	0	.00	1771
				241.55 - 243.55	1	.06	1772
				243.55 - 245.55	0	.00	1772
				245.55 - 247.55	0	.00	1772
				247.55 - 249.55	1	.06	1773
				249.55 - 251.55	0	.00	1773
				251.55 - 253.55	0	.00	1773
				253.55 - 255.55	0	.00	1773
				255.55 - 257.55	0	.00	1773
				257.55 - 259.55	1	.06	1774
							100.00

## (D54) VERTICAL WRIST HEIGHT, SITTING

The vertical distance between a sitting surface and the stylinon landmark on the right wrist of a subject sitting erect reaching straight overhead is calculated as follows: OVERHEAD FINGERTIP REACH, SITTING minus HAND LENGTH.



THE PERCENTILES			
FEMALES		MALES	
CM	INCHES	CM	INCHES
103.03	40.56	1ST	111.34 43.84
104.34	41.08	2ND	113.06 44.51
105.19	41.41	3RD	114.08 44.91
106.34	41.87	5TH	115.41 45.44
108.15	42.58	10TH	117.35 46.20
109.38	43.06	15TH	118.62 46.70
110.35	43.45	20TH	119.61 47.09
111.20	43.78	25TH	120.47 47.43
111.96	44.08	30TH	121.23 47.73
112.67	44.36	35TH	121.95 48.01
113.33	44.62	40TH	122.63 48.28
113.98	44.87	45TH	123.29 48.54
114.62	45.13	50TH	123.95 48.80
115.26	45.38	55TH	124.62 49.06
115.90	45.63	60TH	125.30 49.33
116.57	45.89	65TH	126.01 49.61
117.27	46.17	70TH	126.76 49.90
118.02	46.46	75TH	127.57 50.22
118.86	46.79	80TH	128.49 50.58
119.82	47.17	85TH	129.54 51.00
121.03	47.65	90TH	130.87 51.52
122.77	48.34	95TH	132.77 52.27
123.89	48.77	97TH	133.95 52.73
124.68	49.09	98TH	134.76 53.06
125.90	49.57	99TH	135.94 53.52

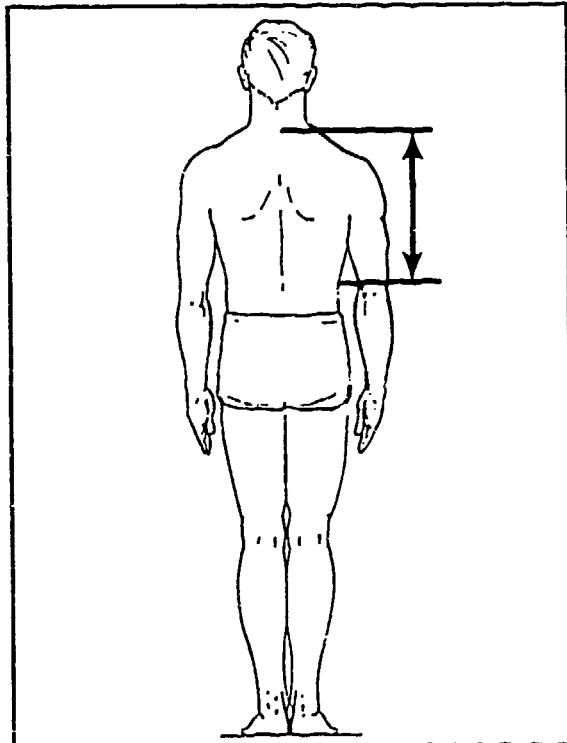
# VERTICAL WRIST HEIGHT, SITTING

FEMALES			MALES		
CM	MEAN VALUE	INCHES	CM	MEAN VALUE	INCHES
114.61	MEAN VALUE	45.12	124.00	MEAN VALUE	48.82
.11	SE(MEAN)	.04	.13	SE(MEAN)	.05
4.98	STD DEVIATION	1.96	5.30	STD DEVIATION	2.08
.07	SE(STD DEV)	.03	.09	SE(STD DEV)	.04
96.80	MINIMUM	38.11	100.30	MINIMUM	39.49
131.70	MAXIMUM	51.85	146.50	MAXIMUM	57.68
SYMMETRY---VETA I	=	-.02	SYMMETRY---VETA I	=	-.03
KURTOSIS---VETA II	=	2.91	KURTOSIS---VETA II	=	3.21
COEF. OF VARIATION	=	4.3%	COEF. OF VARIATION	=	4.3%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	96.55 - 97.55		1	.06
1	.05	2	.09	97.55 - 98.55		0	.00
2	.09	4	.18	98.55 - 99.55		0	.00
2	.09	6	.27	99.55 - 100.55		0	.00
2	.09	8	.36	100.55 - 101.55		0	.00
6	.27	14	.63	101.55 - 102.55		0	.00
14	.63	28	1.27	102.55 - 103.55		0	.00
20	.91	48	2.17	103.55 - 104.55		0	.00
30	1.36	78	3.53	104.55 - 105.55		0	.00
45	2.04	123	5.57	105.55 - 106.55		2	.11
41	1.86	164	7.43	106.55 - 107.55		2	.11
82	3.71	246	11.14	107.55 - 108.55		3	.17
102	4.62	348	15.76	108.55 - 109.55		5	.28
119	5.39	467	21.15	109.55 - 110.55		12	.45
139	6.30	606	27.45	110.55 - 111.55		21	.68
155	7.02	761	34.47	111.55 - 112.55		26	.18
176	7.97	937	42.44	112.55 - 113.55		41	.17
154	6.97	1091	49.41	113.55 - 114.55		60	.28
166	7.52	1257	56.93	114.55 - 115.55		96	.38
162	7.34	1419	64.27	115.55 - 116.55		137	.41
165	7.47	1584	71.74	116.55 - 117.55		182	.68
142	6.43	1726	78.17	117.55 - 118.55		261	.18
136	6.16	1862	84.33	118.55 - 119.55		342	.47
85	3.85	1947	88.18	119.55 - 120.55		447	.28
80	3.62	2027	91.80	120.55 - 121.55		588	.38
62	2.81	2089	94.61	121.55 - 122.55		715	.15
40	1.81	2129	96.42	122.55 - 123.55		825	.30
29	1.31	2158	97.74	123.55 - 124.55		951	.51
23	1.04	2181	98.78	124.55 - 125.55		1096	.61
9	.41	2190	99.18	125.55 - 126.55		1224	.78
10	.45	2200	99.64	126.55 - 127.55		1329	.00
4	.18	2204	99.82	127.55 - 128.55		1434	.83
3	.14	2207	99.95	128.55 - 129.55		1511	.17
0	.00	2207	99.95	129.55 - 130.55		1570	.50
0	.00	2207	99.95	130.55 - 131.55		1628	.77
1	.05	2208	100.00	131.55 - 132.55		1680	.70
				132.55 - 133.55		1710	.39
				133.55 - 134.55		1738	.39
				134.55 - 135.55		1751	.70
				135.55 - 136.55		1761	.27
				136.55 - 137.55		1768	.66
				137.55 - 138.55		1771	.83
				138.55 - 139.55		1771	.83
				139.55 - 140.55		1773	.94
				140.55 - 141.55		1773	.94
				141.55 - 142.55		1773	.94
				142.55 - 143.55		1773	.94
				143.55 - 144.55		1773	.94
				144.55 - 145.55		1773	.94
				145.55 - 146.55		1774	100.00

## (D55) WAIST BACK, VERTICAL (NATURAL INDENTATION)

The vertical distance between the cervicale landmark at the base of the back of the neck and the level of the waist at its natural indentation is calculated as follows: CERVICALE HEIGHT minus WAIST HEIGHT (NATURAL INDENTATION).



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
30.30	11.93	1ST	34.26 13.49
30.70	12.09	2ND	34.81 13.70
30.99	12.20	3RD	35.16 13.84
31.42	12.37	5TH	35.65 14.04
32.14	12.65	10TH	36.41 14.34
32.66	12.86	15TH	36.94 14.54
33.09	13.03	20TH	37.36 14.71
33.47	13.18	25TH	37.72 14.85
33.81	13.31	30TH	38.05 14.98
34.14	13.44	35TH	38.36 15.10
34.45	13.56	40TH	38.65 15.22
34.75	13.68	45TH	38.93 15.33
35.05	13.80	50TH	39.21 15.44
35.36	13.92	55TH	39.49 15.55
35.67	14.04	60TH	39.78 15.66
35.99	14.17	65TH	40.07 15.78
36.33	14.30	70TH	40.39 15.90
36.70	14.45	75TH	40.72 16.03
37.12	14.61	80TH	41.10 16.18
37.61	14.81	85TH	41.53 16.35
38.24	15.05	90TH	42.08 16.57
39.19	15.43	95TH	42.87 16.88
39.82	15.68	97TH	43.37 17.07
40.30	15.87	98TH	43.73 17.22
41.08	16.17	99TH	44.28 17.43

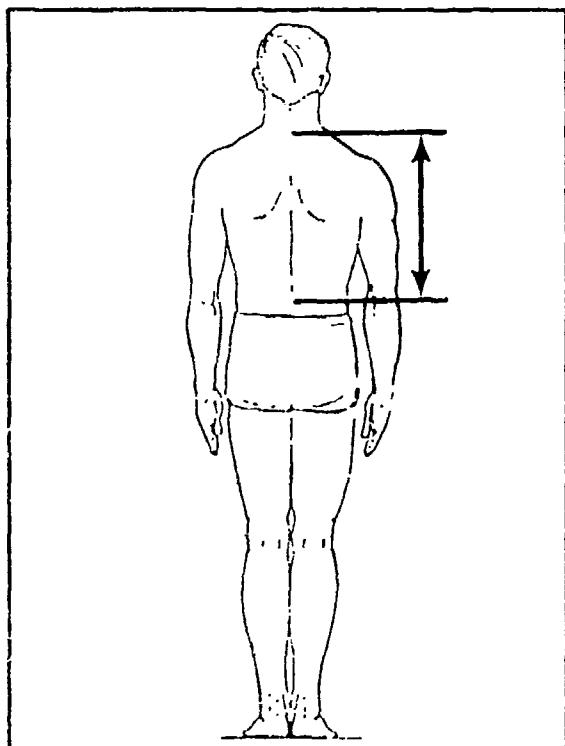
# WAIST BACK, VERTICAL (NATURAL INDENTATION)

FEMALES			MALES		
<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>	
35.14	MEAN VALUE	13.84	39.23	MEAN VALUE	15.45
.05	SE(MEAN)	.02	.05	SE(MEAN)	.02
2.36	STD DEVIATION	.93	2.18	STD DEVIATION	.86
.04	SE(STD DEV)	.00	.04	SE(STD DEV)	.00
27.70	MINIMUM	10.91	32.60	MINIMUM	12.83
43.80	MAXIMUM	17.24	47.30	MAXIMUM	18.62
SYMMETRY---VETA I	=	.24	SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	2.97	KURTOSIS---VETA II	=	2.88
COEF. OF VARIATION	=	6.7%	COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	27.25	-	27.75	
2	.09	3	.14	27.75	-	28.25	
1	.05	4	.18	28.25	-	28.75	
1	.05	5	.23	28.75	-	29.25	
4	.18	9	.41	29.25	-	29.75	
11	.50	20	.91	29.75	-	30.25	
25	1.13	45	2.04	30.25	-	30.75	
47	2.13	92	4.17	30.75	-	31.25	
61	2.76	153	6.93	31.25	-	31.75	
97	4.39	250	11.32	31.75	-	32.25	
96	4.35	346	15.67	32.25	-	32.75	
136	6.16	482	21.83	32.75	-	33.25	
141	5.39	623	28.22	33.25	-	33.75	
182	8.24	805	36.46	33.75	-	34.25	
203	9.19	1008	45.65	34.25	-	34.75	
186	8.42	1194	54.08	34.75	-	35.25	
174	7.88	1368	61.96	35.25	-	35.75	
144	6.52	1512	68.48	35.75	-	36.25	
149	6.75	1661	75.23	36.25	-	36.75	
132	5.98	1793	81.20	36.75	-	37.25	
114	5.16	1907	86.37	37.25	-	37.75	
78	3.53	1985	89.90	37.75	-	38.25	
69	3.13	2054	93.03	38.25	-	38.75	
53	2.40	2107	95.43	38.75	-	39.25	
36	1.63	2143	97.06	39.25	-	39.75	
16	.72	2159	97.78	39.75	-	40.25	
19	.86	2178	98.64	40.25	-	40.75	
12	.54	2190	99.18	40.75	-	41.25	
8	.36	2198	99.55	41.25	-	41.75	
6	.27	2204	99.82	41.75	-	42.25	
0	.00	2204	99.82	42.25	-	42.75	
2	.09	2206	99.91	42.75	-	43.25	
1	.05	2207	99.95	43.25	-	43.75	
1	.05	2208	100.00	43.75	-	44.25	

## (D56) WAIST BACK, VERTICAL (OMPHALION)

The vertical distance between the cervicale landmark at the base of the back of the neck and the waist at the level of the navel (omphalion) is calculated as follows: CERVICALE HEIGHT minus WAIST HEIGHT (OMPHALION).



THE PERCENTILES			
FEMALES		MALES	
CM	INCHES	CM	INCHES
37.68	14.83	1ST	40.53 15.96
38.19	15.03	2ND	41.11 16.18
38.53	15.17	3RD	41.50 16.34
39.00	15.35	5TH	42.05 16.55
39.75	15.65	10TH	42.92 16.90
40.27	15.86	15TH	43.52 17.13
40.69	16.02	20TH	43.99 17.32
41.05	16.16	25TH	44.40 17.51
41.38	16.29	30TH	44.76 17.62
41.68	16.41	35TH	45.10 17.75
41.97	16.52	40TH	45.41 17.88
42.25	16.63	45TH	45.72 18.00
42.53	16.74	50TH	46.02 18.12
42.81	16.85	55TH	46.31 18.23
43.09	16.96	60TH	46.62 18.35
43.38	17.08	65TH	46.93 18.48
43.70	17.20	70TH	47.26 18.61
44.04	17.34	75TH	47.62 18.75
44.42	17.49	80TH	48.04 18.91
44.88	17.67	85TH	48.52 19.10
45.47	17.90	90TH	49.17 19.36
46.38	18.26	95TH	50.21 19.77
47.00	18.50	97TH	50.95 20.06
47.48	18.69	98TH	51.54 20.29
48.27	19.00	99TH	52.56 20.69

# WAIST BACK, VERTICAL (OMPHALION)

FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
42.59	MEAN VALUE	16.77
.05	SE(MEAN)	.02
2.24	STD DEVIATION	.88
.03	SE(STD DEV)	.00
35.50	MINIMUM	13.98
52.00	MAXIMUM	20.47
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
46.06	MEAN VALUE	18.13
.06	SE(MEAN)	.02
2.47	STD DEVIATION	.97
.04	SE(STD DEV)	.02
37.90	MINIMUM	14.92
55.60	MAXIMUM	21.89
SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.37
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
2	.09	2	.09	35.25 - 35.75			
2	.09	4	.18	35.75 - 36.25			
4	.18	8	.36	36.25 - 36.75			
7	.32	15	.68	36.75 - 37.25			
9	.41	24	1.09	37.25 - 37.75			
21	.95	45	2.04	37.75 - 38.25			
37	1.68	82	3.71	38.25 - 38.75			
50	2.26	132	5.98	38.75 - 39.25			
92	4.17	224	10.14	39.25 - 39.75			
111	5.03	335	15.17	39.75 - 40.25			
126	5.71	461	20.88	40.25 - 40.75			
161	7.29	622	28.17	40.75 - 41.25			
174	7.88	796	36.05	41.25 - 41.75			
189	8.56	985	44.61	41.75 - 42.25			
199	9.01	1184	53.62	42.25 - 42.75			
196	8.88	1300	62.50	42.75 - 43.25			
188	8.51	1568	71.01	43.25 - 43.75			
157	7.11	1725	78.13	43.75 - 44.25			
132	5.98	1857	84.10	44.25 - 44.75			
99	4.48	1956	88.59	44.75 - 45.25			
74	3.35	2030	91.94	45.25 - 45.75			
61	2.76	2091	94.70	45.75 - 46.25			
37	1.68	2128	96.38	46.25 - 46.75			
24	1.09	2152	97.46	46.75 - 47.25			
23	1.04	2175	98.51	47.25 - 47.75			
11	.50	2186	99.00	47.75 - 48.25			
9	.41	2195	99.41	48.25 - 48.75			
5	.23	2200	99.64	48.75 - 49.25			
3	.14	2203	99.77	49.25 - 49.75			
2	.09	2205	99.86	49.75 - 50.25			
0	.00	2205	99.86	50.25 - 50.75			
2	.09	2207	99.95	50.75 - 51.25			
0	.00	2207	99.95	51.25 - 51.75			
1	.05	2208	100.00	51.75 - 52.25			
				52.25 - 52.75			
				52.75 - 53.25			
				53.25 - 53.75			
				53.75 - 54.25			
				54.25 - 54.75			
				54.75 - 55.25			
				55.25 - 55.75			

## (D57) WAIST-BUTTOCK DROP (NATURAL INDENTATION)

The difference between the circumference of the waist at the level of its natural indentation and the torso circumference at the level of the maximum protrusion of the right buttock is calculated as follows: BUTTOCK CIRCUMFERENCE minus WAIST CIRCUMFERENCE (NATURAL INDENTATION).

THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
12.49	4.92	1ST	3.87	1.53	
14.26	5.61	2ND	5.21	2.05	
15.30	6.03	3RD	6.07	2.39	
16.63	6.55	5TH	7.24	2.85	
18.51	7.29	10TH	9.01	3.55	
19.69	7.75	15TH	10.17	4.00	
20.58	8.10	20TH	11.06	4.36	
21.33	8.40	25TH	11.81	4.65	
21.79	8.66	30TH	12.47	4.91	
22.59	8.89	35TH	13.05	5.14	
23.16	9.12	40TH	13.60	5.35	
23.70	9.33	45TH	14.12	5.56	
24.23	9.54	50TH	14.62	5.75	
24.76	9.75	55TH	15.10	5.95	
25.30	9.96	60TH	15.59	6.14	
25.85	10.18	65TH	16.08	6.33	
26.44	10.41	70TH	16.59	6.53	
27.08	10.66	75TH	17.13	6.75	
27.79	10.94	80TH	17.73	6.98	
28.63	11.27	85TH	18.42	7.25	
29.65	11.69	90TH	19.30	7.60	
31.28	12.31	95TH	20.65	8.13	
32.32	12.72	97TH	21.58	8.49	
33.08	13.02	98TH	22.30	8.78	
34.27	13.49	99TH	23.53	9.26	

# WAIST-BUTTOCK DROP (NATURAL INDENTATION)

FEMALES		
	<u>CM</u>	<u>INCHES</u>
24.14	MEAN VALUE	9.50
.09	SE(MEAN)	.04
4.45	STD DEVIATION	1.75
.07	SE(STD DEV)	.03
8.30	MINIMUM	3.27
41.10	MAXIMUM	16.18
SYMMETRY---VETA I	=	-.16
KURTOSIS---VETA II	=	3.44
COEF. OF VARIATION	=	18.4%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
14.38	MEAN VALUE	5.66
.10	SE(MEAN)	.04
4.07	STD DEVIATION	1.60
.07	SE(STD DEV)	.03
-.20	MINIMUM	-.08
26.70	MAXIMUM	10.51
SYMMETRY---VETA I	=	-.31
KURTOSIS---VETA II	=	3.31
COEF. OF VARIATION	=	28.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
				-.45	-.55	3	.17
				.55	1.55	5	.28
				1.55	2.55	2	.11
				2.55	3.55	5	.28
				3.55	4.55	10	.56
				4.55	5.55	13	.73
				5.55	6.55	33	1.86
				6.55	7.55	39	2.20
				7.55	8.55	47	2.65
				8.55	9.55	53	2.99
				9.55	10.55	80	4.51
				10.55	11.55	114	6.43
				11.55	12.55	137	7.72
				12.55	13.55	156	8.79
				13.55	14.55	173	9.75
				14.55	15.55	176	9.92
				15.55	16.55	209	11.78
				16.55	17.55	154	8.68
				17.55	18.55	116	6.54
				18.55	19.55	90	5.07
				19.55	20.55	62	3.49
				20.55	21.55	42	2.37
				21.55	22.55	25	1.41
				22.55	23.55	12	.68
				23.55	24.55	12	.68
				24.55	25.55	1	.06
				25.55	26.55	4	.23
				26.55	27.55	1	.06
				27.55	28.55	1774	100.00
				28.55	29.55		
				29.55	30.55		
				30.55	31.55		
				31.55	32.55		
				32.55	33.55		
				33.55	34.55		
				34.55	35.55		
				35.55	36.55		
				36.55	37.55		
				37.55	38.55		
				38.55	39.55		
				39.55	40.55		
				40.55	41.55		

## (D58) WAIST-BUTTOCK DROP (OMPHALION)

The difference between the circumference of the waist at the level of the navel (omphalion) and the torso circumference at the level of the maximum protrusion of the right buttock is calculated as follows: BUTTOCK CIRCUMFERENCE minus WAIST CIRCUMFERENCE (OMPHALION).

THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
2.55	1.00	1ST	.25	.10	
4.56	1.79	2ND	1.71	.67	
5.83	2.29	3RD	2.66	1.05	
7.53	2.96	5TH	3.96	1.56	
10.07	3.97	10TH	5.95	2.34	
11.72	4.62	15TH	7.28	2.86	
12.98	5.11	20TH	8.30	3.27	
14.04	5.53	25TH	9.18	3.61	
14.96	5.89	30TH	9.94	3.91	
15.79	6.21	35TH	10.63	4.19	
16.55	6.52	40TH	11.28	4.44	
17.27	6.80	45TH	11.88	4.68	
17.96	7.07	50TH	12.47	4.91	
18.64	7.34	55TH	13.05	5.14	
19.31	7.60	60TH	13.62	5.36	
19.98	7.87	65TH	14.19	5.59	
20.67	8.14	70TH	14.78	5.82	
21.40	8.43	75TH	15.41	6.07	
22.20	8.74	80TH	16.08	6.33	
23.10	9.09	85TH	16.83	6.63	
24.21	9.53	90TH	17.75	6.99	
25.84	10.17	95TH	19.04	7.50	
26.90	10.59	97TH	19.85	7.81	
27.70	10.90	98TH	20.44	8.05	
29.00	11.42	99TH	21.36	8.41	

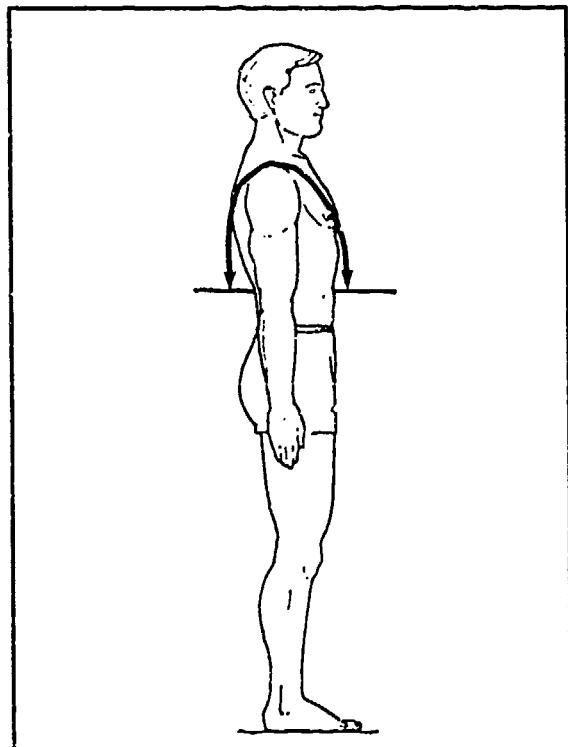
# WAIST-BUTTOCK DROP (OMPHALION)

FEMALES			MALES		
	CM	INCHES		CM	INCHES
17.50	MEAN VALUE	6.89	12.12	MEAN VALUE	4.77
.12	SE(MEAN)	.05	.11	SE(MEAN)	.04
5.58	STD DEVIATION	2.20	4.58	STD DEVIATION	1.80
.08	SE(STD DEV)	.03	.08	SE(STD DEV)	.03
-5.50	MINIMUM	-2.17	-4.90	MINIMUM	-1.93
34.00	MAXIMUM	13.39	25.80	MAXIMUM	10.16
SYMMETRY---VETA I	=	-.40	SYMMETRY---VETA I	=	-.37
KURTOSIS---VETA II	=	3.29	KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	31.9%	COEF. OF VARIATION	=	37.8%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
1	.05	1	.05	-6.45	-5.45	1	.06	1	.06
0	.00	1	.05	-5.45	-4.45	1	.06	2	.11
1	.05	2	.09	-4.45	-3.45	1	.06	3	.17
1	.05	3	.14	-3.45	-2.45	2	.11	5	.28
0	.00	3	.14	-2.45	-1.45	5	.28	10	.56
2	.09	5	.23	-1.45	-.45	12	.68	22	1.24
3	.14	8	.36	-.45	.55	14	.79	36	2.03
8	.36	16	.72	.55	1.55	9	.51	45	2.54
8	.36	24	1.09	1.55	2.55	28	1.58	73	4.11
6	.27	30	1.36	2.55	3.55	41	2.31	114	6.43
14	.63	44	1.99	3.55	4.55	44	2.48	158	8.91
15	.68	59	2.67	4.55	5.55	64	3.61	222	12.51
19	.86	78	3.53	5.55	6.55	68	3.83	290	16.35
29	1.31	107	4.85	6.55	7.55	86	4.85	376	21.20
34	1.54	141	6.39	7.55	8.55	100	5.64	476	26.83
56	2.54	197	8.92	8.55	9.55	126	7.10	602	33.93
55	2.49	252	11.41	9.55	10.55	142	8.00	744	41.94
67	3.03	319	14.45	10.55	11.55	143	8.06	887	50.00
80	3.62	399	18.07	11.55	12.55	171	9.64	1058	59.64
103	4.66	502	22.74	12.55	13.55	155	8.74	1213	68.38
111	5.03	613	27.76	13.55	14.55	144	8.12	1357	76.49
116	5.25	729	33.02	14.55	15.55	125	7.05	1482	83.54
148	6.70	877	39.72	15.55	16.55	102	5.75	1584	89.29
170	7.70	1047	47.42	16.55	17.55	69	3.89	1653	93.18
156	7.07	1203	54.48	17.55	18.55	56	3.16	1709	96.34
179	8.11	1382	62.59	18.55	19.55	30	1.69	1739	98.03
139	6.30	1521	68.89	19.55	20.55	18	1.01	1757	99.04
153	6.93	1674	75.82	20.55	21.55	12	.68	1769	99.72
141	6.39	1815	82.20	21.55	22.55	2	.11	1771	99.83
118	5.34	1933	87.55	22.55	23.55	2	.11	1773	99.94
83	3.76	2016	91.30	23.55	24.55	0	.00	1773	99.94
72	3.26	2088	94.57	24.55	25.55	1	.06	1774	100.00
48	2.17	2136	96.74	25.55	26.55				
24	1.09	2160	97.83	26.55	27.55				
19	.86	2179	98.69	27.55	28.55				
13	.59	2192	99.28	28.55	29.55				
4	.18	2196	99.46	29.55	30.55				
2	.09	2198	99.55	30.55	31.55				
7	.32	2205	99.86	31.55	32.55				
1	.05	2206	99.91	32.55	33.55				
2	.09	2208	100.00	33.55	34.55				

## (D59) WAIST-WAIST (NATURAL INDENTATION) OVER SHOULDER

The vertical circumference of the upper torso between the front of the waist at its natural indentation passing up over the right nipple on men or the right bustpoint on women, over the shoulder and down the back to the waist at the level of its natural indentation is calculated as follows: VERTICAL TRUNK CIRCUMFERENCE (USA) minus CROTCH LENGTH (NATURAL INDENTATION).



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHRS
66.47	26.17	1ST	75.32 29.65
67.76	26.68	2ND	76.82 30.25
68.58	27.00	3RD	77.73 30.60
69.67	27.43	5TH	78.90 31.06
71.36	28.09	10TH	80.62 31.74
72.50	28.54	15TH	81.74 32.18
73.41	28.90	20TH	82.62 32.53
74.20	29.21	25TH	83.37 32.82
74.91	29.49	30TH	84.04 33.09
75.57	29.75	35TH	84.67 33.33
76.20	30.00	40TH	85.26 33.57
76.82	30.24	45TH	85.84 33.80
77.43	30.48	50TH	86.42 34.02
78.05	30.73	55TH	87.00 34.25
78.68	30.98	60TH	87.60 34.49
79.34	31.24	65TH	88.22 34.73
80.05	31.51	70TH	88.82 34.99
80.82	31.82	75TH	89.60 35.28
81.69	32.16	80TH	90.42 35.60
82.71	32.56	85TH	91.38 35.98
84.03	33.08	90TH	92.61 36.46
86.03	33.87	95TH	94.46 37.19
87.35	34.39	97TH	95.66 37.66
88.34	34.78	98TH	96.54 38.01
89.92	35.40	99TH	97.90 38.54

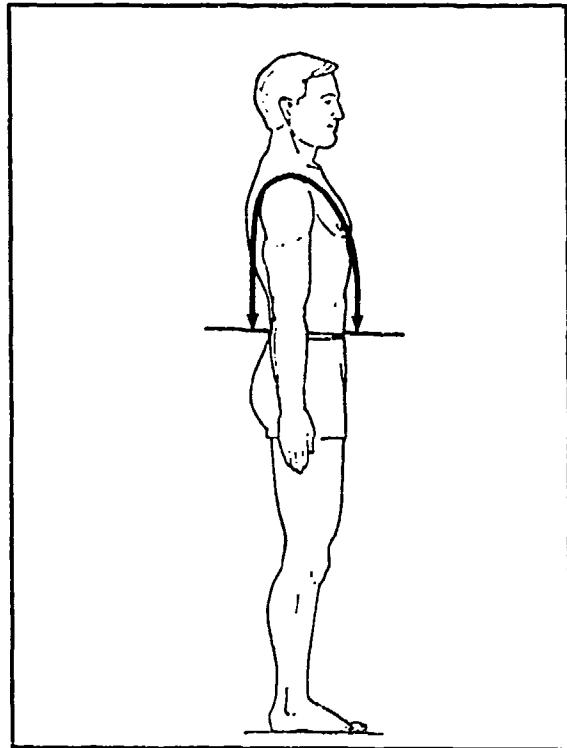
# WAIST-WAIST (NATURAL INDENTATION) OVER SHOULDER

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
77.59	MEAN VALUE	30.55	86.51	MEAN VALUE	34.06
.11	SE(MEAN)	.04	.11	SE(MEAN)	.04
4.95	STD DEVIATION	1.95	4.70	STD DEVIATION	1.85
.07	SE(STD DEV)	.03	.08	SE(STD DEV)	.03
58.90	MINIMUM	23.19	71.60	MINIMUM	28.19
97.30	MAXIMUM	38.31	105.60	MAXIMUM	41.57
SYMMETRY---VETA I	=	.16	SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	3.12	KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	6.4%	COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	58.55 - 59.55		2	.11
0	.00	1	.05	59.55 - 60.55		3	.17
0	.00	1	.05	60.55 - 61.55		5	.28
0	.00	1	.05	61.55 - 62.55		10	.56
1	.05	2	.09	62.55 - 63.55		7	.39
2	.09	4	.18	63.55 - 64.55		16	.90
8	.36	12	.54	64.55 - 65.55		17	.96
12	.54	24	1.09	65.55 - 66.55		23	1.30
15	.68	39	1.77	66.55 - 67.55		33	1.86
27	1.22	66	2.99	67.55 - 68.55		106	5.98
41	1.86	107	4.85	68.55 - 69.55		171	9.64
53	2.40	160	7.25	69.55 - 70.55		252	14.21
72	3.26	232	10.51	70.55 - 71.55		353	19.90
102	4.62	334	15.13	71.55 - 72.55		467	26.32
127	5.75	461	20.88	72.55 - 73.55		614	34.61
133	6.02	594	26.90	73.55 - 74.55		756	42.62
169	7.65	763	34.56	74.55 - 75.55		902	50.85
182	8.24	945	42.80	75.55 - 76.55		1062	59.86
172	7.79	1117	50.59	76.55 - 77.55		1195	67.36
185	8.38	1302	58.97	77.55 - 78.55		1327	74.80
166	7.52	1468	66.49	78.55 - 79.55		1432	80.72
151	6.84	1619	73.32	79.55 - 80.55		1525	85.96
135	6.11	1754	79.44	80.55 - 81.55		1597	90.02
107	4.85	1861	84.28	81.55 - 82.55		1649	92.95
90	4.08	1951	88.36	82.55 - 83.55		1693	95.43
68	3.08	2019	91.44	83.55 - 84.55		1719	96.90
55	2.49	2074	93.93	84.55 - 85.55		1739	98.03
46	2.08	2120	96.01	85.55 - 86.55		1752	98.76
27	1.22	2147	97.24	86.55 - 87.55		1763	99.38
22	1.00	2169	98.23	87.55 - 88.55		1768	99.66
13	.59	2182	98.82	88.55 - 89.55		1770	99.77
12	.54	2194	99.37	89.55 - 90.55		1772	99.89
8	.36	2202	99.73	90.55 - 91.55		1773	99.94
1	.05	2203	99.77	91.55 - 92.55		1774	100.00
1	.05	2204	99.82	92.55 - 93.55			
1	.05	2205	99.86	93.55 - 94.55			
1	.05	2206	99.91	94.55 - 95.55			
1	.05	2207	99.95	95.55 - 96.55			
1	.05	2208	100.00	96.55 - 97.55			
				97.55 - 98.55			
				98.55 - 99.55			
				99.55 - 100.55			
				100.55 - 101.55			
				101.55 - 102.55			
				102.55 - 103.55			
				103.55 - 104.55			
				104.55 - 105.55			
				105.55 - 106.55			

## (D60) WAIST-WAIST (OMPHALION) OVER SHOULDER

The vertical circumference of the upper torso between the front of the waist at the navel (omphalion) passing up over the right nipple on men or the right bustpoint on women, over the shoulder and down the back to the waist at the level of the navel is calculated as follows: VERTICAL TRUNK CIRCUMFERENCE (USA) minus CROTCH LENGTH (OMPHALION).



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
82.07	32.31	1ST	86.75	34.15	
83.12	32.73	2ND	88.41	34.81	
83.82	33.00	3RD	89.42	35.20	
84.78	33.38	5TH	90.73	35.72	
86.32	33.98	10TH	92.65	36.48	
87.38	34.40	15TH	93.89	36.97	
88.24	34.74	20TH	94.86	37.35	
88.99	35.04	25TH	95.68	37.67	
89.67	35.30	30TH	96.42	37.96	
90.31	35.55	35TH	97.10	38.23	
90.92	35.80	40TH	97.75	38.48	
91.52	36.03	45TH	98.38	38.73	
92.11	36.27	50TH	99.00	38.98	
92.72	36.50	55TH	99.64	39.23	
93.33	36.75	60TH	100.29	39.48	
93.98	37.00	65TH	100.97	39.75	
94.67	37.27	70TH	101.70	40.04	
95.43	37.57	75TH	102.51	40.36	
96.29	37.91	80TH	103.44	40.73	
97.31	38.31	85TH	104.56	41.16	
98.64	38.83	90TH	106.03	41.75	
100.70	39.64	95TH	108.37	42.66	
102.10	40.20	97TH	109.99	43.30	
103.17	40.62	98TH	111.24	43.80	
104.92	41.31	99TH	113.32	44.61	

# WAIST-WAIST (OMPHALION) OVER SHOULDER

FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
92.35	MEAN VALUE	36.36
.10	SE(MEAN)	.04
4.84	STD DEVIATION	1.91
.07	SE(STD DEV)	.03
78.40	MINIMUM	30.87
111.10	MAXIMUM	43.74
SYMMETRY---VETA I	=	.31
KURTOSIS---VETA II	=	3.18
COEF. OF VARIATION	=	5.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
99.17	MEAN VALUE	39.05
.13	SE(MEAN)	.05
5.33	STD DEVIATION	2.10
.09	SE(STD DEV)	.04
82.10	MINIMUM	32.32
119.10	MAXIMUM	46.89
SYMMETRY---VETA I	=	.23
KURTOSIS---VETA II	=	3.35
COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	77.55 - 78.55		1	.06
3	.14	4	.18	78.55 - 79.55		1	.06
0	.00	4	.18	79.55 - 80.55		1	.06
11	.50	15	.68	80.55 - 81.55		10	.56
15	.68	30	1.36	81.55 - 82.55		2	.11
28	1.27	58	2.63	82.55 - 83.55		3	.17
42	1.90	100	4.53	83.55 - 84.55		10	.56
55	2.49	155	7.02	84.55 - 85.55		10	.56
82	3.71	237	10.73	85.55 - 86.55		19	1.07
122	5.53	359	16.26	86.55 - 87.55		25	1.41
130	5.89	489	22.15	87.55 - 88.55		49	2.76
156	7.07	645	29.21	88.55 - 89.55		56	3.16
169	7.65	814	36.87	89.55 - 90.55		57	3.21
175	7.93	989	44.79	90.55 - 91.55		128	7.22
208	9.42	1197	54.21	91.55 - 92.55		184	10.37
156	7.07	1353	61.28	92.55 - 93.55		241	13.59
177	8.02	1530	69.29	93.55 - 94.55		331	18.66
144	6.52	1674	75.82	94.55 - 95.55		439	24.75
122	5.53	1796	81.34	95.55 - 96.55		560	31.57
104	4.71	1900	86.05	96.55 - 97.55		672	37.88
83	3.76	1983	89.81	97.55 - 98.55		814	45.89
59	2.67	2042	92.48	98.55 - 99.55		961	54.17
55	2.49	2097	94.97	99.55 - 100.55		1087	61.27
29	1.31	2126	96.29	100.55 - 101.55		1214	68.43
25	1.13	2151	97.42	101.55 - 102.55		1343	75.70
22	1.00	2173	98.41	102.55 - 103.55		1433	80.78
11	.50	2184	98.91	103.55 - 104.55		1517	85.51
4	.18	2188	99.09	104.55 - 105.55		1593	89.80
10	.45	2198	99.55	105.55 - 106.55		1631	91.94
4	.18	2202	99.73	106.55 - 107.55		1656	93.35
1	.05	2203	99.77	107.55 - 108.55		1690	95.26
2	.09	2205	99.86	108.55 - 109.55		1705	96.11
2	.09	2207	99.95	109.55 - 110.55		1728	97.41
1	.05	2208	100.00	110.55 - 111.55		1743	98.25
				111.55 - 112.55		1752	98.76
				112.55 - 113.55		1760	99.21
				113.55 - 114.55		1762	99.32
				114.55 - 115.55		1768	99.66
				115.55 - 116.55		1772	99.89
				116.55 - 117.55		1772	99.89
				117.55 - 118.55		1773	99.94
				118.55 - 119.55		1774	100.00

## CHAPTER VI

### THE HEADBOARD MEASUREMENTS

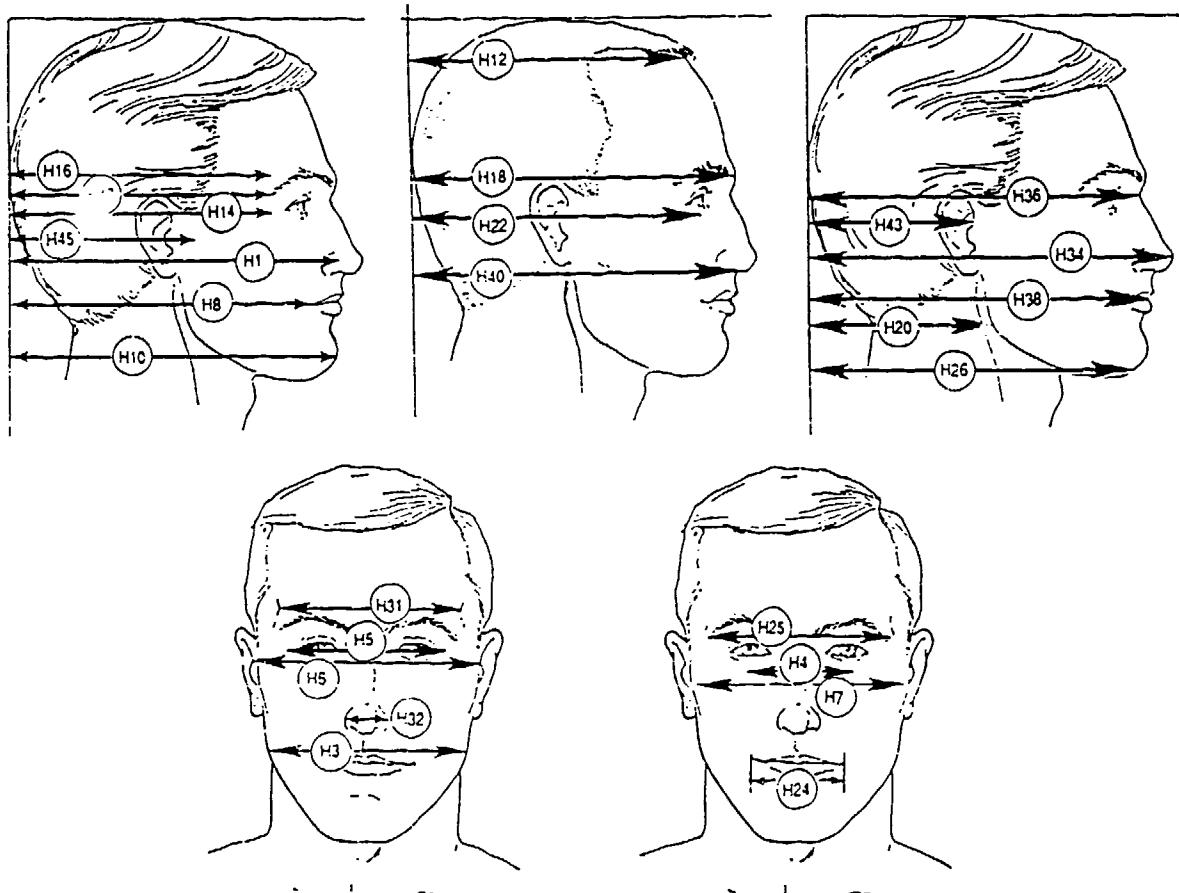
The head and face are perhaps the most difficult body parts to be adequately described by traditional linear measurement techniques because of the great variability of head and facial dimensions, their associated poor correlations, and the difficulty of maintaining the subject's head in the required position. A special automated headboard device (AHD) for measuring three-dimensional coordinates of landmark locations on the head and face was developed for use in the 1987-1988 survey.<sup>8</sup> The device was programmed to locate 26 head and face landmarks in three-dimensional space. The points were selected on the basis of their usefulness in the design and construction of helmets, respirators, goggles, and other personal protective equipment.

Sixteen head and face dimensions were measured by traditional means and are reported in Chapter III. These are supplemented by the data obtained from the AHD, in which points were located in three-dimensional space by the simultaneous determination of distances along the Z-axis (height), the X-axis (depth), and the Y-axis (breadth). For ease of reporting, and to facilitate comparison with previously reported headboard data, these headboard data are given here for each axis separately, using the same standard statistics as are used in reporting the standard and derived dimensions.

A visual index for 48 head and face dimensions appears on the following pages. Data pages which include measurement descriptions, summary statistics, and percentile and frequency tables follow.

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# VISUAL INDEX - HEAD MEASUREMENTS



(H1) ALARE-BACK OF HEAD

(H3) BIGONIAL BREADTH

(H4) BIINFRAORBITALE BREADTH

(H5) BIOCULAR BREADTH, MAXIMUM

(H6) BITRAGION BREADTH

(H7) BIZYGOMATIC BREADTH

(H8) CHEILION-BACK OF HEAD

(H10) CHIN-BACK OF HEAD

(H12) CRINION-BACK OF HEAD

(H14) ECTOORBITALE-BACK OF HEAD

(H16) FRONTOTEMPORALE-BACK OF HEAD

(H18) GLABELLA-BACK OF HEAD

(H20) GONION-BACK OF HEAD

(H22) INFRAORBITALE-BACK OF HEAD

(H24) LIP LENGTH

(H25) MAXIMUM FRONTAL BREADTH

(H26) MENTON-BACK OF HEAD

(H31) MINIMUM FRONTAL BREADTH

(H32) NOSE BREADTH

(H34) PRONASALE-BACK OF HEAD

(H36) SELLION-BACK OF HEAD

(H38) STOMION-BACK OF HEAD

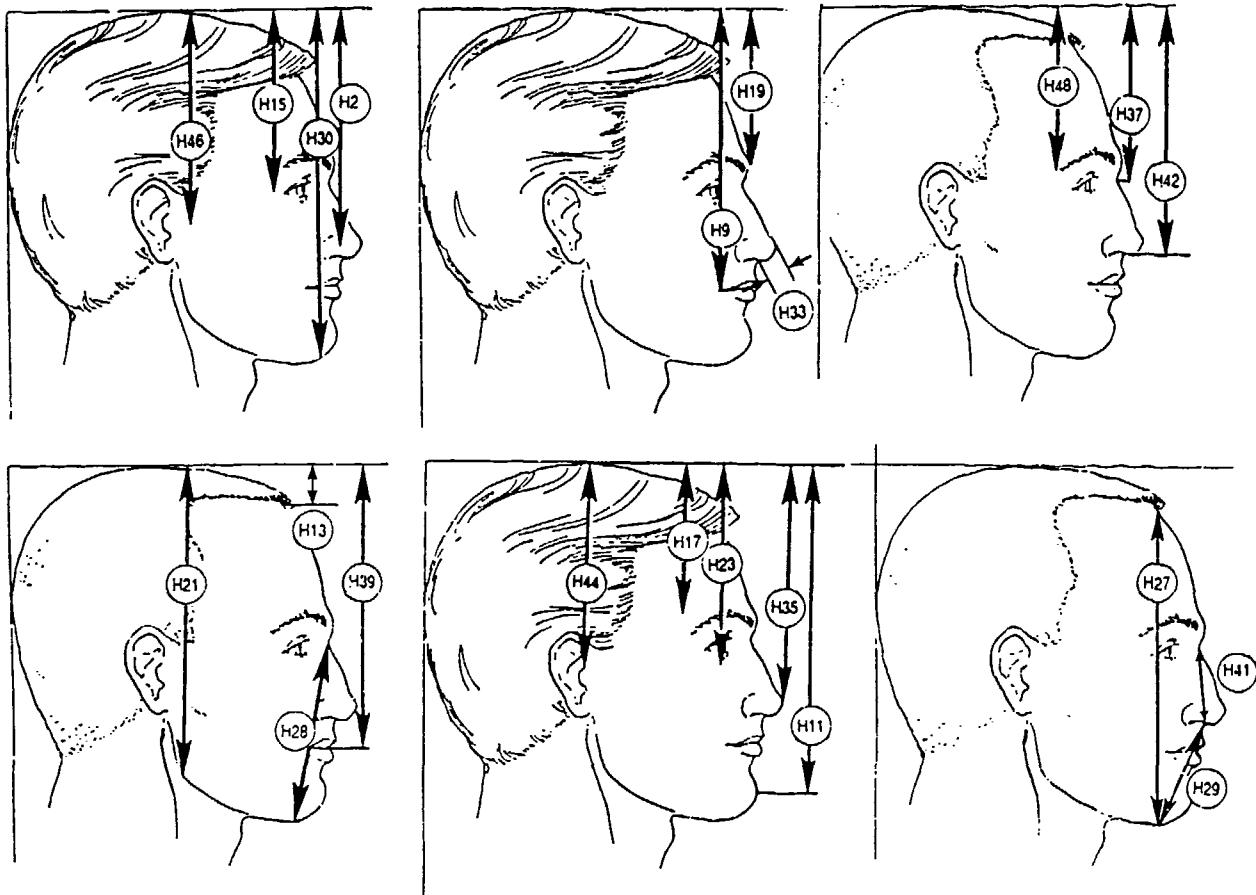
(H40) SUBNASALE-BACK OF HEAD

(H43) TRAGION-BACK OF HEAD

(H45) ZYGION-BACK OF HEAD

(H47) ZYGOFRONTALE-BACK OF HEAD

## VISUAL INDEX - HEAD MEASUREMENTS (Continued)

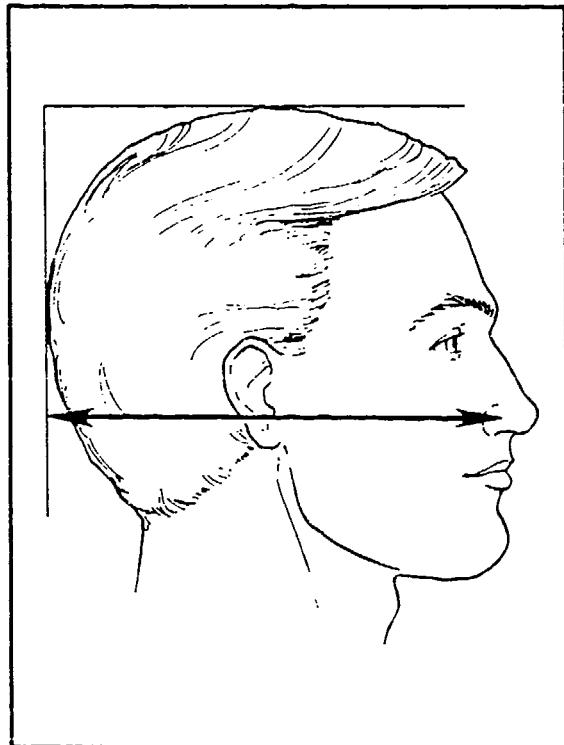


(H2) ALARE-TOP OF HEAD  
 (H9) CHEILION-TOP OF HEAD  
 (H11) CHIN-TOP OF HEAD  
 (H13) CRINION-TOP OF HEAD  
 (H15) ECTOORBITALE-TOP OF HEAD  
 (H17) FRONTOTEMPORALE-TOP OF HEAD  
 (H19) GLABELLA-TOP OF HEAD  
 (H21) GONION-TOP OF HEAD  
 (H23) INFRAORBITALE-TOP OF HEAD  
 (H27) MENTON-CRINION LENGTH  
 (H28) MENTON-SELLION LENGTH

(H29) MENTON-SUBNASALE LENGTH  
 (H30) MENTON-TOP OF HEAD  
 (H33) NOSE PROTRUSION  
 (H35) PRONASALE-TOP OF HEAD  
 (H37) SELLION-TOP OF HEAD  
 (H39) STOMION-TOP OF HEAD  
 (H41) SUBNASALE-SELLION LENGTH  
 (H42) SUBNASALE-TOP OF HEAD  
 (H44) TRAGION-TOP OF HEAD  
 (H46) ZYGION-TOP OF HEAD  
 (H48) ZYGOFRONTALE-TOP OF HEAD

## (H1) ALARE-BACK OF HEAD

The horizontal distance between the alare landmark on the side of the nostrils and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
17.37	6.84	1ST	18.08 7.12
17.58	6.92	2ND	18.30 7.21
17.71	6.97	3RD	18.45 7.26
17.88	7.04	5TH	18.65 7.34
18.15	7.15	10TH	18.96 7.46
18.34	7.22	15TH	19.16 7.54
18.48	7.28	20TH	19.32 7.61
18.61	7.33	25TH	19.46 7.66
18.72	7.37	30TH	19.58 7.71
18.83	7.41	35TH	19.69 7.75
18.93	7.45	40TH	19.80 7.79
19.03	7.49	45TH	19.90 7.83
19.13	7.53	50TH	19.99 7.87
19.22	7.57	55TH	20.09 7.91
19.32	7.61	60TH	20.19 7.95
19.43	7.65	65TH	20.29 7.99
19.54	7.69	70TH	20.39 8.03
19.65	7.74	75TH	20.51 8.07
19.79	7.79	80TH	20.63 8.12
19.94	7.85	85TH	20.78 8.18
20.14	7.93	90TH	20.97 8.25
20.42	8.04	95TH	21.25 8.37
20.61	8.11	97TH	21.45 8.45
20.74	8.17	98TH	21.61 8.51
20.95	8.25	99TH	21.86 8.61

# ALARE-BACK OF HEAD

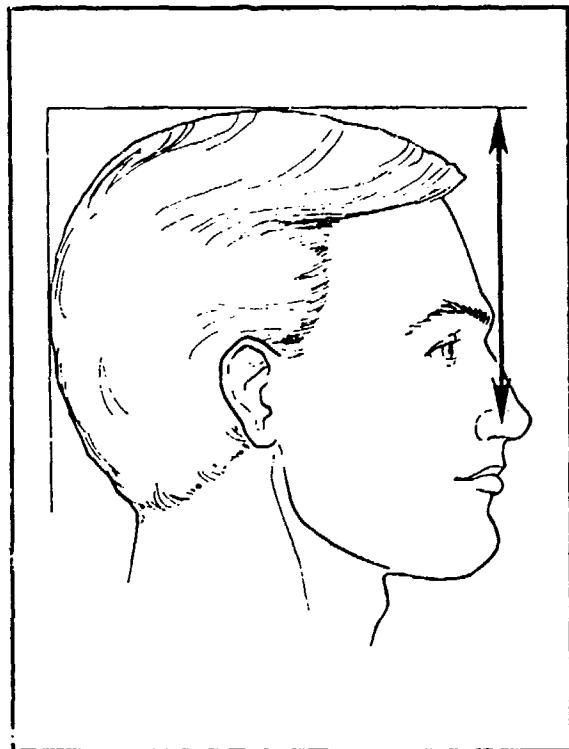
<b>FEMALES</b>		
<b>CM</b>	<b>INCHES</b>	
19.13	MEAN VALUE	7.53
.02	SE(MEAN)	.00
.77	STD DEVIATION	.30
.00	SE(STD DEV)	.00
16.17	MINIMUM	6.37
21.48	MAXIMUM	8.46
SYMMETRY---VETA I	=	-.02
KURTOSIS---VETA II	=	3.13
COEF. OF VARIATION	=	4.0%
NUMBER OF SUBJECTS	=	2208

<b>MALES</b>		
<b>CM</b>	<b>INCHES</b>	
19.98	MEAN VALUE	7.87
.02	SE(MEAN)	.00
.79	STD DEVIATION	.31
.00	SE(STD DEV)	.00
17.17	MINIMUM	6.76
22.62	MAXIMUM	8.91
SYMMETRY---VETA I	=	-.03
KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	4.0%
NUMBER OF SUBJECTS	=	1774

<b>FREQUENCY TABLE</b>							
<b>FEMALES</b>				<b>CENTIMETERS</b>		<b>MALES</b>	
<b>F</b>	<b>FPct</b>	<b>CumF</b>	<b>CumFPct</b>	<b>CENTIMETERS</b>		<b>F</b>	<b>FPct</b>
2	.09	2	.09	16.05 - 16.25		1	.06
2	.09	4	.18	16.25 - 16.45		2	.11
1	.05	5	.23	16.45 - 16.65		0	.00
2	.09	7	.32	16.65 - 16.85		3	.17
3	.14	10	.45	16.85 - 17.05		6	.34
7	.32	17	.77	17.05 - 17.25		13	.73
10	.45	27	1.22	17.25 - 17.45		28	1.58
25	1.13	52	2.36	17.45 - 17.65		11.95	
57	2.58	109	4.94	17.65 - 17.85		312	17.59
57	2.58	166	7.52	17.85 - 18.05		437	24.63
109	4.94	275	12.45	18.05 - 18.25		595	33.54
139	6.30	414	18.75	18.25 - 18.45		763	43.01
166	7.52	580	26.27	18.45 - 18.65		927	52.25
193	8.74	773	35.01	18.65 - 18.85		1108	62.46
231	10.46	1004	45.47	18.85 - 19.05		1301	73.34
248	11.23	1252	56.70	19.05 - 19.25		1423	80.21
205	9.28	1457	65.99	19.25 - 19.45		1543	86.98
196	8.88	1653	74.86	19.45 - 19.65		1626	91.66
185	8.38	1838	83.24	19.65 - 19.85		1683	94.87
105	4.76	1943	88.00	19.85 - 20.05		1722	97.07
99	4.48	2042	92.48	20.05 - 20.25		1771	99.83
58	2.63	2100	95.11	20.25 - 20.45		1774	100.00
46	2.08	2146	97.19	20.45 - 20.65			
27	1.22	2173	98.41	20.65 - 20.85			
22	1.00	2195	99.41	20.85 - 21.05			
9	.41	2204	99.82	21.05 - 21.25			
3	.14	2207	99.95	21.25 - 21.45			
1	.05	2208	100.00	21.45 - 21.65			
				21.65 - 21.85			
				21.85 - 22.05			
				22.05 - 22.25			
				22.25 - 22.45			
				22.45 - 22.65			

## (H2) ALARE-TOP OF HEAD

The vertical distance between the alare landmark on the side of the nostril and the horizontal plane tangent to the top of the head is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
12.96	5.10	13.84	5.45
13.19	5.19	14.03	5.52
13.33	5.25	14.15	5.57
13.51	5.32	14.32	5.64
13.77	5.42	14.59	5.74
13.94	5.49	14.77	5.81
14.07	5.54	14.91	5.87
14.19	5.59	15.04	5.92
14.29	5.63	15.15	5.96
14.38	5.66	15.25	6.00
14.47	5.70	15.35	6.04
14.56	5.73	15.44	6.08
14.65	5.77	15.54	6.12
14.73	5.80	15.63	6.15
14.82	5.84	15.72	6.19
14.92	5.87	15.82	6.23
15.01	5.91	15.92	6.27
15.12	5.95	16.03	6.31
15.24	6.00	16.16	6.36
15.38	6.06	16.30	6.42
15.56	6.13	16.48	6.49
15.82	6.23	16.76	6.60
15.99	6.30	16.94	6.67
16.11	6.34	17.07	6.72
16.36	6.42	17.29	6.81

# ALARE-TOP OF HEAD

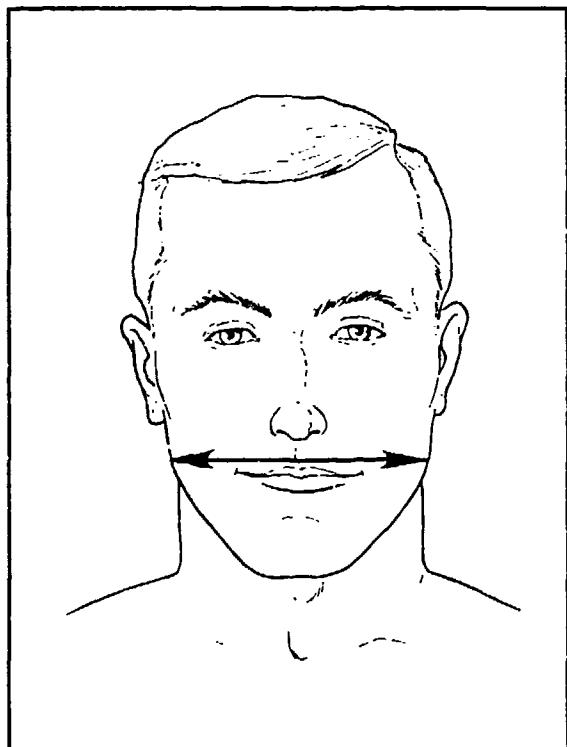
FEMALES		
<u>CM</u>	<u>INCHES</u>	
14.65	MEAN VALUE	5.77
.00	SE(MEAN)	.00
.70	STD DEVIATION	.28
.00	SE(STD DEV)	.00
12.40	MINIMUM	4.88
17.14	MAXIMUM	6.75
SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	3.12
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
15.54	MEAN VALUE	6.12
.02	SE(MEAN)	.00
.74	STD DEVIATION	.29
.00	SE(STD DEV)	.00
13.16	MINIMUM	5.18
18.16	MAXIMUM	7.15
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.04
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
4	.18	4	.18	12.25 - 12.45		1	.06
5	.23	9	.41	12.45 - 12.65		4	.23
6	.27	15	.68	12.65 - 12.85		4	.23
13	.59	28	1.27	12.85 - 13.05		6	.34
20	.91	48	2.17	13.05 - 13.25		21	1.18
55	2.49	103	4.66	13.25 - 13.45		32	1.80
66	2.99	169	7.65	13.45 - 13.65		57	3.21
90	4.08	259	11.73	13.65 - 13.85		69	3.89
154	6.97	413	18.70	13.85 - 14.05		132	7.44
195	8.83	608	27.54	14.05 - 14.25		127	7.16
246	11.14	854	38.68	14.25 - 14.45		169	9.53
248	11.23	1102	49.91	14.45 - 14.65		196	11.05
245	11.10	1347	61.01	14.65 - 14.85		177	9.98
256	11.59	1603	72.60	14.85 - 15.05		183	10.32
184	8.33	1787	80.93	15.05 - 15.25		155	8.74
128	5.80	1915	86.73	15.25 - 15.45		147	8.29
115	5.21	2030	91.94	15.45 - 15.65		106	5.98
74	3.35	2104	95.29	15.65 - 15.85		188	11.78
42	1.90	2146	97.19	15.85 - 16.05		155	13.33
38	1.72	2184	98.91	16.05 - 16.25		169	75.14
12	.54	2196	99.46	16.25 - 16.45		147	8.29
6	.27	2202	99.73	16.45 - 16.65		106	14.80
5	.23	2207	99.95	16.65 - 16.85		72	4.06
0	.00	2207	99.95	16.85 - 17.05		40	2.25
1	.05	2208	100.00	17.05 - 17.25		41	2.31
				17.25 - 17.45		16	.90
				17.45 - 17.65		6	.34
				17.65 - 17.85		6	.34
				17.85 - 18.05		4	.23
				18.05 - 18.25		2	.11
						1	.06
						1774	100.00

### (H3) BIGONIAL BREADTH

The straight-line distance between the right and left gonion landmarks on the corners of the jaw is measured.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
9.25	3.64	1ST	10.13 3.99
9.43	3.71	2ND	10.35 4.07
9.54	3.76	3RD	10.48 4.13
9.69	3.82	5TH	10.65 4.19
9.93	3.91	10TH	10.91 4.30
10.09	3.97	15TH	11.09 4.37
10.22	4.02	20TH	11.23 4.42
10.34	4.07	25TH	11.35 4.47
10.44	4.11	30TH	11.46 4.51
10.53	4.15	35TH	11.57 4.55
10.63	4.18	40TH	11.67 4.59
10.71	4.22	45TH	11.76 4.63
10.80	4.25	50TH	11.86 4.67
10.89	4.29	55TH	11.96 4.71
10.98	4.32	60TH	12.06 4.75
11.08	4.36	65TH	12.17 4.79
11.18	4.40	70TH	12.28 4.83
11.29	4.44	75TH	12.40 4.88
11.41	4.49	80TH	12.54 4.94
11.56	4.55	85TH	12.71 5.00
11.75	4.63	90TH	12.92 5.08
12.03	4.74	95TH	13.22 5.21
12.22	4.81	97TH	13.41 5.28
12.36	4.86	98TH	13.55 5.34
12.58	4.95	99TH	13.76 5.47

# BIGONIAL BREADTH

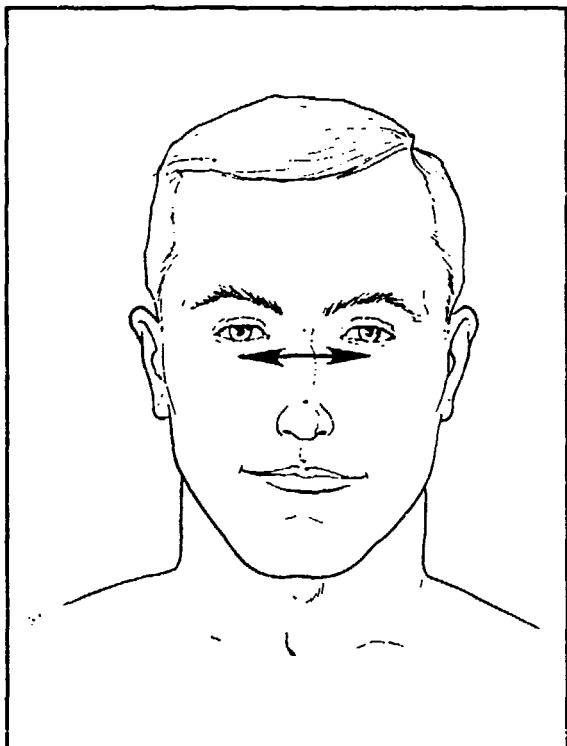
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
10.83	MEAN VALUE	4.26
.02	SE(MEAN)	.00
.71	STD DEVIATION	.28
.00	SE(STD DEV)	.00
8.67	MINIMUM	3.41
14.42	MAXIMUM	5.68
SYMMETRY---VETA I	=	.25
KURTOSIS---VETA II	=	3.40
COEF. OF VARIATION	=	6.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
11.89	MEAN VALUE	4.68
.02	SE(MEAN)	.00
.79	STD DEVIATION	.31
.00	SE(STD DEV)	.00
8.78	MINIMUM	3.46
15.43	MAXIMUM	6.07
SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.44
COEF. OF VARIATION	=	6.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
4	.18	4	.18	8.65 - 8.85	1	.06	.06
4	.18	8	.36	8.85 - 9.05	0	.00	.06
13	.59	21	.95	9.05 - 9.25	0	.00	.06
31	1.40	52	2.36	9.25 - 9.45	0	.00	.06
36	1.63	88	3.99	9.45 - 9.65	2	.11	.17
81	3.67	169	7.65	9.65 - 9.85	5	.28	.45
111	5.03	280	12.68	9.85 - 10.05	5	.28	.73
163	7.38	443	20.06	10.05 - 10.25	17	.96	1.69
214	9.69	657	29.76	10.25 - 10.45	24	1.35	3.04
257	11.64	914	41.39	10.45 - 10.65	30	1.69	4.74
269	12.18	1183	53.58	10.65 - 10.85	58	3.27	8.00
227	10.28	1410	63.86	10.85 - 11.05	88	4.96	12.97
205	9.28	1615	73.14	11.05 - 11.25	116	6.54	19.50
174	7.88	1789	81.02	11.25 - 11.45	168	9.47	28.97
139	6.30	1928	87.32	11.45 - 11.65	180	10.15	39.12
106	4.80	2034	92.12	11.65 - 11.85	180	10.15	49.27
74	3.35	2108	95.47	11.85 - 12.05	193	10.88	60.15
41	1.86	2149	97.33	12.05 - 12.25	142	8.00	68.15
27	1.22	2176	98.55	12.25 - 12.45	138	7.78	75.93
12	.54	2188	99.09	12.45 - 12.65	130	7.33	83.26
11	.50	2199	99.59	12.65 - 12.85	90	5.07	88.33
3	.14	2202	99.73	12.85 - 13.05	78	4.40	1645
0	.00	2202	99.73	13.05 - 13.25	46	2.59	1691
2	.09	2204	99.82	13.25 - 13.45	35	1.97	97.29
2	.09	2206	99.91	13.45 - 13.65	24	1.35	1750
1	.05	2207	99.95	13.65 - 13.85	9	.51	1759
0	.00	2207	99.95	13.85 - 14.05	5	.28	1764
0	.00	2207	99.95	14.05 - 14.25	4	.23	1768
1	.05	2208	100.00	14.25 - 14.45	1	.06	1769
				14.45 - 14.65	1	.06	1770
				14.65 - 14.85	1	.06	1771
				14.85 - 15.05	1	.06	1772
				15.05 - 15.25	1	.06	1773
				15.25 - 15.45	1	.06	1774
							100.00

#### (H4) BIINFRAORBITALE BREADTH

The straight-line distance between the right and left infraorbitale landmarks on the bottom edge of the bony eye sockets under the eyes is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
5.56	2.19	1ST	5.73 2.26
5.70	2.24	2ND	5.86 2.31
5.79	2.28	3RD	5.94 2.34
5.90	2.32	5TH	6.05 2.38
6.08	2.39	10TH	6.22 2.45
6.20	2.44	15TH	6.33 2.49
6.29	2.48	20TH	6.42 2.53
6.37	2.51	25TH	6.50 2.56
6.45	2.54	30TH	6.57 2.59
6.52	2.57	35TH	6.64 2.61
6.58	2.59	40TH	6.70 2.64
6.65	2.62	45TH	6.76 2.66
6.71	2.64	50TH	6.83 2.69
6.78	2.67	55TH	6.89 2.71
6.84	2.69	60TH	6.95 2.74
6.91	2.72	65TH	7.02 2.76
6.98	2.75	70TH	7.09 2.79
7.06	2.78	75TH	7.17 2.82
7.15	2.82	80TH	7.26 2.86
7.26	2.86	85TH	7.37 2.90
7.39	2.91	90TH	7.51 2.96
7.58	2.99	95TH	7.72 3.04
7.71	3.03	97TH	7.86 3.10
7.80	3.07	98TH	7.97 3.14
7.94	3.13	99TH	8.13 3.20

# BIINFRAORBITALE BREADTH

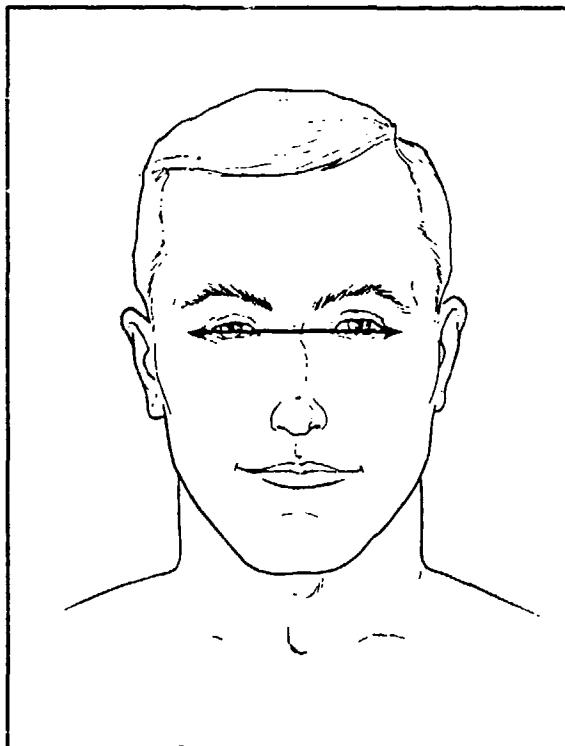
FEMALES		
<u>CM</u>	<u>INCHES</u>	
6.72	MEAN VALUE	2.65
.00	SE(MEAN)	.00
.51	STD DEVIATION	.20
.00	SE(STD DEV)	.00
4.93	MINIMUM	1.94
8.54	MAXIMUM	3.36
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	2.98
COEF. OF VARIATION	=	7.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
6.85	MEAN VALUE	2.70
.00	SE(MEAN)	.00
.51	STD DEVIATION	.20
.00	SE(STD DEV)	.00
5.04	MINIMUM	1.98
9.13	MAXIMUM	3.59
SYMMETRY---VETA I	=	.27
KURTOSIS---VETA II	=	3.45
COEF. OF VARIATION	=	7.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	4.85	-	4.95	
0	.00	1	.05	4.95	-	5.05	
1	.05	2	.09	5.05	-	5.15	
0	.00	2	.09	5.15	-	5.25	
1	.05	3	.14	5.25	-	5.35	
6	.27	9	.41	5.35	-	5.45	
10	.45	19	.86	5.45	-	5.55	
18	.82	37	1.68	5.55	-	5.65	
17	.77	54	2.45	5.65	-	5.75	
28	1.27	82	3.71	5.75	-	5.85	
56	2.54	138	6.25	5.85	-	5.95	
54	2.45	192	8.70	5.95	-	6.05	
76	3.44	268	12.14	6.05	-	6.15	
107	4.85	375	16.98	6.15	-	6.25	
141	6.39	516	23.37	6.25	-	6.35	
142	6.43	658	29.80	6.35	-	6.45	
168	7.61	826	37.41	6.45	-	6.55	
172	7.79	998	45.20	6.55	-	6.65	
162	7.34	1160	52.54	6.65	-	6.75	
167	7.56	131	60.10	6.75	-	6.85	
161	7.29	14	67.39	6.85	-	6.95	
148	6.70	16	74.09	6.95	-	7.05	
125	5.66	176	79.76	7.05	-	7.15	
98	4.44	1859	84.19	7.15	-	7.25	
91	4.12	1950	88.32	7.25	-	7.35	
75	3.40	2025	91.71	7.35	-	7.45	
64	2.90	2089	94.61	7.45	-	7.55	
39	1.77	2128	96.38	7.55	-	7.65	
21	.95	2149	97.33	7.65	-	7.75	
25	1.13	2174	98.46	7.75	-	7.85	
16	.72	2190	99.18	7.85	-	7.95	
6	.27	2196	99.46	7.95	-	8.05	
5	.23	2201	99.68	8.05	-	8.15	
2	.09	2203	99.77	8.15	-	8.25	
1	.05	2204	99.82	8.25	-	8.35	
3	.14	2207	99.95	8.35	-	8.45	
1	.05	2208	100.00	8.45	-	8.55	
				8.55	-	8.65	
				8.65	-	8.75	
				8.75	-	8.85	
				8.85	-	8.95	
				8.95	-	9.05	
				9.05	-	9.15	

## (H5) BIOCULAR BREADTH, MAXIMUM

The straight-line distance between the right and left ectoorbitale landmarks just behind each bony eye socket at the level of the outer corners of the eyes is measured.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
10.76	4.24	1ST	10.98	4.32	
10.89	4.29	2ND	11.11	4.37	
10.97	4.32	3RD	11.20	4.41	
11.09	4.36	5TH	11.31	4.45	
11.27	4.44	10TH	11.50	4.53	
11.39	4.49	15TH	11.62	4.58	
11.49	4.52	20TH	11.72	4.62	
11.58	4.56	25TH	11.81	4.65	
11.66	4.59	30TH	11.89	4.68	
11.74	4.62	35TH	11.96	4.71	
11.81	4.65	40TH	12.03	4.74	
11.88	4.68	45TH	12.10	4.76	
11.95	4.70	50TH	12.16	4.79	
12.02	4.73	55TH	12.23	4.81	
12.09	4.76	60TH	12.30	4.84	
12.16	4.79	65TH	12.37	4.87	
12.24	4.82	70TH	12.44	4.90	
12.33	4.85	75TH	12.52	4.93	
12.43	4.89	80TH	12.62	4.97	
12.54	4.94	85TH	12.72	5.01	
12.68	4.99	90TH	12.87	5.07	
12.90	5.08	95TH	13.09	5.15	
13.04	5.13	97TH	13.25	5.22	
13.14	5.17	98TH	13.37	5.26	
13.30	5.24	99TH	13.57	5.34	

# BIOCULAR BREADTH, MAXIMUM

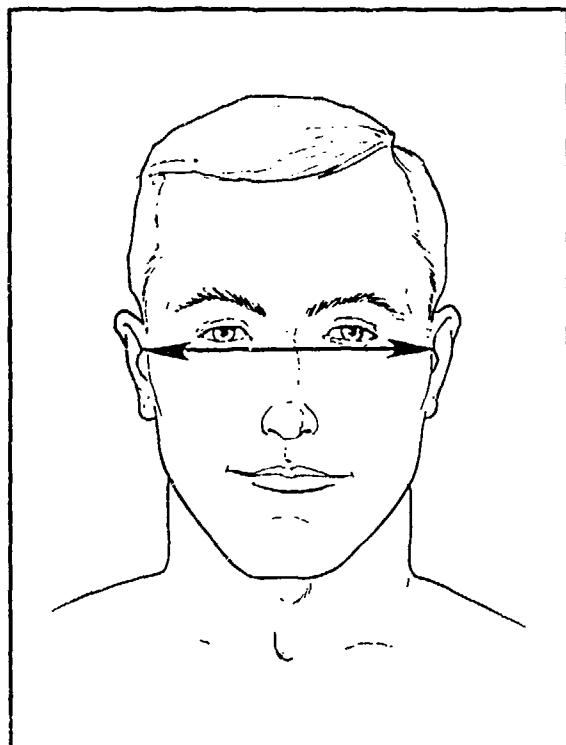
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
11.96	MEAN VALUE	4.71
.00	SE(MEAN)	.00
.55	STD DEVIATION	.22
.00	SE(STD DEV)	.00
10.17	MINIMUM	4.00
14.36	MAXIMUM	5.65
SYMMETRY---VETA I	=	.16
KURTOSIS---VETA II	=	3.09
COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
12.18	MEAN VALUE	4.79
.00	SE(MEAN)	.00
.54	STD DEVIATION	.21
.00	SE(STD DEV)	.00
10.26	MINIMUM	4.04
14.70	MAXIMUM	5.79
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.37
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	10.15 - 10.25		1	.06
1	.05	3	.14	10.25 - 10.35		1	.06
2	.09	5	.23	10.35 - 10.45		1	.06
3	.14	8	.36	10.45 - 10.55		1	.06
4	.18	12	.54	10.55 - 10.65		2	.11
9	.41	21	.95	10.65 - 10.75		3	.17
13	.59	34	1.54	10.75 - 10.85		3	.17
21	.95	55	2.49	10.85 - 10.95		6	.34
28	1.27	83	3.76	10.95 - 11.05		10	.56
56	2.54	139	6.30	11.05 - 11.15		11	.62
71	3.22	210	9.51	11.15 - 11.25		27	1.52
70	3.17	280	12.68	11.25 - 11.35		36	2.03
113	5.12	393	17.80	11.35 - 11.45		50	2.82
108	4.89	501	22.69	11.45 - 11.55		66	3.72
146	6.61	647	29.30	11.55 - 11.65		75	4.23
144	6.52	791	35.82	11.65 - 11.75		88	4.96
140	6.34	931	42.16	11.75 - 11.85		94	5.30
156	7.07	1087	49.23	11.85 - 11.95		109	6.14
156	7.07	1243	56.30	11.95 - 12.05		141	7.95
157	7.11	1400	63.41	12.05 - 12.15		138	7.78
142	6.43	1542	69.84	12.15 - 12.25		124	6.99
140	6.34	1682	76.18	12.25 - 12.35		142	8.00
120	5.43	1802	81.61	12.35 - 12.45		122	6.88
98	4.44	1900	86.05	12.45 - 12.55		120	6.76
65	2.94	1965	88.99	12.55 - 12.65		68	3.83
60	2.72	2025	91.71	12.65 - 12.75		82	4.62
56	2.54	2081	94.25	12.75 - 12.85		62	3.49
34	1.54	2115	95.79	12.85 - 12.95		46	2.59
25	1.13	2140	96.92	12.95 - 13.05		42	2.37
26	1.18	2166	98.10	13.05 - 13.15		31	1.75
17	.77	2183	98.87	13.15 - 13.25		21	1.18
7	.32	2190	99.18	13.25 - 13.35		13	.73
5	.23	2195	99.41	13.35 - 13.45		9	.51
5	.23	2200	99.64	13.45 - 13.55		10	.56
4	.18	2204	99.82	13.55 - 13.65		7	.39
1	.05	2205	99.86	13.65 - 13.75		5	.28
1	.05	2206	99.91	13.75 - 13.85		4	.23
1	.05	2207	99.95	13.85 - 13.95		2	.11
0	.00	2207	99.95	13.95 - 14.05		1	.06
0	.00	2207	99.95	14.05 - 14.15		0	.00
0	.00	2207	99.95	14.15 - 14.25		0	.00
0	.00	2207	99.95	14.25 - 14.35		0	.00
1	.05	2208	100.00	14.35 - 14.45		0	.00
				14.45 - 14.55		0	.00
				14.55 - 14.65		0	.00
				14.65 - 14.75		1	.06
						1774	100.00

## (H6) BITRAGION BREADTH

The straight-line distance between the right and left tragion landmarks on the cartilaginous flaps in front of each earhole is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
12.51	4.92	13.08	5.15
12.62	4.97	13.25	5.22
12.70	5.00	13.35	5.26
12.81	5.04	13.50	5.31
12.98	5.11	13.72	5.40
13.11	5.16	13.87	5.46
13.20	5.20	13.99	5.51
13.29	5.23	14.09	5.55
13.37	5.26	14.18	5.58
13.44	5.29	14.26	5.61
13.51	5.32	14.34	5.65
13.57	5.34	14.41	5.67
13.63	5.37	14.49	5.70
13.70	5.39	14.56	5.73
13.77	5.42	14.63	5.76
13.83	5.45	14.71	5.79
13.91	5.47	14.79	5.82
13.98	5.51	14.88	5.86
14.07	5.54	14.98	5.90
14.18	5.58	15.09	5.94
14.31	5.63	15.23	6.00
14.52	5.72	15.45	6.08
14.66	5.77	15.59	6.14
14.77	5.82	15.70	6.18
14.96	5.99	15.87	6.25

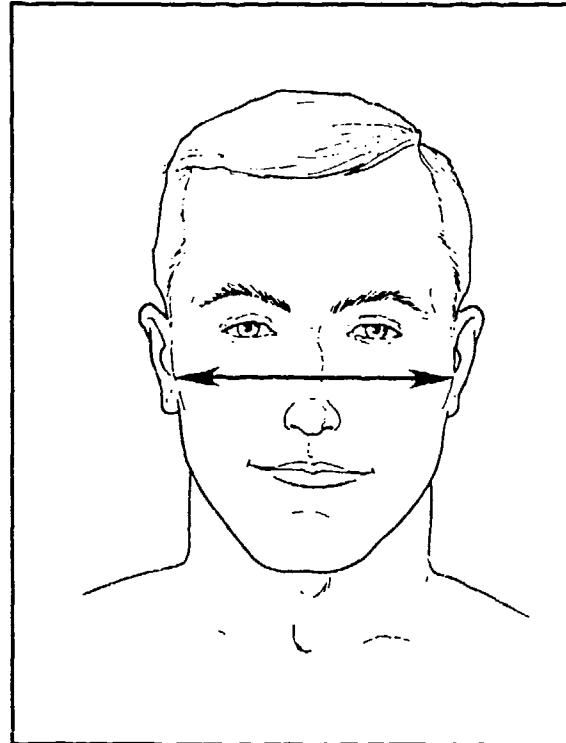
# BITRAGION BREADTH

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
13.64	MEAN VALUE	5.37	14.48	MEAN VALUE	5.70
.00	SE(MEAN)	.00	.00	SE(MEAN)	.00
.52	STD DEVIATION	.21	.60	STD DEVIATION	.23
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
11.48	MINIMUM	4.52	10.72	MINIMUM	4.22
15.69	MAXIMUM	6.18	16.58	MAXIMUM	6.53
SYMMETRY---VETA I	=	.11	SYMMETRY---VETA I	=	-.15
KURTOSIS---VETA II	=	3.33	KURTOSIS---VETA II	=	3.88
COEF. OF VARIATION	=	3.8%	COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	
				10.65 - 10.85	1	.06	1	.06
				10.85 - 11.05	0	.00	1	.06
				11.05 - 11.25	0	.00	1	.06
				11.25 - 11.45	0	.00	1	.06
1	.05	1	.05	11.45 - 11.65	0	.00	1	.06
0	.00	1	.05	11.65 - 11.85	0	.00	1	.06
6	.27	7	.32	11.85 - 12.05	0	.00	1	.06
3	.14	10	.45	12.05 - 12.25	0	.00	1	.06
11	.50	21	.95	12.25 - 12.45	2	.11	3	.17
26	.18	47	2.13	12.45 - 12.65	1	.06	4	.23
74	3.35	121	5.48	12.65 - 12.85	4	.23	8	.45
169	7.65	290	13.13	12.85 - 13.05	4	.23	12	.68
211	9.56	501	22.69	13.05 - 13.25	24	1.35	36	2.03
278	12.59	779	35.28	13.25 - 13.45	32	1.80	68	3.83
335	15.17	1114	50.45	13.45 - 13.65	75	4.23	143	8.06
338	15.31	1452	65.76	13.65 - 13.85	102	5.75	245	13.81
272	12.32	1724	78.08	13.85 - 14.05	143	8.06	388	21.87
225	10.19	1949	88.27	14.05 - 14.25	211	11.89	599	33.77
123	5.57	2072	93.84	14.25 - 14.45	228	12.85	827	46.62
69	3.13	2141	96.97	14.45 - 14.65	260	14.66	1087	61.27
33	1.49	2174	98.46	14.65 - 14.85	207	11.67	1294	72.94
22	1.00	2196	99.46	14.85 - 15.05	189	10.65	1483	83.60
5	.23	2201	99.68	15.05 - 15.25	115	6.48	1598	90.08
4	.18	2205	99.86	15.25 - 15.45	86	4.85	1684	94.93
1	.05	2206	99.91	15.45 - 15.65	49	2.76	1733	97.69
2	.09	2208	100.00	15.65 - 15.85	22	1.24	1755	98.93
				15.85 - 16.05	12	.68	1767	99.61
				16.05 - 16.25	4	.23	1771	99.83
				16.25 - 16.45	1	.06	1772	99.89
				16.45 - 16.65	2	.11	1774	100.00

## (H7) BIZYGMATIC BREADTH

The straight-line distance between the right and left zygion landmarks on the zygomatic arches, or upper cheekbones, is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
12.32	4.85	1ST	12.89 5.07
12.46	4.90	2ND	13.06 5.14
12.55	4.94	3RD	13.17 5.18
12.67	4.99	5TH	13.31 5.24
12.87	5.07	10TH	13.54 5.33
13.00	5.12	15TH	13.69 5.39
13.10	5.16	20TH	13.80 5.43
13.19	5.19	25TH	13.91 5.47
13.27	5.23	30TH	14.00 5.51
13.35	5.25	35TH	14.08 5.54
13.42	5.28	40TH	14.16 5.58
13.49	5.31	45TH	14.24 5.61
13.55	5.34	50TH	14.32 5.64
13.62	5.36	55TH	14.40 5.67
13.69	5.39	60TH	14.48 5.70
13.76	5.42	65TH	14.57 5.73
13.84	5.45	70TH	14.65 5.77
13.92	5.48	75TH	14.75 5.81
14.02	5.52	80TH	14.86 5.85
14.13	5.56	85TH	14.99 5.90
14.27	5.62	90TH	15.15 5.97
14.50	5.71	95TH	15.40 6.06
14.65	5.77	97TH	15.56 6.13
14.77	5.82	98TH	15.69 6.18
14.98	5.90	99TH	15.88 6.25

# BIZYGOMATIC BREADTH

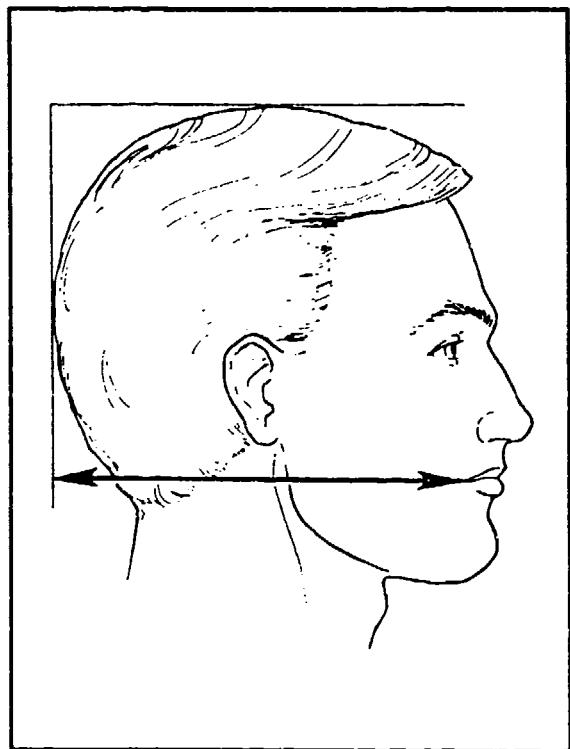
FEMALES		
CM	MEAN VALUE	INCHES
13.57	MEAN VALUE	5.34
.00	SE(MEAN)	.00
.56	STD DEVIATION	.22
.00	SM(STD DEV)	.00
11.85	MINIMUM	4.66
15.69	MAXIMUM	6.18
SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.32
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
14.33	MEAN VALUE	5.64
.02	SE(MEAN)	.00
.64	STD DEVIATION	.25
.00	SE(STD DEV)	.00
11.52	MINIMUM	4.53
16.98	MAXIMUM	6.68
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.37
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
				11.45 - 11.55	11.55 - 11.65	11.65 - 11.75	11.75 - 11.85
2	.09	2	.09	11.85 - 11.95	11.95 - 12.05	12.05 - 12.15	12.15 - 12.25
3	.14	5	.23	12.25 - 12.35	12.35 - 12.45	12.45 - 12.55	12.55 - 12.65
3	.14	8	.36	12.55 - 12.65	12.65 - 12.75	12.75 - 12.85	12.85 - 12.95
5	.23	13	.59	12.85 - 12.95	12.95 - 13.05	13.05 - 13.15	13.15 - 13.25
14	.63	27	1.22	13.25 - 13.35	13.35 - 13.45	13.45 - 13.55	13.55 - 13.65
15	.68	42	1.90	13.45 - 13.55	13.55 - 13.65	13.65 - 13.75	13.75 - 13.85
24	1.09	66	2.99	13.65 - 13.75	13.75 - 13.85	13.85 - 13.95	13.95 - 14.05
39	1.77	105	4.76	13.85 - 14.05	14.05 - 14.15	14.15 - 14.25	14.25 - 14.35
39	1.77	144	6.52	14.05 - 14.15	14.15 - 14.25	14.25 - 14.35	14.35 - 14.45
57	2.58	201	9.10	14.25 - 14.35	14.35 - 14.45	14.45 - 14.55	14.55 - 14.65
73	3.31	274	12.41	14.35 - 14.45	14.45 - 14.55	14.55 - 14.65	14.65 - 14.75
100	4.53	374	16.94	14.45 - 14.55	14.55 - 14.65	14.65 - 14.75	14.75 - 14.85
118	5.34	492	22.28	14.55 - 14.65	14.65 - 14.75	14.75 - 14.85	14.85 - 14.95
142	6.43	634	28.71	14.65 - 14.75	14.75 - 14.85	14.85 - 14.95	14.95 - 15.05
136	6.16	770	34.87	14.75 - 14.85	14.85 - 14.95	14.95 - 15.05	15.05 - 15.15
156	7.07	926	41.94	14.85 - 14.95	14.95 - 15.05	15.05 - 15.15	15.15 - 15.25
164	7.43	1090	49.37	14.95 - 15.05	15.05 - 15.15	15.15 - 15.25	15.25 - 15.35
165	7.47	1255	56.84	15.05 - 15.15	15.15 - 15.25	15.25 - 15.35	15.35 - 15.45
156	7.07	1411	63.90	15.15 - 15.25	15.25 - 15.35	15.35 - 15.45	15.45 - 15.55
154	6.97	1565	70.88	15.25 - 15.35	15.35 - 15.45	15.45 - 15.55	15.55 - 15.65
134	6.07	1699	76.95	15.35 - 15.45	15.45 - 15.55	15.55 - 15.65	15.65 - 15.75
102	4.62	1801	81.57	15.45 - 15.55	15.55 - 15.65	15.65 - 15.75	15.75 - 15.85
94	4.26	1895	85.82	15.55 - 15.65	15.65 - 15.75	15.75 - 15.85	15.85 - 15.95
81	3.67	1976	89.49	15.65 - 15.75	15.75 - 15.85	15.85 - 15.95	15.95 - 16.05
53	2.40	2029	91.89	15.75 - 15.85	15.85 - 15.95	15.95 - 16.05	16.05 - 16.15
43	1.95	2072	93.84	15.85 - 15.95	15.95 - 16.05	16.05 - 16.15	16.15 - 16.25
46	2.08	2118	95.92	15.95 - 16.05	16.05 - 16.15	16.15 - 16.25	16.25 - 16.35
25	1.13	2145	97.06	16.05 - 16.15	16.15 - 16.25	16.25 - 16.35	16.35 - 16.45
18	.82	2161	97.81	16.15 - 16.25	16.25 - 16.35	16.35 - 16.45	16.45 - 16.55
11	.50	2172	98.37	16.25 - 16.35	16.35 - 16.45	16.45 - 16.55	16.55 - 16.65
12	.54	2184	98.91	16.35 - 16.45	16.45 - 16.55	16.55 - 16.65	16.65 - 16.75
6	.27	2190	99.18	16.45 - 16.55	16.55 - 16.65	16.65 - 16.75	16.75 - 16.85
1	.05	2191	99.23	16.55 - 16.65	16.65 - 16.75	16.75 - 16.85	16.85 - 16.95
5	.23	2196	99.46	16.65 - 16.75	16.75 - 16.85	16.85 - 16.95	16.95 - 17.05
4	.18	2200	99.64	16.75 - 16.85	16.85 - 16.95	16.95 - 17.05	17.05 - 17.15
4	.18	2204	99.82	16.85 - 16.95	16.95 - 17.05	17.05 - 17.15	17.15 - 17.25
3	.14	2207	99.95	16.95 - 17.05	17.05 - 17.15	17.15 - 17.25	17.25 - 17.35
0	.00	2207	99.95	17.05 - 17.15	17.15 - 17.25	17.25 - 17.35	17.35 - 17.45
1	.05	2208	100.00	17.15 - 17.25	17.25 - 17.35	17.35 - 17.45	17.45 - 17.55

## (H8) CHEILION-BACK OF HEAD

The horizontal distance between the cheilion landmark at the corner of the closed mouth and the vertical plane tangent to the back of the head is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.95	6.28	1ST	16.43 6.47
16.17	6.37	2ND	16.68 6.57
16.31	6.42	3RD	16.84 6.63
16.50	6.50	5TH	17.05 6.71
16.80	6.61	10TH	17.38 6.84
17.00	6.69	15TH	17.60 6.93
17.17	6.76	20TH	17.77 7.00
17.32	6.82	25TH	17.92 7.06
17.45	6.87	30TH	18.05 7.11
17.58	6.92	35TH	18.18 7.16
17.71	6.97	40TH	18.30 7.20
17.83	7.02	45TH	18.41 7.25
17.95	7.07	50TH	18.53 7.30
18.07	7.11	55TH	18.64 7.34
18.19	7.16	60TH	18.76 7.39
18.32	7.21	65TH	18.88 7.43
18.46	7.27	70TH	19.01 7.48
18.61	7.33	75TH	19.15 7.54
18.78	7.39	80TH	19.31 7.60
18.98	7.47	85TH	19.49 7.67
19.22	7.57	90TH	19.72 7.76
19.56	7.70	95TH	20.05 7.90
19.77	7.78	97TH	20.27 7.98
19.91	7.84	98TH	20.43 8.04
20.12	7.92	99TH	20.67 8.14

# CHEILION-BACK OF HEAD

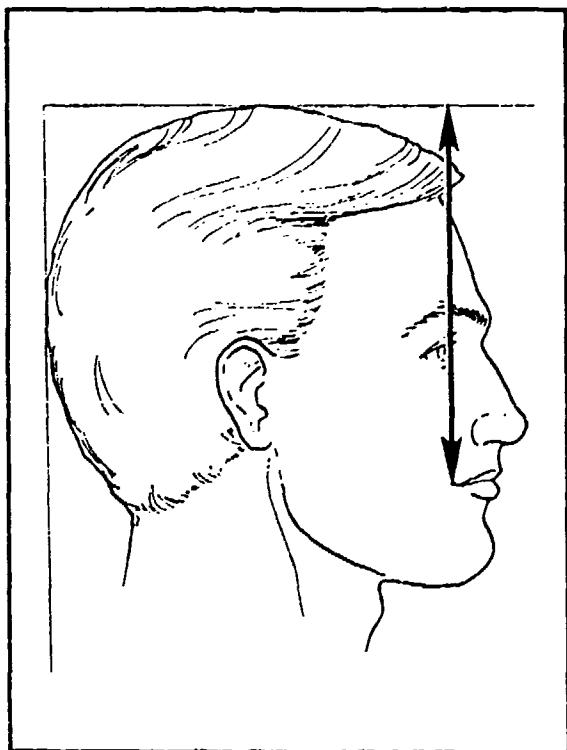
FEMALES		
CM		INCHES
17.97	MEAN VALUE	7.08
.02	SE(MEAN)	.00
.93	STD DEVIATION	.37
.00	SE(STD DEV)	.00
14.79	MINIMUM	5.82
20.78	MAXIMUM	8.18
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	2.81
COEF. OF VARIATION	=	5.2%
NUMBER OF SUBJECTS	=	2208

MALES		
CM		INCHES
18.54	MEAN VALUE	7.30
.02	SE(MEAN)	.00
.91	STD DEVIATION	.36
.02	SE(STD DEV)	.00
15.27	MINIMUM	6.01
21.60	MAXIMUM	8.50
SYMMETRY---VETA I	=	.03
KURTOSIS---VETA II	=	3.08
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
2	.09	2	.09	14.75	-	14.95		1	.06	1	.06
1	.05	3	.14	14.95	-	15.15		0	.00	1	.06
0	.00	3	.14	15.15	-	15.35		2	.11	3	.17
5	.23	8	.36	15.35	-	15.55		1	.06	4	.23
8	.36	16	.72	15.55	-	15.75		6	.34	10	.56
6	.27	22	1.00	15.75	-	15.95		5	.28	15	.85
17	.77	39	1.77	15.95	-	16.15		11	.62	26	1.47
39	1.77	78	3.53	16.15	-	16.35		62	3.49	172	9.70
48	2.17	126	5.71	16.35	-	16.55		86	4.85	258	14.54
72	3.26	198	8.97	16.55	-	16.75		75	4.23	333	18.77
96	4.35	294	13.32	16.75	-	16.95		22	1.24	66	3.72
119	5.39	413	18.70	16.95	-	17.15		44	2.48	110	6.20
157	7.11	570	25.82	17.15	-	17.35		115	6.48	448	25.25
175	7.93	745	33.74	17.35	-	17.55		151	8.51	599	33.77
176	7.97	921	41.71	17.55	-	17.75		145	8.17	744	41.94
186	8.42	1107	50.14	17.75	-	17.95		162	9.13	906	51.07
185	8.38	1292	58.51	17.95	-	18.15		140	7.89	1046	58.96
164	7.43	1456	65.94	18.15	-	18.35		159	8.96	1205	67.93
138	6.25	1594	72.19	18.35	-	18.55		143	8.06	1348	75.99
170	7.70	1764	79.89	18.55	-	18.75		101	5.69	1449	81.68
104	4.71	1868	84.60	18.75	-	18.95		77	4.34	1526	86.02
89	4.03	1957	88.63	18.95	-	19.15		83	4.68	1609	90.70
80	3.62	2037	92.26	19.15	-	19.35		55	3.10	1664	93.80
63	2.85	2100	95.11	19.35	-	19.55		39	2.20	1703	96.00
39	1.77	2139	96.88	19.55	-	19.75		30	1.69	1733	97.69
25	1.13	2164	98.01	19.75	-	19.95		12	.68	1745	98.37
26	1.18	2190	99.18	19.95	-	20.15		18	1.01	1763	99.38
7	.32	2197	99.50	20.15	-	20.35		1	.06	1764	99.44
9	.41	2206	99.91	20.35	-	20.55		4	.23	1768	99.66
1	.05	2207	99.95	20.55	-	20.75		2	.11	1770	99.77
1	.05	2208	100.00	20.75	-	21.75		2	.11	1772	99.89
				20.95	-	21.15				1774	100.00
				21.15	-	21.35					
				21.35	-	21.55					
				21.55	-	21.75					

## (H9) CHEILION-TOP OF HEAD

The vertical distance between the cheilion landmark at the corner of the closed mouth and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.98	6.29	1ST	17.09 6.73
16.21	6.38	2ND	17.30 6.81
16.36	6.44	3RD	17.43 6.86
16.54	6.51	5TH	17.60 6.93
16.81	6.62	10TH	17.86 7.03
16.98	6.69	15TH	18.03 7.10
17.12	6.74	20TH	18.17 7.15
17.24	6.79	25TH	18.29 7.20
17.34	6.83	30TH	18.39 7.24
17.44	6.87	35TH	18.49 7.28
17.53	6.90	40TH	18.59 7.32
17.62	6.94	45TH	18.68 7.35
17.71	6.97	50TH	18.77 7.39
17.81	7.01	55TH	18.86 7.43
17.90	7.05	60TH	18.96 7.46
18.00	7.08	65TH	19.05 7.50
18.10	7.13	70TH	19.16 7.54
18.21	7.17	75TH	19.28 7.59
18.34	7.22	80TH	19.41 7.64
18.49	7.28	85TH	19.56 7.70
18.68	7.35	90TH	19.76 7.78
18.96	7.47	95TH	20.06 7.90
19.15	7.54	97TH	20.25 7.97
19.28	7.59	98TH	20.40 8.03
19.49	7.67	99TH	20.63 8.12

# CHEILION-TOP OF HEAD

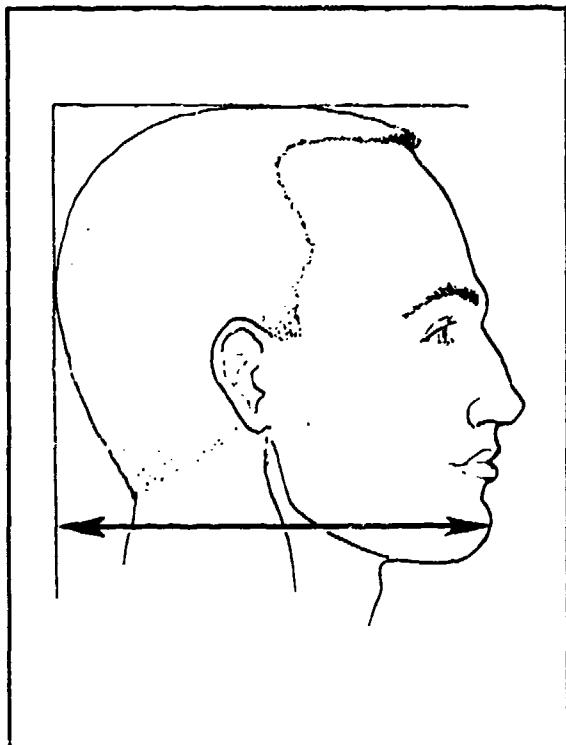
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
17.72	MEAN VALUE	6.98
.02	SE(MEAN)	.00
.73	STD DEVIATION	.29
.00	SE(STD DEV)	.00
15.21	MINIMUM	5.99
20.06	MAXIMUM	7.90
SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.10
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
18.79	MEAN VALUE	7.40
.02	SE(MEAN)	.00
.75	STD DEVIATION	.29
.00	SE(STD DEV)	.00
16.34	MINIMUM	6.43
21.17	MAXIMUM	8.34
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.04
COEF. OF VARIATION	=	4.0%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	15.15 - 15.35		1	.06
3	.14	4	.18	15.35 - 15.55		0	.00
8	.36	12	.54	15.55 - 15.75		4	.23
9	.41	21	.95	15.75 - 15.95		6	.34
15	.68	36	1.63	15.95 - 16.15		9	.51
26	1.18	62	2.81	16.15 - 16.35		22	1.24
45	2.04	107	4.85	16.35 - 16.55		34	1.92
86	3.89	193	8.74	16.55 - 16.75		34	2.99
115	5.21	308	13.95	16.75 - 16.95		53	5.75
160	7.25	468	21.20	16.95 - 17.15		102	10.60
205	9.28	673	30.48	17.15 - 17.35		105	10.60
220	9.96	893	40.44	17.35 - 17.55		168	9.47
255	11.55	1148	51.99	17.55 - 17.75		183	10.32
228	10.33	1376	62.32	17.75 - 17.95		176	9.92
242	10.96	1618	73.28	17.95 - 18.15		184	10.37
165	7.47	1783	80.75	18.15 - 18.35		188	10.60
142	6.43	1925	87.18	18.35 - 18.55		127	7.16
92	4.17	2017	91.35	18.55 - 18.75		127	7.16
70	3.17	2087	94.52	18.75 - 18.95		188	10.60
56	2.54	2143	97.06	18.95 - 19.15		147	8.29
38	1.72	2181	98.78	19.15 - 19.35		127	7.16
10	.45	2191	99.23	19.35 - 19.55		28	4.96
9	.41	2200	99.64	19.55 - 19.75		51	2.87
5	.23	2205	99.86	19.75 - 19.95		35	1.97
3	.14	2208	100.00	19.95 - 20.15		14	.79
				20.15 - 20.35		16	.90
				20.35 - 20.55		3	.17
				20.55 - 20.75		6	.34
				20.75 - 20.95		1	.06
				20.95 - 21.15			
				21.15 - 21.35			

## (H10) CHIN-BACK OF HEAD

The horizontal distance between the promenton landmark on the front of the chin and the vertical plane tangent to the back of the head is measured.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
16.57	6.52	1ST	16.97	6.68	
16.82	6.62	2ND	17.27	6.80	
16.97	6.68	3RD	17.46	6.87	
17.19	6.77	5TH	17.71	6.97	
17.52	6.90	10TH	18.10	7.13	
17.74	6.99	15TH	18.36	7.23	
17.93	7.06	20TH	18.57	7.31	
18.09	7.12	25TH	18.74	7.38	
18.23	7.18	30TH	18.90	7.44	
18.37	7.23	35TH	19.04	7.50	
18.50	7.28	40TH	19.18	7.55	
18.62	7.33	45TH	19.31	7.60	
18.75	7.38	50TH	19.43	7.65	
18.88	7.43	55TH	19.56	7.70	
19.01	7.48	60TH	19.69	7.75	
19.14	7.54	65TH	19.82	7.80	
19.28	7.59	70TH	19.96	7.86	
19.44	7.65	75TH	20.11	7.92	
19.61	7.72	80TH	20.28	7.99	
19.81	7.80	85TH	20.48	8.06	
20.05	7.90	90TH	20.73	8.16	
20.40	8.03	95TH	21.11	8.31	
20.61	8.12	97TH	21.37	8.41	
20.77	8.10	98TH	21.56	8.49	
20.98	8.26	99TH	21.87	8.61	

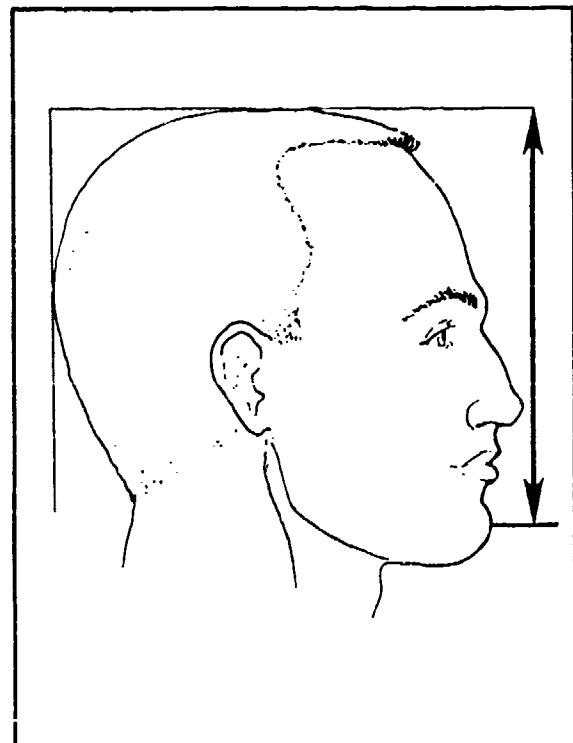
# CHIN-BACK OF HEAD

FEMALES				MALES			
	<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>		
18.76	MEAN VALUE	7.39		19.42	MEAN VALUE	7.65	
.02	SE(MEAN)	.00		.02	SE(MEAN)	.00	
.98	STD DEVIATION	.39		1.03	STD DEVIATION	.41	
.00	SE(STD DEV)	.00		.02	SE(STD DEV)	.00	
15.21	MINIMUM	5.99		15.02	MINIMUM	5.91	
22.21	MAXIMUM	8.74		22.66	MAXIMUM	8.92	
SYMMETRY---VETA I	=	.06		SYMMETRY---VETA I	=	-.08	
KURTOSIS---VETA II	=	2.90		KURTOSIS---VETA II	=	3.20	
COEF. OF VARIATION	=	5.2%		COEF. OF VARIATION	=	5.3%	
NUMBER OF SUBJECTS	=	2208		NUMBER OF SUBJECTS	=	1774	

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
1	.05	1	.05	14.95 - 15.15		1	.06	1	.06
0	.00	1	.05	15.15 - 15.35		0	.00	1	.06
0	.00	1	.05	15.35 - 15.55		0	.00	1	.06
2	.09	3	.14	15.55 - 15.75		1	.06	2	.11
3	.14	6	.27	15.75 - 15.95		2	.11	4	.23
4	.18	10	.45	15.95 - 16.15		2	.11	6	.34
10	.45	20	.91	16.15 - 16.35		2	.11	8	.45
21	.95	41	1.86	16.35 - 16.55		3	.17	11	.62
13	.59	54	2.45	16.55 - 16.75		3	.17	14	.79
47	2.13	101	4.57	16.75 - 16.95		15	.85	29	1.63
59	2.67	160	7.25	16.95 - 17.15		20	1.13	49	2.76
81	3.67	241	10.91	17.15 - 17.35		18	1.01	67	3.78
93	4.21	334	15.13	17.35 - 17.55		28	1.58	95	5.36
117	5.30	451	20.43	17.55 - 17.75		30	1.69	125	7.05
130	5.89	581	26.31	17.75 - 17.95		116	6.54	564	31.79
169	7.65	750	33.97	17.95 - 18.15		134	7.55	698	39.35
171	7.74	921	41.71	18.15 - 18.35		132	7.44	830	46.79
162	7.34	1083	49.05	18.35 - 18.55		147	8.29	977	55.07
195	8.83	1278	57.88	18.55 - 18.75		128	7.22	1105	62.29
185	8.38	1463	66.26	18.75 - 18.95		109	6.14	448	25.25
151	6.84	1614	73.10	18.95 - 19.15		116	6.54	564	31.79
124	5.62	1738	78.71	19.15 - 19.35		134	7.55	698	39.35
106	4.80	1844	83.51	19.35 - 19.55		132	7.44	830	46.79
90	4.08	1934	87.59	19.55 - 19.75		147	8.29	977	55.07
82	3.71	2016	91.30	19.75 - 19.95		128	7.22	1105	62.29
67	3.03	2083	94.34	19.95 - 20.15		114	6.43	1219	68.71
47	2.13	2130	96.47	20.15 - 20.35		122	6.88	1341	75.59
29	1.31	2159	97.78	20.35 - 20.55		110	6.20	1451	81.79
27	1.22	2186	99.00	20.55 - 20.75		88	4.96	1539	86.75
7	.32	2193	99.32	20.75 - 20.95		65	3.66	1604	90.42
4	.18	2197	99.50	20.95 - 21.15		43	2.42	1647	92.84
5	.23	2202	99.73	21.15 - 21.35		42	2.37	1689	95.21
4	.18	2206	99.91	21.35 - 21.55		32	1.80	1721	97.01
0	.00	2206	99.91	21.55 - 21.75		18	1.01	1739	98.03
1	.05	2207	99.95	21.75 - 21.95		10	.56	1749	98.59
1	.05	2208	100.00	21.95 - 22.15		11	.62	1760	99.21
				22.15 - 22.35		8	.45	1768	99.66
				22.35 - 22.55		2	.11	1771	99.83
				22.55 - 22.75		1	.06	1773	99.94
								1774	100.00

## (H11) CHIN-TOP OF HEAD

The vertical distance between the promenton landmark on the front of the chin and the horizontal plane tangent to the top of the head is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
18.32	7.2.	1ST	19.68 7.75
18.57	7.31	2ND	19.91 7.84
18.72	7.37	3RD	20.06 7.90
18.92	7.45	5TH	20.26 7.97
19.22	7.57	10TH	20.56 8.10
19.43	7.65	15TH	20.77 8.18
19.59	7.71	20TH	20.93 8.24
19.72	7.77	25TH	21.08 8.30
19.85	7.81	30TH	21.21 8.35
19.97	7.86	35TH	21.32 8.40
20.08	7.90	40TH	21.44 8.44
20.18	7.95	45TH	21.55 8.48
20.29	7.99	50TH	21.66 8.53
20.40	8.03	55TH	21.77 8.57
20.50	8.07	60TH	21.88 8.62
20.62	8.12	65TH	22.00 8.66
20.74	8.16	70TH	22.13 8.71
20.86	8.21	75TH	22.26 8.77
21.01	8.27	80TH	22.42 8.83
21.18	8.34	85TH	22.60 8.90
21.39	8.42	90TH	22.83 8.99
21.71	8.55	95TH	23.18 9.13
21.92	8.63	97TH	23.41 9.22
22.06	8.69	98TH	23.58 9.29
22.29	8.78	99TH	23.86 9.39

# CHIN-TOP OF HEAD

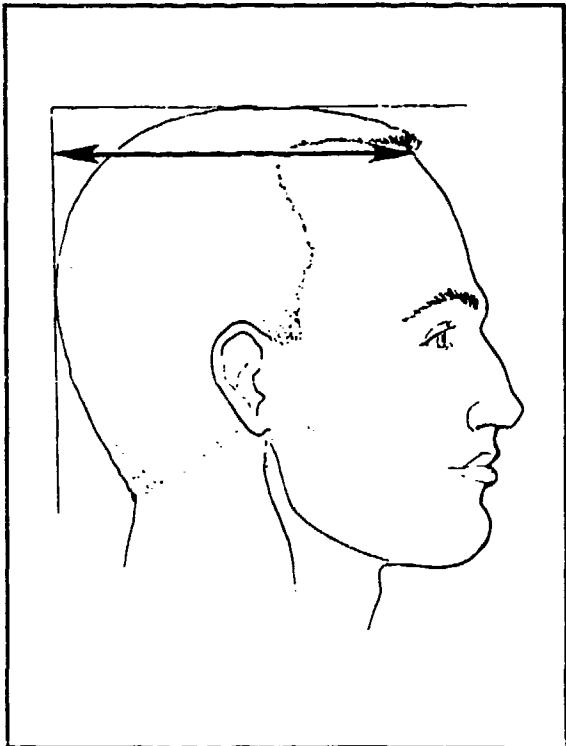
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
20.30	MEAN VALUE	7.99
.02	SE(MEAN)	.00
.85	STD DEVIATION	.33
.00	SE(STD DEV)	.00
17.68	MINIMUM	6.96
23.28	MAXIMUM	9.16
SYMMETRY---VETA I	=	.06
KURTOSIS---VETA II	=	3.03
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
21.68	MEAN VALUE	8.54
.02	SE(MEAN)	.00
.89	STD DEVIATION	.35
.00	SE(STD DEV)	.00
18.71	MINIMUM	7.37
24.51	MAXIMUM	9.65
SYMMETRY---VETA I	=	.12
KURTOSIS---VETA II	=	3.03
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	Cumf	CumFPct
4	.18	4	.18	17.65 - 17.85				1	.06	1	.06
6	.27	10	.45	17.85 - 18.05				1	.06	2	.11
6	.27	16	.72	18.05 - 18.25				2	.11	4	.23
15	.68	31	1.40	18.25 - 18.45				6	.34	10	.56
23	1.04	54	2.45	18.45 - 18.65				6	.34	16	.90
43	1.95	97	4.39	18.65 - 18.85				12	.68	28	1.58
41	1.86	138	6.25	18.85 - 19.05				25	1.41	53	2.99
84	3.80	222	10.05	19.05 - 19.25				29	1.63	82	4.62
124	5.62	346	15.67	19.25 - 19.45				56	3.16	138	7.78
139	6.30	485	21.97	19.45 - 19.65				66	3.72	204	11.50
181	8.20	666	30.16	19.65 - 19.85				90	5.07	294	16.57
200	9.06	866	39.22	19.85 - 20.05				127	7.16	421	23.73
181	8.20	1047	47.42	20.05 - 20.25				152	8.57	573	32.30
221	10.01	1268	57.43	20.25 - 20.45				140	7.89	713	40.19
183	8.29	1451	65.72	20.45 - 20.65				161	9.08	874	49.27
202	9.15	1653	74.86	20.65 - 20.85				170	9.58	1044	58.85
145	6.57	1798	81.43	20.85 - 21.05				139	7.84	1183	66.69
116	5.25	1914	86.68	21.05 - 21.25				139	7.84	1322	74.52
97	4.39	2011	91.08	21.25 - 21.45				95	5.36	1417	79.88
69	3.13	2080	94.20	21.45 - 21.65				104	5.86	1521	85.74
48	2.17	2128	96.38	21.65 - 21.85				69	3.89	1590	89.63
40	1.81	2168	98.19	21.85 - 22.05				67	3.78	1657	93.40
16	.72	2184	98.91	22.05 - 22.25				46	2.59	1703	96.00
8	.36	2192	99.28	22.25 - 22.45				26	1.47	1729	97.46
7	.32	2199	99.59	22.45 - 22.65				12	.68	1741	98.14
3	.14	2202	99.73	22.65 - 22.85				14	.79	1755	98.93
4	.18	2206	99.91	22.85 - 23.05				7	.39	1762	99.32
1	.05	2207	99.95	23.05 - 23.25				5	.28	1767	99.61
1	.05	2208	100.00	23.25 - 23.45				6	.34	1773	99.94
				23.45 - 23.65				1	.06	1774	100.00

## (H12) CRINION-BACK OF HEAD

The horizontal distance between the crinion landmark on the lowest point of the hairline on the forehead and the vertical plane tangent to the back of the head is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.86	6.24	15.91	6.26
16.10	6.34	16.17	6.37
16.25	6.40	16.35	6.44
16.47	6.48	16.60	6.54
16.80	6.61	17.01	6.70
17.02	6.70	17.28	6.80
17.20	6.77	17.50	6.89
17.35	6.83	17.69	6.96
17.49	6.88	17.85	7.03
17.61	6.93	18.00	7.09
17.73	6.98	18.14	7.14
17.84	7.02	18.27	7.19
17.95	7.07	18.40	7.25
18.06	7.11	18.53	7.30
18.18	7.16	18.65	7.34
18.29	7.20	18.78	7.39
18.41	7.25	18.91	7.45
18.54	7.30	19.05	7.50
18.68	7.35	19.20	7.56
18.84	7.42	19.37	7.52
19.04	7.50	19.57	7.71
19.34	7.61	19.87	7.82
19.53	7.69	20.07	7.90
19.67	7.74	20.21	7.96
19.89	7.83	20.44	8.05

# CRINION-BACK OF HEAD

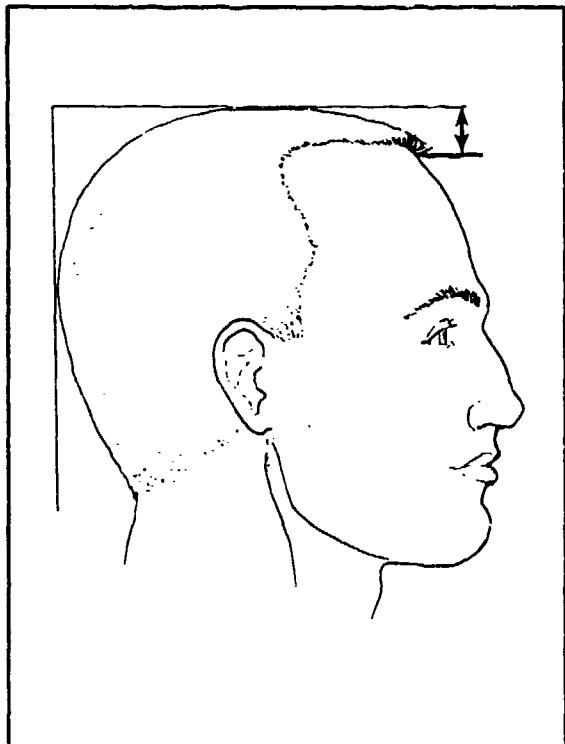
FEMALES		
<u>CM</u>	<u>INCHES</u>	
17.93	MEAN VALUE	7.06
.02	SE(MEAN)	.00
.87	STD DEVIATION	.34
.00	SE(STD DEV)	.00
14.60	MINIMUM	5.75
20.61	MAXIMUM	8.11
SYMMETRY---VETA I	=	-.14
KURTOSIS---VETA II	=	3.03
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2206

MALES		
<u>CM</u>	<u>INCHES</u>	
18.34	MEAN VALUE	7.22
.02	SE(MEAN)	.00
1.00	STD DEVIATION	.40
.02	SE(STD DEV)	.00
14.35	MINIMUM	5.65
21.88	MAXIMUM	8.61
SYMMETRY---VETA I	=	-.32
KURTOSIS---VETA II	=	3.13
COEF. OF VARIATION	=	5.5%
NUMBER OF SUBJECTS	=	1747

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	14.25 - 14.45	1	.06	1 .06
1	.05	2	.09	14.45 - 14.65	1	.06	2 .11
1	.05	3	.14	14.65 - 14.85	1	.06	3 .17
1	.05	4	.18	14.85 - 15.05	2	.11	5 .29
2	.09	6	.27	15.05 - 15.25	6	.34	6 .34
5	.23	11	.50	15.25 - 15.45	1	.06	13 .74
7	.32	18	.82	15.45 - 15.65	6	.34	19 1.09
20	.91	38	1.72	15.65 - 15.85	6	.34	25 1.43
30	1.36	68	3.08	15.85 - 16.05	12	.69	37 2.12
41	1.86	109	4.94	16.05 - 16.25	25	1.43	62 3.55
58	2.63	167	7.57	16.25 - 16.45	23	1.32	85 4.87
67	3.04	234	10.61	16.45 - 16.65	51	2.92	136 7.78
104	4.71	338	15.32	16.65 - 16.85	59	3.38	195 11.16
123	5.58	461	20.90	16.85 - 17.05	68	3.89	263 15.05
151	6.84	612	27.74	17.05 - 17.25	86	4.92	349 19.98
176	7.98	788	35.72	17.25 - 17.45	79	4.52	428 24.50
197	8.93	985	44.65	17.45 - 17.65	76	4.35	504 28.85
219	9.93	1204	54.58	17.65 - 17.85	123	7.04	627 35.89
202	9.16	1406	63.74	17.85 - 18.05	130	7.44	757 43.33
189	8.57	1595	72.30	18.05 - 18.25	134	7.67	891 51.00
153	6.94	1748	79.24	18.25 - 18.45	156	8.93	1047 59.93
132	5.98	1880	85.22	18.45 - 18.65	132	7.56	1179 67.49
110	4.99	1990	90.21	18.65 - 18.85	135	7.73	1314 75.21
78	3.54	2068	93.74	18.85 - 19.05	100	5.72	1414 80.94
46	2.09	2114	95.83	19.05 - 19.25	110	6.30	1524 87.24
42	1.90	2156	97.73	19.25 - 19.45	81	4.64	1605 91.87
27	1.22	2183	98.96	19.45 - 19.65	46	2.63	1651 94.50
11	.50	2194	99.46	19.65 - 19.85	45	2.58	1696 97.08
6	.27	2200	99.73	19.85 - 20.05	19	1.09	1715 98.17
4	.18	2204	99.91	20.05 - 20.25	17	.97	1732 99.14
2	.09	2206	100.00	20.25 - 20.45	6	.34	1738 99.48
				20.45 - 20.65	6	.34	1744 99.83
				20.65 - 20.85	6	.34	1745 99.89
				20.85 - 21.05	1	.06	1746 99.94
				21.05 - 21.25	1	.06	1746 99.94
				21.25 - 21.45	0	.00	1746 99.94
				21.45 - 21.65	0	.03	1746 99.94
				21.65 - 21.85	0	.00	1746 99.94
				21.85 - 22.05	1	.06	1747 100.00

### (H13) CRINION-TOP OF HEAD

The vertical distance between the crinion landmark on the lowest point of the hairline on the forehead and the horizontal plane tangent to the top of the head is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
2.10	.83	1ST	1.75 .69
2.32	.91	2ND	2.07 .81
2.46	.97	3RD	2.26 .89
2.66	1.05	5TH	2.51 .99
2.97	1.17	10TH	2.87 1.13
3.19	1.25	15TH	3.11 1.2
3.36	1.32	20TH	3.30 1.30
3.51	1.38	25TH	3.46 1.36
3.65	1.44	30TH	3.61 1.42
3.77	1.49	35TH	3.75 1.47
3.89	1.53	40TH	3.88 1.53
4.01	1.58	45TH	4.01 1.58
4.13	1.63	50TH	4.14 1.63
4.25	1.67	55TH	4.27 1.68
4.37	1.72	60TH	4.40 1.73
4.50	1.77	65TH	4.54 1.79
4.63	1.82	70TH	4.69 1.85
4.78	1.88	75TH	4.85 1.91
4.95	1.95	80TH	5.04 1.98
5.15	2.03	85TH	5.26 2.07
5.40	2.13	90TH	5.53 2.18
5.79	2.28	95TH	5.94 2.34
6.05	2.38	97TH	6.19 2.44
6.25	2.46	98TH	6.38 2.51
6.57	2.59	99TH	6.65 2.62

# CRINION-TOP OF HEAD

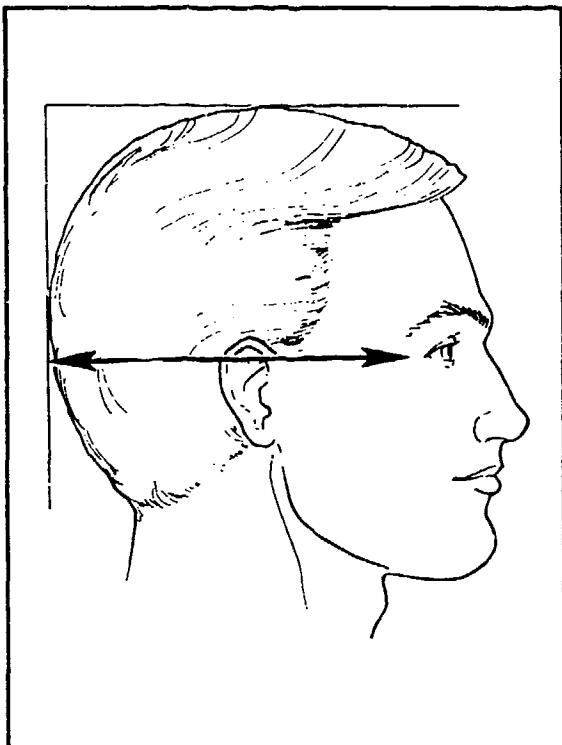
FEMALES		
<u>CM</u>	<u>INCHES</u>	
4.17	MEAN VALUE	1.64
.02	SE(MEAN)	.00
.95	STD DEVIATION	.37
.00	SE(STD DEV)	.00
1.52	MINIMUM	.60
7.83	MAXIMUM	3.08
SYMMETRY---VETA I	=	.25
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	22.8%
NUMBER OF SUBJECTS	=	2206

MALES		
<u>CM</u>	<u>INCHES</u>	
4.17	MEAN VALUE	1.64
.02	SE(MEAN)	.00
1.04	STD DEVIATION	.41
.02	SE(STD DEV)	.00
1.16	MINIMUM	.46
7.35	MAXIMUM	2.89
SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	2.94
COEF. OF VARIATION	=	24.8%
NUMBER OF SUBJECTS	=	1747

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	1.15	-	1.35	.23
3	.14	4	.18	1.35	-	1.55	.17
6	.27	10	.45	1.55	-	1.75	.52
15	.68	25	1.13	1.75	-	1.95	.46
22	1.00	47	2.13	1.95	-	2.15	.97
33	1.50	80	3.63	2.15	-	2.35	.92
51	2.31	131	5.94	2.35	-	2.55	2.18
86	3.90	217	9.84	2.55	-	2.75	2.23
86	3.90	303	13.74	2.75	-	2.95	4.24
127	5.76	430	19.49	2.95	-	3.15	4.46
151	6.84	581	26.34	3.15	-	3.35	4.75
157	7.12	738	33.45	3.35	-	3.55	6.53
188	8.52	926	41.98	3.55	-	3.75	7.27
185	8.39	1111	50.36	3.75	-	3.95	120
193	8.75	1304	59.11	3.95	-	4.15	132
168	7.62	1472	66.73	4.15	-	4.35	121
156	7.07	1628	73.80	4.35	-	4.55	142
138	6.26	1766	80.05	4.55	-	4.75	145
114	5.17	1880	85.22	4.75	-	4.95	97
92	4.17	1972	89.39	4.95	-	5.15	95
63	2.86	2035	92.25	5.15	-	5.35	65
61	2.77	2096	95.01	5.35	-	5.55	52
29	1.31	2125	96.33	5.55	-	5.75	33
23	1.04	2148	97.37	5.75	-	5.95	38
24	1.09	2172	98.46	5.95	-	6.15	34
10	.45	2182	98.91	6.15	-	6.35	23
9	.41	2191	99.32	6.35	-	6.55	20
4	.18	2195	99.50	6.55	-	6.75	1.14
3	.14	2198	99.64	6.75	-	6.95	.40
4	.18	2202	99.82	6.95	-	7.15	.34
2	.09	2204	99.91	7.15	-	7.35	.06
1	.05	2205	99.95	7.35	-	7.55	.06
1	.05	2206	100.00	7.75	-	7.95	1747

## (H14) ECTOORBITALE-BACK OF HEAD

The horizontal distance between the ectoorbitale landmark just behind the bony eye socket at the level of the outer corner of the eye and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
13.92	5.48	1ST	14.54 5.72
14.09	5.55	2ND	14.70 5.79
14.20	5.59	3RD	14.81 5.83
14.35	5.65	5TH	14.96 5.89
14.57	5.74	10TH	15.19 5.98
14.72	5.79	15TH	15.35 6.05
14.84	5.84	20TH	15.48 6.10
14.94	5.88	25TH	15.59 6.14
15.03	5.92	30TH	15.69 6.18
15.11	5.95	35TH	15.78 6.21
15.19	5.98	40TH	15.86 6.24
15.27	6.01	45TH	15.94 6.28
15.35	6.04	50TH	16.02 6.31
15.43	6.07	55TH	16.10 6.34
15.50	6.10	60TH	16.18 6.37
15.59	6.14	65TH	16.26 6.40
15.67	6.17	70TH	16.34 6.43
15.76	6.21	75TH	16.43 6.47
15.87	6.25	80TH	16.53 6.51
15.99	6.29	85TH	16.65 6.56
16.14	6.35	90TH	16.80 6.61
16.36	6.44	95TH	17.03 6.70
16.50	6.49	97TH	17.18 6.76
16.60	6.53	98TH	17.30 6.81
16.75	6.59	99TH	17.49 6.89

# ECTOORBITALE-BACK OF HEAD

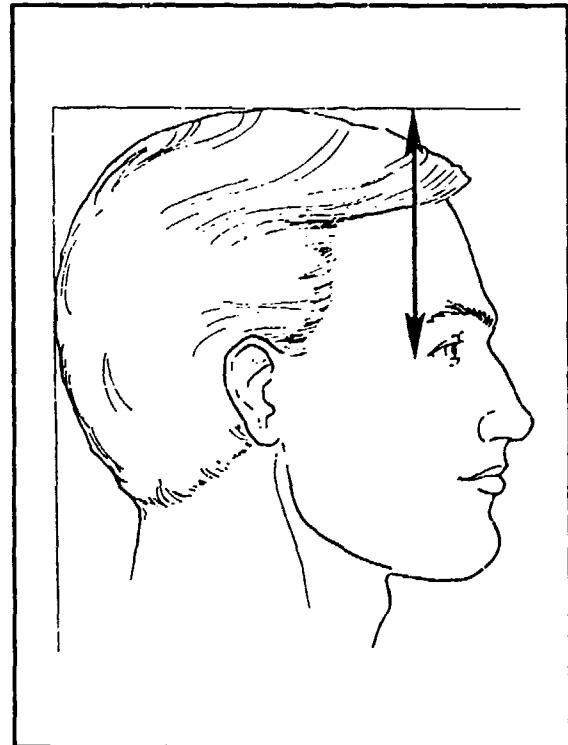
FEMALES		
CM		INCHES
15.35	MEAN VALUE	6.04
.00	SE(MEAN)	.00
.61	STD DEVIATION	.24
.00	SE(STD DEV)	.00
13.17	MINIMUM	5.18
17.23	MAXIMUM	6.78
SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	3.00
COEF. OF VARIATION	=	4.0%
NUMBER OF SUBJECTS	=	2208

MALES		
CM		INCHES
16.01	MEAN VALUE	6.30
.00	SE(MEAN)	.00
.63	STD DEVIATION	.25
.00	SE(STD DEV)	.00
14.02	MINIMUM	5.52
18.47	MAXIMUM	7.27
SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	3.15
COEF. OF VARIATION	=	3.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
1	.05	1	.05	13.05	-	13.25	
5	.23	6	.27	13.25	-	13.45	
4	.18	10	.45	13.45	-	13.65	
6	.27	16	.72	13.65	-	13.85	
23	1.04	39	1.77	13.85	-	14.05	
35	1.59	74	3.35	14.05	-	14.25	
75	3.40	149	6.75	14.25	-	14.45	
120	5.43	269	12.18	14.45	-	14.65	
197	8.92	466	21.11	14.65	-	14.85	
228	10.33	694	31.43	14.85	-	15.05	
260	11.78	954	43.21	15.05	-	15.25	
292	13.22	1246	56.43	15.25	-	15.45	
277	12.55	1523	68.98	15.45	-	15.65	
243	11.01	1766	79.98	15.65	-	15.85	
168	7.61	1934	87.59	15.85	-	16.05	
103	4.66	2037	92.26	16.05	-	16.25	
95	4.30	2132	96.56	16.25	-	16.45	
39	1.77	2171	98.32	16.45	-	16.65	
27	1.22	2198	99.55	16.65	-	16.85	
7	.32	2205	99.86	16.85	-	17.05	
3	.14	2208	100.00	17.05	-	17.25	
				17.25	-	17.45	
				17.45	-	17.65	
				17.65	-	17.85	
				17.85	-	18.05	
				18.05	-	18.25	
				18.25	-	18.45	
				18.45	-	18.65	

## (H15) ECTOORBITALE-TOP OF HEAD

The vertical distance between the ectoorbitale landmark just behind the bony eye socket at the level of the outer corner of the eye and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
9.77	3.85	1ST	10.44
9.95	3.92	2ND	10.63
10.06	3.96	3RD	10.74
10.21	4.02	5TH	10.89
10.43	4.11	10TH	11.10
10.58	4.16	15TH	11.24
10.69	4.21	20TH	11.35
10.78	4.24	25TH	11.44
10.87	4.28	30TH	11.52
10.94	4.31	35TH	11.60
11.02	4.34	40TH	11.67
11.08	4.36	45TH	11.74
11.15	4.39	50TH	11.81
11.22	4.42	55TH	11.88
11.29	4.45	60TH	11.96
11.36	4.47	65TH	12.03
11.44	4.50	70TH	12.1.
11.52	4.54	75TH	12.20
11.62	4.57	80TH	12.30
11.73	4.62	85TH	12.41
11.87	4.67	90TH	12.56
12.09	4.76	95TH	12.77
12.24	4.82	97TH	12.91
12.36	4.86	98TH	13.01
12.55	4.94	99TH	13.16

# ECTOORBITALE-TOP OF HEAD

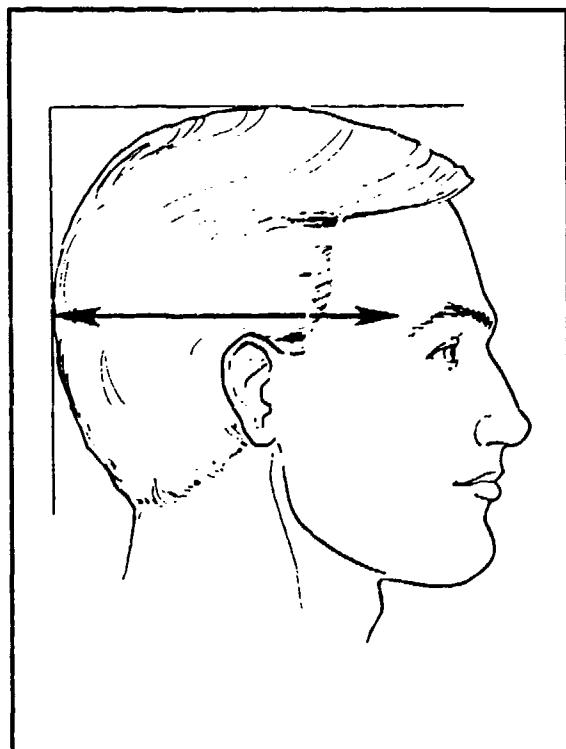
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
11.15	MEAN VALUE	4.39
.00	SE(MEAN)	.00
.57	STD DEVIATION	.22
.00	SE(STD DEV)	.00
9.30	MINIMUM	3.66
13.53	MAXIMUM	5.33
SYMMETRY---VETA I	=	.03
KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	5.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
11.82	MEAN VALUE	4.65
.00	SE(MEAN)	.00
.57	STD DEVIATION	.23
.00	SE(STD DEV)	.00
9.77	MINIMUM	3.85
14.04	MAXIMUM	5.53
SYMMETRY---VETA I	=	.02
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	9.25	-	9.35	
0	.00	1	.05	9.35	-	9.45	
4	.18	5	.23	9.45	-	9.55	
4	.18	9	.41	9.55	-	9.65	
11	.50	20	.91	9.65	-	9.75	
14	.63	34	1.54	9.75	-	9.85	
11	.50	45	2.04	9.85	-	9.95	
17	.77	62	2.81	9.95	-	10.05	
26	1.18	88	3.99	10.05	-	10.15	
25	1.13	113	5.12	10.15	-	10.25	
54	2.45	167	7.56	10.25	-	10.35	
67	3.03	234	10.60	10.35	-	10.45	
76	3.44	310	14.04	10.45	-	10.55	
103	4.66	413	18.70	10.55	-	10.65	
107	4.85	520	23.55	10.65	-	10.75	
132	5.98	652	29.53	10.75	-	10.85	
126	5.71	778	35.24	10.85	-	10.95	
152	6.88	930	42.12	10.95	-	11.05	
140	6.34	1070	48.46	11.05	-	11.15	
175	7.93	1245	56.39	11.15	-	11.25	
155	7.02	1400	63.41	11.25	-	11.35	
146	6.61	1546	70.02	11.35	-	11.45	
164	7.43	1710	77.45	11.45	-	11.55	
114	5.16	1824	82.61	11.55	-	11.65	
83	3.76	1907	86.37	11.65	-	11.75	
70	3.17	1977	89.54	11.75	-	11.85	
66	2.99	2043	92.53	11.85	-	11.95	
43	1.95	2086	94.47	11.95	-	12.05	
33	1.49	2119	95.97	12.05	-	12.15	
24	1.09	2143	97.06	12.15	-	12.25	
20	.91	2163	97.96	12.25	-	12.35	
14	.63	2177	98.60	12.35	-	12.45	
11	.50	2188	99.09	12.45	-	12.55	
7	.32	2195	99.41	12.55	-	12.65	
5	.23	2200	99.64	12.65	-	12.75	
4	.18	2204	99.82	12.75	-	12.85	
0	.00	2204	99.82	12.85	-	12.95	
3	.14	2207	99.95	12.95	-	13.05	
0	.00	2207	99.95	13.05	-	13.15	
0	.00	2207	99.95	13.15	-	13.25	
0	.00	2207	99.95	13.25	-	13.35	
1	.05	2208	100.00	13.45	-	13.55	
				13.55	-	13.65	
				13.65	-	13.75	
				13.75	-	13.85	
				13.85	-	13.95	
				13.95	-	14.05	

## (H16) FRONTOTEMPORALE-BACK OF HEAD

The horizontal distance between the frontotemporale landmark on the temporal crest at the side of the forehead and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.17	5.97	1ST	15.95 6.28
15.35	6.04	2ND	16.10 6.34
15.46	6.08	3RD	16.21 6.38
15.60	6.14	5TH	16.36 6.44
15.83	6.23	10TH	16.60 6.54
15.98	6.29	15TH	16.77 6.60
16.10	6.34	20TH	16.90 6.65
16.20	6.38	25TH	17.02 6.70
16.29	6.41	30TH	17.12 6.74
16.38	6.45	35TH	17.21 6.78
16.46	6.48	40TH	17.30 6.81
16.54	6.51	45TH	17.38 6.84
16.61	6.54	50TH	17.46 6.87
16.69	6.57	55TH	17.55 6.91
16.77	6.60	60TH	17.63 6.94
16.85	6.63	65TH	17.71 6.97
16.94	6.67	70TH	17.79 7.01
17.03	6.71	75TH	17.89 7.04
17.14	6.75	80TH	17.99 7.08
17.26	6.80	85TH	18.10 7.13
17.41	6.86	90TH	18.25 7.19
17.64	6.94	95TH	18.48 7.27
17.78	7.00	97TH	18.63 7.33
17.88	7.04	98TH	18.74 7.38
18.04	7.10	99TH	18.94 7.46

# FRONTOTEMPORALE-BACK OF HEAD

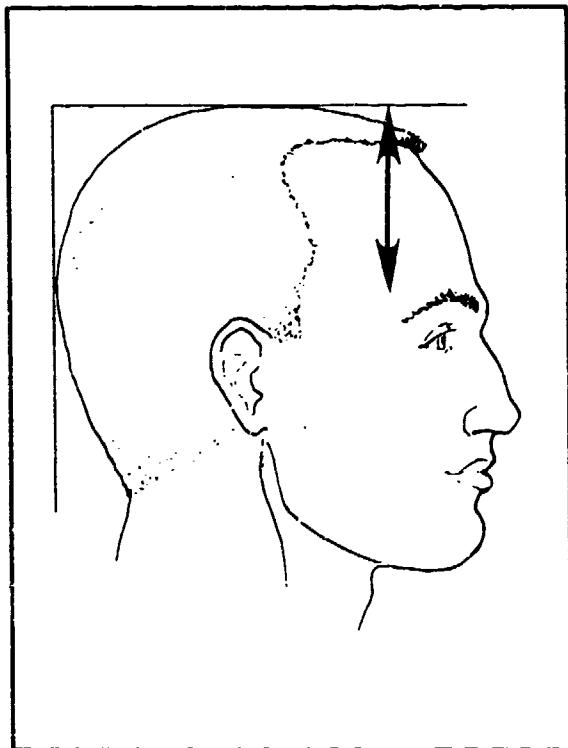
FEMALES		
	<u>CM</u>	<u>INCHES</u>
16.61	MEAN VALUE	6.54
.00	SE(MEAN)	.00
.62	STD DEVIATION	.24
.00	SE(STD DEV)	.00
14.15	MINIMUM	5.57
18.71	MAXIMUM	7.37
SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	3.13
COEF. OF VARIATION	=	3.7%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
17.45	MEAN VALUE	6.87
.02	SE(MEAN)	.00
.64	STD DEVIATION	.25
.00	SE(STD DEV)	.00
15.36	MINIMUM	6.05
19.63	MAXIMUM	7.73
SYMMETRY---VETA I	=	-.05
KURTOSIS---VETA II	=	2.98
COEF. OF VARIATION	=	3.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	14.05	-	14.25	
1	.05	2	.09	14.25	-	14.45	
3	.14	5	.23	14.45	-	14.65	
4	.18	9	.41	14.65	-	14.85	
6	.27	15	.68	14.85	-	15.05	
14	.63	29	1.31	15.05	-	15.25	
35	1.59	64	2.90	15.25	-	15.45	
53	2.40	117	5.30	15.45	-	15.65	
119	5.39	236	10.69	15.65	-	15.85	
175	7.93	411	18.61	15.85	-	16.05	
202	9.15	613	27.76	16.05	-	16.25	
233	10.55	846	38.32	16.25	-	16.45	
320	14.49	1166	52.81	16.45	-	16.65	
265	12.00	1431	64.81	16.65	-	16.85	
255	11.55	1686	76.36	16.85	-	17.05	
193	8.74	1879	85.10	17.05	-	17.25	
131	5.93	2010	91.03	17.25	-	17.45	
90	4.08	2100	95.11	17.45	-	17.65	
60	2.72	2160	97.83	17.65	-	17.85	
26	1.18	2186	99.00	17.85	-	18.05	
17	.77	2203	99.77	18.05	-	18.25	
3	.14	2206	99.91	18.25	-	18.45	
1	.05	2207	99.95	18.45	-	18.65	
1	.05	2208	100.00	18.65	-	18.85	
				18.85	-	19.05	
				19.05	-	19.25	
				19.25	-	19.45	
				19.45	-	19.65	

## (H17) FRONTOTEMPORALE-TOP OF HEAD

The vertical distance between the frontotemporale landmark on the temporal crest at the side of the frontal, or forehead, bone above the browridges and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
6.84	2.69	7.35	2.89
7.03	2.77	7.57	2.98
7.15	2.82	7.71	3.03
7.32	2.88	7.89	3.11
7.57	2.98	8.15	3.21
7.74	3.05	8.33	3.28
7.87	3.10	8.46	3.33
7.98	3.14	8.58	3.38
8.08	3.18	8.68	3.42
8.17	3.22	8.78	3.46
8.25	3.25	8.87	3.49
8.33	3.28	8.96	3.53
8.41	3.31	9.04	3.56
8.49	3.34	9.13	3.59
8.57	3.37	9.21	3.63
8.65	3.40	9.30	3.66
8.73	3.44	9.40	3.70
8.82	3.47	9.50	3.74
8.92	3.51	9.62	3.79
9.04	3.56	9.75	3.84
9.20	3.62	9.92	3.91
9.44	3.72	10.18	4.01
9.60	3.78	10.34	4.07
9.73	3.83	10.46	4.12
9.95	3.92	10.65	4.19

# FRONTOTEMPORALE-TOP OF HEAD

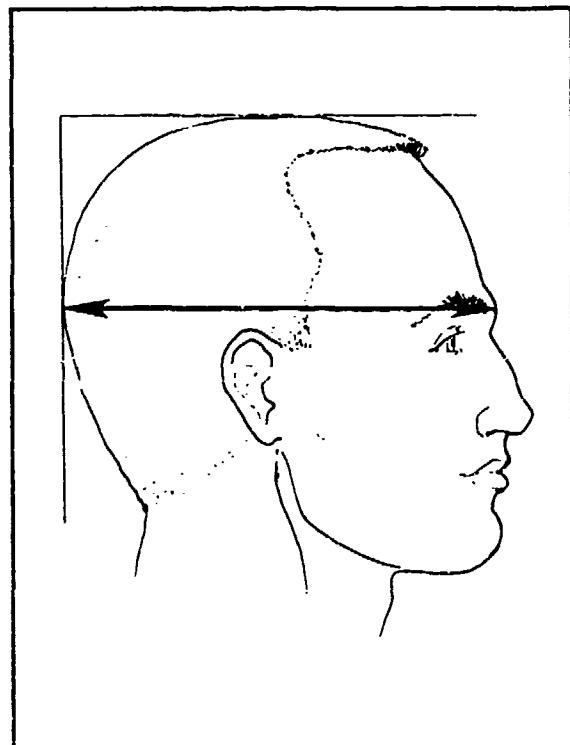
FEMALES		
<u>CM</u>	<u>INCHES</u>	
8.40	MEAN VALUE	3.31
.00	SE(MEAN)	.00
.64	STD DEVIATION	.25
.00	SE(STD DEV)	.00
6.18	MINIMUM	2.43
10.84	MAXIMUM	4.27
SYMMETRY---VETA I	=	-.04
KURTOSIS---VETA II	=	3.28
COEF. OF VARIATION	=	7.7%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
9.04	MEAN VALUE	3.56
.02	SE(MEAN)	.00
.69	STD DEVIATION	.27
.00	SE(STD DEV)	.00
6.77	MINIMUM	2.66
11.46	MAXIMUM	4.51
SYMMETRY---VETA I	=	-.05
KURTOSIS---VETA II	=	3.05
COEF. OF VARIATION	=	7.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	6.15 - 6.25		3	.17
0	.00	2	.09	6.25 - 6.35		1	.06
2	.09	4	.18	6.35 - 6.45		1	.06
5	.23	9	.41	6.45 - 6.55		5	.28
2	.09	11	.50	6.55 - 6.65		3	.17
6	.27	17	.77	6.65 - 6.75		8	.45
5	.23	22	1.00	6.75 - 6.85		5	.28
15	.68	37	1.68	6.85 - 6.95		17	.96
14	.63	51	2.31	6.95 - 7.05		11	.62
13	.59	64	2.90	7.05 - 7.15		26	1.47
20	.91	84	3.80	7.15 - 7.25		20	1.13
29	1.31	113	5.12	7.25 - 7.35		34	1.92
41	1.86	154	6.97	7.35 - 7.45		39	2.20
56	2.54	210	9.51	7.45 - 7.55		47	2.65
55	2.49	265	12.00	7.55 - 7.65		52	2.93
65	2.94	330	14.95	7.65 - 7.75		76	4.28
91	4.12	421	19.07	7.75 - 7.85		73	4.11
97	4.39	518	23.46	7.85 - 7.95		94	5.30
103	4.66	621	28.13	7.95 - 8.05		108	6.09
117	5.30	738	33.42	8.05 - 8.15		110	6.20
141	6.39	879	39.81	8.15 - 8.25		88	4.96
143	6.48	1022	46.29	8.25 - 8.35		90	5.07
148	6.70	1170	52.99	8.35 - 8.45		118	6.65
130	5.89	1300	58.88	8.45 - 8.55		91	5.13
133	6.02	1433	64.90	8.55 - 8.65		78	4.23
141	6.39	1574	71.29	8.65 - 8.75		75	4.40
109	4.94	1683	76.22	8.75 - 8.85		78	4.23
101	4.57	1784	80.80	8.85 - 8.95		75	4.23
101	4.57	1885	85.37	8.95 - 9.05		78	4.40
76	3.44	1961	88.81	9.05 - 9.15		108	6.09
54	2.45	2015	91.26	9.15 - 9.25		110	6.20
49	2.22	2064	93.48	9.25 - 9.35		90	5.07
40	1.81	2104	95.29	9.35 - 9.45		88	4.96
24	1.09	2128	96.38	9.45 - 9.55		94	5.30
25	1.13	2153	97.51	9.55 - 9.65		118	6.65
17	.77	2170	98.28	9.65 - 9.75		91	5.13
7	.32	2177	98.60	9.75 - 9.85		78	4.23
7	.32	2184	98.91	9.85 - 9.95		75	4.23
10	.45	2194	99.37	9.95 - 10.05		78	4.40
2	.09	2196	99.46	10.05 - 10.15		30	1.69
7	.32	2203	99.77	10.15 - 10.25		20	1.13
1	.05	2204	99.82	10.25 - 10.35		23	1.30
1	.05	2205	99.86	10.35 - 10.45		14	.79
1	.05	2206	99.91	10.45 - 10.55		6	.34
0	.00	2206	99.91	10.55 - 10.65		9	.51
0	.00	2206	99.91	10.65 - 10.75		4	.23
2	.09	2208	100.00	10.75 - 10.85		7	.39
				10.85 - 10.95		4	.23
				10.95 - 11.05		1	.06
				11.05 - 11.15		0	.00
				11.15 - 11.25		1	.06
				11.25 - 11.35		0	.00
				11.35 - 11.45		1	.06
				11.45 - 11.55		1	.06
							100.00

## (H18) GLABELLA-BACK OF HEAD

The horizontal distance between the glabella landmark on the forehead between the eyebrows and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
17.53	6.90	1ST	18.25 7.19
17.71	6.97	2ND	18.45 7.26
17.83	7.02	3RD	18.58 7.31
17.99	7.08	51 <sup>TH</sup>	18.76 7.39
18.24	7.18	10 <sup>TH</sup>	19.04 7.50
18.41	7.25	15 <sup>TH</sup>	19.23 7.57
18.55	7.30	20 <sup>TH</sup>	19.38 7.63
18.66	7.35	25 <sup>TH</sup>	19.51 7.68
18.76	7.39	30 <sup>TH</sup>	19.62 7.72
18.86	7.42	35 <sup>TH</sup>	19.72 7.76
18.94	7.46	40 <sup>TH</sup>	19.82 7.80
19.03	7.49	45 <sup>TH</sup>	19.91 7.84
19.11	7.52	50 <sup>TH</sup>	19.99 7.87
19.19	7.56	55 <sup>TH</sup>	20.08 7.91
19.27	7.59	60 <sup>TH</sup>	20.17 7.94
19.36	7.62	65 <sup>TH</sup>	20.25 7.97
19.45	7.66	70 <sup>TH</sup>	20.35 8.01
19.54	7.69	75 <sup>TH</sup>	20.44 8.05
19.65	7.74	80 <sup>TH</sup>	20.56 8.09
19.77	7.79	85 <sup>TH</sup>	20.68 8.14
19.93	7.85	90 <sup>TH</sup>	20.85 8.21
20.17	7.94	95 <sup>TH</sup>	21.11 8.31
20.34	8.01	97 <sup>TH</sup>	21.30 8.39
20.46	8.05	98 <sup>TH</sup>	21.45 8.44
20.66	8.14	99 <sup>TH</sup>	21.70 8.54

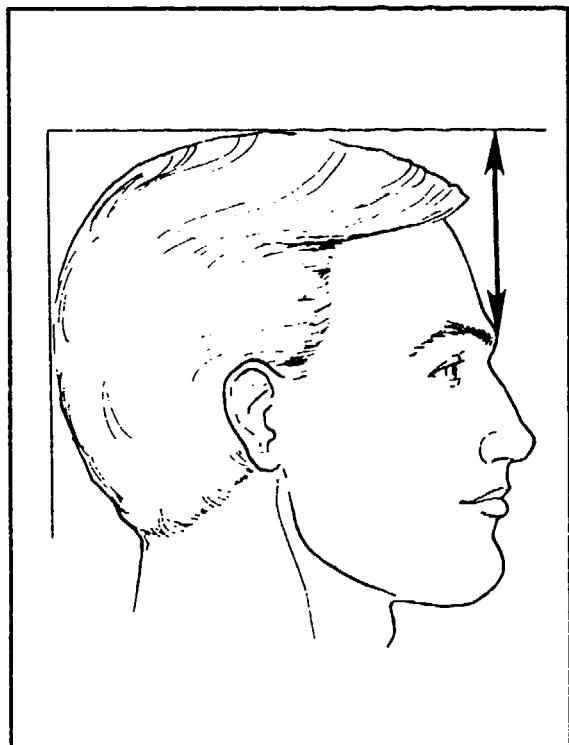
# GLABELLA-BACK OF HEAD

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
19.10	MEAN VALUE	7.52	19.97	MEAN VALUE	7.86
.00	SE(MEAN)	.00	.02	SE(MEAN)	.00
.66	STD DEVIATION	.26	.72	STD DEVIATION	.28
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
16.16	MINIMUM	6.36	17.78	MINIMUM	7.00
21.12	MAXIMUM	8.32	22.35	MAXIMUM	9.80
SYMMETRY---VETA I	=	-.11	SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	3.22	KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	3.5%	COEF. OF VARIATION	=	3.6%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	16.05 - 16.25			
0	.00	1	.05	16.25 - 16.45			
1	.05	2	.09	16.45 - 16.65			
1	.05	3	.14	16.65 - 16.85			
3	.14	6	.27	16.85 - 17.05			
1	.05	7	.32	17.05 - 17.25			
9	.41	16	.72	17.25 - 17.45			
13	.59	29	1.31	17.45 - 17.65			
42	1.90	71	3.22	17.65 - 17.85		4	.23
60	2.72	131	5.93	17.85 - 18.05		6	.34
94	4.26	225	10.19	18.05 - 18.25		8	.45
129	5.84	354	16.03	18.25 - 18.45		15	.85
179	8.11	533	24.14	18.45 - 18.65		23	1.30
225	10.19	758	34.33	18.65 - 18.85		59	3.33
267	12.09	1025	46.42	18.85 - 19.05		73	4.11
259	11.73	1284	58.15	19.05 - 19.25		101	5.69
246	11.14	1530	69.29	19.25 - 19.45		130	7.33
232	10.51	1762	79.80	19.45 - 19.65		139	7.84
162	7.34	1924	87.14	19.65 - 19.85		172	9.70
130	5.89	2054	93.03	19.85 - 20.05		196	11.05
66	2.99	2120	96.01	20.05 - 20.25		220	12.40
43	1.95	2163	97.96	20.25 - 20.45		185	10.43
21	.95	2184	98.91	20.45 - 20.65		141	7.95
15	.68	2199	99.59	20.65 - 20.85		116	6.54
5	.23	2204	99.82	20.85 - 21.05		83	4.68
4	.18	2208	100.00	21.05 - 21.25		43	2.42
				21.25 - 21.45		28	1.58
				21.45 - 21.65		12	.68
				21.65 - 21.85		4	.23
				21.85 - 22.05		10	.56
				22.05 - 22.25		4	.23
				22.25 - 22.45		2	.11
						1774	100.00

## (H19) GLABELLA-TOP OF HEAD

The vertical distance between the glabella landmark on the forehead between the eyebrows and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
7.31	2.88	1ST	7.92 3.12
7.47	2.94	2ND	8.13 3.20
7.58	2.99	3RD	8.26 3.25
7.73	3.04	5TH	8.43 3.32
7.96	3.14	10TH	8.69 3.42
8.12	3.20	15TH	8.87 3.49
8.25	3.25	20TH	9.01 3.55
8.36	3.29	25TH	9.13 3.60
8.46	3.33	30TH	9.24 3.64
8.55	3.37	35TH	9.34 3.68
8.64	3.40	40TH	9.44 3.72
8.72	3.43	45TH	9.53 3.75
8.81	3.47	50TH	9.62 3.79
8.89	3.50	55TH	9.72 3.82
8.98	3.54	60TH	9.81 3.86
9.07	3.57	65TH	9.90 3.90
9.17	3.61	70TH	10.01 3.94
9.28	3.65	75TH	10.12 3.98
9.40	3.70	80TH	10.24 4.03
9.54	3.75	85TH	10.38 4.09
9.72	3.83	90TH	10.56 4.16
10.01	3.94	95TH	10.82 4.26
10.20	4.02	97TH	10.99 4.33
10.35	4.07	98TH	11.11 4.37
10.59	4.17	99TH	11.29 4.45

# GLABELLA-TOP OF HEAD

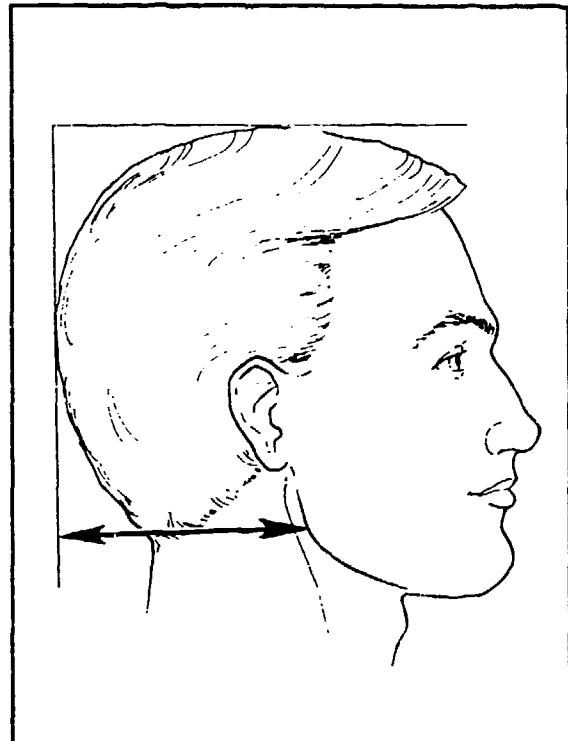
FEMALES		
<u>CM</u>	<u>INCHES</u>	
8.83	MEAN VALUE	3.48
.00	SE(MEAN)	.00
.69	STD DEVIATION	.27
.00	SE(STD DEV)	.00
6.68	MINIMUM	2.63
11.63	MAXIMUM	4.58
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.19
COEF. OF VARIATION	=	7.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
9.62	MEAN VALUE	3.79
.02	SE(MEAN)	.00
.73	STD DEVIATION	.29
.00	SE(STD DEV)	.00
7.36	MINIMUM	2.90
12.30	MAXIMUM	4.84
SYMMETRY---VETA I	=	.02
KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	7.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
5	.23	5	.23	6.65 - 6.85			
3	.14	8	.36	6.85 - 7.05			
5	.23	13	.59	7.05 - 7.25			
29	1.31	42	1.90	7.25 - 7.45		3	.17
43	1.95	85	3.85	7.45 - 7.65		6	.34
73	3.31	158	7.16	7.65 - 7.85		4	.23
102	4.62	260	11.78	7.85 - 8.05		16	.90
172	7.79	432	19.57	8.05 - 8.25		20	1.13
224	10.14	656	29.71	8.25 - 8.45		36	2.03
252	11.41	908	41.12	8.45 - 8.65		62	3.49
243	11.01	1151	52.13	8.65 - 8.85		91	5.13
241	10.91	1392	63.04	8.85 - 9.05		148	8.34
226	10.24	1618	73.28	9.05 - 9.25		157	8.85
191	8.65	1809	81.93	9.25 - 9.45		187	10.54
140	6.34	1949	88.27	9.45 - 9.65		183	10.32
104	4.71	2053	92.98	9.65 - 9.85		186	10.48
62	2.81	2115	95.79	9.85 - 10.05		162	9.13
33	1.49	2148	97.28	10.05 - 10.25		160	9.02
32	1.45	2180	98.73	10.25 - 10.45		126	7.10
10	.45	2190	99.18	10.45 - 10.65		88	4.96
10	.45	2200	99.64	10.65 - 10.85		57	3.21
5	.23	2205	99.86	10.85 - 11.05		41	2.31
9	.00	2205	99.86	11.05 - 11.25		22	1.24
2	.09	2207	99.95	11.25 - 11.45		5	.28
1	.05	2208	100.00	11.45 - 11.65		8	.45
				11.65 - 11.85		4	.23
				11.85 - 12.05		0	.00
				12.05 - 12.25		0	.00
				12.25 - 12.45		2	.11
						1774	100.00

## (H20) GONION-BACK OF HEAD

The horizontal distance between the gonion landmark on the corner of the jaw and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
9.05	3.56	1ST	9.94 3.91
9.21	3.63	2ND	10.15 4.00
9.32	3.67	3RD	10.28 4.05
9.48	3.73	5TH	10.47 4.12
9.73	3.83	10TH	10.76 4.24
9.91	3.90	15TH	10.96 4.32
10.05	3.96	20TH	11.12 4.38
10.17	4.00	25TH	11.25 4.43
10.27	4.04	30TH	11.37 4.48
10.37	4.08	35TH	11.47 4.52
10.46	4.12	40TH	11.58 4.56
10.55	4.15	45TH	11.67 4.60
10.64	4.19	50TH	11.77 4.63
10.73	4.22	55TH	11.87 4.67
10.82	4.26	60TH	11.96 4.71
10.91	4.29	65TH	12.06 4.75
11.00	4.33	70TH	12.16 4.79
11.10	4.37	75TH	12.27 4.83
11.22	4.42	80TH	12.40 4.88
11.36	4.47	85TH	12.54 4.94
11.53	4.54	90TH	12.73 5.01
11.81	4.65	95TH	13.01 5.12
12.00	4.72	97TH	13.21 5.20
12.14	4.78	98TH	13.35 5.26
12.40	4.88	99TH	13.60 5.35

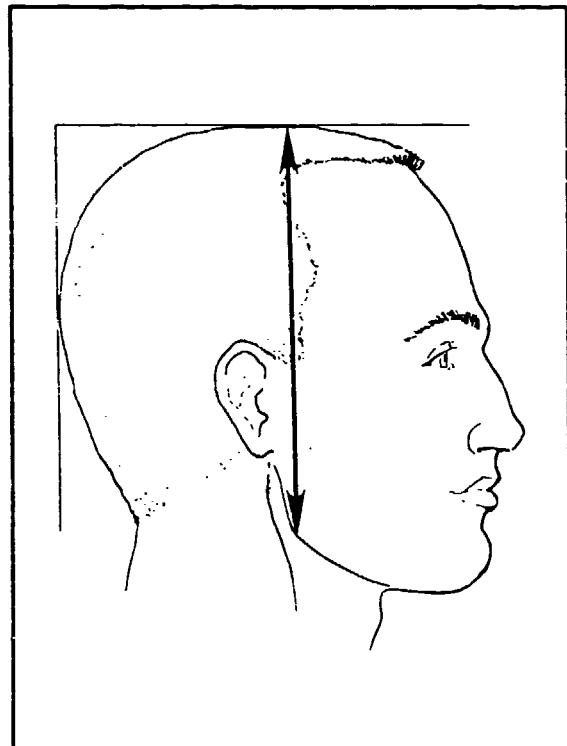
# GONION-BACK OF HEAD

FEMALES			MALES		
<u>CM</u>	<u>INCHES</u>		<u>CM</u>	<u>INCHES</u>	
10.64	MEAN VALUE	4.19	11.76	MEAN VALUE	4.63
.02	SE(MEAN)	.00	.02	SE(MEAN)	.00
.70	STD DEVIATION	.28	.77	STD DEVIATION	.30
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
8.34	MINIMUM	3.28	8.85	MINIMUM	3.48
13.13	MAXIMUM	5.17	14.45	MAXIMUM	5.69
SYMMETRY---VETA I	=	.10	SYMMETRY---VETA I	=	-.02
KURTOSIS---VETA II	=	3.10	KURTOSIS---VETA II	=	3.17
COEF. OF VARIATION	=	6.6%	COEF. OF VARIATION	=	6.6%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	8.25	-	8.45	
3	.14	5	.23	8.45	-	8.65	
5	.23	10	.45	8.65	-	8.85	
12	.54	22	1.00	8.85	-	9.05	
28	1.27	50	2.26	9.05	-	9.25	
55	2.49	105	4.76	9.25	-	9.45	
65	2.94	170	7.70	9.45	-	9.65	
114	5.16	284	12.86	9.65	-	9.85	
161	7.29	445	20.15	9.85	-	10.05	
197	8.92	642	29.08	10.05	-	10.25	
251	11.37	893	40.44	10.25	-	10.45	
226	10.24	1119	50.68	10.45	-	10.65	
252	11.41	1371	62.09	10.65	-	10.85	
230	10.42	1601	72.51	10.85	-	11.05	
191	8.65	1792	81.16	11.05	-	11.25	
148	6.70	1940	87.86	11.25	-	11.45	
102	4.62	2042	92.48	11.45	-	11.65	
69	3.13	2111	95.61	11.65	-	11.85	
41	1.86	2152	97.46	11.85	-	12.05	
27	1.22	2179	98.69	12.05	-	12.25	
7	.32	2186	99.00	12.25	-	12.45	
14	.63	2200	99.64	12.45	-	12.65	
4	.18	2204	99.82	12.65	-	12.85	
2	.09	2206	99.91	12.85	-	13.05	
2	.09	2208	100.00	13.05	-	13.25	
				13.25	-	13.45	
				13.45	-	13.65	
				13.65	-	13.85	
				13.85	-	14.05	
				14.05	-	14.25	
				14.25	-	14.45	
				14.45	-	14.65	

## (H21) GONION-TOP OF HEAD

The vertical distance between the gonion landmark on the corner of the jaw and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
16.70	6.57	1ST	17.97 7.08
16.86	6.64	2ND	18.21 7.17
16.97	6.68	3RD	18.35 7.22
17.12	6.74	5TH	18.54 7.30
17.35	6.83	10TH	18.82 7.41
17.51	6.89	15TH	19.01 7.48
17.63	6.94	20TH	19.15 7.54
17.74	6.98	25TH	19.28 7.59
17.84	7.02	30TH	19.39 7.63
17.93	7.06	35TH	19.49 7.67
18.01	7.09	40TH	19.59 7.71
18.10	7.12	45TH	19.69 7.75
18.18	7.16	50TH	19.78 7.79
18.26	7.19	55TH	19.88 7.83
18.34	7.22	60TH	19.97 7.86
18.43	7.26	65TH	20.07 7.90
18.52	7.29	70TH	20.18 7.94
18.62	7.33	75TH	20.30 7.99
18.73	7.38	80TH	20.43 8.04
18.87	7.43	85TH	20.58 8.10
19.04	7.50	90TH	20.78 8.18
19.31	7.60	95TH	21.09 8.30
19.49	7.67	97TH	21.29 8.38
19.63	7.73	98TH	21.44 8.44
19.86	7.82	99TH	21.68 8.54

# GONION-TOP OF HEAD

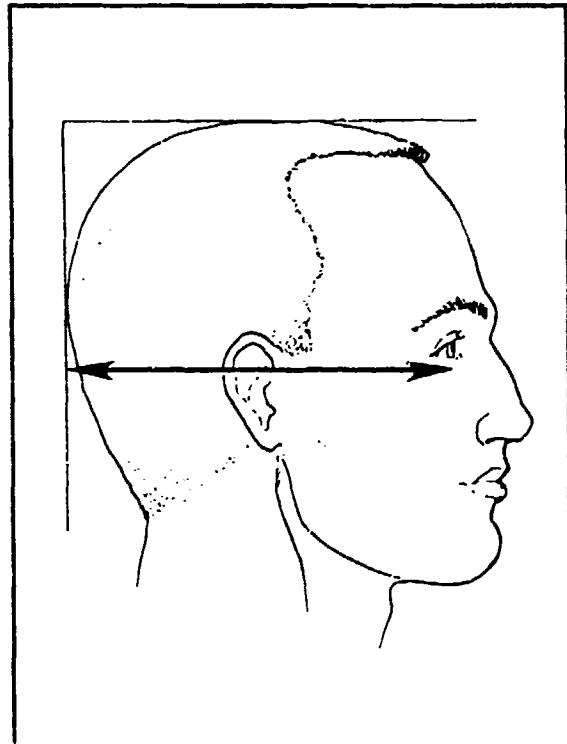
FEM. LES		
<u>CM</u>	<u>INCHES</u>	
18.19	MEAN VALUE	7.16
.00	SE(MEAN)	.00
.67	STD DEVIATION	.26
.00	SE(STD DEV)	.00
16.17	MINIMUM	6.37
21.31	MAXIMUM	8.39
SYMMETRY---VETA I = .20		
KURTOSIS---VETA II = 3.28		
COEF. OF VARIATION = 3.7%		
NUMBER OF SUBJECTS = 2208		

MALES		
<u>CM</u>	<u>INCHES</u>	
19.79	MEAN VALUE	7.79
.02	SE(MEAN)	.00
.77	STD DEVIATION	.30
.00	SE(STD DEV)	.00
17.21	MINIMUM	6.78
22.47	MAXIMUM	8.85
SYMMETRY---VETA I = .05		
KURTOSIS---VETA II = 3.15		
COEF. OF VARIATION = 3.9%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
4	.18	4	.18	16.15 - 16.35			
6	.27	10	.45	16.35 - 16.55			
18	.82	28	1.27	16.55 - 16.75			
2	1.22	55	2.49	16.75 - 16.95			
64	2.90	119	5.39	16.95 - 17.15			
112	5.07	231	10.46	17.15 - 17.35	2	.11	2 .11
145	6.57	376	17.03	17.35 - 17.55	1	.06	3 .17
193	8.74	569	25.77	17.55 - 17.75	8	.45	11 .62
236	10.69	805	36.46	17.75 - 17.95	3	.17	14 .79
267	12.09	1072	48.55	17.95 - 18.15	14	.79	28 1.58
244	11.05	1316	59.60	18.15 - 18.35	27	1.52	55 3.10
260	11.78	1576	71.38	18.35 - 18.55	34	1.92	89 5.02
217	9.83	1793	81.20	18.55 - 18.75	61	3.44	150 8.46
149	6.75	1942	87.95	18.75 - 19.95	76	4.28	226 12.74
93	4.21	2035	92.16	18.95 - 19.15	127	7.16	353 19.90
72	3.26	2107	95.43	19.15 - 19.35	145	8.17	498 28.07
44	1.99	2151	97.42	19.35 - 19.55	180	10.15	678 38.22
27	1.22	2178	98.64	19.55 - 19.75	180	10.15	858 48.37
11	.50	2189	99.14	19.75 - 19.95	170	9.58	1028 57.95
7	.32	2196	99.46	19.95 - 20.15	176	9.92	1204 67.87
9	.41	2205	99.86	20.15 - 20.35	172	9.70	1376 77.56
0	.00	2205	99.86	20.35 - 20.55	115	6.48	1491 84.05
1	.05	2206	99.91	20.55 - 20.75	102	5.75	1593 89.80
1	.05	2207	99.95	20.75 - 20.95	64	3.61	1657 93.40
0	.00	2207	99.95	20.95 - 21.15	43	2.42	1700 95.83
1	.05	2208	100.00	21.15 - 21.35	25	1.41	1725 97.24
				21.35 - 21.55	26	1.47	1751 98.70
				21.55 - 21.75	10	.56	1761 99.27
				21.75 - 21.95	6	.34	1767 99.61
				21.95 - 22.15	4	.23	1771 99.83
				22.15 - 22.35	2	.11	1773 99.94
				22.35 - 22.55	1	.06	1774 100.00

## (H22) INFRAORBITALE-BACK OF HEAD

The horizontal distance between the infraorbitale landmark on the bony eye socket under the eye and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.99	6.29	16.49	6.49
16.20	6.38	16.64	6.55
16.33	6.43	16.75	6.60
16.50	6.49	16.91	6.66
16.75	6.59	17.17	6.76
16.91	6.66	17.36	6.83
17.04	6.71	17.50	6.89
17.16	6.75	17.62	6.94
17.26	6.79	17.73	6.98
17.35	6.83	17.83	7.02
17.44	6.86	17.93	7.06
17.52	6.90	18.02	7.09
17.61	6.93	18.11	7.13
17.69	6.97	18.19	7.16
17.78	7.00	18.28	7.20
17.87	7.04	18.37	7.23
17.97	7.07	18.46	7.27
18.07	7.11	18.56	7.31
18.19	7.16	18.67	7.35
18.32	7.21	18.79	7.40
18.50	7.28	18.95	7.46
18.76	7.39	19.20	7.56
18.93	7.45	19.36	7.62
19.05	7.50	19.50	7.68
19.24	7.57	19.72	7.76

# INFRAORBITALE-BACK OF HEAD

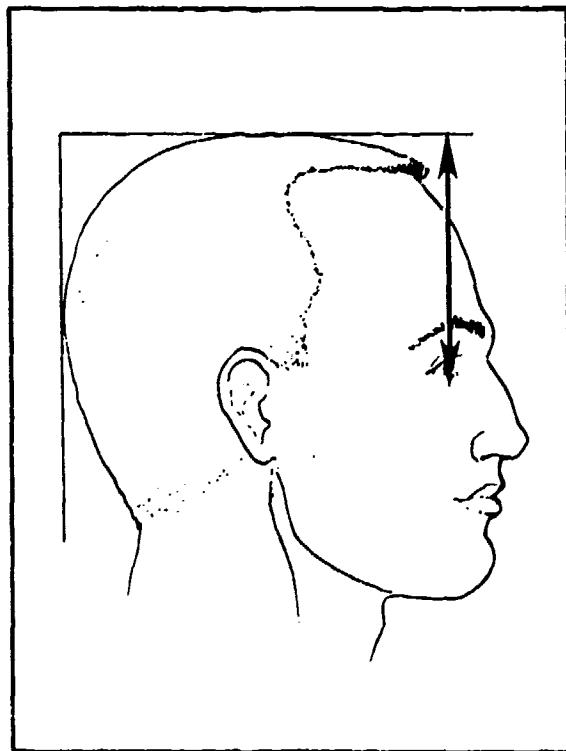
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
17.61	MEAN VALUE	6.93
.00	SE(MEAN)	.00
.69	STD DEVIATION	.27
.00	SE(STD DEV)	.00
15.03	MINIMUM	5.92
19.61	MAXIMUM	7.72
SYMMETRY---VETA I	=	-.03
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	3.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
18.08	MEAN VALUE	7.12
.02	SE(MEAN)	.00
.70	STD DEVIATION	.27
.00	SE(STD DEV)	.00
15.92	MINIMUM	6.27
20.69	MAXIMUM	8.15
SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	3.09
COEF. OF VARIATION	=	3.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	14.85 - 15.05		2	.11
3	.14	4	.18	15.05 - 15.25		4	.23
3	.14	7	.32	15.25 - 15.45		8	.45
3	.14	10	.45	15.45 - 15.65		21	1.18
3	.14	13	.59	15.65 - 15.85		37	2.09
14	.63	27	1.22	15.85 - 16.05		62	3.49
24	1.09	51	2.31	16.05 - 16.25		75	4.23
43	1.95	94	4.26	16.25 - 16.45		129	7.27
78	3.53	172	7.79	16.45 - 16.65		120	6.76
128	5.80	300	13.59	16.65 - 16.85		166	9.36
145	6.57	445	20.15	16.85 - 17.05		203	11.44
204	9.24	649	29.39	17.05 - 17.25		214	12.06
241	10.91	890	40.31	17.25 - 17.45		219	12.34
264	11.96	1154	52.26	17.45 - 17.65		142	8.00
263	11.91	1417	64.18	17.65 - 17.85		133	7.50
215	9.74	1632	73.91	17.85 - 18.05		102	5.75
200	9.06	1832	82.97	18.05 - 18.25		61	3.44
119	5.39	1951	88.36	18.25 - 18.45		37	2.09
113	5.12	2064	93.48	18.45 - 18.65		16	.90
58	2.63	2122	96.11	18.65 - 18.85		11	.62
45	2.04	2167	98.14	18.85 - 19.05		3	.17
20	.91	2187	99.05	19.05 - 19.25		4	.23
12	.54	2199	99.59	19.25 - 19.45		4	.23
9	.41	2208	100.00	19.45 - 19.65		0	.00
				19.65 - 19.85		1	.06
				19.85 - 20.05			
				20.05 - 20.25			
				20.25 - 20.45			
				20.45 - 20.65			
				20.65 - 20.85			

## (H23) INFRAORBITALE-TOP OF HEAD

The vertical distance between the infraorbitale landmark on the bony eye socket under the eye and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
11.02	4.34	11.70	4.61
11.20	4.41	11.88	4.68
11.31	4.45	11.99	4.72
11.46	4.51	12.13	4.78
11.68	4.60	12.35	4.86
11.82	4.65	12.49	4.92
11.93	4.70	12.60	4.96
12.03	4.74	12.70	5.00
12.11	4.77	12.78	5.03
12.19	4.80	12.86	5.06
12.26	4.83	12.93	5.09
12.33	4.86	13.00	5.12
12.41	4.88	13.07	5.15
12.48	4.91	13.14	5.17
12.55	4.94	13.21	5.20
12.62	4.97	13.29	5.23
12.70	5.00	13.37	5.26
12.79	5.03	13.45	5.30
12.88	5.07	13.55	5.34
13.00	5.12	13.67	5.38
13.15	5.18	13.82	5.44
13.38	5.27	14.04	5.53
13.54	5.33	14.20	5.59
13.66	5.38	14.31	5.63
13.86	5.46	14.49	5.71

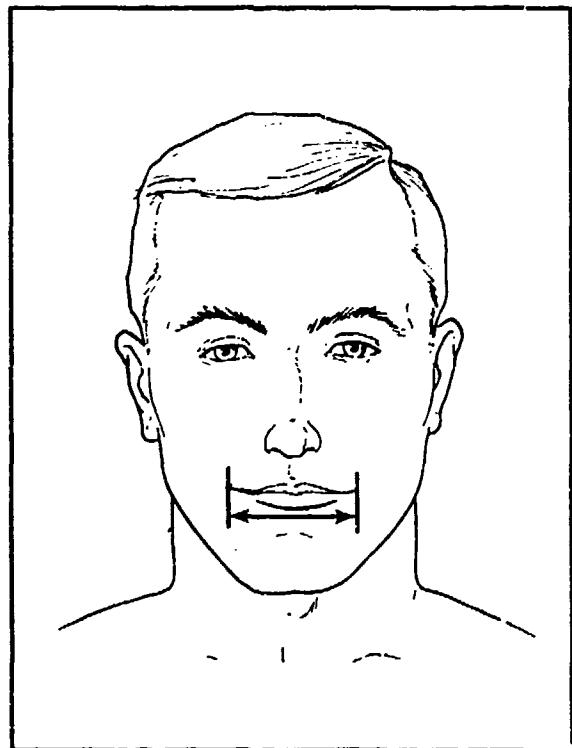
# INFRAORBITALE-TOP OF HEAD

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
12.41	MEAN VALUE	4.89	13.08	MEAN VALUE	5.15
.00	SE(MEAN)	.00	.00	SE(MEAN)	.00
.58	STD DEVIATION	.23	.58	STD DEVIATION	.23
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
10.60	MINIMUM	4.17	11.13	MINIMUM	4.38
14.95	MAXIMUM	5.89	15.14	MAXIMUM	5.96
SYMMETRY---VETA I	=	.09	SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.31	KURTOSIS---VETA II	=	3.19
COEF. OF VARIATION	=	4.7%	COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	10.55 - 10.65		1	.06
5	.23	6	.27	10.65 - 10.75		2	.11
2	.09	8	.36	10.75 - 10.85		2	.11
7	.32	15	.68	10.85 - 10.95		3	.17
9	.41	24	1.09	10.95 - 11.05		5	.28
12	.54	36	1.63	11.05 - 11.15		6	.34
19	.86	55	2.49	11.15 - 11.25		7	.39
18	.82	73	3.31	11.25 - 11.35		8	.45
34	1.54	107	4.85	11.35 - 11.45		10	.56
41	1.86	148	6.70	11.45 - 11.55		16	.90
56	2.54	204	9.24	11.55 - 11.65		132	7.44
72	3.26	276	12.50	11.65 - 11.75		186	10.48
81	3.67	357	16.17	11.75 - 11.85		239	13.47
107	4.85	464	21.01	11.85 - 11.95		26	1.47
107	4.85	571	25.86	11.95 - 12.05		40	2.25
146	6.61	717	32.47	12.05 - 12.15		68	3.83
135	6.11	852	38.59	12.15 - 12.25		94	5.30
158	7.16	1010	45.74	12.25 - 12.35		112	6.31
151	6.84	1161	52.58	12.35 - 12.45		125	7.50
159	7.20	1320	59.78	12.45 - 12.55		133	7.50
155	7.02	1475	66.80	12.55 - 12.65		117	6.60
159	7.20	1634	74.00	12.65 - 12.75		115	6.48
111	5.03	1745	79.03	12.75 - 12.85		114	6.43
87	3.94	1832	82.97	12.85 - 12.95		111	6.26
92	4.17	1924	87.14	12.95 - 13.05		125	7.05
66	2.99	1990	90.13	13.05 - 13.15		847	47.75
53	2.40	2043	92.53	13.15 - 13.25		980	55.24
43	1.95	2086	94.47	13.25 - 13.35		1097	61.84
32	1.45	2118	95.92	13.35 - 13.45		1212	68.32
25	1.13	2143	97.06	13.45 - 13.55		1326	74.75
16	.72	2159	97.78	13.55 - 13.65		92	5.19
17	.77	2176	98.55	13.65 - 13.75		73	4.11
11	.50	2187	99.05	13.75 - 13.85		67	3.78
7	.32	2194	99.37	13.85 - 13.95		55	3.10
6	.27	2200	99.64	13.95 - 14.05		50	2.82
1	.05	2201	99.68	14.05 - 14.15		25	1.41
5	.23	2206	99.91	14.15 - 14.25		26	1.47
0	.00	2206	99.91	14.25 - 14.35		19	1.07
0	.00	2206	99.91	14.35 - 14.45		13	.73
0	.00	2206	99.91	14.45 - 14.55		7	.39
1	.05	2207	99.95	14.55 - 14.65		5	.28
0	.00	2207	99.95	14.65 - 14.75		4	.23
0	.00	2207	99.95	14.75 - 14.85		4	.23
0	.00	2207	99.95	14.85 - 14.95		0	.00
1	.05	2208	100.00	14.95 - 15.05		2	.11
				15.05 - 15.15		1	.06
						1774	100.00

## (H24) LIP LENGTH

The straight-line distance between the right and left cheilion landmarks at the corners of the closed mouth is measured.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
4.57	1.80	1ST	4.65	1.83	
4.67	1.84	2ND	4.76	1.87	
4.73	1.86	3RD	4.83	1.90	
4.82	1.90	5TH	4.92	1.94	
4.96	1.95	10TH	5.06	1.99	
5.05	1.99	15TH	5.16	2.03	
5.13	2.02	20TH	5.24	2.06	
5.20	2.05	25TH	5.31	2.09	
5.26	2.07	30TH	5.37	2.12	
5.32	2.10	35TH	5.43	2.14	
5.38	2.12	40TH	5.49	2.16	
5.43	2.14	45TH	5.55	2.18	
5.49	2.16	50TH	5.60	2.20	
5.54	2.18	55TH	5.66	2.23	
5.59	2.20	60TH	5.71	2.25	
5.65	2.23	65TH	5.77	2.27	
5.71	2.25	70TH	5.83	2.30	
5.78	2.27	75TH	5.90	2.32	
5.85	2.30	80TH	5.98	2.35	
5.94	2.34	85TH	6.06	2.39	
6.05	2.38	90TH	6.17	2.43	
6.21	2.44	95TH	6.33	2.49	
6.31	2.48	97TH	6.44	2.53	
6.39	2.52	98TH	6.51	2.56	
6.51	2.56	99TH	6.62	2.61	

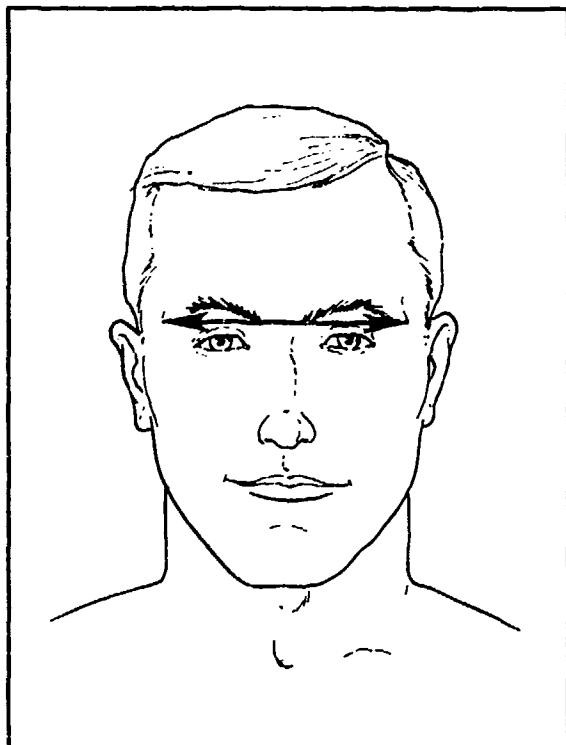
# LIP LENGTH

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
5.50	MEAN VALUE	2.16	5.61	MEAN VALUE	2.21
.00	SE(MEAN)	.00	.00	SE(MEAN)	.00
.42	STD DEVIATION	.17	.43	STD DEVIATION	.17
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
4.09	MINIMUM	1.61	4.41	MINIMUM	1.74
6.94	MAXIMUM	2.73	7.11	MAXIMUM	2.80
SYMMETRY---VETA I	=	.14	SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	2.93	KURTOSIS---VETA II	=	2.86
COEF. OF VARIATION	=	7.7%	COEF. OF VARIATION	=	7.6%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	4.05	-	4.15	
1	.05	2	.09	4.15	-	4.25	
2	.09	4	.18	4.25	-	4.35	
6	.27	10	.45	4.35	-	4.45	
9	.41	19	.86	4.45	-	4.55	
15	.68	34	1.54	4.55	-	4.65	
33	1.49	67	3.03	4.65	-	4.75	
59	2.67	126	5.71	4.75	-	4.85	
95	4.30	221	10.01	4.85	-	4.95	
101	4.57	322	14.58	4.95	-	5.05	
135	6.11	457	20.70	5.05	-	5.15	
156	7.07	613	27.76	5.15	-	5.25	
189	8.56	802	36.32	5.25	-	5.35	
219	9.92	1021	46.24	5.35	-	5.45	
217	9.83	1238	56.07	5.45	-	5.55	
197	8.92	1435	64.99	5.55	-	5.65	
166	7.52	1601	72.51	5.65	-	5.75	
164	7.43	1765	79.94	5.75	-	5.85	
107	4.85	1872	84.78	5.85	-	5.95	
100	4.53	1972	89.31	5.95	-	6.05	
97	4.39	2069	93.70	6.05	-	6.15	
53	2.40	2122	96.11	6.15	-	6.25	
30	1.36	2152	97.46	6.25	-	6.35	
20	.91	2172	98.37	6.35	-	6.45	
17	.77	2189	99.14	6.45	-	6.55	
7	.32	2196	99.46	6.55	-	6.65	
6	.27	2202	99.73	6.65	-	6.75	
5	.23	2207	99.95	6.75	-	6.85	
1	.05	2208	100.00	6.85	-	6.95	
				6.95	-	7.05	
				7.05	-	7.15	

## (H25) MAXIMUM FRONTAL BREADTH

The straight-line distance between the right and left zygofrontale landmarks at the upper margin of each bony eye socket is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
9.88	3.89	1ST	10.20 4.02
10.04	3.95	2ND	10.33 4.07
10.13	3.99	3RD	10.41 4.10
10.26	4.04	5TH	10.52 4.14
10.45	4.11	10TH	10.69 4.21
10.58	4.16	15TH	10.80 4.25
10.68	4.20	20TH	10.90 4.29
10.77	4.24	25TH	10.98 4.32
10.85	4.27	30TH	11.05 4.35
10.92	4.30	35TH	11.12 4.38
10.99	4.33	40TH	11.18 4.40
11.05	4.35	45TH	11.24 4.43
11.12	4.38	50TH	11.30 4.45
11.19	4.40	55TH	11.37 4.48
11.26	4.43	60TH	11.43 4.50
11.33	4.46	65TH	11.50 4.53
11.40	4.49	70TH	11.57 4.56
11.48	4.52	75TH	11.65 4.59
11.58	4.56	80TH	11.74 4.62
11.69	4.60	85TH	11.85 4.67
11.83	4.66	90TH	11.99 4.72
12.04	4.74	95TH	12.22 4.81
12.17	4.79	97TH	12.39 4.88
12.28	4.83	98TH	12.51 4.93
12.44	4.90	99TH	12.72 5.01

# MAXIMUM FRONTAL BREADTH

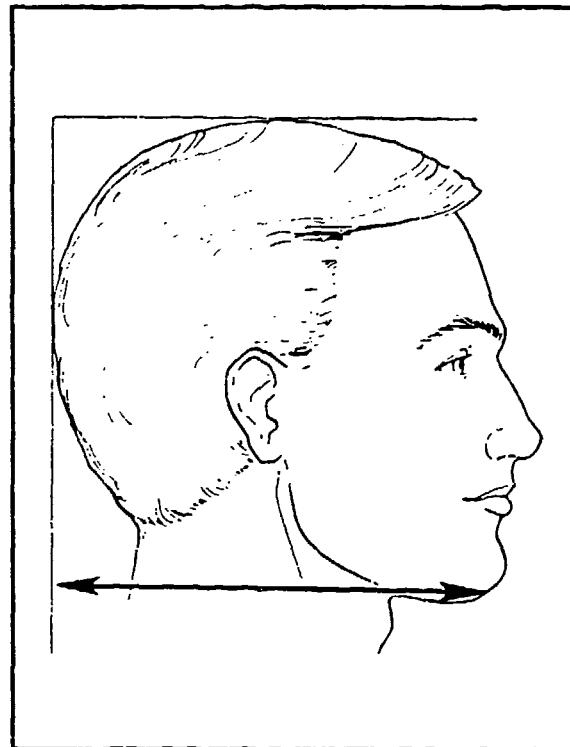
FEMALES		
<u>CM</u>	<u>INCHES</u>	
11.13	MEAN VALUE	4.38
.00	SE(MEAN)	.00
.54	STD DEVIATION	.21
.00	SE(STD DEV)	.00
9.20	MINIMUM	3.62
13.42	MAXIMUM	5.28
SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
11.33	MEAN VALUE	4.46
.00	SE(MEAN)	.00
.52	STD DEVIATION	.20
.00	SE(STD DEV)	.00
9.49	MINIMUM	3.74
13.38	MAXIMUM	5.27
SYMMETRY---VETA I	=	.28
KURTOSIS---VETA II	=	3.36
COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	9.15 - 9.25		1	.06
0	.00	1	.05	9.25 - 9.35		0	.00
0	.00	1	.05	9.35 - 9.45		0	.00
1	.05	2	.09	9.45 - 9.55		2	.11
1	.05	3	.14	9.55 - 9.65		3	.17
8	.36	11	.50	9.65 - 9.75		4	.23
6	.27	17	.77	9.75 - 9.85		16	.90
10	.45	27	1.22	9.85 - 9.95		8	.45
20	.91	47	2.13	9.95 - 10.05		24	1.35
24	1.09	71	3.22	10.05 - 10.15		39	2.20
28	1.27	99	4.48	10.15 - 10.25		50	2.82
49	2.22	148	6.70	10.25 - 10.35		66	3.72
59	2.67	207	9.38	10.35 - 10.45		92	5.19
82	3.71	289	13.09	10.45 - 10.55		100	5.64
104	4.71	393	17.80	10.55 - 10.65		127	7.16
133	6.02	526	23.82	10.65 - 10.75		143	8.06
138	6.25	664	30.07	10.75 - 10.85		120	6.76
157	7.11	821	37.18	10.85 - 10.95		134	7.55
163	7.38	984	44.57	10.95 - 11.05		149	8.40
160	7.25	1144	51.81	11.05 - 11.15		115	6.48
166	7.52	1310	59.33	11.15 - 11.25		90	5.07
140	6.34	1450	65.67	11.25 - 11.35		62	3.49
147	6.66	1597	72.33	11.35 - 11.45		56	3.16
131	5.93	1728	78.26	11.45 - 11.55		124	6.99
114	5.16	1842	83.42	11.55 - 11.65		107	6.03
82	3.71	1924	87.14	11.65 - 11.75		1311	73.90
86	3.89	2010	91.03	11.75 - 11.85		1426	80.38
54	2.45	2064	93.48	11.85 - 11.95		1516	85.46
34	1.54	2098	95.02	11.95 - 12.05		1578	88.95
37	1.68	2135	96.69	12.05 - 12.15		1634	92.11
27	1.22	2162	97.92	12.15 - 12.25		133	1.86
14	.63	2176	98.55	12.25 - 12.35		1667	93.97
12	.54	2188	99.09	12.35 - 12.45		1692	95.38
10	.45	2198	99.55	12.45 - 12.55		1710	96.39
5	.23	2203	99.77	12.55 - 12.65		1727	97.35
2	.09	2205	99.86	12.65 - 12.75		1742	98.20
0	.00	2205	99.86	12.75 - 12.85		1749	98.59
1	.05	2206	99.91	12.85 - 12.95		1759	99.15
1	.05	2207	99.95	12.95 - 13.05		1765	99.49
0	.00	2207	99.95	13.05 - 13.15		1768	99.66
0	.00	2207	99.95	13.15 - 13.25		1772	99.89
0	.00	2207	99.95	13.25 - 13.35		1773	99.94
1	.05	2208	100.00	13.35 - 13.45		1774	100.00

## (H26) MENTON-BACK OF HEAD

The horizontal distance between the menton landmark at the bottom of the chin and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.17	5.97	1ST	15.70 6.18
15.39	6.06	2ND	16.05 6.32
15.54	6.12	3RD	16.26 6.40
15.75	6.20	5TH	16.53 6.51
16.08	6.33	10TH	16.93 6.67
16.31	6.42	15TH	17.19 6.77
16.50	6.50	20TH	17.39 6.84
16.66	6.56	25TH	17.56 6.91
16.81	6.62	30TH	17.71 6.97
16.95	6.67	35TH	17.85 7.03
17.08	6.72	40TH	17.98 7.08
17.21	6.77	45TH	18.11 7.13
17.33	6.82	50TH	18.24 7.18
17.46	6.87	55TH	18.36 7.23
17.58	6.92	60TH	18.49 7.28
17.71	6.97	65TH	18.63 7.33
17.85	7.03	70TH	18.77 7.39
18.00	7.09	75TH	18.93 7.45
18.16	7.15	80TH	19.11 7.52
18.35	7.23	85TH	19.31 7.60
18.59	7.32	90TH	19.57 7.71
18.94	7.46	95TH	19.96 7.86
19.17	7.55	97TH	20.22 7.96
19.33	7.61	98TH	20.40 8.03
19.58	7.71	99TH	20.68 8.14

# MENTON-BACK OF HEAD

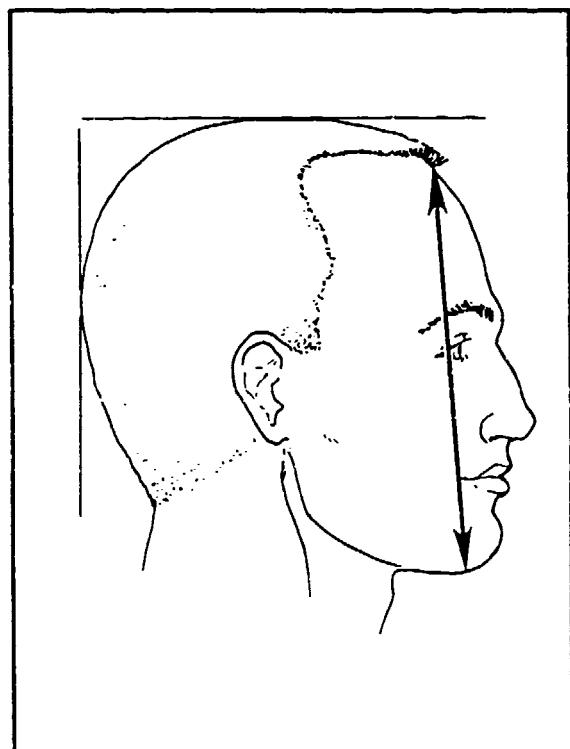
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
17.33	MEAN VALUE	6.82
.02	SE(MEAN)	.00
.98	STD DEVIATION	.38
.00	SE(STD DEV)	.00
14.08	MINIMUM	5.54
21.00	MAXIMUM	8.27
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	2.95
COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
18.24	MEAN VALUE	7.18
.02	SE(MEAN)	.00
1.05	STD DEVIATION	.41
.02	SE(STD DEV)	.00
14.29	MINIMUM	5.63
21.30	MAXIMUM	8.39
SYMMETRY---VETA I	=	-.09
KURTOSIS---VETA II	=	3.17
COEF. OF VARIATION	=	5.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	14.05	- 14.25	1	.06
1	.05	2	.09	14.25	- 14.45	1	.06
3	.14	5	.23	14.45	- 14.65	2	.11
8	.36	13	.59	14.65	- 14.85	4	.23
4	.18	17	.77	14.85	- 15.05	7	.39
12	.54	29	1.31	15.05	- 15.25	10	.56
21	.95	50	2.26	15.25	- 15.45	12	.68
34	1.54	84	3.80	15.45	- 15.65	17	.96
59	2.67	143	6.48	15.65	- 15.85	26	1.47
74	3.35	217	9.83	15.85	- 16.05	30	1.69
87	3.94	304	13.77	16.05	- 16.25	50	2.82
100	4.53	404	18.30	16.25	- 16.45	75	4.23
124	5.62	528	23.91	16.45	- 16.65	108	6.09
161	7.29	689	31.20	16.65	- 16.85	163	9.19
163	7.38	852	38.59	16.85	- 17.05	221	12.46
185	8.38	1037	46.97	17.05	- 17.25	294	16.57
184	8.33	1221	55.30	17.25	- 17.45	386	21.76
153	6.93	1374	62.23	17.45	- 17.65	497	28.02
177	8.02	1551	70.24	17.65	- 17.85	629	35.46
140	6.34	1691	76.59	17.85	- 18.05	759	42.78
118	5.34	1809	81.93	18.05	- 18.25	890	50.17
93	4.21	1902	86.14	18.25	- 18.45	1024	57.72
96	4.35	1998	90.49	18.45	- 18.65	1165	65.67
74	3.35	2072	93.84	18.65	- 18.85	1288	72.60
51	2.31	2123	96.15	18.85	- 19.05	1388	78.24
38	1.72	2161	97.87	19.05	- 19.25	1483	83.60
18	.82	2179	98.69	19.25	- 19.45	1554	87.60
7	.32	2186	99.00	19.45	- 19.65	1617	91.15
11	.50	2197	99.50	19.65	- 19.85	1661	93.63
3	.14	2200	99.64	19.85	- 20.05	1698	95.72
4	.18	2204	99.82	20.05	- 20.25	1726	97.29
1	.05	2205	99.86	20.25	- 20.45	1746	98.42
1	.05	2206	99.91	20.45	- 20.65	1752	98.76
0	.00	2206	99.91	20.65	- 20.85	1764	99.44
2	.09	2208	100.00	20.85	- 21.05	1769	99.72
				21.05	- 21.25	1773	99.94
				21.25	- 21.45	1774	100.00

## (H27) MENTON-CRINION LENGTH

The straight-line distance between the menton landmark at the bottom of the chin and the crinion landmark on the lowest point of the hairline on the forehead is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.50	6.10	1ST	16.60 6.54
15.72	6.19	2ND	16.94 6.67
15.87	6.25	3RD	17.14 6.75
16.07	6.33	5TH	17.40 6.85
16.41	6.46	10TH	17.77 7.00
16.64	6.55	15TH	18.01 7.09
16.83	6.62	20TH	18.20 7.17
16.99	6.69	25TH	18.37 7.23
17.13	6.75	30TH	18.52 7.29
17.27	6.80	35TH	18.66 7.34
17.40	6.85	40TH	18.79 7.40
17.52	6.90	45TH	18.92 7.45
17.65	6.95	50TH	19.05 7.50
17.77	7.00	55TH	19.18 7.55
17.90	7.05	60TH	19.31 7.60
18.02	7.10	65TH	19.46 7.66
18.16	7.15	70TH	19.61 7.72
18.31	7.21	75TH	19.77 7.78
18.47	7.27	80TH	19.96 7.86
18.65	7.34	85TH	20.18 7.94
18.89	7.44	90TH	20.46 8.05
19.23	7.57	95TH	20.87 8.22
19.44	7.66	97TH	21.13 8.32
19.60	7.72	98TH	21.31 8.39
19.85	7.81	99TH	21.59 8.50

# MENTON-CRINION LENGTH

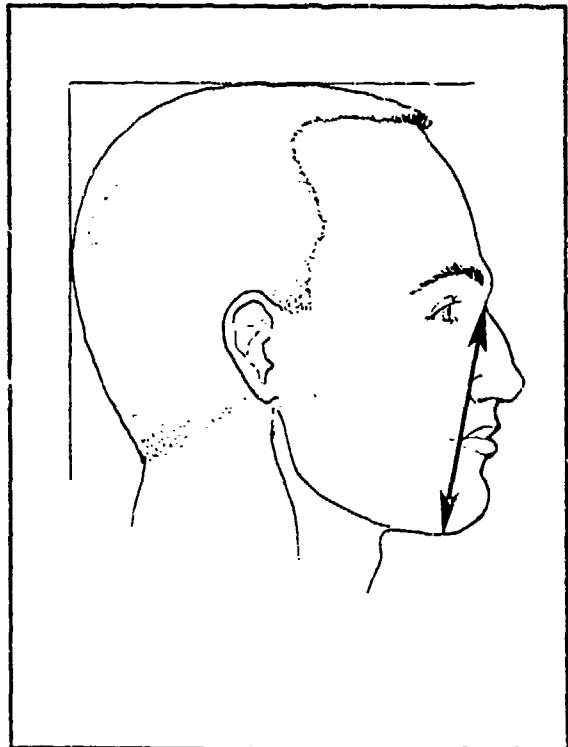
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
17.65	MEAN VALUE	6.95
.02	SE(MEAN)	.00
.96	STD DEVIATION	.38
.00	SE(STD DEV)	.00
14.43	MINIMUM	5.68
20.80	MAXIMUM	8.19
SYMMETRY---VETA I	=	.02
KURTOSIS---VETA II	=	2.86
COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2206

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
19.08	MEAN VALUE	7.51
.03	SE(MEAN)	.00
1.05	STD DEVIATION	.41
.02	SE(STD DSV)	.00
15.59	MINIMUM	6.14
22.34	MAXIMUM	8.80
SYMMETRY---VETA I	=	.06
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	5.5%
NUMBER OF SUBJECTS	=	1747

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
				14.35 - 14.55	14.55 - 14.75	14.75 - 14.95	14.95 - 15.15
2	.09	2	.09	14.35 -	14.55		
1	.05	3	.14	14.55 -	14.75		
1	.05	4	.18	14.75 -	14.95		
1	.05	5	.23	14.95 -	15.15		
8	.36	13	.59	15.15 -	15.35		
12	.54	25	1.13	15.35 -	15.55		
24	1.09	49	2.22	15.55 -	15.75		
37	1.68	86	3.90	15.75 -	15.95		
38	1.72	124	5.62	15.95 -	16.15		
74	3.35	198	8.98	16.15 -	16.35		
81	3.67	279	12.65	16.35 -	16.55		
114	5.17	393	17.82	16.55 -	16.75		
116	5.26	509	23.07	16.75 -	16.95		
162	7.34	671	30.42	16.95 -	17.15		
171	7.75	842	38.17	17.15 -	17.35		
170	7.71	1012	45.87	17.35 -	17.55		
159	7.21	1171	53.08	17.55 -	17.75		
201	9.11	1372	62.19	17.75 -	17.95		
177	8.02	1549	70.22	17.95 -	18.15		
140	6.35	1689	76.56	18.15 -	18.35		
136	6.17	1825	82.73	18.35 -	18.55		
102	4.62	1927	87.35	18.55 -	18.75		
70	3.17	1997	90.53	18.75 -	18.95		
73	3.31	2070	93.83	18.95 -	19.15		
51	2.31	2121	96.15	19.15 -	19.35		
35	1.59	2156	97.73	19.35 -	19.55		
19	.86	2175	98.59	19.55 -	19.75		
16	.73	2191	99.32	19.75 -	19.95		
7	.32	2198	99.64	19.95 -	20.15		
4	.18	2202	99.82	20.15 -	20.35		
1	.05	2203	99.86	20.35 -	20.55		
1	.05	2204	99.91	20.55 -	20.75		
2	.09	2206	100.00	20.75 -	20.95		
				20.95 -	21.15		
				21.15 -	30	1.72	1696 97.08
				21.35 -	21.35	.97	1713 98.05
				21.35 -	21.55	.86	1728 98.91
				21.55 -	21.75	.29	1733 99.20
				21.75 -	21.95	.52	1742 99.71
				21.95 -	22.15	.11	1744 99.83
				22.15 -	22.35	.17	1747 100.00

## (H28) MENTON-SELLION LENGTH

The straight-line distance between the menton landmark at the bottom of the chin and the sellion landmark on the deepest point of the root of the nose is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
10.06	3.96	1ST	10.75 4.23
10.20	4.01	2ND	10.88 4.28
10.29	4.05	3RD	10.97 4.32
10.41	4.10	5TH	11.10 4.37
10.61	4.18	10TH	11.31 4.45
10.75	4.23	15TH	11.46 4.51
10.86	4.28	20TH	11.58 4.56
10.95	4.31	25TH	11.68 4.60
11.04	4.35	30TH	11.77 4.63
11.12	4.38	35TH	11.86 4.67
11.20	4.41	40TH	11.94 4.70
11.27	4.44	45TH	12.02 4.73
11.35	4.47	50TH	12.10 4.76
11.42	4.50	55TH	12.18 4.80
11.50	4.53	60TH	12.26 4.83
11.58	4.56	65TH	12.35 4.86
11.66	4.59	70TH	12.43 4.90
11.75	4.63	75TH	12.53 4.93
11.86	4.67	80TH	12.64 4.98
11.98	4.72	85TH	12.77 5.03
12.14	4.78	90TH	12.93 5.09
12.39	4.88	95TH	13.18 5.19
12.56	4.94	97TH	13.35 5.26
12.68	4.99	98TH	13.49 5.31
12.89	5.08	99TH	13.70 5.40

# MENTON-SELLION LENGTH

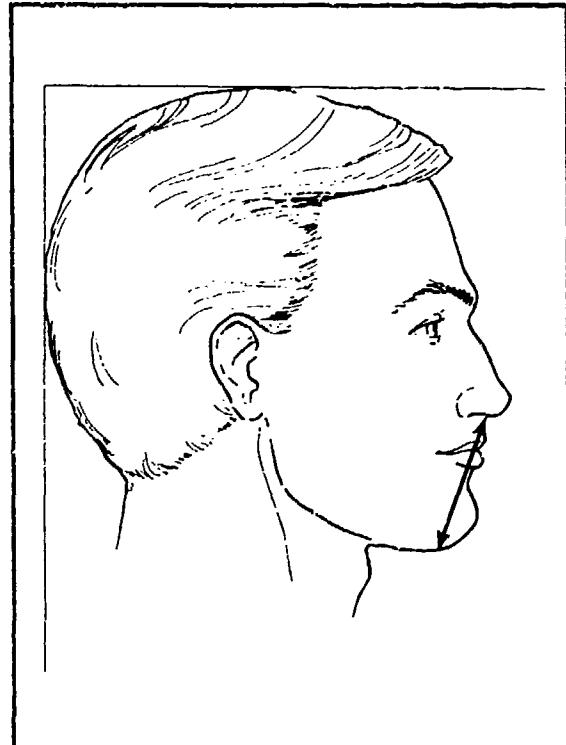
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
11.37	MEAN VALUE	4.47
.00	SE(MEAN)	.00
.60	STD DEVIATION	.24
.00	SE(STD DEV)	.00
9.42	MINIMUM	3.71
13.42	MAXIMUM	5.28
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.04
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
12.11	MEAN VALUE	4.77
.02	SE(MEAN)	.00
.64	STD DEVIATION	.25
.00	SE(STD DEV)	.00
9.93	MINIMUM	3.91
14.71	MAXIMUM	5.79
SYMMETRY---VETA I	=	.16
KURTOSIS---VETA II	=	3.12
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	9.35 - 9.45		1	.06
0	.00	1	.05	9.45 - 9.55		0	.00
1	.05	2	.09	9.55 - 9.65		0	.00
2	.09	4	.18	9.65 - 9.75		2	.11
1	.05	5	.23	9.75 - 9.85		3	.11
5	.23	10	.45	9.85 - 9.95		3	.17
11	.50	21	.95	9.95 - 10.05		2	.11
12	.54	33	1.49	10.05 - 10.15		5	.28
21	.95	54	2.45	10.15 - 10.25		7	.39
33	1.49	87	3.94	10.25 - 10.35		24	1.35
43	1.95	130	5.89	10.35 - 10.45		21	1.18
60	2.72	190	8.61	10.45 - 10.55		70	.56
44	1.99	234	10.60	10.55 - 10.65		18	.73
82	3.71	316	14.31	10.65 - 10.75		1.01	
85	3.85	401	18.16	10.75 - 10.85		25	1.41
128	5.80	529	23.96	10.85 - 10.95		27	2.76
162	7.34	691	31.30	10.95 - 11.05		70	3.93
136	6.25	829	37.55	11.05 - 11.15		108	6.09
128	5.80	957	43.34	11.15 - 11.25		155	8.74
153	6.93	1110	50.77	11.25 - 11.35		192	16.82
144	6.52	1254	56.79	11.35 - 11.45		265	14.94
136	6.16	1390	62.95	11.45 - 11.55		335	18.88
137	6.20	1527	69.16	11.55 - 11.65		422	23.79
121	5.48	1648	74.64	11.65 - 11.75		505	28.47
92	4.17	1740	78.80	11.75 - 11.85		614	34.61
98	4.44	1838	83.24	11.85 - 11.95		713	40.19
81	3.67	1919	86.91	11.95 - 12.05		815	45.94
70	3.17	1989	90.08	12.05 - 12.15		940	52.99
55	2.49	2044	92.57	12.15 - 12.25		1056	59.53
40	1.81	2084	94.38	12.25 - 12.35		1160	65.39
34	1.54	2118	95.92	12.35 - 12.45		1241	69.95
25	1.13	2143	97.06	12.45 - 12.55		1333	75.14
18	.82	2161	97.87	12.55 - 12.65		1421	80.10
7	.32	2168	98.19	12.65 - 12.75		1493	84.16
13	.59	2181	98.78	12.75 - 12.85		1554	87.60
10	.45	2191	99.23	12.85 - 12.95		1611	90.81
8	.36	2199	99.59	12.95 - 13.05		1649	92.95
4	.18	2203	99.77	13.05 - 13.15		1673	94.31
2	.09	2205	99.86	13.15 - 13.25		1698	95.72
1	.05	2206	99.91	13.25 - 13.35		1720	96.96
2	.09	2208	100.00	13.35 - 13.45		1735	97.80
				13.45 - 13.55		1742	98.20
				13.55 - 13.65		1750	98.60
				13.65 - 13.75		1759	99.15
				13.75 - 13.85		1765	99.49
				13.85 - 13.95		1768	99.60
				13.95 - 14.05		1770	99.77
				14.05 - 14.15		1771	99.83
				14.15 - 14.25		1772	99.89
				14.25 - 14.35		1773	99.94
				14.35 - 14.45		1773	99.94
				14.45 - 14.55		1773	99.94
				14.55 - 14.65		1773	99.94
				14.65 - 14.75		1774	100.00

## (H29) MENTON-SUBNASALE LENGTH

The straight-line distance between the menton landmark at the bottom of the chin and the subnasale landmark under the nose is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
5.69	2.24	6.13	2.41
5.82	2.29	6.27	2.47
5.91	2.33	6.35	2.50
6.03	2.37	6.47	2.55
6.22	2.45	6.65	2.62
6.34	2.50	6.77	2.67
6.44	2.54	6.88	2.71
6.53	2.57	6.96	2.74
6.60	2.60	7.04	2.77
6.67	2.63	7.12	2.80
6.74	2.65	7.19	2.83
6.80	2.68	7.26	2.86
6.87	2.70	7.33	2.89
6.93	2.73	7.41	2.92
7.00	2.76	7.48	2.94
7.07	2.78	7.56	2.97
7.14	2.81	7.64	3.01
7.22	2.84	7.73	3.04
7.31	2.86	7.83	3.06
7.42	2.92	7.94	3.13
7.56	2.98	8.09	3.18
7.79	3.07	8.31	3.27
7.94	3.13	8.44	3.32
8.07	3.18	8.55	3.36
8.27	3.26	8.70	3.43

# MENTON-SUBNASALE LENGTH

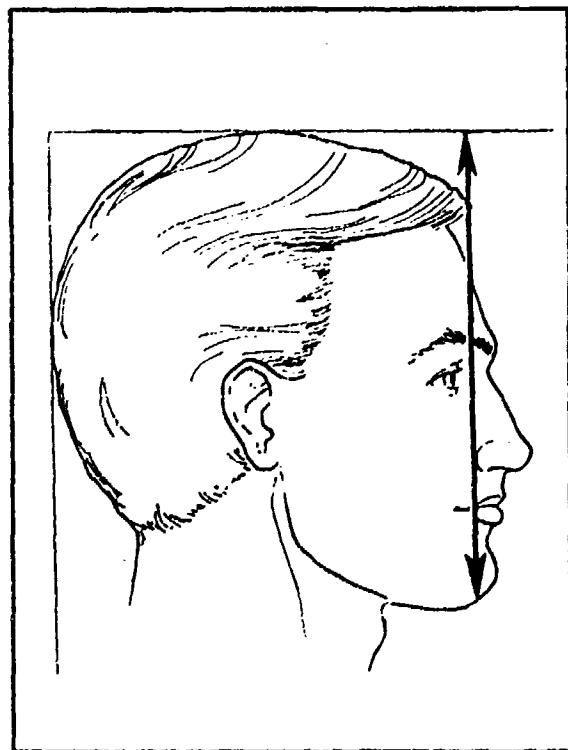
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
6.88	MEAN VALUE	2.71
.00	SE(MEAN)	.00
.54	STD DEVIATION	.21
.00	SE(STD DEV)	.00
4.80	MINIMUM	1.89
8.77	MAXIMUM	3.45
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.31
COEF. OF VARIATION	=	7.8%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
7.35	MEAN VALUE	2.89
.00	SE(MEAN)	.00
.56	STD DEVIATION	.22
.00	SE(STD DEV)	.00
5.65	MINIMUM	2.22
9.69	MAXIMUM	3.82
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.08
COEF. OF VARIATION	=	7.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	4.75 - 4.85		2	.11
0	.00	1	.05	4.85 - 4.95		0	.00
0	.00	1	.05	4.95 - 5.05		0	.00
0	.00	1	.05	5.05 - 5.15		7	.39
1	.05	2	.09	5.15 - 5.25		11	.62
2	.09	4	.18	5.25 - 5.35		12	.68
3	.14	7	.32	5.35 - 5.45		21	1.18
4	.18	11	.50	5.45 - 5.55		71	4.00
8	.35	19	.86	5.55 - 5.65		107	6.03
14	.63	33	1.49	5.65 - 5.75		111	6.26
17	.77	50	2.26	5.75 - 5.85		109	6.14
29	1.31	79	3.58	5.85 - 5.95		122	6.88
36	1.63	115	5.21	5.95 - 6.05		144	8.12
58	2.63	173	7.84	6.05 - 6.15		121	6.82
54	2.45	227	10.28	6.15 - 6.25		12	.68
97	4.39	324	14.67	6.25 - 6.35		21	1.18
131	5.93	455	20.61	6.35 - 6.45		23	1.30
120	5.43	575	26.04	6.45 - 6.55		58	3.27
170	7.70	745	33.74	6.55 - 6.65		46	2.59
168	7.61	913	41.35	6.65 - 6.75		66	3.72
153	6.93	1066	48.28	6.75 - 6.85		71	4.00
164	7.43	1230	55.71	6.85 - 6.95		122	6.88
179	8.11	1409	63.81	6.95 - 7.05		111	6.26
149	6.75	1558	70.56	7.05 - 7.15		109	6.14
111	5.03	1669	75.59	7.15 - 7.25		122	6.88
127	5.75	1796	81.34	7.25 - 7.35		144	8.12
97	4.39	1893	85.73	7.35 - 7.45		121	6.82
71	3.22	1964	88.95	7.45 - 7.55		122	6.88
59	2.67	2023	91.62	7.55 - 7.65		107	6.03
69	3.13	2092	94.75	7.65 - 7.75		90	5.07
31	1.40	2123	96.15	7.75 - 7.85		80	4.51
17	.77	2140	96.92	7.85 - 7.95		76	4.28
23	1.04	2163	97.96	7.95 - 8.05		84	4.74
14	.63	2177	98.60	8.05 - 8.15		46	2.59
8	.36	2185	98.96	8.15 - 8.25		34	1.92
6	.27	2191	99.23	8.25 - 8.35		22	1.24
4	.18	2195	99.41	8.35 - 8.45		23	1.30
6	.27	2201	99.68	8.45 - 8.55		24	1.35
2	.09	2203	99.77	8.55 - 8.65		14	.79
4	.18	2207	99.95	8.65 - 8.75		6	.34
1	.05	2208	100.00	8.75 - 8.85		6	.34
				8.85 - 8.95		4	.23
				8.95 - 9.05		0	.00
				9.05 - 9.15		2	.11
				9.15 - 9.25		1	.06
				9.25 - 9.35		0	.00
				9.35 - 9.45		0	.00
				9.45 - 9.55		1	.06
				9.55 - 9.65		0	.00
				9.65 - 9.75		1	.06

## (H30) MENTON-TOP OF HEAD

The vertical distance between the menton landmark at the bottom of the chin and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
19.78	7.79	1ST	21.18 8.34
20.01	8.88	2ND	21.41 8.43
20.16	8.94	3RD	21.56 8.49
20.36	8.02	5TH	21.76 8.57
20.67	8.14	10TH	22.08 8.69
20.88	8.22	15TH	22.29 8.78
21.05	8.29	20TH	22.46 8.84
21.19	8.34	25TH	22.60 8.90
21.32	8.39	30TH	22.73 8.95
21.43	8.44	35TH	22.85 9.00
21.54	8.48	40TH	22.96 9.04
21.65	8.52	45TH	23.07 9.08
21.76	8.57	50TH	23.18 9.13
21.86	8.61	55TH	23.29 9.17
21.97	8.65	60TH	23.40 9.21
22.08	8.69	65TH	23.51 9.26
22.19	8.74	70TH	23.63 9.30
22.32	8.79	75TH	23.77 9.36
22.46	8.84	80TH	23.92 9.42
22.62	8.91	85TH	24.10 9.49
22.83	8.99	90TH	24.33 9.58
23.15	9.12	95TH	24.69 9.72
23.37	9.20	97TH	24.94 9.82
23.53	9.27	98TH	25.13 9.90
23.80	9.37	99TH	25.46 10.02

# MENTON-TOP OF HEAD

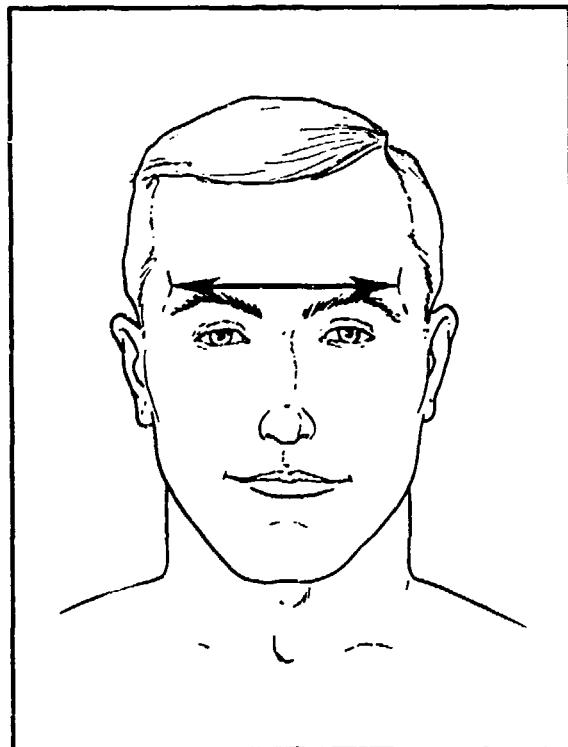
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
21.76	MEAN VALUE	8.57
.02	SE(MEAN)	.00
.85	STD DEVIATION	.33
.00	SE(STD DEV)	.00
18.68	MINIMUM	7.35
24.49	MAXIMUM	9.64
SYMMETRY---VETA I	=	.03
KURTOSIS---VETA II	=	3.03
COEF. OF VARIATION	=	3.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
23.20	MEAN VALUE	9.13
.02	SE(MEAN)	.00
.88	STD DEVIATION	.35
.00	SE(STD DEV)	.00
20.58	MINIMUM	8.10
26.57	MAXIMUM	10.46
SYMMETRY---VETA I	=	.16
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	3.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	18.65 - 18.85		1	.06
1	.05	2	.09	18.85 - 19.05		2	.11
0	.00	2	.09	19.05 - 19.25		9	.51
3	.14	5	.23	19.25 - 19.45		9	.51
.11	.50	16	.72	19.45 - 19.65		17	.96
11	.50	27	1.22	19.65 - 19.85		20	1.13
21	.95	48	2.17	19.85 - 20.05		36	2.03
36	1.63	84	3.80	20.05 - 20.25		69	3.89
47	2.13	131	5.93	20.25 - 20.45		103	5.81
71	3.22	202	9.15	20.45 - 20.65		124	6.99
100	4.53	302	13.68	20.65 - 20.85		144	8.12
138	6.25	440	19.93	20.85 - 21.05		148	8.34
155	7.02	595	26.95	21.05 - 21.25		163	9.19
192	8.70	787	35.64	21.25 - 21.45		158	8.91
207	9.38	994	45.02	21.45 - 21.65		1096	61.78
197	8.92	1191	53.94	21.65 - 21.85		1240	69.90
202	9.15	1393	63.09	21.85 - 22.05		1379	77.73
207	9.38	1600	72.46	22.05 - 22.25		1472	82.98
149	6.75	1749	79.21	22.25 - 22.45		1573	88.67
126	5.71	1875	84.92	22.45 - 22.65		1632	92.00
107	4.85	1982	89.76	22.65 - 22.85		1679	94.64
79	3.58	2061	93.34	22.85 - 23.05		1718	96.84
70	3.17	2131	96.51	23.05 - 23.25		1728	97.41
23	1.04	2154	97.55	23.25 - 23.45		1745	98.37
23	1.04	2177	98.60	23.45 - 23.65		1756	98.99
9	.41	2186	99.00	23.65 - 23.85		1765	99.49
13	.59	2199	99.59	23.85 - 24.05		1770	99.77
2	.09	2201	99.68	24.05 - 24.25		1771	99.83
6	.27	2207	99.95	24.25 - 24.45		1773	99.94
1	.05	2208	100.00	24.45 - 24.65		1774	100.00
				24.65 - 24.85	39	2.20	
				24.85 - 25.05	10	.56	
				25.05 - 25.25	17	.96	
				25.25 - 25.45	11	.62	
				25.45 - 25.65	9	.51	
				25.65 - 25.85	5	.28	
				25.85 - 26.05	1	.06	
				26.05 - 26.25	2	.11	
				26.25 - 26.45	0	.00	
				26.45 - 26.65	1	.06	

## (H31) MINIMUM FRONTAL BREADTH

The straight-line distance between the right and left frontotemporale landmarks on the temporal crests on each side of the forehead is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
9.17	3.61	1ST	9.38 3.69
9.32	3.67	2ND	9.50 3.74
9.42	3.71	3RD	9.58 3.77
9.54	3.76	5TH	9.69 3.81
9.72	3.83	10TH	9.86 3.88
9.84	3.87	15TH	9.98 3.93
9.93	3.91	20TH	10.07 3.97
10.01	3.94	25TH	10.16 4.00
10.08	3.97	30TH	10.23 4.03
10.14	3.99	35TH	10.30 4.05
10.21	4.02	40TH	10.36 4.08
10.27	4.04	45TH	10.43 4.11
10.32	4.06	50TH	10.49 4.13
10.38	4.09	55TH	10.55 4.15
10.44	4.11	60TH	10.62 4.18
10.51	4.14	65TH	10.69 4.21
10.57	4.16	70TH	10.76 4.24
10.65	4.19	75TH	10.84 4.27
10.73	4.22	80TH	10.92 4.30
10.82	4.26	85TH	11.03 4.34
10.94	4.31	90TH	11.17 4.40
11.12	4.38	95TH	11.38 4.48
11.24	4.42	97TH	11.53 4.54
11.32	4.46	98TH	11.65 4.59
11.45	4.51	99TH	11.84 4.66

# MINIMUM FRONTAL BREADTH

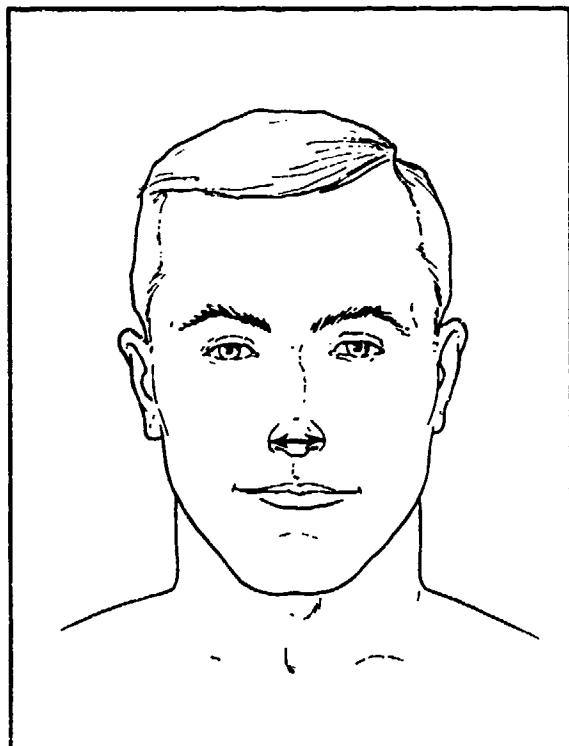
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
10.33	MEAN VALUE	4.07
.00	SE(MEAN)	.00
.48	STD DEVIATION	.19
.00	SE(STD DEV)	.00
8.59	MINIMUM	3.38
12.10	MAXIMUM	4.76
SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
10.51	MEAN VALUE	4.14
.00	SE(MEAN)	.00
.52	STD DEVIATION	.20
.00	SE(STD DEV)	.00
8.16	MINIMUM	3.21
12.74	MAXIMUM	5.02
SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.44
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF
1	.05	1	.05	8.15 - 8.25	1	.06	1
0	.00	1	.05	8.25 - 8.35	0	.00	1
1	.05	2	.09	8.35 - 8.45	0	.00	1
6	.27	8	.36	8.45 - 8.55	0	.00	1
3	.14	11	.50	8.55 - 8.65	1	.06	2
6	.27	17	.77	8.65 - 8.75	1	.06	2
11	.50	28	1.27	8.75 - 8.85	0	.00	2
20	.91	48	2.17	8.85 - 8.95	0	.00	2
27	1.22	75	3.40	8.95 - 9.05	1	.06	3
33	1.49	108	4.89	9.05 - 9.15	4	.23	7
47	2.13	155	7.02	9.15 - 9.25	6	.34	13
76	3.44	231	10.46	9.25 - 9.35	13	.73	26
92	4.17	323	14.63	9.35 - 9.45	21	1.18	47
127	5.75	450	20.38	9.45 - 9.55	27	1.52	74
158	7.16	608	27.54	9.55 - 9.65	30	1.69	104
158	7.16	766	34.69	9.65 - 9.75	61	3.44	165
195	8.83	961	43.52	9.75 - 9.85	63	3.55	228
185	8.38	1146	51.90	9.85 - 9.95	96	5.41	324
189	8.56	1335	60.46	9.95 - 10.05	119	6.71	443
163	7.38	1498	67.84	10.05 - 10.15	120	6.76	563
145	6.57	1643	74.41	10.15 - 10.25	123	6.93	686
148	6.70	1791	81.11	10.25 - 10.35	124	6.99	810
111	5.03	1902	86.14	10.35 - 10.45	135	7.61	1101
81	3.67	1983	89.81	10.45 - 10.55	111	6.26	1225
71	3.22	2054	93.03	10.55 - 10.65	104	5.86	563
54	2.45	2108	95.47	10.65 - 10.75	86	4.85	1336
43	1.95	2151	97.42	10.75 - 10.85	156	8.79	75.31
17	.77	2168	98.19	10.85 - 10.95	156	9.66	81.17
17	.77	2185	98.96	10.95 - 11.05	86	4.85	1526
10	.45	2195	99.41	11.05 - 11.15	60	3.38	86.02
5	.23	2200	99.64	11.15 - 11.25	47	2.65	1586
4	.18	2204	99.82	11.25 - 11.35	43	2.42	92.05
2	.09	2206	99.91	11.35 - 11.45	30	1.69	1676
1	.05	2207	99.95	11.45 - 11.55	18	1.01	94.48
0	.00	2207	99.95	11.55 - 11.65	15	.85	1706
1	.05	2208	100.00	11.65 - 11.75	9	.51	96.17
				11.75 - 11.85	8	.45	97.18
				11.85 - 11.95	9	.51	1724
				11.95 - 12.05	3	.17	98.03
				12.05 - 12.15	1	.06	1739
				12.15 - 12.25	3	.17	98.53
				12.25 - 12.35	1	.06	1748
				12.35 - 12.45	0	.00	98.99
				12.45 - 12.55	0	.00	1756
				12.55 - 12.65	0	.00	99.49
				12.65 - 12.75	1	.06	1765
							99.66
							1768
							99.72
							1772
							99.89
							1773
							99.94
							1773
							99.94
							1773
							99.94
							1774
							100.00

## (H32) NOSE BREADTH

The straight-line distance between the right and left alare landmarks on the sides of the nostrils is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
2.59	1.02	1ST	2.85 1.12
2.67	1.05	2ND	2.94 1.16
2.70	1.06	3RD	2.99 1.18
2.77	1.09	5TH	3.05 1.20
2.87	1.13	10TH	3.13 1.23
2.94	1.16	15TH	3.19 1.26
3.01	1.18	20TH	3.25 1.28
3.07	1.21	25TH	3.30 1.30
3.13	1.23	30TH	3.35 1.32
3.19	1.25	35TH	3.40 1.34
3.24	1.28	40TH	3.46 1.36
3.31	1.30	45TH	3.51 1.38
3.39	1.33	50TH	3.57 1.41
3.47	1.37	55TH	3.63 1.43
3.56	1.40	60TH	3.70 1.46
3.64	1.43	65TH	3.77 1.48
3.73	1.47	70TH	3.85 1.52
3.81	1.50	75TH	3.94 1.55
3.90	1.53	80TH	4.04 1.59
4.00	1.58	85TH	4.16 1.64
4.12	1.62	90TH	4.32 1.70
4.28	1.68	95TH	4.54 1.79
4.36	1.72	97TH	4.67 1.84
4.42	1.74	98TH	4.75 1.87
4.51	1.78	99TH	4.86 1.91

# NOSE BREADTH

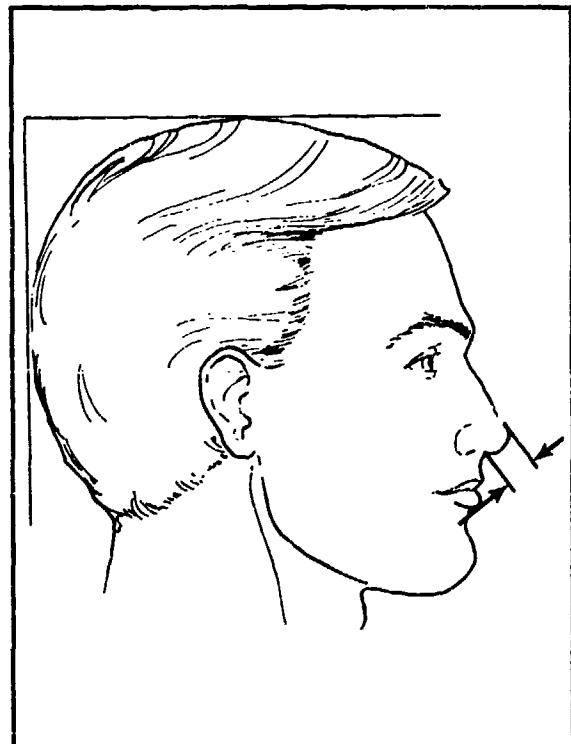
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
3.45	MEAN VALUE	1.36
.00	SE(MEAN)	.00
.47	STD DEVIATION	.19
.00	SE(STD DEV)	.00
2.33	MINIMUM	.92
5.00	MAXIMUM	1.97
SYMMETRY---VETA I	=	.32
KURTOSIS---VETA II	=	2.32
COEF. OF VARIATION	=	13.7%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
3.65	MEAN VALUE	1.44
.00	SE(MEAN)	.00
.46	STD DEVIATION	.18
.00	SE(STD DEV)	.00
2.61	MINIMUM	1.03
5.25	MAXIMUM	2.07
SYMMETRY---VETA I	=	.69
KURTOSIS---VETA II	=	2.99
COEF. OF VARIATION	=	12.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	2.25 - 2.35		1	.06
4	.18	6	.27	2.35 - 2.45		2	.11
7	.32	13	.59	2.45 - 2.55		9	.51
24	1.09	37	1.68	2.55 - 2.65		31	1.75
55	2.49	92	4.17	2.65 - 2.75		60	3.38
92	4.17	184	8.33	2.75 - 2.85		91	5.13
145	6.57	329	14.90	2.85 - 2.95		122	6.88
176	7.97	505	22.87	2.95 - 3.05		175	9.86
189	8.56	694	31.43	3.05 - 3.15		196	11.05
179	8.11	873	39.54	3.15 - 3.25		179	10.09
175	7.93	1048	47.46	3.25 - 3.35		158	8.91
121	5.48	1169	52.94	3.35 - 3.45		139	7.84
142	6.43	1311	59.38	3.45 - 3.55		158	8.91
127	5.75	1438	65.13	3.55 - 3.65		1024	57.72
129	5.84	1567	70.97	3.65 - 3.75		1163	65.56
138	6.25	1705	77.22	3.75 - 3.85		1252	70.57
112	5.07	1817	82.29	3.85 - 3.95		1341	75.59
101	4.57	1918	86.87	3.95 - 4.05		73	4.11
95	4.30	2013	91.17	4.05 - 4.15		57	3.21
69	3.13	2082	94.29	4.15 - 4.25		72	4.06
55	2.49	2137	96.78	4.25 - 4.35		55	3.10
34	1.54	2171	98.32	4.35 - 4.45		57	3.21
23	1.04	2194	99.37	4.45 - 4.55		37	2.09
5	.23	2199	99.59	4.55 - 4.65		23	1.30
3	.14	2202	99.73	4.65 - 4.75		25	1.41
5	.23	2207	99.95	4.75 - 4.85		16	.90
0	.00	2207	99.95	4.85 - 4.95		9	.51
1	.05	2208	100.00	4.95 - 5.05		3	.17
				5.05 - 5.15		4	.23
				5.15 - 5.25		1	.06
				5.25 - 5.35		1	.06

## (H33) NOSE PROTRUSION

The straight-line distance between the pronasale landmark at the tip of the nose and the subnasale landmark under the nose is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
1.33	.52	1ST	1.34 .53
1.37	.54	2ND	1.38 .54
1.41	.55	3RD	1.42 .56
1.45	.57	5TH	1.47 .58
1.53	.60	10TH	1.55 .61
1.58	.62	15TH	1.62 .64
1.62	.64	20TH	1.67 .66
1.66	.65	25TH	1.71 .67
1.69	.67	30TH	1.75 .69
1.73	.68	35TH	1.78 .70
1.76	.69	40TH	1.82 .72
1.79	.70	45TH	1.85 .73
1.82	.71	50TH	1.88 .74
1.84	.73	55TH	1.91 .75
1.87	.74	60TH	1.95 .77
1.91	.75	65TH	1.98 .78
1.94	.76	70TH	2.01 .79
1.97	.78	75TH	2.05 .81
2.01	.79	80TH	2.09 .82
2.06	.81	85TH	2.13 .84
2.12	.83	90TH	2.19 .86
2.20	.87	95TH	2.27 .90
2.26	.89	97TH	2.33 .92
2.30	.90	98TH	2.37 .93
2.36	.93	99TH	2.44 .96

# NOSE PROTRUSION

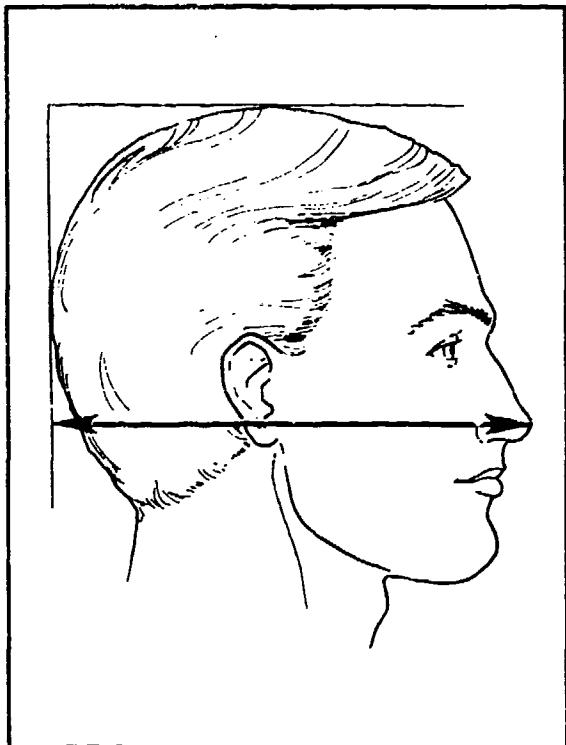
FEMALES		
<u>CM</u>	<u>INCHES</u>	
1.82	MEAN VALUE	.72
.00	SE(MEAN)	.00
.23	STD DEVIATION	.09
.00	SE(STD DEV)	.00
1.08	MINIMUM	.43
2.49	MAXIMUM	.98
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	2.76
COEF. OF VARIATION	=	12.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
1.88	MEAN VALUE	.74
.00	SE(MEAN)	.00
.25	STD DEVIATION	.10
.00	SE(STD DEV)	.00
1.12	MINIMUM	.44
2.89	MAXIMUM	1.14
SYMMETRY---VETA I	=	.02
KURTOSIS---VETA II	=	2.89
COEF. OF VARIATION	=	13.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	1.05 -	1.15	1	.06
5	.23	7	.32	1.15 -	1.25	5	.28
25	1.13	32	1.45	1.25 -	1.35	15	.85
71	3.22	103	4.66	1.35 -	1.45	44	2.48
160	7.25	263	11.91	1.45 -	1.55	99	5.58
252	11.41	515	23.32	1.55 -	1.65	167	9.41
318	14.40	833	37.73	1.65 -	1.75	193	10.88
377	17.07	1210	54.80	1.75 -	1.85	238	13.42
347	15.72	1557	70.52	1.85 -	1.95	292	16.46
298	13.50	1855	84.01	1.95 -	2.05	272	15.33
178	8.06	2033	92.07	2.05 -	2.15	197	11.10
98	4.44	2131	96.51	2.15 -	2.25	136	7.67
50	2.26	2181	98.78	2.25 -	2.35	70	3.95
24	1.09	2205	99.86	2.35 -	2.45	31	1.75
3	.14	2208	100.00	2.45 -	2.55	7	.39
				2.55 -	2.65	4	.23
				2.65 -	2.75	2	.11
				2.75 -	2.85	0	.00
				2.85 -	2.95	1	.06

## (H34) PRONASALE-BACK OF HEAD

The horizontal distance between the pronasale landmark on the tip of the nose and the vertical plane tangent to the back of the head is measured.



THE PERCENTILES					
FEMALES		MALES			
CM	INCHES		CM	INCHRS	
19.17	7.55	1ST	19.97	7.86	
19.41	7.64	2ND	20.19	7.95	
19.55	7.70	3RD	20.33	8.01	
19.74	7.77	5TH	20.54	8.09	
20.03	8.02	10TH	20.87	8.22	
20.21	8.06	15TH	21.10	8.31	
20.36	8.02	20TH	21.27	8.37	
20.49	8.07	25TH	21.42	8.43	
20.60	8.11	30TH	21.54	8.48	
20.70	8.15	35TH	21.66	8.53	
20.80	8.19	40TH	21.76	8.57	
20.89	8.22	45TH	21.86	8.61	
20.98	8.26	50TH	21.96	8.65	
21.07	8.30	55TH	22.05	8.68	
21.16	8.33	60TH	22.15	8.72	
21.26	8.37	65TH	22.24	8.76	
21.36	8.41	70TH	22.34	8.80	
21.47	8.45	75TH	22.45	8.84	
21.60	8.50	80TH	22.56	8.88	
21.74	8.56	85TH	22.70	8.94	
21.93	8.63	90TH	22.89	9.01	
22.20	8.74	95TH	23.19	9.13	
22.39	8.81	97TH	23.41	9.22	
22.53	8.87	98TH	23.60	9.29	
22.75	8.96	99TH	23.93	9.42	

# PRONASALE-BACK OF HEAD

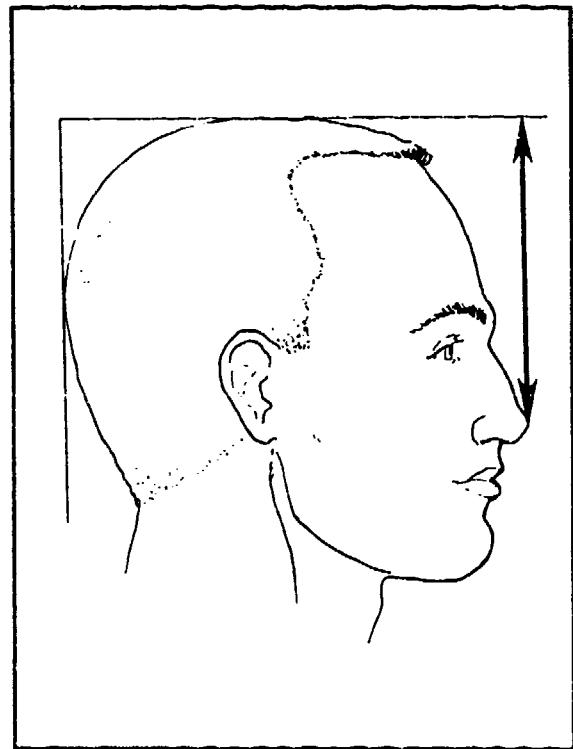
FEMALES		
	<u>CM</u>	<u>INCHES</u>
20.97	MEAN VALUE	8.26
.02	SE(MEAN)	.00
.75	STD DEVIATION	.29
.00	SE(STD DEV)	.00
17.78	MINIMUM	7.00
23.51	MAXIMUM	9.26
SYMMETRY---VETA I	=	-.09
KURTOSIS---VETA II	=	3.32
COEF. OF VARIATION	=	3.6%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
21.92	MEAN VALUE	8.63
.02	SE(MEAN)	.00
.80	STD DEVIATION	.32
.00	SE(STD DEV)	.00
18.84	MINIMUM	7.42
24.66	MAXIMUM	9.71
SYMMETRY---VETA I	=	-.08
KURTOSIS---VETA II	=	3.39
COEF. OF VARIATION	=	3.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumPPct	<u>CENTIMETERS</u>		F	FPct
2	.09	2	.09	17.75	-	17.95	
0	.00	2	.09	17.95	-	18.15	
1	.05	3	.14	18.15	-	18.35	
3	.14	6	.27	18.35	-	18.55	
0	.00	6	.27	18.55	-	18.75	
5	.23	11	.50	18.75	-	18.95	
7	.32	18	.82	18.95	-	19.15	
19	.86	37	1.68	19.15	-	19.35	
34	1.54	71	3.27	19.35	-	19.55	
39	1.77	110	4.98	19.55	-	19.75	
71	3.22	181	8.20	19.75	-	19.95	
105	4.76	286	12.95	19.95	-	20.15	
139	6.30	425	19.25	20.15	-	20.35	
184	8.33	609	27.58	20.35	-	20.55	
215	9.74	824	37.32	20.55	-	20.75	
228	10.33	1052	47.64	20.75	-	20.95	
250	11.32	1302	58.97	20.95	-	21.15	
233	10.55	1535	69.52	21.15	-	21.35	
194	8.79	1729	78.31	21.35	-	21.55	
156	7.07	1885	85.37	21.55	-	21.75	
117	5.30	2002	90.67	21.75	-	21.95	
81	3.67	2083	94.34	21.95	-	22.15	
50	2.26	2133	96.60	22.15	-	22.35	
32	1.45	2165	98.05	22.35	-	22.55	
23	1.04	2188	99.09	22.55	-	22.75	
14	.63	2202	99.73	22.75	-	22.95	
3	.14	2205	99.86	22.95	-	23.15	
2	.09	2207	99.95	23.15	-	23.35	
1	.05	2208	100.00	23.35	-	23.55	
				23.55	-	23.75	
				23.75	-	23.95	
				23.95	-	24.15	
				24.15	-	24.35	
				24.35	-	24.55	
				24.55	-	24.75	

## (H35) PRONASALE-TOP OF HEAD

The vertical distance between the pronasale landmark on the tip of the nose and the horizontal plane tangent to the top of the head is measured.



THE PERCENTILES					
FEMALES		MALES			
CM	INCHES	CM	INCHES		
12.30	4.84	1ST	13.33	5.25	
12.51	4.93	2ND	13.50	5.32	
12.65	4.98	3RD	13.63	5.37	
12.84	5.06	5TH	13.81	5.44	
13.14	5.17	10TH	14.11	5.55	
13.34	5.25	15TH	14.31	5.63	
13.50	5.31	20TH	14.48	5.70	
13.63	5.37	25TH	14.62	5.76	
13.75	5.42	30TH	14.75	5.81	
13.87	5.46	35TH	14.87	5.85	
13.97	5.50	40TH	14.98	5.90	
14.07	5.54	45TH	15.09	5.94	
14.17	5.58	50TH	15.20	5.98	
14.27	5.62	55TH	15.30	6.02	
14.37	5.66	60TH	15.41	6.07	
14.47	5.70	65TH	15.52	6.11	
14.58	5.74	70TH	15.63	6.15	
14.69	5.78	75TH	15.76	6.20	
14.82	5.84	80TH	15.89	6.26	
14.97	5.89	85TH	16.06	6.32	
15.17	5.97	90TH	16.26	6.40	
15.47	6.09	95TH	16.58	6.53	
15.67	6.17	97TH	16.80	6.62	
15.83	6.23	98TH	16.97	6.68	
16.09	6.34	99TH	17.26	6.79	

# PRONASALE-TOP OF HEAD

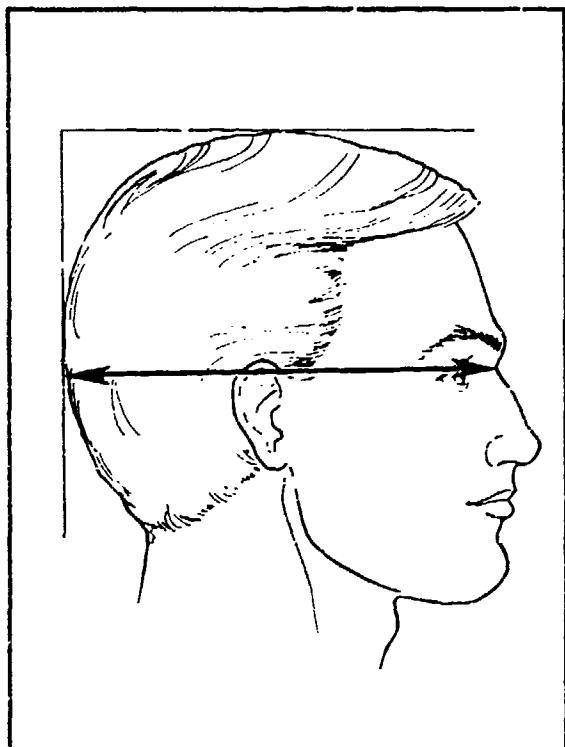
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
14.16	MEAN VALUE	5.58
.02	SE(MEAN)	.00
.79	STD DEVIATION	.31
.00	SE(STD DEV)	.00
11.35	MINIMUM	4.47
16.81	MAXIMUM	6.62
SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
15.19	MEAN VALUE	5.98
.02	SE(MEAN)	.00
.84	STD DEVIATION	.33
.00	SE(STD DEV)	.00
12.15	MINIMUM	4.78
18.32	MAXIMUM	7.21
SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	5.5%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
1	.05	1	.05	11.21 - 11.41			
0	.00	1	.05	11.41 - 11.61			
4	.18	5	.23	11.61 - 11.81			
3	.14	8	.36	11.81 - 12.01			
6	.27	14	.63	12.01 - 12.21			
17	.77	31	1.40	12.21 - 12.41	1	.03	1 .06
30	1.36	61	2.76	12.41 - 12.61	0	.00	1 .06
44	1.99	105	4.76	12.61 - 12.81	1	.06	2 .11
65	2.94	170	7.70	12.81 - 13.01	3	.17	5 .28
75	3.40	245	11.10	13.01 - 13.21	1	.06	6 .34
110	4.98	355	16.08	13.21 - 13.41	4	.23	10 .56
158	7.16	513	23.23	13.41 - 13.61	17	.96	27 1.52
202	9.15	715	32.38	13.61 - 13.81	19	1.07	46 2.59
217	9.83	932	42.21	13.81 - 14.01	41	2.31	87 4.90
213	9.65	1145	51.86	14.01 - 14.21	53	2.09	140 7.89
231	10.46	1376	62.32	14.21 - 14.41	80	4.51	270 12.40
204	9.24	1580	71.56	14.41 - 14.61	105	5.92	425 23.96
180	8.15	1760	79.71	14.61 - 14.81	145	8.17	570 32.13
133	6.02	1893	85.73	14.81 - 15.01	157	8.85	727 40.98
119	5.39	2012	91.12	15.01 - 15.21	174	9.81	901 50.79
66	2.99	2078	94.11	15.21 - 15.41	169	9.53	1070 60.32
48	2.17	2126	96.29	15.41 - 15.61	150	8.46	1220 68.77
40	1.81	2166	98.10	15.61 - 15.81	130	7.23	1350 76.10
11	.50	2177	98.60	15.81 - 16.01	128	7.22	1478 83.31
17	.77	2194	99.37	16.01 - 16.21	89	5.02	1567 88.33
7	.32	2201	99.68	16.21 - 16.41	80	4.51	1647 92.84
5	.23	2206	99.91	16.41 - 16.61	55	3.10	1702 95.94
1	.05	2207	99.95	16.61 - 16.81	23	1.30	1725 97.24
1	.05	2208	100.00	16.81 - 17.01	19	1.07	1744 98.31
				17.01 - 17.21	9	.51	1753 98.82
				17.21 - 17.41	10	.56	1763 99.38
				17.41 - 17.61	7	.39	1770 99.77
				17.61 - 17.81	3	.17	1773 99.94
				17.81 - 18.01	0	.00	1773 99.94
				18.01 - 18.21	0	.00	1773 99.94
				18.21 - 18.41	1	.06	1774 100.00

## (H36) SELLION-BACK OF HEAD

The horizontal distance between the sellion landmark at the deepest point of the root of the nose and the vertical plane tangent to the back of the head is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
17.35	6.83	1ST	17.97 7.08
17.53	6.90	2ND	18.19 7.16
17.64	6.95	3RD	18.32 7.21
17.80	7.01	5TH	18.51 7.29
18.05	7.11	10TH	18.79 7.40
18.21	7.17	15TH	18.98 7.47
18.35	7.22	20TH	19.12 7.53
18.46	7.27	25TH	19.25 7.58
18.56	7.31	30TH	19.35 7.62
18.65	7.34	35TH	19.45 7.66
18.74	7.38	40TH	19.55 7.69
18.82	7.41	45TH	19.63 7.73
18.90	7.44	50TH	19.72 7.76
18.99	7.47	55TH	19.81 7.80
19.07	7.51	60TH	19.89 7.83
19.15	7.54	65TH	19.98 7.87
19.24	7.58	70TH	20.07 7.90
19.34	7.61	75TH	20.17 7.94
19.45	7.66	80TH	20.29 7.99
19.57	7.70	85TH	20.42 8.04
19.73	7.77	90TH	20.59 8.11
19.97	7.86	95TH	20.85 8.21
20.13	7.92	97TH	21.04 8.28
20.25	7.97	98TH	21.18 8.34
20.45	8.05	99TH	21.42 8.43

# SELLION-BACK OF HEAD

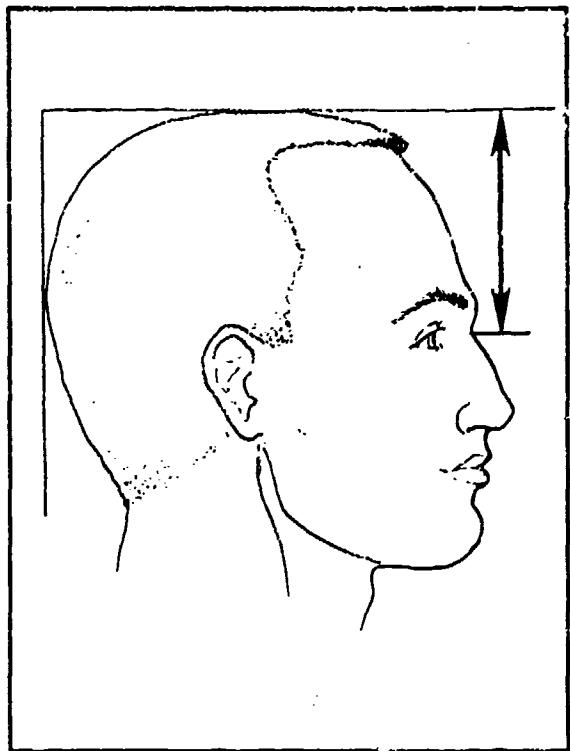
FEMALES		
CM	MEAN VALUE	INCHES
18.90	MEAN VALUE	7.44
.00	SE(MEAN)	.00
.66	STD DEVIATION	.26
.00	SE(STD DEV)	.00
15.85	MINIMUM	6.24
20.96	MAXIMUM	8.25
SYMMETRY---VETA I	=	-.10
KURTOSIS---VETA II	=	3.28
COEF. OF VARIATION	=	3.5%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
19.70	MEAN VALUE	7.76
.02	SE(MEAN)	.00
.71	STD DEVIATION	.28
.00	SE(STD DEV)	.00
17.41	MINIMUM	6.85
22.08	MAXIMUM	8.69
SYMMETRY---VETA I	=	-.05
KURTOSIS---VETA II	=	3.17
COEF. OF VARIATION	=	3.6%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	15.75 - 15.95			
0	.00	1	.05	15.95 - 16.15			
1	.05	2	.09	16.15 - 16.35			
2	.09	4	.18	16.35 - 16.55			
1	.05	5	.23	16.55 - 16.75			
1	.05	6	.27	16.75 - 16.95			
2	.09	8	.36	16.95 - 17.15			
14	.63	22	1.00	17.15 - 17.35			
29	1.31	51	2.31	17.35 - 17.55	2	11	2 .11
38	1.72	89	4.03	17.55 - 17.75	6	.34	8 .45
78	3.53	167	7.56	17.75 - 17.95	9	.51	17 .96
113	5.12	280	12.68	17.95 - 18.15	14	.79	31 1.71
149	6.75	429	19.43	18.15 - 18.35	20	1.13	51 2.87
200	9.06	629	28.49	18.35 - 18.55	47	2.65	98 5.52
273	12.36	902	40.85	18.55 - 18.75	69	3.89	167 9.41
259	11.73	1161	52.58	18.75 - 18.95	82	4.62	249 14.04
268	12.14	1429	64.72	18.95 - 19.15	131	7.38	380 21.42
235	10.64	1664	75.36	19.15 - 19.35	150	8.46	530 29.88
203	9.19	1867	84.56	19.35 - 19.55	182	10.26	712 40.14
140	6.34	2007	90.90	19.55 - 19.75	207	11.67	919 51.80
79	3.58	2086	94.47	19.75 - 19.95	182	10.26	1101 62.06
58	2.63	2144	97.10	19.95 - 20.15	204	11.50	1305 73.56
27	1.22	2171	98.32	20.15 - 20.35	160	9.02	1465 82.58
25	1.13	2196	99.46	20.35 - 20.55	116	6.54	1581 89.12
7	.32	2203	99.77	20.55 - 20.75	74	4.17	1655 93.29
4	.18	2207	99.95	20.75 - 20.95	52	2.93	1707 96.22
1	.05	2208	100.00	20.95 - 21.15	26	1.47	1733 97.69
				21.15 - 21.35	18	1.01	1751 98.70
				21.35 - 21.55	12	.68	1763 99.38
				21.55 - 21.75	7	.39	1770 99.77
				21.75 - 21.95	0	.00	1770 99.77
				21.95 - 22.15	4	.23	1774 100.00

### (H37) SELLION-TOP OF HEAD

The vertical distance between the sellion landmark at the deepest point of the root of the nose and the horizontal plane tangent to the top of the head is measured.



#### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
9.04	3.56	9.66	3.80
9.21	3.63	9.84	3.87
9.32	3.67	9.95	3.92
9.47	3.73	10.10	3.98
9.70	3.82	10.34	4.07
9.86	3.88	10.50	4.13
9.98	3.93	10.63	4.18
10.09	3.97	10.74	4.23
10.18	4.01	10.84	4.27
10.27	4.04	10.93	4.30
10.35	4.08	11.02	4.34
10.43	4.11	11.10	4.37
10.51	4.14	11.19	4.40
10.59	4.17	11.27	4.44
10.68	4.20	11.36	4.47
10.76	4.24	11.45	4.51
10.85	4.27	11.55	4.55
10.95	4.31	11.65	4.59
11.07	4.36	11.77	4.63
11.20	4.41	11.91	4.69
11.38	4.48	12.09	4.76
11.65	4.59	12.37	4.87
11.84	4.66	12.56	4.95
11.98	4.72	12.71	5.00
12.22	4.81	12.94	5.10

# SELLION-TOP OF HEAD

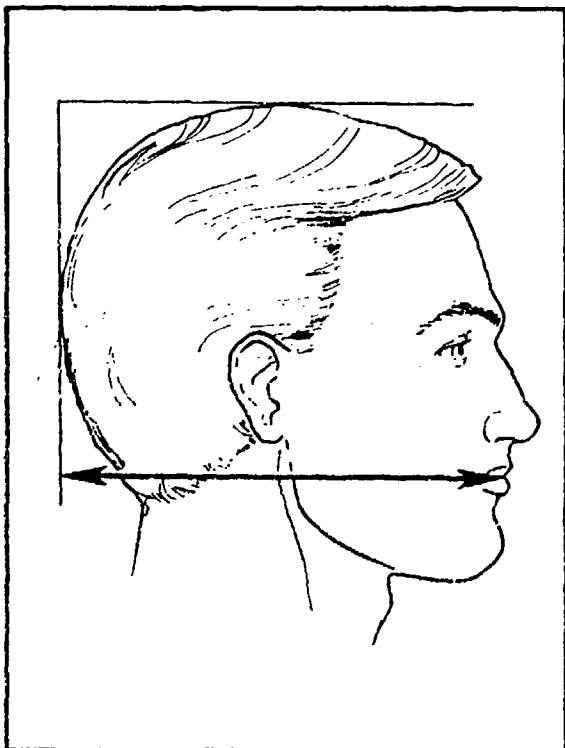
FEMALES		
<u>CM</u>	<u>INCHES</u>	
10.53	MEAN VALUE	4.15
.00	SE(MEAN)	.00
.66	STD DEVIATION	.26
.00	SE(STD DEV)	.00
8.13	MINIMUM	3.20
13.33	MAXIMUM	5.25
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.30
COEF. OF VARIATION	=	6.3%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
11.20	MEAN VALUE	4.41
.02	SE(MEAN)	.00
.69	STD DEVIATION	.27
.00	SE(STD DEV)	.00
8.96	MINIMUM	3.53
13.69	MAXIMUM	5.39
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.09
COEF. OF VARIATION	=	6.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
2	.09	2	.09	8.05	-	8.25	
0	.00	2	.09	8.25	-	8.45	
1	.05	3	.14	8.45	-	8.65	
4	.18	7	.32	8.65	-	8.85	
14	.63	21	.95	8.85	-	9.05	
29	1.31	50	2.26	9.05	-	9.25	
51	2.31	101	4.57	9.25	-	9.45	
72	3.26	173	7.84	9.45	-	9.65	
141	6.39	314	14.22	9.65	-	9.85	
206	9.33	520	23.55	9.85	-	10.05	
224	10.14	744	33.70	10.05	-	10.25	
264	11.96	1008	45.65	10.25	-	10.45	
262	11.87	1270	57.52	10.45	-	10.65	
267	12.09	1537	69.61	10.65	-	10.85	
210	9.51	1747	79.12	10.85	-	11.05	
161	7.29	1908	86.41	11.05	-	11.25	
114	5.16	2022	91.58	11.25	-	11.45	
76	3.44	2098	95.02	11.45	-	11.65	
43	1.95	2141	96.97	11.65	-	11.85	
32	1.45	2173	98.41	11.85	-	12.05	
16	.72	2189	99.14	12.05	-	12.25	
10	.45	2199	99.59	12.25	-	12.45	
3	.14	2202	99.73	12.45	-	12.65	
5	.23	2207	99.95	12.65	-	12.85	
0	.00	2207	99.95	12.85	-	13.05	
0	.00	2207	99.95	13.05	-	13.25	
1	.05	2208	100.00	13.25	-	13.45	
				13.45	-	13.65	
				13.65	-	13.85	

## (H38) STOMION-BACK OF HEAD

The horizontal distance between the stomion landmark at the center of the mouth where the lips touch when the mouth is closed and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
17.14	6.75	1ST	17.77 7.00
17.39	6.85	2ND	18.02 7.09
17.54	6.91	3RD	18.18 7.16
17.74	6.99	5TH	18.39 7.24
18.06	7.11	10TH	18.72 7.37
18.27	7.19	15TH	18.95 7.46
18.45	7.26	20TH	19.13 7.53
18.60	7.32	25TH	19.29 7.59
18.75	7.38	30TH	19.43 7.65
18.88	7.43	35TH	19.56 7.70
19.01	7.49	40TH	19.69 7.75
19.14	7.54	45TH	19.81 7.80
19.28	7.59	50TH	19.93 7.85
19.41	7.64	55TH	20.05 7.89
19.54	7.69	60TH	20.17 7.94
19.69	7.75	65TH	20.30 7.99
19.84	7.81	70TH	20.44 8.05
20.00	7.88	75TH	20.58 8.10
20.19	7.95	80TH	20.75 8.17
20.40	8.03	85TH	20.94 8.24
20.66	8.14	90TH	21.19 8.34
21.03	8.28	95TH	21.55 8.48
21.24	8.36	97TH	21.79 8.58
21.38	8.42	98TH	21.96 8.65
21.56	8.49	99TH	22.23 8.75

# STOMION-BACK OF HEAD

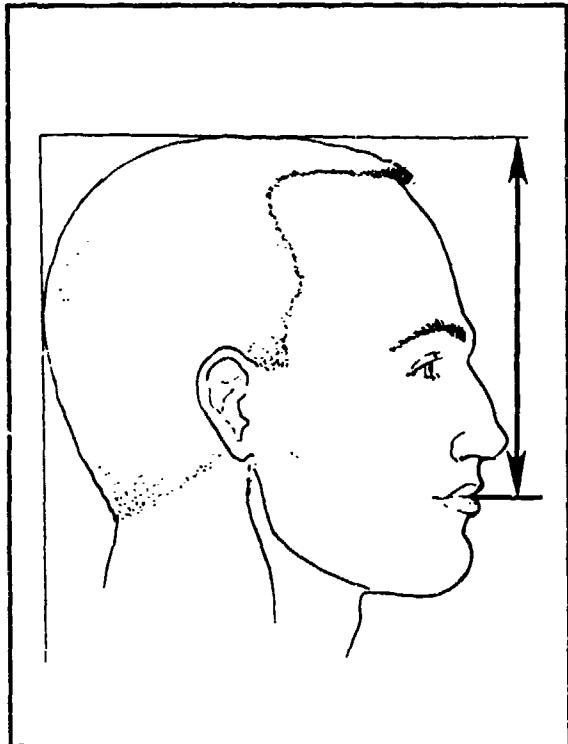
FEMALES		
	CM	INCHES
19.31	MEAN VALUE	7.60
.02	SE(MEAN)	.00
.99	STD DEVIATION	.39
.00	SE(STD DEV)	.00
16.25	MINIMUM	6.40
22.26	MAXIMUM	8.76
SYMMETRY---VETA I	=	.09
KURTOSIS---VETA II	=	2.72
COEF. OF VARIATION	=	5.2%
NUMBER OF SUBJECTS	=	2208

MALES		
	CM	INCHES
19.94	MEAN VALUE	7.85
.02	SE(MEAN)	.00
.96	STD DEVIATION	.38
.02	SE(STD DEV)	.00
16.39	MINIMUM	6.45
23.30	MAXIMUM	9.17
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.10
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	CENTIMETERS		F	FPct
4	.18	4	.18	16.15 - 16.35		1	.06
0	.00	4	.18	16.35 - 16.55		0	.00
2	.09	6	.27	16.55 - 16.75		2	.11
9	.41	15	.68	16.75 - 16.95		0	.00
6	.27	21	.95	16.95 - 17.15		3	.17
13	.59	34	1.54	17.15 - 17.35		4	.23
35	1.59	69	3.13	17.35 - 17.55		4	.23
47	2.13	116	5.25	17.55 - 17.75		7	.39
63	2.85	179	8.11	17.75 - 17.95		9	.51
81	3.67	260	11.78	17.95 - 18.15		19	1.07
110	4.98	370	16.76	18.15 - 18.35		32	1.80
130	5.89	500	22.64	18.35 - 18.55		51	2.87
164	7.43	664	30.07	18.55 - 18.75		62	3.49
156	7.07	820	37.14	18.75 - 18.95		67	3.78
177	8.02	997	45.15	18.95 - 19.15		102	5.75
156	7.07	1153	52.22	19.15 - 19.35		116	6.54
185	8.38	1338	60.60	19.35 - 19.55		127	7.16
147	6.66	1485	67.26	19.55 - 19.75		138	7.78
133	6.02	1618	73.28	19.75 - 19.95		148	8.34
128	5.80	1746	79.08	19.95 - 20.15		157	8.85
100	4.53	1846	83.61	20.15 - 20.35		148	8.34
98	4.44	1944	88.04	20.35 - 20.55		120	6.76
79	3.58	2023	91.62	20.55 - 20.75		104	5.86
63	2.85	2086	94.47	20.75 - 20.95		89	5.02
40	1.81	2126	96.29	20.95 - 21.15		74	4.17
31	1.40	2157	97.69	21.15 - 21.35		55	3.10
27	1.22	2184	98.91	21.35 - 21.55		48	2.71
14	.63	2198	99.55	21.55 - 21.75		33	1.86
6	.27	2204	99.82	21.75 - 21.95		26	1.47
2	.09	2206	99.91	21.95 - 22.15		11	.62
2	.09	2208	100.00	22.15 - 22.35		5	.28
				22.35 - 22.55		7	.39
				22.55 - 22.75		1	.06
				22.75 - 22.95		4	.23
				22.95 - 23.15		1	.06
				23.15 - 23.35		2	.11

## (H39) STOMION-TOP OF HEAD

The vertical distance between the stomion landmark at the center of the mouth where the lips touch when the mouth is closed and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
15.66	6.17	1ST	16.94 6.67
15.91	6.27	2ND	17.12 6.74
16.07	6.32	3RD	17.23 6.78
16.26	6.40	5TH	17.39 6.85
16.55	6.51	10TH	17.65 6.95
16.73	6.59	15TH	17.83 7.02
16.88	6.64	20TH	17.97 7.07
17.00	6.69	25TH	18.09 7.12
17.11	6.74	30TH	18.21 7.17
17.21	6.78	35TH	18.31 7.21
17.31	6.81	40TH	18.41 7.25
17.40	6.85	45TH	18.51 7.29
17.50	6.89	50TH	18.61 7.33
17.59	6.93	55TH	18.70 7.36
17.69	6.96	60TH	18.80 7.40
17.79	7.00	65TH	18.91 7.44
17.90	7.05	70TH	19.02 7.49
18.02	7.09	75TH	19.14 7.53
18.15	7.15	80TH	19.27 7.59
18.30	7.21	85TH	19.43 7.65
18.50	7.29	90TH	19.63 7.73
18.80	7.40	95TH	19.94 7.85
19.00	7.48	97TH	20.15 7.93
19.14	7.54	98TH	20.30 7.99
19.37	7.62	99TH	20.55 8.09

# STOMION-TOP OF HEAD

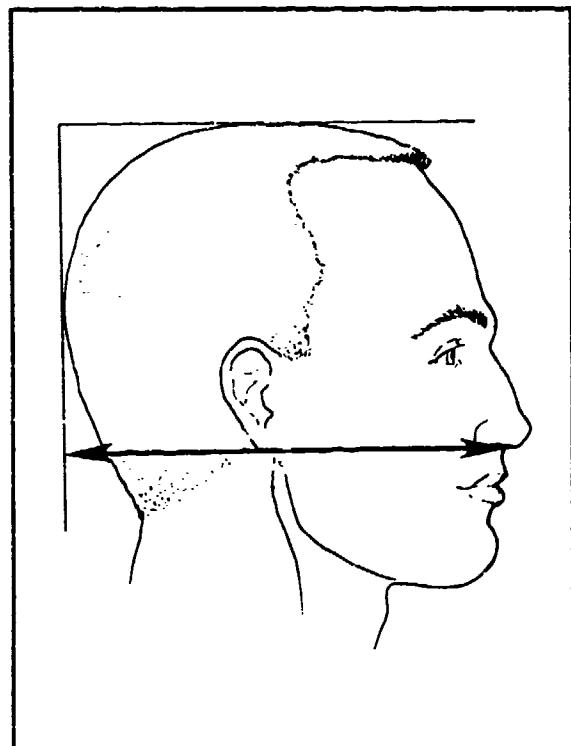
FEMALES		
	<u>CM</u>	<u>INCHES</u>
17.51	MEAN VALUE	6.89
.02	SE(MEAN)	.00
.77	STD DEVIATION	.30
.00	SE(STD DEV)	.00
14.73	MINIMUM	5.80
20.01	MAXIMUM	7.88
SYMMETRY---VETA I	=	.03
KURTOSIS---VETA II	=	3.10
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	2208

MALES		
	<u>CM</u>	<u>INCHES</u>
18.63	MEAN VALUE	7.33
.02	SE(MEAN)	.00
.78	STD DEVIATION	.31
.00	SE(STD DEV)	.00
16.11	MINIMUM	6.34
21.23	MAXIMUM	8.36
SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	2.99
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	14.65 - 14.85			
0	.00	1	.05	14.85 - 15.05			
3	.14	4	.18	15.05 - 15.25			
7	.32	11	.50	15.25 - 15.45			
7	.32	18	.82	15.45 - 15.65			
20	.91	38	1.72	15.65 - 15.85			
22	1.00	60	2.72	15.85 - 16.05			
43	1.95	103	4.66	16.05 - 16.25			
67	3.03	170	7.70	16.25 - 16.45			
99	4.48	269	12.18	16.45 - 16.65			
152	6.88	421	19.07	16.65 - 16.85			
175	7.93	596	26.99	16.85 - 17.05			
205	9.28	801	36.28	17.05 - 17.25			
242	10.96	1043	47.24	17.25 - 17.45			
216	9.78	1259	57.02	17.45 - 17.65			
235	10.64	1494	67.66	17.65 - 17.85			
185	8.38	1679	76.04	17.85 - 18.05			
168	7.61	1847	83.65	18.05 - 18.25			
113	5.12	1960	88.77	18.25 - 18.45			
87	3.94	2047	92.71	18.45 - 18.65			
64	2.90	2111	95.61	18.65 - 18.85			
39	1.77	2150	97.37	18.85 - 19.05			
25	1.13	2175	98.51	19.05 - 19.25			
17	.77	2192	99.28	19.25 - 19.45			
10	.45	2202	99.73	19.45 - 19.65			
4	.18	2206	99.91	19.65 - 19.85			
2	.09	2208	100.00	19.85 - 20.05			
				20.05 - 20.25	28	1.58	1737 97.91
				20.25 - 20.45	13	.73	1750 98.65
				20.45 - 20.65	8	.45	1758 99.10
				20.65 - 20.85	9	.51	1767 99.61
				20.85 - 21.05	5	.28	1772 99.89
				21.05 - 21.25	2	.11	1774 100.00

## (H40) SUBNASALE-BACK OF HEAD

The horizontal distance between the subnasale landmark under the nose and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
17.70	6.97	18.35	7.22
17.93	7.06	18.58	7.31
18.08	7.12	18.73	7.38
18.27	7.19	18.95	7.46
18.56	7.31	19.28	7.59
18.75	7.38	19.51	7.68
18.90	7.44	19.68	7.75
19.03	7.49	19.83	7.81
19.15	7.54	19.95	7.86
19.26	7.58	20.07	7.90
19.36	7.62	20.18	7.94
19.46	7.66	20.28	7.99
19.56	7.70	20.38	8.03
19.66	7.74	20.48	8.06
19.77	7.78	20.58	8.10
19.87	7.82	20.68	8.14
19.98	7.87	20.79	8.18
20.10	7.92	20.90	8.23
20.24	7.97	21.03	8.28
20.40	8.03	21.17	8.34
20.60	8.11	21.36	8.41
20.90	8.23	21.66	8.53
21.09	8.30	21.87	8.61
21.23	8.36	22.04	8.68
21.44	8.44	22.32	8.79

# SUBNASALE-BACK OF HEAD

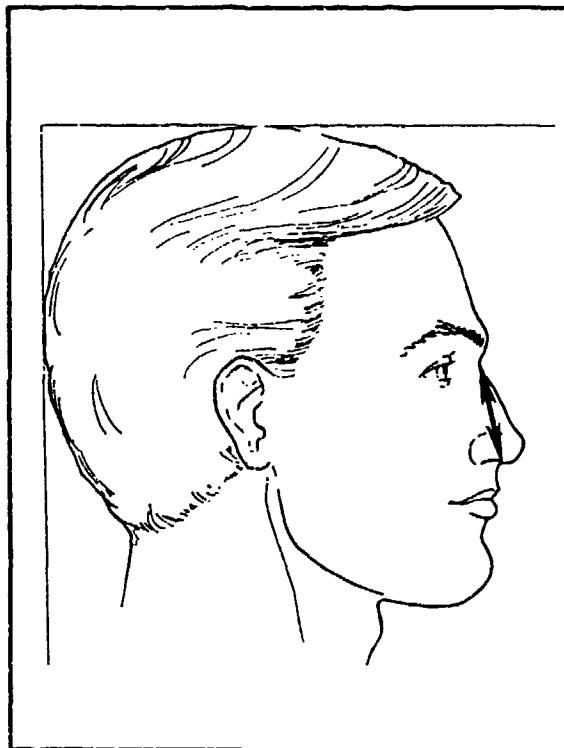
FEMALES		
<u>CM</u>	<u>INCHES</u>	
19.57	MEAN VALUE	7.70
.02	SE(MEAN)	.00
.80	STD DEVIATION	.31
.00	SE(STD DEV)	.00
16.44	MINIMUM	6.47
22.03	MAXIMUM	8.67
SYMMETRY---VETA I	=	-.04
KURTOSIS---VETA II	=	3.17
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
20.35	MEAN VALUE	8.01
.02	SE(MEAN)	.00
.83	STD DEVIATION	.33
.00	SE(STD DEV)	.00
17.36	MINIMUM	6.84
23.06	MAXIMUM	9.08
SYMMETRY---VETA I	=	-.09
KURTOSIS---VETA II	=	3.31
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS			
P	FPct	CumF	CumFPct	P	FPct	CumF	CumFPct
1	.05	1	.05	16.35	-	16.55	
2	.09	3	.14	16.55	-	16.75	
2	.09	5	.23	16.75	-	16.95	
0	.00	5	.23	16.95	-	17.15	
5	.23	10	.45	17.15	-	17.35	
3	.14	13	.59	17.35	-	17.55	
10	.45	23	1.04	17.55	-	17.75	
25	1.13	48	2.17	17.75	-	17.95	
32	1.45	80	3.62	17.95	-	18.15	
50	2.26	130	5.89	18.15	-	18.35	
88	3.99	218	9.87	18.35	-	18.55	
111	5.03	329	14.90	18.55	-	18.75	
136	6.16	465	21.06	18.75	-	18.95	
185	8.38	650	29.44	18.95	-	19.15	
215	9.74	865	39.18	19.15	-	19.35	
212	9.60	1077	48.78	19.35	-	19.55	
203	9.19	1280	57.97	19.55	-	19.75	
250	11.32	1530	69.29	19.75	-	19.95	
196	8.88	1726	78.17	19.95	-	20.15	
124	5.62	1850	83.79	20.15	-	20.35	
109	4.94	1959	88.72	20.35	-	20.55	
91	4.12	2050	92.84	20.55	-	20.75	
55	2.49	2105	95.34	20.75	-	20.95	
40	1.81	2145	97.15	20.95	-	21.15	
33	1.49	2178	98.64	21.15	-	21.35	
19	.86	2197	99.50	21.35	-	21.55	
6	.27	2203	99.77	21.55	-	21.75	
3	.14	2206	99.91	21.75	-	21.95	
2	.09	2208	100.00	21.95	-	22.15	
				22.15	-	22.35	
				22.35	-	22.55	
				22.55	-	22.75	
				22.75	-	22.95	
				22.95	-	23.15	

## (H41) SUBNASALE-SELLION LENGTH

The straight-line distance between the subnasale landmark under the nose and the sellion landmark at the deepest point of the nasal root is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
3.99	1.57	1ST	4.17 1.64
4.09	1.61	2ND	4.28 1.69
4.16	1.64	3RD	4.35 1.71
4.24	1.67	5TH	4.44 1.75
4.36	1.72	10TH	4.57 1.80
4.44	1.75	15TH	4.66 1.84
4.51	1.78	20TH	4.73 1.86
4.57	1.80	25TH	4.80 1.89
4.62	1.82	30TH	4.85 1.91
4.67	1.84	35TH	4.90 1.93
4.71	1.86	40TH	4.95 1.95
4.76	1.87	45TH	5.00 1.97
4.80	1.89	50TH	5.05 1.99
4.85	1.91	55TH	5.10 2.01
4.89	1.93	60TH	5.14 2.03
4.94	1.95	65TH	5.19 2.05
5.00	1.97	70TH	5.25 2.07
5.05	1.99	75TH	5.30 2.09
5.12	2.02	80TH	5.37 2.11
5.20	2.05	85TH	5.44 2.14
5.30	2.09	90TH	5.54 2.18
5.45	2.15	95TH	5.68 2.23
5.55	2.19	97TH	5.77 2.27
5.63	2.22	98TH	5.83 2.30
5.75	2.26	99TH	5.93 2.34

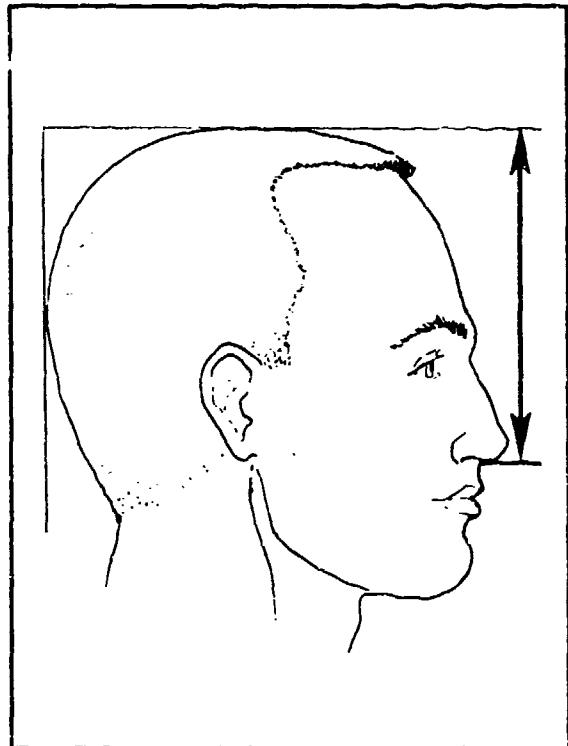
# SUBNASALE-SELLION LENGTH

FEMALES		MALES			
<u>CM</u>	<u>INCHES</u>	<u>CM</u>	<u>INCHES</u>		
4.82	MEAN VALUE	1.90	5.05	MEAN VALUE	1.99
.00	SE(MEAN)	.00	.00	SE(MEAN)	.00
.36	STD DEVIATION	.14	.37	STD DEVIATION	.15
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
3.43	MINIMUM	1.35	3.69	MINIMUM	1.45
6.46	MAXIMUM	2.54	6.25	MAXIMUM	2.46
SYMMETRY---VETA I	=	.19	SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	3.24	KURTOSIS---VETA II	=	2.90
COEF. OF VARIATION	=	7.6%	COEF. OF VARIATION	=	7.4%
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	3.35 - 3.45		1	.06
0	.00	1	.05	3.45 - 3.55		0	.00
0	.00	1	.05	3.55 - 3.65		0	.00
2	.09	3	.14	3.65 - 3.75		2	.11
4	.18	7	.32	3.75 - 3.85		10	.56
9	.41	16	.72	3.85 - 3.95		14	.79
12	.54	28	1.27	3.95 - 4.05		26	1.47
33	1.49	61	2.76	4.05 - 4.15		42	2.37
45	2.04	106	4.80	4.15 - 4.25		65	3.66
90	4.08	196	8.88	4.25 - 4.35		89	5.02
129	5.84	325	14.72	4.35 - 4.45		117	6.60
179	8.11	504	22.83	4.45 - 4.55		159	8.96
220	9.96	724	32.79	4.55 - 4.65		163	9.19
221	10.01	945	42.80	4.65 - 4.75		193	10.88
245	11.10	1190	53.89	4.75 - 4.85		182	10.26
249	11.28	1439	65.17	4.85 - 4.95		188	10.60
215	9.74	1654	74.91	4.95 - 5.05		143	8.06
166	7.52	1820	82.43	5.05 - 5.15		122	6.88
124	5.62	1944	88.04	5.15 - 5.25		94	5.30
86	3.89	2030	91.94	5.25 - 5.35		62	3.49
60	2.72	2090	94.66	5.35 - 5.45		43	2.42
50	2.26	2140	96.92	5.45 - 5.55		30	1.69
29	1.31	2169	98.23	5.55 - 5.65		16	.90
23	1.04	2192	99.28	5.65 - 5.75		9	.51
9	.41	2201	99.68	5.75 - 5.85		3	.17
3	.14	2204	99.82	5.85 - 5.95		0	.00
2	.09	2206	99.91	5.95 - 6.05		1	.06
1	.05	2207	99.95	6.05 - 6.15		1770	99.77
0	.00	2207	99.95	6.15 - 6.25		1773	99.94
0	.00	2207	99.95	6.25 - 6.35		1773	99.94
0	.00	2207	99.95	6.35 - 6.45		1774	100.00
1	.05	2208	100.00	6.45 - 6.55			

## (H42) SUBNASALE-TOP OF HEAD

The vertical distance between the subnasale landmark under the nose and the horizontal plane tangent to the top of the head is measured.



THE PERCENTILES					
FEMALES		MALES			
CM	INCHES	1ST	CM	INCHES	
13.50	5.31	1ST	14.45	5.69	
13.71	5.40	2ND	14.64	5.76	
13.85	5.45	3RD	14.77	5.81	
14.04	5.53	5TH	14.94	5.88	
14.32	5.64	10TH	15.21	5.99	
14.51	5.71	15TH	15.40	6.06	
14.66	5.77	20TH	15.54	6.12	
14.79	5.82	25TH	15.67	6.17	
14.90	5.87	30TH	15.78	6.21	
15.00	5.91	35TH	15.89	6.25	
15.10	5.95	40TH	15.99	6.29	
15.20	5.98	45TH	16.08	6.33	
15.29	6.02	50TH	16.18	6.37	
15.38	6.05	55TH	16.28	6.41	
15.47	6.09	60TH	16.38	6.45	
15.57	6.13	65TH	16.48	6.49	
15.67	6.17	70TH	16.58	6.53	
15.78	6.21	75TH	16.70	6.57	
15.90	6.26	80TH	16.83	6.63	
16.04	6.31	85TH	16.98	6.69	
16.22	6.39	90TH	17.18	6.76	
16.49	6.49	95TH	17.47	6.88	
16.68	6.57	97TH	17.66	6.95	
16.82	6.62	98TH	17.80	7.01	
17.05	6.71	99TH	18.02	7.10	

# SUBNASALE-TOP OF HEAD

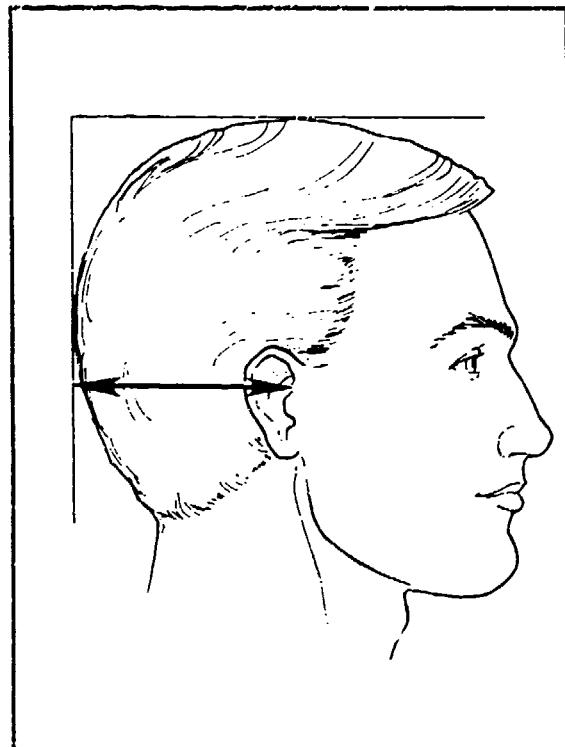
FEMALES		
<u>CM</u>	<u>INCHES</u>	
15.28	MEAN VALUE	6.02
.02	SE(MEAN)	.00
.74	STD DEVIATION	.29
.00	SE(STD DEV)	.00
12.78	MINIMUM	5.03
17.90	MAXIMUM	7.05
SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
16.19	MEAN VALUE	6.37
.02	SE(MEAN)	.00
.77	STD DEVIATION	.30
.00	SE(STD DEV)	.00
13.73	MINIMUM	5.41
18.91	MAXIMUM	7.44
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
4	.18	4	.18	12.75 - 12.95			
5	.23	9	.41	12.95 - 13.15			
6	.27	15	.68	13.15 - 13.35			
10	.45	25	1.13	13.35 - 13.55			
23	1.04	48	2.17	13.55 - 13.75	2	.11	2 .11
37	1.68	85	3.85	13.75 - 13.95	1	.06	3 .17
58	2.63	143	6.48	13.95 - 14.15	4	.23	7 .39
95	4.30	238	10.78	14.15 - 14.35	7	.39	14 .79
104	4.71	342	15.49	14.35 - 14.55	11	.62	25 1.41
163	7.38	505	22.87	14.55 - 14.75	20	1.13	45 2.54
205	9.28	710	32.16	14.75 - 14.95	48	2.71	93 5.24
218	9.87	928	42.03	14.95 - 15.15	59	3.33	152 8.57
249	11.28	1177	53.31	15.15 - 15.35	100	5.64	252 14.21
241	10.91	1418	64.22	15.35 - 15.55	105	5.92	357 20.12
215	9.74	1633	73.96	15.55 - 15.75	150	8.46	507 28.58
166	7.52	1799	81.48	15.75 - 15.95	161	9.08	668 37.66
146	6.61	1945	88.09	15.95 - 16.15	187	10.54	955 48.20
102	4.62	2047	92.71	16.15 - 16.35	189	10.65	1044 58.85
75	3.40	2122	96.11	16.35 - 16.55	150	8.46	1194 67.31
32	1.45	2154	97.55	16.55 - 16.75	159	8.96	1353 76.27
25	1.13	2179	98.69	16.75 - 16.95	145	8.17	1498 84.44
14	.63	2193	99.32	16.95 - 17.15	84	4.74	1582 89.18
6	.27	2199	99.59	17.15 - 17.35	73	4.11	1655 93.29
8	.36	2207	99.95	17.35 - 17.55	49	2.76	1704 96.05
0	.00	2207	99.95	17.55 - 17.75	28	1.58	1732 97.63
1	.05	2208	100.00	17.75 - 17.95	18	1.01	1750 98.65
				17.95 - 18.15	12	.68	1762 99.32
				18.15 - 18.35	8	.45	1770 99.77
				18.35 - 18.55	0	.00	1770 99.77
				18.55 - 18.75	2	.11	1772 99.89
				18.75 - 18.95	2	.11	1774 100.00

## (H43) TRAGION-BACK OF HEAD

The horizontal distance between the tragion landmark on the cartilaginous flap in front of the earhole and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
8.48	3.34	1ST	8.54 3.36
8.62	3.40	2ND	8.70 3.43
8.72	3.43	3RD	8.80 3.46
8.84	3.48	5TH	8.94 3.52
9.04	3.56	10TH	9.15 3.60
9.17	3.61	15TH	9.29 3.66
9.28	3.65	20TH	9.40 3.70
9.37	3.69	25TH	9.50 3.74
9.45	3.72	30TH	9.59 3.78
9.53	3.75	35TH	9.67 3.81
9.60	3.78	40TH	9.75 3.84
9.67	3.81	45TH	9.82 3.87
9.74	3.83	50TH	9.89 3.89
9.81	3.86	55TH	9.97 3.92
9.88	3.89	60TH	10.04 3.95
9.95	3.92	65TH	10.12 3.98
10.02	3.95	70TH	10.20 4.01
10.11	3.98	75TH	10.28 4.05
10.20	4.02	80TH	10.38 4.09
10.31	4.06	85TH	10.50 4.13
10.44	4.11	90TH	10.54 4.19
10.64	4.19	95TH	10.45 4.27
10.77	4.24	97TH	10.99 4.33
10.86	4.28	98TH	11.10 4.37
11.01	4.34	99TH	11.26 4.43

# TRAGION-BACK OF HEAD

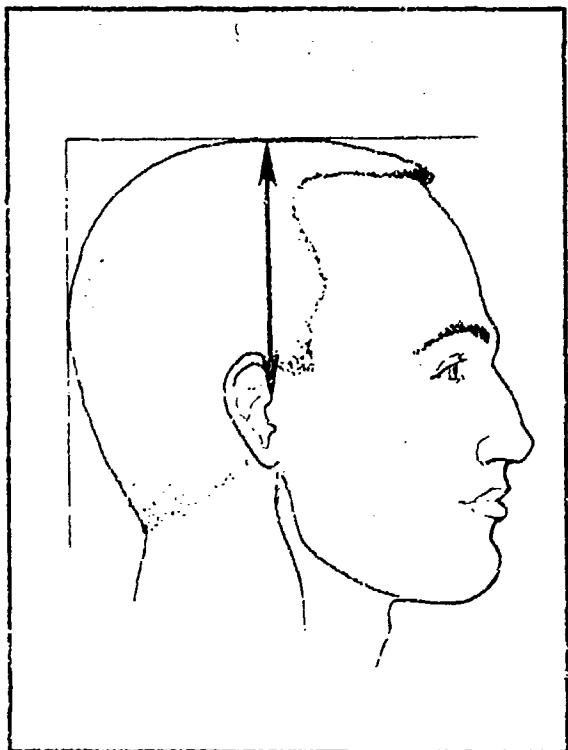
FEMALES		
<u>CM</u>	<u>INCHES</u>	
9.74	MEAN VALUE	3.83
.00	SE(MEAN)	.00
.55	STD DEVIATION	.22
.00	SE(STD DEV)	.00
7.98	MINIMUM	3.14
11.75	MAXIMUM	4.63
SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
9.89	MEAN VALUE	3.90
.00	SE(MEAN)	.00
.58	STD DEVIATION	.23
.00	SE(STD DEV)	.00
8.04	MINIMUM	3.16
12.03	MAXIMUM	4.74
SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.09
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>			
1	.05	1	.05	7.95 - 8.05	1	.06	1 .06
3	.14	4	.18	8.05 - 8.15	1	.06	2 .11
3	.14	7	.32	8.15 - 8.25	3	.17	5 .28
3	.14	10	.45	8.25 - 8.35	5	.20	10 .56
8	.36	18	.82	8.35 - 8.45	3	.17	13 .73
11	.50	29	1.31	8.45 - 8.55	4	.23	17 .96
19	.86	48	2.17	8.55 - 8.65	15	.85	32 1.80
30	1.36	78	3.53	8.65 - 8.75	17	.96	49 2.76
34	1.54	112	5.07	8.75 - 8.85	17	.96	66 3.72
48	2.17	160	7.25	8.85 - 8.95	25	1.41	91 5.13
80	3.62	240	10.87	8.95 - 9.05	30	1.69	121 6.82
65	2.94	305	13.81	9.05 - 9.15	49	2.76	170 9.58
93	4.21	398	18.03	9.15 - 9.25	54	3.04	224 12.63
96	4.35	494	22.37	9.25 - 9.35	77	4.34	301 16.97
137	6.20	631	28.58	9.35 - 9.45	85	4.79	386 21.76
173	7.84	804	36.41	9.45 - 9.55	102	5.75	488 27.51
151	6.84	955	43.25	9.55 - 9.65	111	6.26	599 33.77
158	7.16	1113	50.41	9.65 - 9.75	114	.43	713 40.19
182	8.24	1295	58.65	9.75 - 9.85	125	.05	838 47.24
163	7.38	1458	66.03	9.85 - 9.95	137	7.72	975 54.96
138	6.25	1596	72.28	9.95 - 10.05	118	6.55	1093 61.61
124	5.62	1720	77.90	10.05 - 10.15	107	6.03	1200 67.64
114	5.16	1834	83.06	10.15 - 10.25	92	5.19	1292 72.83
86	3.89	1920	86.96	10.25 - 10.35	97	5.47	1389 78.30
67	3.03	1987	89.99	10.35 - 10.45	83	4.62	1472 82.98
60	2.72	2047	92.71	10.45 - 10.55	68	3.83	1540 86.81
45	2.04	2092	94.75	10.55 - 10.65	58	3.27	1598 90.08
37	1.68	2129	96.42	10.65 - 10.75	46	2.59	1644 92.67
32	1.45	2161	97.87	10.75 - 10.85	38	2.14	1682 94.81
23	1.04	2184	98.91	10.85 - 10.95	26	1.47	1708 96.28
4	.18	2188	99.09	10.95 - 11.05	22	1.24	1730 97.52
2	.09	2190	99.18	11.05 - 11.15	16	.30	1746 98.42
8	.36	2198	99.55	11.15 - 11.25	10	.56	1756 98.99
2	.09	2200	99.64	11.25 - 11.35	6	.34	1762 99.32
4	.18	2204	99.82	11.35 - 11.45	2	.11	1764 99.44
1	.05	2205	99.86	11.45 - 11.55	5	.28	1769 99.72
1	.05	2206	99.91	11.55 - 11.65	2	.11	1771 99.83
1	.05	2207	99.95	11.65 - 11.75	1	.06	1772 99.89
1	.05	2208	100.00	11.75 - 11.85	6	.00	1772 99.89
				11.85 - 11.95	1	.06	1773 99.94
				11.95 - 12.05	1	.06	1774 100.00

## (H44) TRAGION-TOP OF HEAD

The vertical distance between the tragion landmark on the cartilaginous flap in front of the earhole and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
10.99	4.33	1ST	11.75 4.63
11.17	4.40	2ND	11.93 4.70
11.27	4.44	3RD	12.04 4.74
11.42	4.50	5TH	12.18 4.79
11.65	4.58	10TH	12.39 4.88
11.79	4.64	15TH	12.52 4.93
11.90	4.69	20TH	12.63 4.97
12.00	4.72	25TH	12.72 5.01
12.08	4.76	30TH	12.81 5.04
12.16	4.79	35TH	12.88 5.07
12.23	4.81	40TH	12.95 5.10
12.30	4.84	45TH	13.02 5.13
12.36	4.87	50TH	13.09 5.15
12.43	4.89	55TH	13.16 5.18
12.49	4.92	60TH	13.23 5.21
12.56	4.94	65TH	13.31 5.24
12.63	4.97	70TH	13.38 5.27
12.71	5.00	75TH	13.47 5.30
12.79	5.04	80TH	13.56 5.34
12.90	5.08	85TH	13.68 5.38
13.03	5.13	90TH	13.82 5.44
13.25	5.22	95TH	14.04 5.53
13.40	5.28	97TH	14.18 5.58
13.53	5.33	98TH	14.29 5.62
13.74	5.41	99TH	14.46 5.69

# TRAGION-TOP OF HEAD

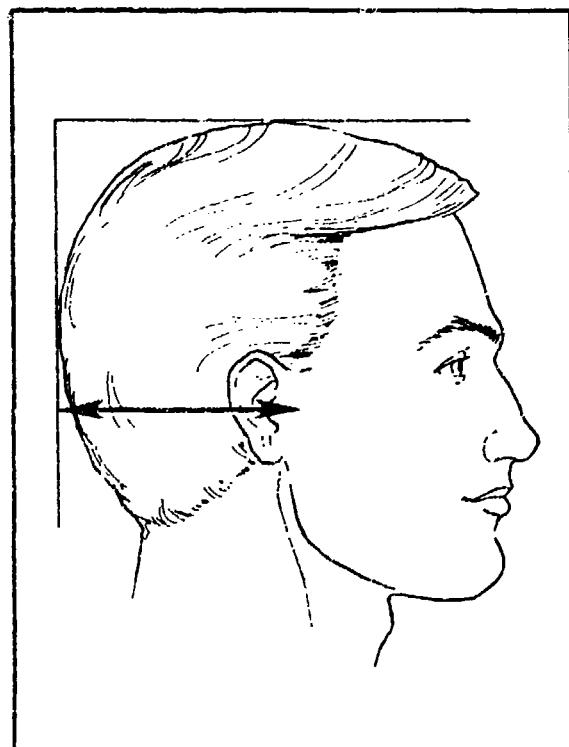
FEMALES		
<u>CM</u>	<u>INCHES</u>	
12.35	MEAN VALUE	4.86
.00	SE(MEAN)	.00
.55	STD DEVIATION	.22
.00	SE(STD DEV)	.00
10.63	MINIMUM	4.18
14.51	MAXIMUM	5.71
SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.38
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>INCHES</u>	
13.10	MEAN VALUE	5.16
.00	SE(MEAN)	.00
.57	STD DEVIATION	.22
.00	SE(STD DEV)	.00
11.17	MINIMUM	4.40
15.10	MAXIMUM	5.95
SYMMETRY---VETA I	=	.03
KURTOSIS---VETA II	=	3.19
COEF. OF VARIATION	=	4.3%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumP	CumFPct	<u>CENTIMETERS</u>		F	FPct
1	.05	1	.05	10.55	-	10.65	
1	.05	2	.09	10.65	-	10.75	
6	.27	8	.36	10.75	-	10.85	
10	.45	18	.82	10.85	-	10.95	
9	.41	27	1.22	10.95	-	11.05	
15	.68	42	1.90	11.05	-	11.15	
18	.82	60	2.72	11.15	-	11.25	
18	.82	78	3.53	11.25	-	11.35	
36	1.63	114	5.16	11.35	-	11.45	
38	1.72	152	6.88	11.45	-	11.55	
68	3.08	220	9.96	11.55	-	11.65	
74	3.35	294	13.32	11.65	-	11.75	
93	4.21	387	17.53	11.75	-	11.85	
115	5.21	502	22.74	11.85	-	11.95	
129	5.84	631	28.58	11.95	-	12.05	
148	6.70	779	35.28	12.05	-	12.15	
154	6.97	933	42.26	12.15	-	12.25	
147	6.66	1080	48.91	12.25	-	12.35	
171	7.74	1251	56.66	12.35	-	12.45	
172	7.79	1423	64.45	12.45	-	12.55	
143	6.48	1566	70.92	12.55	-	12.65	
129	5.84	1695	76.77	12.65	-	12.75	
118	5.34	1813	82.11	12.75	-	12.85	
110	4.98	1923	87.09	12.85	-	12.95	
86	3.89	2009	90.99	12.95	-	13.05	
59	2.67	2068	93.66	13.05	-	13.15	
38	1.72	2106	95.38	13.15	-	13.25	
26	1.18	2132	96.56	13.25	-	13.35	
19	.86	2151	97.42	13.35	-	13.45	
14	.63	2165	98.05	13.45	-	13.55	
12	.54	2177	98.60	13.55	-	13.65	
11	.50	2188	99.09	13.65	-	13.75	
6	.27	2194	99.37	13.75	-	13.85	
2	.09	2196	99.46	13.85	-	13.95	
6	.27	2202	99.73	13.95	-	14.05	
1	.05	2203	99.77	14.05	-	14.15	
1	.05	2204	99.82	14.15	-	14.25	
2	.09	2206	99.91	14.25	-	14.35	
0	.00	2206	99.91	14.35	-	14.45	
2	.09	2208	100.00	14.45	-	14.55	
				14.55	-	14.65	
				14.65	-	14.75	
				14.75	-	14.85	
				14.85	-	14.95	
				14.95	-	15.05	
				15.05	-	15.15	

## (H45) ZYGION-BACK OF HEAD

The horizontal distance between the zygion landmark on the zygomatic arch, or upper cheekbone, and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
11.16	4.39	1ST	11.80 4.65
11.34	4.46	2ND	11.98 4.72
11.46	4.51	3RD	12.09 4.76
11.62	4.58	5TH	12.24 4.82
11.88	4.68	10TH	12.47 4.91
12.06	4.75	15TH	12.62 4.97
12.20	4.80	20TH	12.74 5.02
12.33	4.85	25TH	12.85 5.06
12.44	4.90	30TH	12.94 5.09
12.54	4.94	35TH	13.02 5.13
12.64	4.98	40TH	13.10 5.16
12.74	5.01	45TH	13.18 5.19
12.83	5.05	50TH	13.26 5.22
12.93	5.09	55TH	13.33 5.25
13.03	5.13	60TH	13.41 5.28
13.13	5.17	65TH	13.49 5.31
13.23	5.21	70TH	13.57 5.34
13.35	5.26	75TH	13.67 5.38
13.48	5.31	80TH	13.77 5.42
13.63	5.37	85TH	13.89 5.47
13.82	5.44	90TH	14.05 5.53
14.11	5.56	95TH	14.29 5.63
14.30	5.63	97TH	14.46 5.69
14.45	5.69	98TH	14.59 5.74
14.68	5.78	99TH	14.81 5.83

# ZYGION-BACK OF HEAD

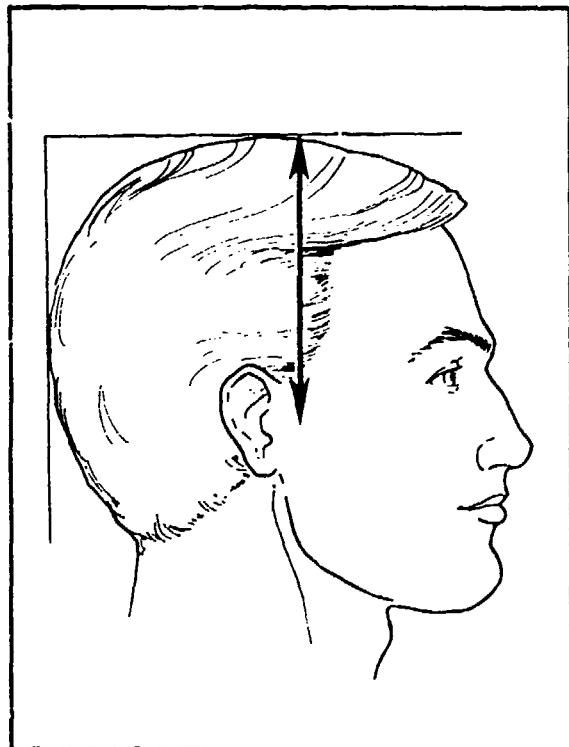
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
12.85	MEAN VALUE	5.06
.02	SE(MEAN)	.00
.76	STD DEVIATION	.30
.00	SE(STD DEV)	.00
10.43	MINIMUM	4.11
16.03	MAXIMUM	6.31
SYMMETRY---VETA I	=	.17
KURTOSIS---VETA II	=	3.21
COEF. OF VARIATION	=	5.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
13.26	MEAN VALUE	5.22
.00	SE(MEAN)	.00
.63	STD DEVIATION	.25
.00	SE(STD DEV)	.00
11.02	MINIMUM	4.34
15.68	MAXIMUM	6.17
SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE											
FEMALES				MALES							
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
2	.09	2	.09	10.35	-	10.55		2	.11	2	.11
2	.09	4	.18	10.55	-	10.75		0	.00	2	.11
3	.14	7	.32	10.75	-	10.95		5	.28	7	.39
16	.72	23	1.04	10.95	-	11.15		7	.39	14	.79
22	1.00	45	2.04	11.15	-	11.35		20	1.13	34	1.92
42	1.90	87	3.94	11.35	-	11.55		28	1.58	62	3.49
81	3.67	168	7.61	11.55	-	11.75		56	3.16	118	6.65
83	3.76	251	11.37	11.75	-	11.95		106	5.98	224	12.63
133	6.02	384	17.39	11.95	-	12.15		137	7.72	361	20.35
178	8.06	562	25.45	12.15	-	12.35		196	11.05	557	31.40
214	9.69	776	35.14	12.35	-	12.55		201	11.33	758	42.73
230	10.42	1006	45.55	12.55	-	12.75		239	13.47	997	56.20
227	10.28	1233	55.84	12.75	-	12.95		218	12.29	1215	68.49
243	11.01	1476	66.85	12.95	-	13.15		194	10.94	1409	79.43
185	8.38	1661	75.23	13.15	-	13.35		126	7.10	1535	86.53
173	7.84	1834	83.06	13.35	-	13.55		106	5.98	1641	92.50
120	5.43	1954	88.50	13.55	-	13.75		66	3.72	1707	96.22
99	4.48	2053	92.98	13.75	-	13.95		30	1.69	1737	97.91
48	2.17	2101	95.15	13.95	-	14.15		13	.73	1750	98.65
47	2.13	2148	97.28	14.15	-	14.35		15	.85	1765	99.49
27	1.22	2175	98.51	14.35	-	14.55		5	.28	1770	99.77
16	.72	2191	99.23	14.55	-	14.75		2	.11	1772	99.89
6	.27	2197	99.50	14.75	-	14.95		0	.00	1772	99.89
4	.18	2201	99.68	14.95	-	15.15		2	.11	1774	100.00
1	.05	2202	99.73	15.15	-	15.35		15	.85		
3	.14	2205	99.86	15.35	-	15.55					
2	.09	2207	99.95	15.55	-	15.75					
0	.00	2207	99.95	15.75	-	15.95					
1	.05	2208	100.00	15.95	-	16.15					

## (H46) ZYGION-TOP OF HEAD

The vertical distance between the zygion landmark on the zygomatic arch, or upper cheekbone, and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
11.40	4.49	11.80	4.65
11.57	4.55	11.97	4.71
11.66	4.59	12.07	4.75
11.79	4.64	12.21	4.81
11.98	4.72	12.41	4.89
12.11	4.77	12.55	4.94
12.20	4.80	12.65	4.98
12.29	4.84	12.74	5.02
12.36	4.87	12.83	5.05
12.43	4.89	12.90	5.08
12.49	4.92	12.97	5.11
12.56	4.94	13.04	5.14
12.62	4.97	13.11	5.16
12.68	4.99	13.18	5.19
12.75	5.02	13.25	5.22
12.82	5.05	13.33	5.25
12.89	5.07	13.41	5.28
12.97	5.11	13.49	5.31
13.06	5.14	13.59	5.35
13.17	5.18	13.71	5.40
13.31	5.24	13.86	5.46
13.52	5.32	14.09	5.55
13.67	5.38	14.25	5.61
13.78	5.42	14.37	5.66
13.95	5.49	14.57	5.74

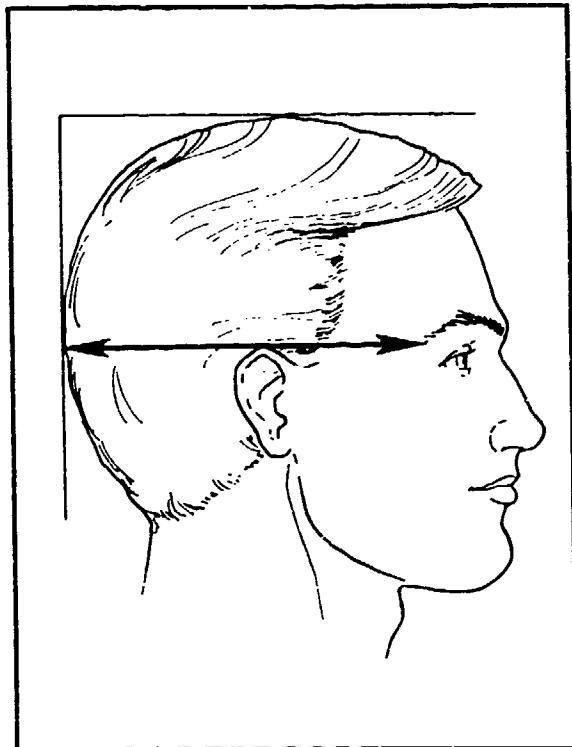
# ZYGION-TOP OF HEAD

FEMALES			MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>	<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
12.63	MEAN VALUE	4.97	13.12	MEAN VALUE	5.17
.00	SE(MEAN)	.00	.00	SE(MEAN)	.00
.53	STD DEVIATION	.21	.57	STD DEVIATION	.23
.00	SE(STD DEV)	.00	.00	SE(STD DEV)	.00
10.88	MINIMUM	4.28	11.23	MINIMUM	4.42
14.94	MAXIMUM	5.88	15.12	MAXIMUM	5.95
SYMMETRY---VETA I	=	.18	SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	3.40	KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.28	COEF. OF VARIATION	=	4.48
NUMBER OF SUBJECTS	=	2208	NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	10.85	-	10.95	
1	.05	2	.09	10.95	-	11.05	
3	.14	5	.23	11.05	-	11.15	
5	.23	10	.45	11.15	-	11.25	
10	.45	20	.91	11.25	-	11.35	
6	.27	26	1.18	11.35	-	11.45	
12	.54	38	1.72	11.45	-	11.55	
16	.72	54	2.45	11.55	-	11.65	
33	1.49	87	3.94	11.65	-	11.75	
47	2.13	134	6.07	11.75	-	11.85	
76	3.44	210	9.51	11.85	-	11.95	
74	3.35	284	12.86	11.95	-	12.05	
108	4.89	392	17.75	12.05	-	12.15	
126	5.71	518	23.46	12.15	-	12.25	
122	5.53	640	28.99	12.25	-	12.35	
162	7.34	802	36.32	12.35	-	12.45	
164	7.43	966	43.75	12.45	-	12.55	
170	7.70	1136	51.45	12.55	-	12.65	
175	7.93	1311	59.38	12.65	-	12.75	
183	8.29	1494	67.66	12.75	-	12.85	
149	6.75	1643	74.41	12.85	-	12.95	
106	4.80	1749	79.21	12.95	-	13.05	
111	5.03	1860	84.24	13.05	-	13.15	
83	3.76	1943	88.00	13.15	-	13.25	
76	3.44	2019	91.44	13.25	-	13.35	
50	2.26	2069	93.70	13.35	-	13.45	
43	1.95	2112	95.65	13.45	-	13.55	
29	1.31	2141	96.97	13.55	-	13.65	
20	.91	2161	97.87	13.65	-	13.75	
15	.68	2176	98.55	13.75	-	13.85	
9	.41	2185	98.96	13.85	-	13.95	
6	.27	2191	99.23	13.95	-	14.05	
6	.27	2197	99.50	14.05	-	14.15	
3	.14	2200	99.64	14.15	-	14.25	
1	.05	2201	99.68	14.25	-	14.35	
3	.14	2204	99.82	14.35	-	14.45	
2	.09	2206	99.91	14.45	-	14.55	
1	.05	2207	99.95	14.55	-	14.65	
0	.00	2207	99.95	14.65	-	14.75	
0	.00	2207	99.95	14.75	-	14.85	
1	.05	2208	100.00	14.85	-	14.95	
				14.95	-	15.05	
				15.05	-	15.15	

## (H47) ZYGOFRONTALE-BACK OF HEAD

The horizontal distance between the zygofrontale landmark at the upper margin of the bony eye socket and the vertical plane tangent to the back of the head is measured.



THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
14.71	5.79	1ST	15.65 6.16
14.90	5.86	2ND	15.80 6.22
15.01	5.91	3RD	15.91 6.26
15.16	5.97	5TH	16.06 6.32
15.40	6.06	10TH	16.29 6.42
15.55	6.12	15TH	16.46 6.48
15.63	6.17	20TH	16.59 6.53
15.79	6.22	25TH	16.70 6.58
15.88	6.25	30TH	16.80 6.61
15.97	6.29	35TH	16.89 6.65
16.06	6.32	40TH	16.98 6.68
16.14	6.35	45TH	17.06 6.72
16.22	6.39	50TH	17.14 6.75
16.30	6.42	55TH	17.22 6.78
16.39	6.45	60TH	17.30 6.81
16.47	6.48	65TH	17.38 6.84
16.56	6.52	70TH	17.46 6.87
16.66	6.56	75TH	17.55 6.91
16.77	6.60	80TH	17.65 6.95
16.89	6.65	85TH	17.77 6.99
17.05	6.71	90TH	17.91 7.05
17.27	6.80	95TH	18.14 7.14
17.40	6.85	97TH	18.30 7.20
17.50	6.89	98TH	18.42 7.25
17.64	6.94	99TH	18.63 7.33

# ZYGOFRONTALE-BACK OF HEAD

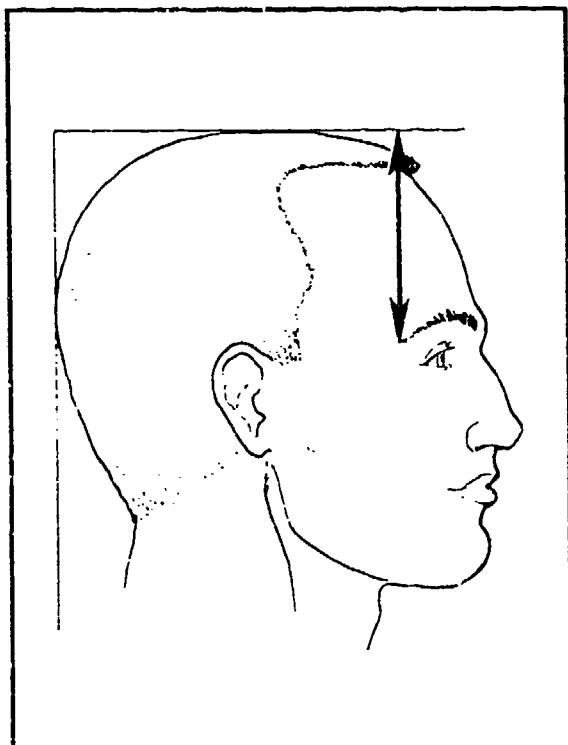
FEMALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
16.22	MEAN VALUE	5.38
.00	SE(MEAN)	.00
.64	STD DEVIATION	.25
.00	SE(STD DEV)	.00
13.46	MINIMUM	5.30
18.45	MAXIMUM	7.26
SYMMETRY---VETA I	=	-.10
KURTOSIS---VETA II	=	3.12
COEF. OF VARIATION	=	3.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>	<u>MEAN VALUE</u>	<u>INCHES</u>
17.12	MEAN VALUE	6.74
.02	SE(MEAN)	.00
.64	STD DEVIATION	.25
.00	SE(STD DEV)	.00
14.76	MINIMUM	5.81
19.35	MAXIMUM	7.62
SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	3.7%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	13.35 - 13.55			
0	.00	1	.05	13.55 - 13.75			
1	.05	2	.09	13.75 - 13.95			
2	.09	4	.18	13.95 - 14.15			
6	.27	10	.45	14.15 - 14.35			
3	.14	13	.59	14.35 - 14.55			
11	.50	24	1.09	14.55 - 14.75			
29	1.31	53	2.40	14.75 - 14.95		1	.06
48	2.17	101	4.57	14.95 - 15.15		0	.00
93	4.21	194	8.79	15.15 - 15.35		3	.17
126	5.71	320	14.49	15.35 - 15.55		6	.34
192	8.70	512	23.19	15.55 - 15.75		19	1.07
223	10.10	735	33.29	15.75 - 15.95		31	1.75
267	12.09	1002	45.36	15.95 - 16.15		58	3.27
284	12.86	1286	58.24	16.15 - 16.35		87	4.90
251	11.37	1537	69.61	16.35 - 16.55		123	6.93
217	9.83	1754	79.44	16.55 - 16.75		156	8.79
174	7.88	1928	87.32	16.75 - 16.95		207	11.67
111	5.03	2039	92.35	16.95 - 17.15		209	11.78
86	3.89	2125	96.24	17.15 - 17.35		227	12.80
52	2.36	2177	98.60	17.35 - 17.55		197	11.10
20	.91	2197	99.50	17.55 - 17.75		167	9.41
5	.23	2202	99.73	17.75 - 17.95		129	7.27
5	.23	2207	99.95	17.95 - 18.15		69	3.89
0	.00	2207	99.95	18.15 - 18.35		43	2.42
1	.05	2208	100.00	18.35 - 18.55		19	1.07
				18.55 - 18.75		11	.62
				18.75 - 18.95		5	.28
				18.95 - 19.15		1	.06
				19.15 - 19.35		5	.28
				19.35 - 19.55		1	.06

## (H48) ZYGOFRONTALE-TOP OF HEAD

The vertical distance between the zygofrontale landmark at the upper margin of the bony eye socket and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES		MALES	
CM	INCHES	CM	INCHES
8.35	3.29	1ST	9.15 3.60
8.55	3.36	2ND	9.35 3.68
8.67	3.41	3RD	9.47 3.73
8.83	3.48	5TH	9.62 3.79
9.07	3.57	10TH	9.85 3.88
9.22	3.63	15TH	10.01 3.94
9.34	3.68	20TH	10.12 3.99
9.44	3.72	25TH	10.23 4.03
9.53	3.75	30TH	10.32 4.06
9.61	3.78	35TH	10.40 4.10
9.69	3.81	40TH	10.48 4.13
9.76	3.84	45TH	10.56 4.16
9.84	3.87	50TH	10.64 4.19
9.91	3.90	55TH	10.71 4.22
9.99	3.93	60TH	10.79 4.25
10.06	3.96	65TH	10.87 4.28
10.14	3.99	70TH	10.96 4.31
10.23	4.03	75TH	11.05 4.35
10.34	4.07	80TH	11.15 4.39
10.46	4.12	85TH	11.27 4.44
10.61	4.18	90TH	11.43 4.50
10.85	4.27	95TH	11.66 4.59
11.01	4.33	97TH	11.80 4.65
11.13	4.38	98TH	11.91 4.69
11.33	4.46	99TH	12.08 4.76

# ZYGOFRONTALE-TOP OF HEAD

FEMALES		
CM	MEAN VALUE	INCHES
9.83	MEAN VALUE	3.87
.00	SE(MEAN)	.00
.61	STD DEVIATION	.24
.00	SE(STD DEV)	.00
7.69	MINIMUM	3.03
12.37	MAXIMUM	4.87
SYMMETRY---VETA I	=	.02
KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	6.2%
NUMBER OF SUBJECTS	=	2208

MALES		
CM	MEAN VALUE	INCHES
10.63	MEAN VALUE	4.19
.00	SE(MEAN)	.00
.62	STD DEVIATION	.24
.00	SE(STD DEV)	.00
8.53	MINIMUM	3.36
12.90	MAXIMUM	5.08
SYMMETRY---VETA I	=	-.02
KURTOSIS---VETA II	=	3.15
COEF. OF VARIATION	=	5.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct
1	.05	1	.05	7.65	-	7.75	
0	.00	1	.05	7.75	-	7.85	
0	.00	1	.05	7.85	-	7.95	
3	.14	4	.18	7.95	-	8.05	
3	.14	7	.32	8.05	-	8.15	
7	.32	14	.63	8.15	-	8.25	
10	.45	24	1.09	8.25	-	8.35	
7	.32	31	1.40	8.35	-	8.45	
14	.63	45	2.04	8.45	-	8.55	
17	.77	62	2.81	8.55	-	8.65	
18	.82	80	3.62	8.65	-	8.75	
37	1.68	117	5.30	8.75	-	8.85	
33	1.49	150	6.79	8.85	-	8.95	
62	2.81	212	9.60	8.95	-	9.05	
67	3.03	279	12.64	9.05	-	9.15	
79	3.58	358	16.21	9.15	-	9.25	
117	5.30	475	21.51	9.25	-	9.35	
105	4.76	580	26.27	9.35	-	9.45	
126	5.71	706	31.97	9.45	-	9.55	
109	4.94	815	36.91	9.55	-	9.65	
153	6.93	968	43.84	9.65	-	9.75	
151	6.84	1119	50.68	9.75	-	9.85	
140	6.34	1259	57.02	9.85	-	9.95	
148	6.70	1407	63.72	9.95	-	10.05	
140	6.34	1547	70.06	10.05	-	10.15	
137	6.20	1684	76.27	10.15	-	10.25	
106	4.80	1790	81.07	10.25	-	10.35	
92	4.17	1882	85.24	10.35	-	10.45	
78	3.53	1960	88.77	10.45	-	10.55	
53	2.40	2013	91.17	10.55	-	10.65	
45	2.04	2058	93.21	10.65	-	10.75	
40	1.81	2098	95.02	10.75	-	10.85	
33	1.49	2131	96.51	10.85	-	10.95	
19	.86	2150	97.37	10.95	-	11.05	
16	.72	2166	98.10	11.05	-	11.15	
11	.50	2177	98.60	11.15	-	11.25	
12	.54	2189	99.14	11.25	-	11.35	
8	.36	2197	99.50	11.35	-	11.45	
4	.18	2201	99.68	11.45	-	11.55	
1	.05	2202	99.73	11.55	-	11.65	
3	.14	2205	99.86	11.65	-	11.75	
1	.05	2206	99.91	11.75	-	11.85	
1	.05	2207	99.95	11.85	-	11.95	
0	.00	2207	99.95	11.95	-	12.05	
0	.00	2207	99.95	12.05	-	12.15	
0	.00	2207	99.95	12.15	-	12.25	
1	.05	2208	100.00	12.25	-	12.45	

## CHAPTER VII

### OBSERVER ERROR

#### INTRODUCTION

Because anthropometric data are used in the design of workspaces, uniforms, and critical-fit protective gear, excessive error in the data can result in badly designed workspaces, poorly fitting uniforms and potentially unsafe protective gear. Further, several recent studies have shown the effects of observer error on the interpretation of population comparisons (Jamison & Zegura, 1974;<sup>14</sup> Utermohle & Zegura, 1982;<sup>15</sup> Utermohle et al., 1983<sup>16</sup>). For the Army's 1987-1988 anthropometric survey, considerable effort was made to reduce the amount of interobserver error that entered the final data set (see Chapter II and Churchill et al., 1988<sup>7</sup>). Nevertheless, observer error is a fact of life in almost any scientific endeavor. Because error cannot be eliminated entirely, the most responsible approach is to measure the interobserver error (hereafter, observer error) so that users of the data will be able to judge for themselves its effects for their particular applications.

Error analysis of anthropometric data is usually done after the data collection has been completed. While this gives the user of the data the information necessary to judge the effects of error on his/her use of the data, it does not allow observer error information to be used during data collection to improve the quality of data collection. The approach used in the Army's 1987-1988 anthropometric survey was to establish an allowable observer error for each dimension. Subsequently, one subject was remeasured at each station for each half-day throughout the course of the survey. With a weekly analysis, measurers were alerted if their mean errors during the week exceeded the allowable errors. Thus the observer error data were used as a constant feedback to the team to maintain the highest quality data collection possible.

This chapter has two main sections. The first presents the allowable observer errors and the procedures used to establish them. The second presents the summary results of the daily observer error data collected throughout the course of the survey.

#### **ALLOWABLE OBSERVER ERROR**

The allowable errors were established for three purposes.

They were first used during the initial training period as an indicator that measurers had successfully learned their tasks. Team members made practice measurements on a group of subjects to learn their assigned dimensions. After the initial practice runs, data were collected and retained for analysis. Intraobserver and interobserver error results were calculated regularly to assess the ability of each measurer to repeat measurements within fixed limitations, and the ability of each pair of measurers to achieve interobserver consistency. The performance of measurers in training was rated against standards established by experienced measurers.

The second use of the acceptable observer error levels was to "recalibrate" the team at the beginning of each new survey location. Because the team traveled by car to each new location, there was often a period of several days between measuring sessions. In order to ensure

consistency from one location to the next, and in order to minimize measurer "drift" during the course of the survey, error trials were conducted on the first day in each new location. A group of subjects was measured and then remeasured and observer error checked.

The third use of the allowable observer error was as a standard for daily error checks. Twice a day, at each station, a subject was remeasured to give error data on actual subjects collected during the course of the survey. These data were examined daily and analyzed weekly. If a measuring pair exceeded the allowable observer error, the cause of the drift was determined and corrective action taken. Thus, the allowable error values in a very real sense established the minimum reliability for the data collected in the survey.

There were three sources of information used in the determination of the levels of acceptable observer error. These were: the research literature; examination of test/retest values from surveys in the Harry G. Armstrong Aerospace Medical Research Laboratory Anthropometric Data Bank; and analysis of the results of an observer error test conducted specifically for this survey, using four expert anthropometrists and 10 subjects.

#### Observer Error in the Anthropometric Literature

There are a number of different analytical methods and approaches to error analysis. Our literature review of anthropometric error data has shown: analysis of variance (Bennett and Osborne, 1986;<sup>17</sup> Jamison and Zegura, 1974;<sup>14</sup> Utermohle and Zegura, 1982<sup>15</sup>), correlation coefficients (Branson et al., 1982;<sup>18</sup> Jamison and Zegura, 1974;<sup>14</sup> Kemper and Pieters, 1974<sup>19</sup>), mean differences (Branson et al., 1982<sup>18</sup>), technical error measurement (Branson et al., 1982;<sup>18</sup> Cameron, 1984;<sup>20</sup> Johnston and Mack, 1985;<sup>21</sup> Utermohle and Zegura, 1982<sup>15</sup>), paired T-tests (Albrecht, 1983;<sup>22</sup> Utermohle and Zegura, 1982<sup>15</sup>), eleven separate univariate measures (Utermohle et al., 1983)<sup>16</sup> and various multivariate measures (Jamison and Zegura, 1974;<sup>14</sup> Page, 1976;<sup>23</sup> Utermohle et al., 1983<sup>16</sup>). Utermohle et al. (1983)<sup>16</sup> have observed: "There is no consensus concerning which statistical procedures are optimal or even important for the analysis of measurement error in physical anthropology." Our own literature review suggests that this perspective is correct.

Analysis of variance is a generally useful technique, which has often been applied to error data. Depending upon how it is applied, it can show how much of the measurement error is due to interobserver differences, how much to intraobserver differences and, where applicable, how much is due to the use of varying measurement methods or instruments. As Bennett and Osborne (1986)<sup>17</sup> emphasize, analyses of variance are often used as a measure of differences between populations. Thus, when they can demonstrate statistically significant differences between groups as defined by measurer (interobserver error), then the conclusions of a large number of studies showing anthropometric differences between populations should be questioned. This point is also made about multivariate techniques by Jamison and Zegura (1974),<sup>14</sup> and about principal components by Page (1976).<sup>23</sup>

While the partitioning of error variance into interobserver and intraobserver components can be useful for population comparisons, and is of interest in its own right, it nevertheless has little to offer for the setting of permissible error levels in advance of data collection. Indeed in the present case, because the sample size is large, an analysis that relies on statistical significance must be regarded with extreme caution. What is needed instead is a technique that examines observer differences in terms of the units of measurement.

A second analytical approach to error data is exemplified by Kemper and Pieters (1974)<sup>19</sup>. In that study investigators compared nine measurements obtained on the same subjects by measurers at two different research institutes in The Netherlands. (An important distinction here is that the two teams were trained on the basis of the same written document, but were not trained by the same persons or trained with each other.) The authors calculated the mean differences between measurements, including the sign (positive or negative) of the differences. They included the sign because they were interested in checking for systematic differences between the two organizations. Additionally, they calculated correlation coefficients between the two measurements. These ranged from 0.872 for Biacromial Diameter to 0.996 for Stature. A third value calculated in their study was a correlation coefficient between the difference (between the two measurements) and the mean of the two measurements. This last value is a measure of whether the difference increases with an increase in the absolute size of the measurement. Most were not statistically different from zero, and all but three were less than 0.2. Biliocristale Diameter (0.274) and Thigh Circumference (0.357) were statistically significant from zero at the 5% level. Here again, however, as in analysis of variance, these values are useful in analyzing data after they have been collected, but are not directly applicable to setting error levels in advance of data collection.

One approach, which does express error in terms of the unit of measurement, is the technical error of measurement. Its formula is:

$$\sqrt{\frac{\sum d_{1,2}^2}{2N}}$$

where  $d_{1,2}$  are the differences between the first and second measurement. As can be seen from the formula, the technical error is basically a way of summarizing differences between two measurements over a series of subjects. Cameron (1984)<sup>20</sup> describes technical error and suggests that one approach to establishing acceptable error before data collection would be to use the calculated technical error from a previous study. Table 38 is taken from Cameron's (1984) Table 5.1<sup>20</sup> and shows interobserver technical error of measurement. The dimensions shown in Table 38 were also measured in ANSUR.

TABLE 38. Interobserver Technical Error of Measurement.  
[After Cameron (1984) Table 5.1<sup>20</sup>]

<u>Dimension</u>	<u>Technical Error of Measurement</u>
Biacromial Breadth	0.915
Biiliac Breadth	1.545
Calf Circumference	0.340
Chest Circumference	1.816
Height	0.681
Hip Circumference	1.375
Sitting Height	0.705
Waist Circumference	1.561
Weight	1.228

No units are given in the published table, but they are assumed to be in centimeters and kilograms. Note that the larger circumferences are subject to greater error than the smaller circumference. Heights and breadths have roughly equivalent errors, but have smaller errors than the large circumferences.

Cameron (1984)<sup>20</sup> recommends the establishment of pre-set limits on acceptable error before data collection begins, yet few studies have followed this advice. One organization which does have limits for observer error in anthropometric data collection is the Fels Research Institute located in Yellow Springs, Ohio. Chumlea and co-workers (1984)<sup>24</sup> explain the procedures used in applying those pre-set limits in a context where every subject is measured at least twice (once each by two observers) and possibly four times (twice each by two observers). Their limits range from 0.2 cm for Arm Circumference to 1.0 cm for Stature and 0.1 kg for Weight (Chumlea et al., 1984).<sup>24</sup> On a series of six dimensions, measured on a group of individuals between the ages of 18 and 40 years, the authors report the number of times that the first pair of measurements exceeded an established pre-set limit. Table 39 is adapted from Chumlea et al.'s (1984) Table 1.<sup>24</sup>

TABLE 39. Interobserver Differences Outside Preset Limits.  
[After Chumlea et al. (1984) Table 1.<sup>24</sup>]

<u>Dimension</u>	<u>Limit</u>	<u>Number of Differences Outside Limits</u>	<u>% of Differences (n=44) Outside Limits</u>
Abdominal Circ	1.0 cm	19	43
Arm Circ	0.2 cm	7	16
Biacromial Breadth	1.0 cm	3	7
Calf Circ	0.2 cm	6	14
Chest Circumference	1.0 cm	10	23
Bicristal Breadth	1.0 cm	6	14

Data from 44 subjects, each measured twice, were examined. The column of the table labelled "Number of Differences Outside Limits" indicates the number of times that a measurer pair exceeded the pre-set limit on the first attempt. The final column of the table indicates what percentage of the total was outside the limit. An examination of these figures suggests that some of the limits may not have been realistic. Thus the limit on Biacromial Breadth, for example, is rarely exceeded, and may be too high for that dimension. Nevertheless, the Fels group is a pioneer in the establishment of error limits before data collection, and the care taken in their data collection is shown in the results of interobserver error analyses, as can be seen in Table 40.

Table 40, also adapted from Chumlea et al. (1984),<sup>24</sup> shows the technical error of measurement as well as the mean of the absolute differences between measurements for a group of subjects aged 20 to 50 years. As in the case with the Cameron (1984)<sup>20</sup> technical error of measurement data reported in Table 38, different classes of dimensions have different error values. The largest errors are found in the large circumferences, and the breadths have larger errors than the small circumferences.

**TABLE 40. Technical Errors of Measurement and Mean Absolute Interobserver Error for Men and Women Aged 20 to 50 Years. [After Chumlea et al. (1984) Table 2.<sup>24</sup>]**

<u>Dimension</u>	<u>Mean Error</u>	<u>Technical Error of Measurement</u>
Abdominal Circ (cm)	0.49	0.41
Arm Circ (cm)	0.09	0.08
Biacromial Br (cm)	0.32	0.29
Bicristal Br (cm)	0.41	0.38
Calf Circ (cm)	0.09	0.08
Chest Circ (cm)	0.45	0.40
Sitting Height (cm)	0.19	0.19
Stature (cm)	0.14	0.15
Weight (kg)	0.02	0.03

Table 40 also shows an interesting feature of the technical error of measurement as opposed to the mean of absolute value differences between the first and second measurements. While the mean difference is sometimes larger and sometimes smaller than the technical error, the magnitude of both is always roughly the same.

The brief examination of the literature on the analysis of error data in anthropometric studies has shown that: there exists no consensus among researchers on an optimum method; there is considerable variability in the actual amount of error present in various studies; and setting levels of acceptable error before data collection is rare indeed. In terms of the task at hand, namely developing pre-set error levels, two approaches to data analysis had merit. These were the calculation of mean values of differences between measurements when the sign had been removed, and the calculation of the technical error of measurement. As both measures yielded similar values the simpler mean of absolute differences was selected for use in analyzing measurement error for establishing allowable errors.

#### Observer Error in Data Bank Surveys

Error data have not been frequently collected during the course of major anthropometric surveys, which make up the majority of surveys in the Harry G. Armstrong Aerospace Medical Research Laboratory's Anthropometric Data Bank. There are four surveys, however, which have some repeated measure data. These include the Royal Air Force (RAF) 2000 (Bolton et al., 1973),<sup>25</sup> the Australian Tri-Service survey (Hendy, 1979),<sup>26</sup> the 1965 survey of U.S. Air Force personnel (Anthropology Research Project, Inc., unpublished data),<sup>27</sup> and the 1985 survey of the Dutch military (Anthropology Research Project, Inc., unpublished data).<sup>28</sup> In the RAF 2000, 140 subjects were remeasured in an effort to assess interobserver error during data collection. In the 1965 U.S. survey, 42 men were measured in the morning and remeasured the same afternoon. The Dutch survey had an n of 1010, and every subject was measured twice, but the documentation accompanying the tape does not state whether the second measurement was taken by the same or a different investigator. Thus, the values may be for interobserver error, intraobserver error, or a combination of both. The Australian remeasure test contained 50 subjects and included both

interobserver and intraobserver data. An ideal comparison of the four data bank series is thwarted because the second measurements of the 1965 Air Force, the RAF 2000, and the Australian survey are no longer available. Further, the method used to analyze and report the data in the RAF report is unlike any other reported in the surveyed literature. Specifically, Bolton and co-workers report the maximum deviation of the second value from a value predicted, by regression, from the first. This value was expressed as a percent of the mean (Bolton et al., 1973).<sup>25</sup> Because this approach was so unusual, and was not described well enough for duplication on the other data sets, the repeatability in the four data sets was compared by ranking. Table 41 is taken from unpublished work supported by the U.S. Air Force (AF Contract F33615-85-C-0531).

TABLE 41. Rank Ordering of Dimensions by Repeatability  
Measures in Four Surveys from Most to Least  
Repeatable.

	<u>Dutch*</u>	<u>AF 1965*</u>	<u>RAF 2000**</u>	<u>Australian Tri-Service†</u>
Neck Circumference	1	11	8	7
Stature	2	1	1	1
Cervicale Height	3	5	3	-
Head Circumference	4	3	4	8
Head Length	5	2	11	-
Head Breadth	6	12	13	9
Crotch Height	7	6	2	6
Hip Circumference	8	4	7	2
Bitragion Coronal Arc	9	13	5	-
Chest Circumference	10	10	10	3
Buttock-Knee Length	11	8	9	5
Thigh Circumference	12	7	5	-
Bideltoid Breadth	13	9	12	4
Elbow Rest Height	14	14	14	10

\* The measure of repeatability is the standard error of measurement expressed as a percentage of the mean.

\*\* The measure of repeatability is the maximum deviation of a second measurement from the predicted value of a regression equation. It is expressed as a percentage of the mean.

† The repeatability measure is a correlation coefficient. Some dimensions (-) were not measured.

A few features of the table deserve mention. First, the least repeatable measure, relative to the size of the dimension, is elbow rest height. This is true for all three surveys. Conversely, stature is highly repeatable in all surveys, and chest circumference appears in about the middle in all three. There are also a number of differences which the reader can easily discern. These differences likely reflect varying levels of difficulty in the particular measuring technique used.

### Observer Error Test

This error trial was designed specifically to develop pre-set limits for observer error in the 1987-1988 Army survey. It was not designed to answer general questions about observer error in anthropometry as a whole.

### Methods

The dimensions to be measured in the Army survey were measured 8 times each on 10 subjects. The eight measurement sessions were divided in the following way: four separate measurers each measured each subject twice. Because a single measurement session took between one and two hours, it was impossible to have all eight sessions take place in one day. Therefore, each subject was measured four times in one day by the four measurers, and four times a second day, again by all four measurers. On a given day, each subject was marked only once. The marks were refreshed after a lunch break, if necessary. A single marker marked all subjects. This research design was selected to match the design in the field when subjects would be repeat-measured on the same day, with the same set of landmarks. In addition, for any given landmark in the field, there would be only one marker (for each sex). In the present study, the four measurers were Dr. John T. McConville, Mr. Charles E. Clauser, both of Anthropology Research Project, Inc., Dr. Kenneth W. Kennedy of Universal Energy Systems, Inc., and Dr. W. Cameron Chumlea, of Wright State University School of Medicine. Dr. McConville was the marker. Dr. McConville and Mr. Clauser measured in the mornings, and Drs. Kennedy and Chumlea measured in the afternoons. Recorders were selected from the following ARP personnel: Dr. Bruce Bradtmiller, Dr. McConville, Mr. Clauser and Ms. Julie Heifner.

An assessment of marker error was not included in this study. Because of the research design, and the fact that the second trial was conducted on a second day with a second set of marks, any marker error would be included in the intraobserver measurement error. The interobserver error data are free from marker error. Since the interobserver error is the primary focus of this effort, the research design was chosen with that in mind.

After the data were collected they were entered into computer files and subjected to gross editing. The purpose of this was to eliminate large discrepancies, such as those which resulted from obvious misreadings of instruments. Some would argue that any data editing in an error study would be inappropriate. However, because the in-field data collection was computerized, and in-field editing routines would not allow the recording of grossly inaccurate values, this approach was deemed appropriate here. It should be emphasized, however, that only gross values were edited. Those where a clear transposition of digits had occurred, or where the instrument was misread by 100, 200 or 300 mm were changed to the appropriate value. Where a value was obviously a gross error, but where no clear substitute value was apparent, the data point was removed and declared missing.

After editing, the data were analyzed in the following way: For both pairs of measurers (morning and afternoon), the differences between measurers were calculated for each subject for each dimension. The mean of the absolute values of those differences was calculated for each pair of investigators, for each dimension. These procedures were carried out separately for each of the two trials.

## Results

Tables 42 through 51 show the observer error summary data for each dimension. The first four columns show the mean differences between each pair of investigators for each trial. All means are of absolute values. The final column on each table indicates the value, in millimeters or kilograms, which is the allowable observer error for the 1987-88 Army anthropometric survey.

In general, the recommended allowable error was the rounded maximum of the four means in the table. The rationale was that the four measurers are experts. Differences between them would be expected to be the minimum differences between individuals who are not so highly trained. Values indicated by asterisks on the tables are those where maximum values were not chosen; explanations are given in the text which follows. Values were not initially chosen for Bustpoint/Thelion-Bustpoint/Thelion Breadth, Strap Length, Neck-Bustpoint/Thelion Length and Interpupillary Breadth. Because the expert measurers were exclusively male, female subjects wore their choice of swimming suit tops or halters instead of bras. Marker pens were not used to mark bustpoint on the subjects' own garments, so the bustpoint landmark was ill-defined and often not a landmark at all. The pupillometer was not available for this study. Allowable observer error was selected for these dimensions on the basis of data collected from the field during the first few weeks of data collection.

It was noted in the discussion of error data from previous studies that the amount of error varies with the type or class of dimension. For that reason, the dimensions are grouped here into classes for discussion.

Table 42 shows the error data for the standing heights. Note that the allowable error for Stature is 11 mm. This is one millimeter greater than the allowable interobserver difference in the Fels study, but it was justified on the basis of individual values which are not reflected in the mean differences and on the basis of investigators' experiences with this dimension. Those dimensions which involve the breathing cycle have, in general, relatively high allowable errors. Examples of these are Chest Height and Wrist Height. Crotch Height is higher than some other dimensions of the same magnitude due to the apparently varying amounts of pressure used by the different investigators. It was thought that a measurer pair working closely together would be able to decrease this difference.

The allowable error for Iliocristale Height is lower than the maximum mean difference and lower than the mean of A.M. Trial 1. One of the investigators had a consistently difficult time differentiating among the four landmarks in the mid-torso region, and inclusion of his values was deemed to unnecessarily inflate the allowable error. The maximum mean difference excludes that investigator. The same method was used for Trochanterion Height, where the problem was the same.

The allowable errors for the sitting heights are shown in Table 43. Wrist Height, Sitting has the highest allowable error both in absolute terms and relative to the size of the dimension. This is due to difficulty in consistency of subject position as well as to variation in the breathing cycle. Allowable errors for all of the upper body sitting heights are of roughly the same magnitude. The lower body heights generally have lower allowable errors.

Table 44 shows the error data for body-segment lengths. The errors, in general, are lower for the dimensions with bone endpoints. Dimensions involving soft tissue have higher observer

TABLE 42. Standing Heights: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Acromial	3.8	6.6	6.5	6.7	7
Axilla	9.4	3.8	6.7	3.3	10*
Buttock	7.4	3.3	4.5	4.3	7
Calf	2.0	1.3	3.3	2.1	3
Cervicale	6.7	3.9	5.5	3.1	7
Chest	11.0	9.6	8.8	5.6	11
Crotch	6.3	6.3	5.0	6.8	10*
Gluteal Furrow	3.9	5.8	3.5	4.9	6
Iliocristale	12.3	3.5	3.7	2.8	5*
Knee-Midpatella	5.6	3.0	5.7	3.3	6
Lat Fem Epicondyle	2.2	1.3	3.1	1.3	3
Lateral Malleolus	2.3	2.9	2.0	2.6	3
Neck, Lateral	7.0	6.2	4.6	3.3	7
Stature	3.6	4.5	5.0	3.5	11
Suprasternale	4.6	4.3	4.7	2.2	5
10th Rib	2.6	4.3	4.6	4.5	5
Trochanterion	3.5	3.7	15.6	14.0	7*
Waist (NI)	3.4	2.8	4.1	3.4	4
Waist (O)	6.5	4.6	5.6	4.7	7
Wrist	6.0	11.2	11.4	9.2	11

\* Allowable error is not the maximum mean difference.

TABLE 43. Sitting Heights: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Acromial	6.5	6.4	9.4	6.9	9
Cervicale	3.9	4.2	9.6	2.7	10
Elbow Rest	6.4	7.8	6.2	9.8	10
Eye	7.9	5.6	7.6	6.1	8
Knee	1.6	1.3	1.8	1.8	2
Midshoulder	5.8	5.8	8.7	6.7	9
Popliteal	2.4	3.5	6.7	3.3	7
Sitting	5.7	5.7	4.4	4.1	6
Thigh Clearance	3.3	3.3	2.6	2.4	3
Waist (NI)	5.6	4.4	4.8	4.9	6
Waist (O)	8.3	4.9	5.1	7.7	8
Wrist	9.1	10.4	8.8	9.7	10

TABLE 44. Lengths: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Acromion-Radiale	3.1	3.2	3.6	1.6	4
Buttock-Knee	6.1	3.9	4.2	4.6	6
Buttock-Popliteal	5.4	7.3	6.6	4.5	7
Crotch (NI)	11.8	12.9	16.0	15.3	16
Crotch (O)	14.0	6.5	17.6	18.4	18
Crotch, Post (NI)	10.5	7.6	10.1	11.0	11
Crotch, Post (O)	7.7	6.9	11.4	9.8	11
Forearm-Hand	2.9	2.7	3.9	3.4	4
Functional Leg	12.8	9.6	16.6	5.9	17
Interscye I	9.4	8.5	7.5	8.4	10*
Interscye II	12.8	6.0	5.6	10.6	13
Neck-Bustpoint	5.6	13.6	3.4	3.0	8*
Radiale-Styliou	6.4	3.5	3.2	2.4	6
Scye Depth	1.6	2.1	4.0	2.6	4
Shoulder	3.0	2.8	3.2	2.5	3
Shoulder-Elbow	4.2	6.4	3.2	2.2	6
Sleeve Outseam	3.4	2.8	2.8	5.7	6
Spine-Elbow	10.2	5.5	6.4	5.8	10
Spine-Scye	11.0	6.6	5.4	6.6	11
Spine-Wrist	9.1	4.8	7.7	5.6	9
Strap	9.8	6.4	9.2	8.4	12*
Waist Back (NI)	2.6	4.2	3.5	4.7	5
Waist Back (O)	4.9	3.1	3.9	4.2	5
Waist Front (NI)	3.2	2.0	4.2	3.7	5*
Waist Front (O)	5.4	2.5	7.8	4.1	5*
Waist-Hip	3.2	3.0	4.9	10.0	6*
Waist-Waist	3.0	2.1	2.3	1.9	3

\* Allowable error is not the maximum mean difference.

TABLE 45. Breadths: Observer Error Test (in mm).

	Mean Difference <u>A.M.</u> <u>Trial 1</u>	Mean Difference <u>A.M.</u> <u>Trial 2</u>	Mean Difference <u>P.M.</u> <u>Trial 1</u>	Mean Difference <u>P.M.</u> <u>Trial 2</u>	Allowable <u>Error</u>
Biacromial	7.8	4.6	6.9	6.5	8
Bideltoid	7.4	6.6	6.7	7.9	8
Bimalleolar	0.7	0.8	1.4	1.2	2*
Bispinous	3.3	3.1	1.8	3.0	3
Bustpoint/Thelion-					
Bustpoint/Thelion	8.2	4.0	12.7	8.4	10
Chest	3.8	5.5	6.1	7.6	8
Forearm-Forearm	9.8	15.3	17.3	8.5	17
Hip	3.0	3.6	7.0	4.7	7
Hip, Sitting	3.2	4.2	6.4	3.4	6
Waist (O)	2.6	3.8	5.7	3.1	6

\* Allowable error is not the maximum mean difference.

TABLE 46. Depths (in mm) and Weight (in kg): Observer Error Test.

	Mean Difference <u>A.M.</u> <u>Trial 1</u>	Mean Difference <u>A.M.</u> <u>Trial 2</u>	Mean Difference <u>P.M.</u> <u>Trial 1</u>	Mean Difference <u>P.M.</u> <u>Trial 2</u>	Allowable <u>Error</u>
Abdominal Ext	9.4	8.7	10.4	8.9	10
Buttock	5.4	5.2	8.3	7.8	8
Chest	2.7	3.7	4.2	3.0	4
Waist (O)	4.8	3.5	4.2	7.5	8
Weight	.20	.24	.25	.21	.3

TABLE 47. Large Circumferences: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Buttock	7.8	11.7	5.7	7.8	12
Chest	14.1	8.5	15.0	9.6	15
Chest at Scye	9.0	12.4	24.0	11.0	15*
Chest Below Breast	6.7	6.7	15.9	13.2	16
Shoulder	15.8	21.5	9.0	12.1	22
VTC (ASCC)	13.8	21.5	16.6	17.1	22
VTC (USA)	23.7	21.3	17.0	12.7	24
Waist (NI)	10.8	10.1	9.8	10.3	11
Waist (O)	9.5	8.6	12.4	12.3	12

\* Allowable error is not the maximum mean difference.

TABLE 48. Small Circumferences: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Ankle	2.4	1.6	2.3	1.6	4
Axillary Arm	8.4	5.2	5.7	6.4	8
Biceps, Flexed	6.2	4.0	2.7	4.1	6
Calf	1.5	5.0	1.9	3.2	5
Elbow	3.5	3.7	4.3	4.1	4
Forearm, Flexed	3.8	4.4	4.6	4.5	5
Heel/Ankle	3.3	3.2	5.1	3.2	6*
Knee	4.3	4.2	2.8	3.9	4
Lower Thigh	4.3	3.5	3.1	7.0	4*
Neck	5.3	6.3	4.8	4.4	6
Neck, Base	9.6	5.7	10.5	6.1	11
Scye	12.1	10.6	12.2	10.6	13*
Thigh	4.5	5.9	4.4	5.4	6
Wrist	4.5	3.9	3.7	3.3	5

\* Allowable error is not the maximum mean difference.

TABLE 49. Head: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Bitragion Chin Arc	2.9	2.3	7.6	10.3	8*
Bitragion Coronal Arc	6.9	3.0	6.3	4.8	7
Bitragion Crinion Arc	4.6	2.4	2.3	3.1	5
Bitragion Frontal Arc	3.6	2.2	5.4	4.0	5
Bitragion Submandibular	3.7	5.8	5.0	6.0	6
Bitragion Subnasale Arc	3.5	3.0	5.2	5.6	6
Bizygomatic Breadth	0.9	1.2	0.8	0.8	2**
Ear Breadth	0.8	1.5	1.6	3.2	3
Ear Length	0.5	1.7	1.5	1.3	2
Ear Length Above Tragion	1.9	1.9	1.8	2.2	2
Ear Protrusion	1.1	1.5	2.2	1.6	3*
Head Breadth	0.5	1.1	1.0	0.5	2**
Head Circumference	2.9	3.5	3.7	5.6	5*
Head Length	1.6	1.2	0.9	1.2	2
Interpupillary Breadth					2**
Menton-Sellion Length	2.2	2.1	2.1	2.1	3*

\* Allowable error is not the maximum mean difference.

\*\* Minimum allowable error is 2 mm.

TABLE 50. Hand and Foot: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Hand Breadth	1.1	1.0	0.6	1.1	2*
Hand Circumference	2.4	2.3	3.0	3.5	4
Hand Length	2.6	1.5	1.8	2.4	3
Thickness	3.3	2.6	3.2	3.0	3
Thumb Breadth	0.7	0.6	0.6	0.4	2*
Wrist-Center of Grip	1.9	4.1	3.9	3.7	4
Wrist-Index Finger Lgth	1.9	3.6	1.6	1.6	4
Wrist-Thumbtip	2.0	2.8	2.4	2.0	3
Ball of Foot Length	4.5	5.7	1.6	1.7	6
Ball of Foot Circ	4.1	3.4	3.6	2.1	4
Foot Breadth	2.2	1.4	-	2.0	2
Foot Length	2.5	3.0	1.6	1.4	3
Heel Breadth	1.5	1.4	1.2	1.5	2

\* Minimum allowable error set at 2 mm.

TABLE 51. Reaches: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Overhead Fingertip	21.8	20.2	15.1	7.6	20*
Overhead Fingertip, Ext	14.8	6.2	10.7	7.8	20*
Overhead Fingertip, Sit	16.2	11.7	20.0	13.1	20
Span	7.5	9.2	8.2	8.9	10*
Thumbtip	15.9	11.6	16.5	8.1	20*
	17.9	14.6	15.1	14.8	20*
	14.2	18.0	7.0	20.6	20*
Wrist-Wall	17.4	13.5	18.3	6.7	20*
	18.5	14.3	12.8	12.1	20*
	11.2	14.9	7.3	17.2	20*
Wrist-Wall, Ext	21.8	13.1	11.2	9.6	20*
	18.7	14.9	17.8	10.2	20*
	18.1	15.9	11.1	10.1	20*

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\* Allowable error is not the maximum mean difference.

errors, as one might expect. The interscye errors are large relative to the size of the dimension. Interscye I is difficult to measure because of the endpoints (on the axillary fold). The Waist-Hip Length allowable error is not the maximum mean difference. A problem experienced by one of the investigators in distinguishing between the buttock (hip) and trochanterion landmarks again resulted in some inappropriate values. The investigator pairs in which he was involved were eliminated, and the other values were used to set the allowable error. As noted earlier, the allowable errors for Strap Length and Neck-Bustpoint/Thelion Length were set after data collection began.

Body breadth error data are displayed in Table 45. These errors are for the most part quite small. The allowable error was set for Bustpoint/Thelion-Bustpoint/Thelion Breadth and Interpupillary Breadth after data collection began.

Table 46 contains information on the error trials for body depths and weight. It is interesting to note that Chest Depth and Waist Depth (Omphalion) have rather different errors, when both are affected by breathing.

The data from Cameron (1984)<sup>20</sup> and Chumlea et al. (1984)<sup>24</sup> would lead us to expect that observer errors on large circumferences would be among the greatest. Table 47, which contains the large circumference data for this study bears out this supposition. All values on the table are substantially higher than those seen on Tables 42 through 46. Reasons for this are: (1) the dimensions themselves are large, (2) slight deviations from a true horizontal can have a significant impact on the dimension, and (3) variations in the breathing cycle. The allowable error for Chest Circumference at Scye was not set at the maximum mean difference since there was considerable variability in the mean differences for this dimension. The repeatability of this dimension was improved in the field.

As expected, the errors for the smaller circumferences (Table 48) are much smaller than those for the larger circumferences. Axillary Arm Circumference and Scye Circumference are among the largest errors because of the softness of the tissue involved. It is very difficult to judge the tension of the tape on these dimensions. Tape placement is particularly difficult on Heel-Ankle Circumference.

Table 49 shows error data for all the head dimensions. In general the allowable errors are quite small, as of course the dimensions are quite small. Those which include the hair (Head Circumference, Bitragion Coronal Arc) and those which include soft or fleshy tissue (Bitragion Submandibular Arc, Bitragion Subnasale Arc) tend to be somewhat larger. There were four dimensions for which the maximum mean difference was not chosen as the allowable error. For Head Circumference and Bitragion Chin Arc, mean differences were considerably outside the range of the other mean differences, so lower values were selected. On Bzygomatic Breadth and Head Breadth, selecting the maximum mean difference would have meant an allowable error of one mm. Although these are quite reliable dimensions, we felt that the implications of having an allowable error of only one mm in the field were unacceptable. We therefore set a minimum allowable error of two mm for any dimension on the survey. That limit was applied in these two cases.

The hand and foot dimensions have been combined in Table 50. The allowable errors for all of these dimensions are under one cm and most are five mm or less. The maximum differences of 0.7 mm for Thumb Breadth and 1.1 mm for Hand Breadth were increased to two mm for the allowable error, as discussed above.

The final table, Table 51, shows error data for the reach dimensions. The large errors inherent in functional dimensions were noted earlier. The error data from Table 51 bear this out. For Thumtip Reach, Wrist-Wall and Wrist-Wall, Extended, the measurement was taken three times in the field, and was taken three times in these trials.

Overall, the error tests led directly to the establishment of allowable error for 103 dimensions where the highest rounded mean value was selected. For five dimensions, the allowable error was set at the survey minimum of 2 mm, even when the error tests indicated a lower value. For 24 dimensions the allowable error was not set at the highest mean value from the error tests. In these cases, a combination of experience with the dimension and an examination of individual deltas from the error tests led to the establishment of allowable errors either above or below those indicated by the error test mean values.

## DAILY OBSERVER ERROR

As noted in Chapter II, data collection was organized into half-day units. Each half day each station measured a subject twice. Each station therefore had a total of 10 remeasure subjects each week. The remeasure subjects were directed to each station in such a way that for the remeasure the subject was not measured by the same measurer who measured him/her the first time. Thus all data collected were interobserver data. At the end of each week, survey software (Churchill et al., 1988)<sup>7</sup> printed a weekly summary of remeasure data for each station. An example of that software output for Station 4 (head and hand dimensions) is seen in Table 52. The 10 individual deltas (the absolute value of the difference between one measurer's value and the other's) are listed, as well as the n (number of repeat subjects that week), the mean of the deltas and the allowable error for each dimension. With each weekly printout, individual values exceeding the allowable error were circled. If the mean of the deltas exceeded the allowable error, the team supervisor met with the measurers at that station to determine the cause of the difficulty. Even when no mean delta exceeded the allowable error, however, the weekly summary was shown to the measurers so they could monitor their own performance over the course of the survey.

Since each subject involved in the remeasure study was generally remeasured at only one station, the number of subjects remeasured at a given station is much smaller than the total number of individuals involved in the study. There were 1,460 males and 899 females who were remeasured. The number of males per station ranged from 240 at Station 2 to 256 at Station 1. For females the range is from 155 at Station 2 to 174 at Station 3. The n's vary slightly from station to station because remeasure data were not collected during measuring sessions when one of the regular measurers was absent from work.

Tables 53 to 62 show the means and standard deviations of the absolute values of the deltas for each measured dimension. The right-hand columns show the allowable observer error for each dimension. As in earlier tables, dimensions are grouped by type. In each case, the mean absolute difference (observer error) is lower than the allowable error. Nevertheless, the observer errors range from a low of 0.2 mm on Thumb Breadth (both males and females) to a high of 12.06 mm for the male VTC (USA) and 13.8 mm for the female Wrist-Wall Length, Extended. Although the observer errors are always lower than the allowable errors, the larger observer errors are associated with dimensions which have the larger allowable errors. The standing heights (Table 53) generally have observer errors in the 2 to 4 mm range, with the exception of Wrist Height, which is highly position dependent, and Crotch Height, which involves subjective judgment about the amount of

TABLE 52. Sample Software Output for Remeasured Subjects of Station 4.

<u>Dimension</u>	<u>Deltas</u>										<u>Mean</u>	<u>AE</u>
Head Circumference	0	0	1	4	1	1	1	1	2	0	1.10	5
Bitragion Coronal Arc	2	4	4	1	3	1	3	3	2	1	2.40	7
Bitragion Crinion Arc	3	1	1	2	2	2	2	3	2	0	1.80	5
Bitragion Frontal Arc	0	4	3	4	2	1	5	5	2	1	2.70	5
Bitrag Subnasale Arc	2	2	4	0	0	2	1	1	2	4	1.80	6
Bitragion Chin Arc	2	1	0	3	1	3	1	1	0	3	1.50	8
Bitragion Submand Arc	3	7	7	1	1	1	3	2	3	4	3.20	6
Bizygomatic Brdth	0	0	1	1	0	0	1	0	1	1	0.50	2
Head Length	1	0	1	0	1	0	1	1	1	0	0.60	2
Head Breadth	0	0	0	1	1	2	0	0	0	1	0.50	2
Menton-Sellion L	1	3	1	2	2	4	2	1	3	3	2.20	3
Ear Length	0	0	1	0	0	1	2	1	1	1	0.70	2
Ear Length above Trag	2	2	3	0	1	2	2	1	0	2	1.50	2
Ear Breadth	2	1	2	1	0	0	1	2	1	1	1.10	3
Ear Protrusion	3	1	1	2	0	1	1	1	2	0	1.20	3
Interpupillary Breadth	0	0	0	1	0	0	0	1	0	0	0.20	2
Thumb Breadth	0	0	0	0	0	1	0	0	1	0	0.20	2
Wrist-Thumtip Length	3	2	2	0	1	1	1	1	0	1	1.20	3
Wrist-Center of Grip L	1	4	2	0	1	2	4	3	1	2	2.00	4
Hand Length	2	0	2	0	1	1	1	1	4	2	1.40	3
Wrist-Index Finger L	0	1	1	1	1	4	1	1	2	3	1.50	4
Hand Breadth	2	1	0	1	1	0	0	2	1	1	0.90	2
Hand Circumference	1	1	1	0	2	2	2	2	1	4	1.60	4

TABLE 53. Observer Error for Standing Heights (in mm).

	Males		Females		Allowable Observer <u>Error</u>
	<u>n</u>	Mean Absolute <u>Diff</u>	<u>n</u>	Mean Absolute <u>Diff</u>	
Acromial Height	256	3.42	169	3.62	7
Axilla Height	256	3.20	169	3.26	10
Buttock Height	247	1.45	174	1.78	7
Calf Height	240	1.10	155	1.19	3
Cervicale Height	256	2.34	169	2.30	7
Chest Height	256	3.91	169	4.24	11
Crotch Height	247	6.02	174	3.52	10
Gluteal Furrow Height	247	2.28	174	2.05	6
Iliocristale Height	256	2.15	169	2.83	5
Knee Height Midpatella	240	2.43	155	2.33	6
Lateral Femoral Epicondyle Ht	240	1.30	155	1.43	3
Lateral Malleolus Height	239	.71	155	.61	3
Neck Height, Lateral	256	2.48	169	2.35	7
Stature	256	2.94	169	2.72	11
Suprasternale Height	256	2.83	169	2.67	5
Tenth Rib Height	256	2.31	169	2.02	5
Trochanteric Height	247	1.76	174	1.72	7
Waist Height (NI)	256	2.21	169	2.16	4
Waist Height (O)	256	2.74	169	2.98	7
Wrist Height	247	6.29	174	4.99	11

TABLE 54. Observer Error for Sitting Heights (in mm).

	Males		Females		Allowable Observer <u>Error</u>
	<u>n</u>	Mean Absolute <u>Diff</u>	<u>n</u>	Mean Absolute <u>Diff</u>	
Acromial Height, Sitting	249	4.82	170	3.92	9
Cervicale Height, Sitting	249	2.95	170	2.39	10
Elbow Rest Height	249	5.02	170	4.37	10
Eye Height, Sitting	249	4.36	170	3.82	8
Knee Height, Sitting	249	.73	170	.78	2
Midshoulder Height, Sitting	248	3.80	168	3.30	9
Popliteal Height	249	2.42	170	2.21	7
Sitting Height	249	3.14	170	2.77	6
Thigh Clearance	249	1.55	170	1.44	3
Waist Height, Sitting (NI)	249	2.76	170	2.79	6
Waist Height, Sitting (O)	249	3.17	170	3.16	8
Wrist Height, Sitting	240	7.93	155	7.88	10

TABLE 55. Observer Error for Lengths (in mm).

	Males		Females		Allowable Observer Error
	n	Mean Absolute Diff	n	Mean Absolute Diff	
Acromion-Radiale Length	256	1.41	169	1.81	4
Buttock-Knee Length	248	3.92	170	3.58	6
Buttock-Popliteal Length	249	4.84	170	4.53	7
Crotch Length (NI)	247	8.96	174	7.10	16
Crotch Length (O)	247	9.47	174	5.35	18
Crotch Length, Posterior (NI)	247	5.91	174	6.52	11
Crotch Length, Posterior (O)	247	5.94	174	5.55	11
Forearm-Hand Length	256	1.94	169	1.93	4
Functional Leg Length	247	7.50	173	6.09	17
Interscye I	246	6.39	162	6.21	10
Interscye II	246	5.85	162	5.46	13
Neck-Bustpoint/Thelion Length	246	3.00	162	3.24	8
Radiale-Stylium Length	256	2.87	169	2.33	6
Scye Depth	246	3.33	162	1.95	4
Shoulder-Elbow Length	256	1.99	169	2.15	6
Shoulder Length	246	2.15	162	2.25	3
Sleeve Outseam	246	3.91	162	2.91	6
Sleeve Length: Spine-Elbow	246	4.63	162	3.94	10
Sleeve Length: Spine-Scye	246	6.24	162	4.46	11
Sleeve Length: Spine-Wrist	246	5.20	162	5.07	9
Strap Length	246	5.00	162	6.17	12
Waist (NI) - Waist (O)	247	1.32	174	1.01	3
Waist Back Length (NI)	246	3.54	162	2.53	5
Waist Back Length (O)	246	3.56	162	2.88	5
Waist Front Length (NI)	246	3.15	162	2.51	5
Waist Front Length (O)	246	3.60	162	3.44	5
Waist-Hip Length	247	1.92	174	1.60	6

TABLE 56. Observer Error for Breadths (in mm).

	Males		Females		Allowable Observer Error
	n	Mean Absolute Diff	n	Mean Absolute Diff	
Biacromial Breadth	249	3.62	170	3.57	8
Bideltoid Breadth	249	3.92	170	2.98	8
Bimalleolar Breadth	247	.62	174	.34	2
Bispinous Breadth	247	2.33	174	1.76	3
Bustpoint/Thelion-Bstpt/T Br	256	3.62	169	3.83	10
Chest Breadth	256	3.35	169	3.41	8
Forearm-Forearm Breadth	249	9.25	170	7.79	17
Hip Breadth	256	2.16	169	2.76	7
Hip Breadth, Sitting	249	2.40	170	2.36	6
Waist Breadth (O)	256	2.03	169	3.09	6

TABLE 57. Observer Error for Depths (in mm) and Weight (in kg).

	Males		Females		Allowable Observer Error
	n	Mean Absolute Diff	n	Mean Absolute Diff	
Abdominal Ext Depth, Sitting	249	4.00	170	5.02	10
Buttock Depth	247	4.22	174	3.23	8
Chest Depth	256	2.87	169	3.05	4
Waist Depth (O)	256	2.60	169	2.82	8
Weight	246	0.12	162	0.08	0.3

TABLE 58. Observer Error for Large Circumferences (in mm).

	Males		Females		Allowable Observer Error
	n	Mean Absolute Diff	n	Mean Absolute Diff	
Buttock Circumference	247	4.15	174	4.37	12
Chest Circ Below Breast	246	7.44	162	6.06	16
Chest Circumference	246	6.88	162	6.22	15
Chest Circumference At Scye	246	6.74	161	6.53	15
Shoulder Circumference	246	5.86	162	5.14	22
VTC (ASCC)	247	10.74	174	8.35	22
VTC (USA)	247	12.06	174	9.82	24
Waist Circumference (NI)	246	4.79	162	4.56	11
Waist Circumference (O)	246	4.33	162	6.34	12

TABLE 59. Observer Error for Small Circumferences (in mm).

	Males		Females		Allowable Observer Error
	n	Mean Absolute Diff	n	Mean Absolute Diff	
Ankle Circumference	227	1.44	159	1.53	4
Axillary Arm Circumference	256	3.23	169	3.22	8
Biceps Circumference, Flexed	256	2.48	169	2.92	6
Calf Circumference	227	1.39	159	1.53	5
Elbow Circumference	256	1.47	169	1.45	4
Forearm Circumference, Flexed	256	2.61	169	2.16	5
Heel Ankle Circumference	227	1.63	159	1.44	6
Knee Circumference	227	2.23	159	3.15	4
Lower Thigh Circumference	227	2.04	159	2.48	4
Neck Circumference	246	3.28	162	2.55	6
Neck Circumference, Base	246	3.61	162	3.12	11
Scye Circumference	246	5.69	162	5.46	13
Thigh Circumference	247	3.67	174	2.53	6
Wrist Circumference	256	1.38	169	1.14	5

TABLE 60. Observer Error for Head Dimensions (in mm).

	Males		Females		Allowable Observer <u>Error</u>
	<u>n</u>	Mean Absolute <u>Diff</u>	<u>n</u>	Mean Absolute <u>Diff</u>	
Bitragion Chin Arc	247	1.40	160	1.30	8
Bitragion Coronal Arc	247	1.98	160	2.33	7
Bitragion Crinion Arc	246	1.69	160	1.89	5
Bitragion Frontal Arc	247	1.71	160	1.71	5
Bitragion Submandibular Arc	247	2.63	160	2.80	6
Bitragion Subnasale Arc	247	1.45	160	1.46	6
Bizygomatic Breadth	247	.58	160	.61	2
Ear Breadth	247	.61	160	.81	3
Ear Length	247	.53	160	.48	2
Ear Length Above Tragion	247	.62	160	.63	2
Ear Protrusion	247	.68	160	.79	3
Head Breadth	247	.47	160	.53	2
Head Circumference	247	.82	160	1.19	5
Head Length	247	.58	160	.57	2
Interpupillary Breadth	246	.20	160	.23	2
Menton-Sellion Length	247	1.05	160	1.01	3

TABLE 61. Observer Error for Hand and Foot Dimensions (in mm).

	Males		Females		Allowable Observer <u>Error</u>
	<u>n</u>	Mean Absolute <u>Diff</u>	<u>n</u>	Mean Absolute <u>Diff</u>	
Hand Breadth	247	.32	160	.42	2
Hand Circumference	247	.96	160	.56	4
Hand Length	247	1.17	160	.99	3
Thumb Breadth	247	.20	160	.20	2
Wrist-Center of Grip Length	247	1.47	160	1.56	4
Wrist-Index Finger Length	247	.98	160	.79	4
Wrist-Thumbtip Length	247	.89	160	1.16	3
Ball of Foot Circumference	227	2.07	159	1.82	4
Ball of Foot Length	241	.73	160	.79	6
Foot Breadth, Horizontal	241	.56	160	.60	2
Foot Length	241	.53	160	.47	3
Heel Breadth	247	1.06	174	.46	2

TABLE 62. Observer Error for Reaches (in mm).

	Males			Females			Allowable Observer Error
	<u>n</u>	Mean	Absolute	<u>n</u>	Mean	Absolute	
		<u>Diff</u>	<u>Diff</u>		<u>Diff</u>	<u>Diff</u>	
Overhead Fingertip Reach	240	11.59		155	12.03		20
Overhead Fingertip Reach, Ext	240	10.93		155	10.86		20
Overhead Fingertip Reach, Sit	240	10.60		155	10.21		20
Span	240	7.24		155	7.38		10
Thumbtip Reach	240	11.05		155	10.30		20
Wrist-Wall Length	240	11.31		155	10.77		20
Wrist-Wall Length, Extended	240	11.60		155	13.80		20

pressure used. Errors in the sitting heights (Table 54) are somewhat higher, being generally in the 3 to 5 mm range. Observer error for Knee Height, Sitting is less than a millimeter, however, because it is relatively insensitive to position, whereas Wrist Height, Sitting error, at nearly 8 mm, is highly sensitive to position.

The errors for body lengths (Table 55) range generally from 2 mm to 7 mm. The lower errors are associated with dimensions encompassing two bony landmarks, e.g. Acromion-Radiale Length (1.41 mm males; 1.81 mm females). The higher errors are for dimensions involving soft tissue landmarks, e.g., Interscye I (6.39 mm males; 6.21 mm females). All four crotch lengths are relatively high because of variable tape tension. Functional Leg Length is also high; this can be attributed to the difficulty of achieving consistency in body position.

Observer errors for breadths and depths (Tables 56 and 57) range generally from 2 to 5 mm. A single exception is Forearm-Forearm Breadth (9.25 mm males; 7.79 mm females) for which both body position and breathing cycle are important factors in measurement. The large horizontal circumference errors (Table 58) range from 4 to 7 mm, while the vertical circumference errors range from 8 to 12 mm. It is interesting to observe that the observer error for males [10.74 mm and 12.06 mm for VTC (ASCC) and VTC (USA), respectively] are more than 2 mm greater than the comparable values for females (8.35 mm and 9.82 mm). These dimensions were measured at Station 3, the gender-specific station, where male and female subjects were measured by same-sex measurers. The differences in observer error may be due to difficulty in standardizing tape tension near the male genitalia, or it may be due to a greater skill level attained by the female measurers at that station. The observer errors for small circumferences (Table 59) as a whole range from 1 mm to 4 mm. However, Scye Circumference, in which it is difficult to maintain tape position after the arm is lowered, had errors between 5 mm and 6 mm.

Observer errors for the head (Table 60), hand, and foot dimensions (Table 61) are generally quite low. All are under 3 mm, and many are under 1 mm. These dimensions are small in magnitude, and body position and breathing cycle are generally not important in their measurement. The reaches (Table 62), on the other hand, are the most sensitive of all dimensions to body positioning difficulties. This is reflected in the observer errors which are the highest for any group of dimensions. The observer errors for most reaches range from 10 mm to 14 mm. Span has observer errors of just over 7 mm.

As noted in the introductory paragraphs to this chapter, presetting an allowable error and continuously collecting error data during standard data collection are methods which have not been used in other U.S. military surveys. It is therefore well to evaluate the utility of this approach and consider whether changes should be made if it were to be used in a future survey.

The allowable errors were of considerable value in monitoring the progress of training. In the past, the assessment of whether team members were ready to begin data collection was subjective. In the present case, there was a fixed standard, the allowable error, which told both trainers and team members alike when the team was ready to end training. Allowable errors also aided in maintaining measurement standards and avoiding measurer drift over the course of a long data collection period. This was of critical importance because the survey took place over nearly a year, with as much as one to two weeks between some measuring sites.

A potential disadvantage of establishing allowable observer errors is that team members might strive to achieve that level of interpair comparability and then stop trying to improve. As all the mean observer errors are considerably lower than the allowable error, however, this appears not to have been the case in this survey. It remains as a potential difficulty, however, in cases where team motivation is a problem.

Observer error measured on a daily basis, as was done in this survey, has two additional advantages. First, because it is collected throughout the survey, the data collected can be assumed to be "real", that is, not an artifact of the team making special efforts for a single day of remeasured subjects. Second, the daily checking can be used to detect measurement technique problems as soon as they arise, and they can be corrected, before the problems become entrenched in the data.

There are two disadvantages to daily collection of observer error data, although they are believed to be outweighed by the advantages. First, the remeasure subjects, who are generally not especially pleased to be measured in the first place, are even less pleased to be measured again. This is generally not a significant problem with military subjects who are accustomed to following orders. Second, time spent measuring subjects a second time is time not spent measuring new subjects. Specifically, in the present survey an additional 240 males and 155 females could have been measured over the course of the year if the daily observer error checking had not been done. This is a small price to pay for the assurance of data quality gained by including the daily error checks. No modifications in the approach to daily observer error data collection are recommended.

#### ESTIMATED OBSERVER ERROR FOR DERIVED DIMENSIONS

Observer error for derived dimensions obviously has no place in correcting problems of measurement technique, since these dimensions are not calculated until the survey is completed. Because the observer error data are useful in assessing statistical significance tests or in analyzing or developing sizing systems and laying out workstations, however, it is helpful to know the magnitude of the observer error of these dimensions, even after the fact. The most precise way to estimate observer error for these dimensions would be to take the mean value of absolute differences between the derived dimension for Measurer A and the derived dimension for Measurer B. This approach was not possible because most dimension pairs or triplets used in the creation of the derived dimensions were generally not measured at the same station. For example, in the case of Elbow-Wrist Length, which is derived by subtracting Hand Length from Forearm-Hand Length, different subjects were used for error data on Hand Length (Station 4) than were used for error data on Forearm-Hand Length (Station 1). It will be recalled that groups of dimensions were originally assigned to stations in order to achieve a smooth sequence of measurements -- a strategy designed in part to minimize errors resulting from multiple changes of subject posture and measurers' positions.

Since direct calculation of observer error for the derived dimensions was not generally possible, we employed the alternative strategy of estimating observer error using the observer error of the component dimensions. Most of the derived dimensions are calculated by adding or subtracting values of other dimensions. For these dimensions, the observer error is estimated as less than or equal to the sum of the mean absolute differences of all component dimensions. Note that addition is used whether the component dimensions are added or subtracted to create the derived dimension. For Clavicle Link, which is created by dividing Biacromial Breadth by 2,

the observer error is estimated by dividing the observer error of Biacromial Breadth by 2. In the case of Shoulder Slope, which is calculated as the Arcsin of a ratio, it is not possible to estimate the observer error using the mean absolute differences of the component dimensions. As the component dimensions were not measured at the same station, it is also impossible to calculate the observer error of this dimension directly. Other dimensions for which estimated observer error cannot be calculated are: Eye-Tragion Link, Neck Link and Tragion Height. These dimensions are derived using automated headboard data, for which observer error data were not recorded.

A model derivation, showing how the observer error for derived dimensions can be estimated using the mean absolute difference of component dimensions is shown below for two types of calculation. The first is a derived dimension, which is created by subtraction. The same demonstration could be used for dimensions created by addition alone, by two subtractions or by a combination of additions and subtraction. The second shows how the observer error for Clavicle Link can be calculated from the mean absolute difference of Biacromial Breadth.

Let  $z$  be the calculated dimension, and  $x, y$  be the measured dimensions. The mean absolute difference will be abbreviated "MAD".

$$z = x - y \quad \text{MAD}(z) = ?$$

$$\text{MAD}(z) = \text{MAD}(x-y)$$

$$= \frac{\sum_{i=1}^n |(x_{1i} - y_{1i}) - (x_{2i} - y_{2i})|}{n}$$

where  $x_{1i}, x_{2i}, y_{1i}, y_{2i}$  ( $i=1 \dots n$ ), are the measurements for the  $i$ th individual; and  $x_{1i}, y_{1i}$  are measurements for observer 1.

$$= \frac{\sum_{i=1}^n |(x_{1i} - x_{2i}) - (y_{1i} - y_{2i})|}{n}$$

$$\leq \frac{\sum_{i=1}^n |(x_{1i} - x_{2i})| + \sum_{i=1}^n |(y_{1i} - y_{2i})|}{n}$$

$$\leq \frac{\sum_{i=1}^n |(x_{1i} - x_{2i})|}{n} + \frac{\sum_{i=1}^n |(y_{1i} - y_{2i})|}{n}$$

$$\leq \text{MAD}(x) + \text{MAD}(y)$$

$$\therefore \text{MAD}(z) \leq \text{MAD}(x) + \text{MAD}(y)$$

Let  $r$  be the calculated dimension and  $w$  be the measured dimension.

$$r = w/2 \quad \text{MAD}(r) = ?$$

$$\text{MAD}(r) = \text{MAD}(w/2)$$

$$= \frac{\sum_{i=1}^n |(w_{1i}/2 - w_{2i}/2)|}{n}$$

$$= 1/2 \frac{\sum_{i=1}^n |(w_{1i} - w_{2i})|}{n}$$

$$= 1/2 \text{MAD}(w)$$

$$\therefore \text{MAD}(r) = 1/2 \text{MAD}(w)$$

The estimated observer errors for all derived dimensions for which estimation was possible are shown in Table 63. These values can be used for the same purposes as observer errors of measured dimensions, but the cautions which govern the use of derived dimensions in general (Chapter V) also govern the use of their estimated observer errors.

TABLE 63. Observer Error for Derived Dimensions.

	Males		Females	
	<u>n</u>	Mean	<u>n</u>	Mean
		Absolute		Absolute
	<u>n</u>	<u>Diff</u>		<u>Diff</u>
Abdominal Link	256	4.46	169	4.85
Acromion-Axilla Length	256	6.62	169	6.88
Arm Length		10.88		9.60
Axilla-Waist Length (NI)	256	5.41	169	5.42
Axilla-Waist Length (O)	256	5.94	169	6.24
Calf Link		2.01	155	2.04
Chest Height, Sitting		9.99		9.73
Chest-Waist Drop (NI)	246	11.67	162	10.78
Chest-Waist Drop (O)	246	11.21	162	12.56
Clavicle Link	249	1.81	170	1.78
Crotch Length, Ant (NI)	247	14.87	174	13.62
Crotch Length, Ant (O)	247	15.41	174	10.90
Dactylion Height		7.46		5.98
Dactylion Reach From Wall		12.48		11.76
Dactylion Reach From Wall, Ext		12.77		14.79
Elbow Rest Height, Standing		11.10		9.86
Elbow-Center of Grip Length		4.58		4.48
Elbow-Wrist Length		3.11		2.92
Eye Height		10.44		9.31
Eye-Tragion Link		*		*
Functional Grip Reach		12.78		12.33
Functional Grip Reach, Ext		13.07		15.36
Index Finger Reach		12.29		11.56
Index Finger Reach, Ext		12.58		14.59
Neck Link		*		*
Neck-Buttock Length		3.79		4.08
Neck-Gluteal Furrow Length		4.62		4.35
Neck-Scye Length	256	5.54	169	5.56
Pelvic Link		3.91		4.55
Rise (NI)		8.23		5.68
Rise (O)		8.76		6.50
Shoulder Slope		*		*
Shoulder-Waist Length (NI)	256	5.63	169	5.78
Shoulder-Waist Length (O)	256	6.16	169	6.60
Sleeve Inseam		9.49		8.25
Suprasternale Height, Sit		8.91		8.16

\* Observer error not estimated. See text.

TABLE 63. (cont'd)

	<b>Males</b>			<b>Females</b>		
	<u>n</u>	Mean	Absolute	<u>n</u>	Mean	Absolute
		<u>Diff</u>	<u>Diff</u>		<u>Diff</u>	<u>Diff</u>
Thigh Link		3.06			3.15	
Thorax Link	256	4.65		169	4.32	
Thumbtip Reach, Ext		12.49			14.96	
Vertical Grip Reach		14.23			14.58	
Vertical Grip Reach Down		11.18			10.17	
Vertical Grip Reach, Ext		13.57			13.41	
Vertical Grip Reach, Sit		13.24			12.76	
Vertical Index Fingertip Reach		13.74			13.81	
Vertical Index Fingertip Reach Down		10.69			9.40	
Vertical Index Fingertip Reach, Ext		13.08			12.64	
Vertical Index Fingertip Reach, Sit		12.75			11.99	
Vertical Thumtip Reach Down		10.60			9.77	
Vertical Thumtip Reach, Sit		12.66			12.36	
Vertical Wrist Height		12.76			13.02	
Vertical Wrist Height, Ext		12.10			11.85	
Vertical Wrist Height, Sit		11.77			11.20	
Waist Back, Vertical (NI)	256	4.55		169	4.46	
Waist Back, Vertical (O)	256	5.08		169	5.28	
Waist-Buttock Drop (NI)		8.94			8.93	
Waist-Buttock Drop (O)		8.48			10.71	
Waist-Waist (NI) Over Shoulder		21.02			16.92	
Waist-Waist (O) Over Shoulder		21.53			15.17	

## REFERENCES

1. White, Robert M. and Edmund Churchill. 1971. The Body Size of Soldiers, U.S. Army Anthropometry - 1966. Technical Report 72-51-CE (AD 743 465). U.S. Army Natick Laboratories, Natick, Massachusetts.
2. Army Demographic Data. June 1988. Project No. M001443. Defense Manpower Data Center, 1600 Wilson Blvd., Suite 400, Arlington, Virginia.
3. Churchill, Edmund, Thomas Churchill, John T. McConville and Robert M. White. 1977. Anthropometry of Women of the U.S. Army--1977; Report No. 2 - The Basic Univariate Statistics. Technical Report NATICK/TR-77/024 (AD A044 806). U.S. Army Natick Research and Development Command, Natick, Massachusetts.
4. Bradtmiller, Bruce, Jyoti Ratnaparkhi and Ilse Tebbetts. 1985. Demographic and Anthropometric Assessment of US Army Anthropometric Data Base. Technical Report NATICK/TR-86/004 (AD A164 637). U.S. Army Natick Research, Development and Engineering Center, Natick, Massachusetts.
5. Clauser, Charles E., John T. McConville, Claire C. Gordon and Ilse O. Tebbetts. 1986. Selection of Dimensions for an Anthropometric Data Base, Volume I: Rationale, Summary, and Conclusions. Technical Report NATICK/TR-86/053 (AD A179 566). U.S. Army Natick Research, Development and Engineering Center, Natick, Massachusetts.
6. Clauser, Charles E., John T. McConville, Claire C. Gordon and Ilse O. Tebbetts. 1986. Selection of Dimensions for an Anthropometric Data Base, Volume II: Dimension Evaluation Sheets. Technical Report NATICK/TR-86/054 (AD A179 472). U.S. Army Natick Research, Development and Engineering Center, Natick, Massachusetts.
7. Churchill, Thomas, Bruce Bradtmiller and Claire C. Gordon. 1988. Computer Software Used in the U.S. Army Anthropometric Survey 1987-1988. Technical Report NATICK/TR-88/045 (AD A201 185). U.S. Army Natick Research, Development and Engineering Center, Natick, Massachusetts.
8. Annis, James F. and Claire C. Gordon. 1988. The Development and Validation of an Automated Headboard Device for Measurement of Three-dimensional Coordinates of the Head and Face. Technical Report NATICK/TR-88/048 (AD A201 186). U.S. Army Natick Research, Development and Engineering Center, Natick, Massachusetts.
9. Zehner, Gregory, Vance Deason, Cay Ervin and Claire Gordon. 1988. A Photographic Device for the Collection of Anthropometric Data on the Hand. Technical Report NATICK/TR-87/044 (AD A201 184). U.S. Army Natick Research, Development and Engineering Center, Natick, Massachusetts.
10. Clauser, Charles, Ilse Tebbetts, Bruce Bradtmiller, John McConville and Claire C. Gordon. 1988. Measurer's Handbook: U.S. Army Anthropometric Survey 1987-1988. Technical Report NATICK/TR-88/043 (AD A202-721). U.S. Army Natick Research, Development and Engineering Center, Natick, Massachusetts.

11. Kikta, Paul and Thomas Churchill. 1978. Editing Procedure for Anthropometric Survey Data. Technical Report AMRL-TR-78-38 (AD A060 393). Armstrong Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio.
12. Gorsuch, R.L. 1974. Factor Analysis. W.B. Saunders:Philadelphia, Pennsylvania.
13. U.S. Army Military Personnel Center. Data Requirement No. DAPC-07-317/STRNC 001, shipped 5 October 1984.
14. Jamison, P.L. and S.L. Zegura. 1974. A Univariate and Multivariate Examination of Measurement Error in Anthropometry. American Journal of Physical Anthropology 8:417-426.
15. Utermohle, C.J. and S.L. Zegura. 1982. Intra- and Interobserver Error in Craniometry: A Cautionary Tale. American Journal of Physical Anthropology 57:303-310.
16. Utermohle, C.J., S.L. Zegura and G.M. Heathcote. 1983. Multivariate Observers, Humidity, and Choice of Precision Statistics: Factors Influencing Craniometric Data Quality. American Journal of Physical Anthropology 61:85-95.
17. Bennett, Kenneth A. and Richard H. Osborne. 1986. Interobserver Measurement Reliability in Anthropometry. Human Biology 58(5):751-759.
18. Branson, R.S., Y.E. Vaucher, G.G. Harrison, M. Vargas and C. Thies. 1982. Inter- and Intra-observer Reliability of Skinfold Thickness in Newborn Infants. Human Biology 54:137-143.
19. Kemper, H.C.G. and J.J.L. Pieters. 1974. Comparative Study of Anthropometric Measurements on the Same Subjects in Two Different Institutes. American Journal of Physical Anthropology 40:341-344.
20. Cameron, Noel. 1984. The Measurement of Human Growth. Croom Helm:London, England.
21. Johnston, F.E. and R.W. Mack. 1985. Interobserver Reliability of Skinfold Measurements in Infants and Young Children. American Journal of Physical Anthropology 67:285-289.
22. Albrecht, G.H. 1983. Humidity as a Source of Measurement Error in Osteometrics. American Journal of Physical Anthropology 60:517-521.
23. Page, J.W. 1976. A Note on Interobserver Error in Multivariate Analysis of Populations. American Journal of Physical Anthropology 44:521-526.
24. Chumlea, W.C., A.F. Roche and E. Rogers. 1984. Replicability for Anthropometry in the Elderly. Human Biology 56:329-337.
25. Bolton, C.B., M. Kenward, R.E. Simpson and G.M. Turner. 1973. An Anthropometric Survey of 2000 Royal Air Force Aircrew, 1970/1971. Technical Report 73083, Royal Air Force Establishment, Farnborough, Hants, England.

26. Hendy, K.C. 1979. Australian Tri-Service Anthropometric Survey, 1977: Part 1. Survey Planning, Conduct, Data Handling, and Methods of Analysis. ARL-SYS-Report 15, AR-001-754. Department of Defence, Defence Science and Technology Organisation, Aeronautical Research Laboratories, Melbourne, Victoria, Australia.
27. Kennedy, Kenneth W. 1986. A Collation of United States Air Force Anthropometry (U). Technical Report AAMRL-TR-85-062. Armstrong Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio.
28. Anthropometric Survey of Dutch Military Personnel. 1985. Magnetic tape containing raw data with explanatory survey and tape information contained in letter communication from Frans E.M. Brekelmans, Institute for Perception, Soesterberg, Kampweg 5, Postbus 23, The Netherlands, 5 September 1985. (Unpublished.)
29. Hertzberg, H.T.E., Edmund Churchill, C.W. Dupertuis, Robert M. White and A. Damon. 1963. Anthropometric Survey of Turkey, Greece and Italy. MacMillan Company:New York.
30. Gifford, E.C., J.R. Provost and J. Lazo. 1965. Aerospace Crew Equipment Laboratory Anthropometry of Naval Aviators - 1964. Report No. NAEC ACEL 533. U.S. Naval Air Engineering Center, Philadelphia, Pennsylvania.
31. Churchill, Edmund, John T. McConville, Lloyd L. Laubach and Robert M. White. 1971. Anthropometry of U.S. Army Aviators - 1970. Technical Report TR-72-52-CE (AD 743 528). U.S. Army Natick Laboratories, Natick, Massachusetts.
32. Churchill, Edmund, Paul Kikta and Thomas Churchill. 1977. The AMRL Anthropometric Data Bank Library: Volumes I-V. Technical Report AMRL-TR-77-1 (AD A047 314). Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio.
33. McCann, C., I. Noy, E. Rodden and O. Logan. 1975. 1974 Anthropometric Survey of Canadian Forces Personnel. DCIEM Report No. 75-R-1114. Defence and Civil Institute of Environmental Medicine, Downsview, Ontario, Canada.
34. Clouser, Charles E., Pearl E. Tucker, John T. McConville, Edmund Churchill, Lloyd Laubach and Joan Reardon. 1972. Anthropometry of Air Force Women. Technical Report AMRL-TR-70-5 (AD 743 113). Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio.
35. Stoudt, H., A. Damon, R. McFarland and J. Roberts. 1965. Weight, Height and Selected Body Dimensions of Adults, United States, 1960-1962. Public Health Service Publication No. 1000-Series 11, No. 8. U.S. Government Printing Office:Washington, D.C.
36. O'Brien, R. and W. Shelton. 1941. Women's Measurements for Garment and Pattern Construction. Miscellaneous Publication No. 454. U.S. Department of Agriculture, Textiles and Clothing Division, Bureau of Home Economics. U.S. Government Printing Office:Washington, D.C.

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## APPENDIX A

### Uses of the Dimensions

Most of the measured and derived dimensions for which data are reported in this volume serve multiple design and sizing uses. Some, chiefly head, hand, and foot variables, are needed for the design of a particular class of item to be worn on that part of the body. All the dimensions serve at least one of twelve use categories described below:

**Basic Body Descriptors:** These are dimensions of overall body size and proportions. They are required to determine the anthropometric differences or similarities between populations. They are also used for selecting samples of subjects that are anthropometrically representative of a particular population for studies in which body size is of significance (e.g., the evaluation of the workstation layouts for a new Army tank).

**Key Dimensions/Microcosm Selection:** These dimensions serve as key or control dimensions for the design, sizing, procurement, and issuing of clothing and personal equipment. Key dimensions for men's dress shirt sizes, for example, are often Neck Circumference and Sleeve Length. In addition, key dimensions are useful for selecting anthropometrically representative samples of test subjects for evaluating the fit and function of new items.

**Garments (Clothing/Personal Equipment):** These dimensions are useful for the design and sizing of Army uniforms, utility garments, and personal protective equipment (e.g., body armor, respirators, chemical defense clothing).

**Clothing Manikins:** These are three-dimensional forms which represent specific body sizes and shapes. They are valuable guides for the design and sizing of clothing and personal equipment worn on the body. The better the manikins represent sizes of Army men and women, the better the fit and the less alteration required of garments designed over them.

**Load-Carrying Systems:** These dimensions are used for the design and sizing of systems worn by soldiers to carry full-field gear and other types of equipment. Load-carrying systems are of critical importance to the combat-effectiveness and well-being of Army troops and support personnel.

**Head and Face Equipment:** The dimensions in this group are used primarily in the design of personal protective equipment worn on the head and face and for the design of optical and auditory devices.

**Gloves:** These are hand, finger, wrist, and forearm measurements used in the design, sizing, and procurement of gloves and in the construction of hand forms used to guide the design of gloves.

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Foot Gear: These foot and ankle dimensions are needed for the design, sizing, procurement, and evaluation of shoes and boots.

Workspace and Body Clearance: Dimensions in this group are central to the design and layout of single- and multiperson workstations occupied by Army personnel. They are also of paramount importance in the design and layout of workstations of Army weapon systems, particularly those, like tanks, in which space is at a premium. Body clearance dimensions dictate, for example, the size of escape hatches and limited-size passageways that must be designed to allow quick and safe passage of an individual. In the field or in a depot, the performance of maintenance activities is also greatly enhanced if personnel have ready physical and visual access to maintenance and inspection ports, and have the reach capabilities to perform necessary service, repair, or replacement activities, often conducted under adverse conditions.

Aircraft Accommodation: The dimensions in this group are those that have been or are likely to be used to restrict individuals from operating aircraft with which they are anthropometrically incompatible. That is, certain aircraft do not safely and efficiently accommodate the complete range of body sizes found in aircrew personnel. Ideally, the more complete data that will be available from this survey can be used to avoid such problems in the future.

Body Links: These dimensions are needed for developing the link or "skeletal" system which is the foundation for all three-dimensional human models used to assess the body's reaction to hazardous environments, and for two- and three-dimensional models used in the design and evaluation of Army crew- and workstations.

Anthropomorphic Analogues: The dimensions in this group are useful for the development of four general types of models: (1) three-dimensional manikins and (2) three-dimensional computer-generated models (used to assess the body's reaction to high acceleration environments); (3) two-dimensional drawing-board manikins and (4) three-dimensional computer-generated, human-engineering analogues (used to guide the design and evaluation of workstations).

Table A-1 lists all the dimensions measured in the ANSUR survey, and designates the use or uses they may serve. It will be noted that Bizygomatic Breadth and Menton-Sellion Length are listed twice in the table. Both these dimensions were measured twice-once directly and once with the automated headboard. Data from the latter should be used in concert with other three-dimensional data obtained with the headboard for design purposes involving three-dimensional headforms. Applications for directly measured data include procurement tariffs and fitting.

**TABLE A-1.** Applications for the  
Measured and Derived  
Dimensions in the Army  
Survey.

	Basic Body Descriptors	Key Dimensions/Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(1) ABDOMINAL EXTENSION DEPTH, SIT		O							O			
(D1) ABDOMINAL LINK		O		O					O		O O O	
(2) ACROMIAL HEIGHT		O	O						O		O O O	
(3) ACROMIAL HEIGHT, SITTING		O	O	O					O		O O O	
(D2) ACROMION-AXILLA LENGTH		O	O	O					O		O O O	
(4) ACROMION-RADIALE LENGTH		O								O		
(H1) ALARE-BACK OF HEAD	O	O	O	O	O O			O				
(H2) ALARE-TOE OF HEAD												O
(5) ANKLE CIRCUMFERENCE												O
(D3) ARM LENGTH	O											
(6) AXILLA HEIGHT		O O O	O O O	O O O								
(D4) AXILLA-WAIST LENGTH (N)		O O O	O O O	O O O								
(D5) AXILLA-WAIST LENGTH (O)		O O O	O O O	O O O								
(7) AXILLARY ARM CIRCUMFERENCE												
(8) BALL OF FOOT CIRCUMFERENCE								O				O O
(9) BALL OF FOOT LENGTH	O							O			O	O O
(10) BIACROMIAL BREADTH	O O	O	O	O					O	O	O	O O
(11) BICEPS CIRCUMFERENCE, FLEXED	O O	O	O	O					O	O	O	O O
(12) BIDELTOID BREADTH							O					
(H3) BIGONIAL BREADTH												
(H4) BIINFRAORBITALE BREADTH		O			O							O
(13) BIMALLEOLAR BREADTH		O			O			C				O
(H5) BIOCULAR BREADTH, MAXIMUM					O							O
(14) BISPINOUS BREADTH					O							
(H6) BITRAGION BREADTH					O							
(15) BITRAGION CHIN ARC					O O O O							
(16) BITRAGION CORONAL ARC					O O O O							
(17) BITRAGION CRINION ARC					O O O O							
(18) BITRAGION FRONTAL ARC					O O O O							
(19) BITRAGION SUBMANDIBULAR ARC					O O O O							

TABLE A-1. Continued

		Basic Body Descriptors	Key Dimes./Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(20)	BITRAGION SUBNASALE ARC	o											
(21)	BIZYGOMATIC BREADTH	o	o	o									
(H7)	BIZYGOMATIC BREADTH	o	o	o									
(22)	BSTPT/THELION-BSTPT/THELION BR	o	o	o									
(23)	BUTTOCK CIRCUMFERENCE	o	o	o									
(24)	BUTTOCK DEPTH		o	o									
(25)	BUTTOCK HEIGHT		o	o									
(26)	BUTTOCK-KNEE LENGTH		o	o									
(27)	BUTTOCK-POPLITEAL LENGTH		o	o									
(28)	CALF CIRCUMFERENCE		o	o									
(29)	CALF HEIGHT			o	o								
(D6)	CALF LINK			o	o								
(30)	CERVICALE HEIGHT			o	o	o							
(31)	CERVICALE HEIGHT, SITTING			o	o	o							
(H8)	CHEILION-BACK OF HEAD			o	o	o	o						
(H9)	CHEILION-TOP OF HEAD	o	o	o	o	o	o						
(32)	CHEST BREADTH		o	o	o	o	o						
(33)	CHEST CIRCUMFERENCE		o	o	o	o	o						
(34)	CHEST CIRCUMFERENCE AT SCYE		o	o	o	o	o						
(35)	CHEST CIRC BELOW BREAST		o	o	o	o	o						
(36)	CHEST DEPTH		o	o	o	o	o						
(37)	CHEST HEIGHT		o	o	o	o	o						
(D7)	CHEST HEIGHT, SITTING		o	o	o	o	o						
(D8)	CHEST-WAIST DROP (N)		o	o	o	o	o						
(D9)	CHEST-WAIST DROP (O)		o	o	o	o	o						
(H10)	CHIN-BACK OF HEAD						o	o					
(H11)	CHIN-TOP OF HEAD						o	o					
(D10)	CLAVICLE LINK						o	o					
(H12)	CRINION-BACK OF HEAD						o	o					
(H13)	CRINION-TOP OF HEAD						o	o					

TABLE A-1. Continued

	Basic Body Descriptors	Key Dimensions/Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(38) CROTCH HEIGHT (39) CROTCH LENGTH (N) (40) CROTCH LENGTH (O) (D11) CROTCH LENGTH, ANTERIOR (N) (D12) CROTCH LENGTH ANTERIOR (O)	O OOOO OOOO OOOO											O
(41) CROTCH LENGTH, POSTERIOR (N) (42) CROTCH LENGTH, POSTERIOR (O) (D13) DACTYLION HEIGHT (D14) DACTYLION REACH FROM WALL (D15) DACTYLION REACH FROM WALL, EXT	O O O								O O O	O		OOO
(43) EAR BREADTH (44) EAR LENGTH (45) EAR LENGTH ABOVE TRAGION (46) EAR PROTRUSION (H14) ECTOORBITALE-BACK OF HEAD				OOOO								
(H15) ECTOORBITALE-TOP OF HEAD (47) ELBOW CIRCUMFERENCE (48) ELBOW REST HEIGHT (D16) ELBOW REST HEIGHT, STANDING (D17) ELBOW-CENTER OF GRIP LENGTH			O		O				O O O			OOOO
(D18) ELBOW-WRIST LENGTH (D19) EYE HEIGHT (49) EYE HEIGHT, SITTING (D20) EYE-TRAGION LINK (50) FOOT BREADTH, HORIZONTAL	O O							O	O O O	O	O O	OOOO
(51) FOOT LENGTH (52) FOREARM CIRCUMFERENCE, FLEXED (53) FOREARM-FOREARM BREADTH (54) FOREARM-HAND LENGTH (H16) FRONTOTEMPORALE-BACK OF HEAD	O	O			O			O O O	O O O	O O	O O	O O

TABLE A-1. Continued

		Basic Body Descriptors	Key Dimensions/Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(H17)	FRONTOTEMPORALE-TOP OF HEAD												
(D21)	FUNCTIONAL GRIP REACH												
(D22)	FUNCTIONAL GRIP REACH, EXTENDED												
(55)	FUNCTIONAL LEG LENGTH												
(H18)	GLABELLA-BACK OF HEAD												
(H19)	GLABELLA-TOP OF HEAD												
(56)	GLUTEAL FURROW HEIGHT	O	O	O	O	O	O	O	O	O	O	O	O
(H20)	GONION-BACK OF HEAD												
(H21)	GONION-TOP OF HEAD	O	O	O	O	O	O	O	O	O	O	O	O
(57)	HAND BREADTH												
(58)	HAND CIRCUMFERENCE	O	O	O	O	O	O	O	O	O	O	O	O
(59)	HAND LENGTH	O	O	O	O	O	O	O	O	O	O	O	O
(60)	HEAD BREADTH	O	O	O	O	O	O	O	O	O	O	O	O
(61)	HEAD CIRCUMFERENCE	O	O	O	O	O	O	O	O	O	O	O	O
(62)	HEAD LENGTH	O	O	O	O	O	O	O	O	O	O	O	O
(63)	HEEL-ANKLE CIRCUMFERENCE												
(64)	HEEL BREADTH	O	O	O	O	O	O	O	O	O	O	O	O
(65)	HIP BREADTH	O	O	O	O	O	O	O	O	O	O	O	O
(66)	HIP BREADTH, SITTING	O	O	O	O	O	O	O	O	O	O	O	O
(67)	ILIOCRISTALE HEIGHT	O	O	O	O	O	O	O	O	O	O	O	O
(D23)	INDEX FINGER REACH												
(D24)	INDEX FINGER REACH, EXTENDED												
(H22)	INFRAORBITALE-BACK OF HEAD	O	O	O	O	O	O	O	O	O	O	O	O
(H23)	INFRAORBITALE-TOP OF HEAD	O	O	O	O	O	O	O	O	O	O	O	O
(68)	INTERPUPILLARY BREADTH												
(69)	INTERSCYE I	O	O	O	O	O	O	O	O	O	O	O	O
(70)	INTERSCYE II	O	O	O	O	O	O	O	O	O	O	O	O
(71)	KNEE CIRCUMFERENCE	O	O	O	O	O	O	O	O	O	O	O	O
(72)	KNEE HEIGHT, MIDPATELLA	O	O	O	O	O	O	O	O	O	O	O	O
(73)	KNEE HEIGHT, SITTING	O	O	O	O	O	O	O	O	O	O	O	O

TABLE A-1. Continued

		Basic Body Descriptors	Key Dimensions/Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(74)	LATERAL FEMORAL EPICONDYLE HT												
(75)	LATERAL MALLEOLUS HEIGHT												
(H24)	LIP LENGTH	O	O	O	O	O	O	O	O	O	O	O	O
(76)	LOWER THIGH CIRCUMFERENCE												
(H25)	MAXIMUM FRONTAL BREADTH												
(H26)	MENTON-BACK OF HEAD	O											
(H27)	MENTON-CRINION LENGTH												
(77)	MENTON-SELLION LENGTH												
(H28)	MENTON-SELLION LENGTH												
(H29)	MENTON-SUBNASALE LENGTH												
(H30)	MENTON-TOP OF HEAD												
(78)	MIDSHOULDER HEIGHT, SITTING												
(H31)	MINIMUM FRONTAL BREADTH	O	O	O	O	O	O	O	O	O	O	O	O
(79)	NECK-BUSTPOINT/THELION LENGTH												
(80)	NECK CIRCUMFERENCE												
(81)	NECK CIRCUMFERENCE, BASE	O	O	O	O	O	O	O	O	O	O	O	O
(82)	NECK HEIGHT, LATERAL												
(D25)	NECK LINK	O	O	O	O	O	O	O	O	O	O	O	O
(D26)	NECK-BUTTOCK LENGTH												
(D27)	NECK-GLUTEAL FURROW LENGTH												
(D28)	NECK-SCYE LENGTH	O	O	O	O	O	O	O	O	O	O	O	O
(H32)	NOSE BREADTH												
(H33)	NOSE PROTRUSION												
(83)	OVERHEAD FINGERTIP REACH												
(84)	OVERHEAD FINGERTIP REACH, EXT												
(85)	OVERHEAD FINGERTIP REACH, SIT												
(D29)	PELVIC LINK												
(86)	POPLITEAL HEIGHT												
(H34)	PRONASALE-BACK OF HEAD												
(H35)	PRONASALE-TOP OF HEAD												

TABLE A-1. Continued

			Basic Body Descriptors	Key Dimensions/Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(87)	RADIALE-STYLIUM LENGTH													
(D30)	RISE (ND)			○○○○										
(D31)	RISE (O)			○○○○										
(88)	SCYE CIRCUMFERENCE			○○○○										
(89)	SCYE DEPTH			○										O
(H36)	SELLION-BACK OF HEAD		O											
(H37)	SELLION-TOP OF HEAD		O○○											
(90)	SHOULDER CIRCUMFERENCE		O○○○											
(91)	SHOULDER-ELBOW LENGTH		O○○○		O			O			O			
(92)	SHOULDER LENGTH		O○○○		O			O			O			O
(D32)	SHOULDER SLOPE		O○○○											
(D33)	SHOULDER-WAIST LENGTH (ND)		O○○○											
(D34)	SHOULDER-WAIST LENGTH (O)		O○○○											
(93)	SITTING HEIGHT		O○○○		O						O			
(D35)	SLEEVE INSEAM		O○○○		O						O			O
(94)	SLEEVE LENGTH: SPINE-ELBOW		O○○○○											
(95)	SLEEVE LENGTH: SPINE-SCYE		O○○○○											
(96)	SLEEVE LENGTH: SPINE-WRIST		O○○○○		O									
(97)	SLEEVE OUTSEAM		O○○○○		O									
(98)	SPAN		O○○○○		O						O			O
(99)	STATURE	O O C				O		O			O			O
(H38)	STOMION-BACK OF HEAD	O O C				O		O			O			O
(H39)	STOMION-TOP OF HEAD	O O C				O		O			O			O
(100)	STRAP LENGTH	O O C				O		O			O			O
(H40)	SUBNASALE-BACK OF HEAD	O O C				O		O			O			O
(H41)	SUBNASALE-SELLION LENGTH								O					O
(H42)	SUBNASALE-TOP OF HEAD							O						O
(101)	SUPRASTERNALE HEIGHT							O						O
(D36)	SUPRASTERNALE HEIGHT, SITTING							O						O
(102)	TENTH RIB HEIGHT							O						O

TABLE A-1. Continued

TABLE A-1. Continued

		Basic Body Descriptors	Key Dimen./Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(D56) WAIST BACK, VERTICAL (O)				O O O O O	O O O O O	O O O O O							O O O O O
(112) WAIST BREADTH		O O		O O O O O	O O O O O	O O O O O							
(113) WAIST CIRCUMFERENCE (NI)				O O O O O	O O O O O	O O O O O							
(114) WAIST CIRCUMFERENCE (O)				O O O O O	O O O O O	O O O O O							
(115) WAIST DEPTH				O O O O O	O O O O O	O O O O O							
(116) WAIST FRONT LENGTH (NI)		O O		O O O O O	O O O O O	O O O O O				O O O O O			
(117) WAIST FRONT LENGTH (O)				O O O O O	O O O O O	O O O O O				O O O O O			
(118) WAIST HEIGHT (NI)		O		O O O O O	O O O O O	O O O O O				O O O O O			
(119) WAIST HEIGHT (O)				O O O O O	O O O O O	O O O O O				O O O O O			
(120) WAIST HEIGHT, SITTING (NI)				O O O O O	O O O O O	O O O O O				O O O O O			
(121) WAIST HEIGHT, SITTING (O)				O O O O O	O O O O O	O O O O O				O O O O O			
(D57) WAIST-BUTTOCK DROP (NI)				O O O O O	O O O O O	O O O O O				O O O O O			
(D58) WAIST-BUTTOCK DROP (O)				O O O O O	O O O O O	O O O O O				O O O O O			
(122) WAIST-HIP LENGTH				O O O O O	O O O O O	O O O O O				O O O O O			
(123) WAIST (NI) - WAIST (O) LENGTH				O O O O O	O O O O O	O O O O O				O O O O O			
(D59) WAIST-WAIST (NI) OVER SHOULDER	O	O	O O	O O O O O	O O O O O	O O O O O				O O O O O			
(D60) WAIST-WAIST (O) OVER SHOULDER		O	O	O O O O O	O O O O O	O O O O O				O O O O O			
(124) WEIGHT			O	O O O O O	O O O O O	O O O O O				O O O O O			
(125) WRIST-CENTER OF GRIP LENGTH				O O O O O	O O O O O	O O O O O				O O O O O			
(126) WRIST CIRCUMFERENCE			O	O O O O O	O O O O O	O O O O O		O		O O O O O			
(127) WRIST HEIGHT										O O O O O			
(128) WRIST HEIGHT, SITTING										O O O O O			
(129) WRIST-INDEX FINGER LENGTH										O O O O O			
(130) WRIST-THUMBTIP LENGTH										O O O O O			
(131) WRIST-WALL LENGTH										O O O O O			
(132) WRIST-WALL LENGTH EXTENDED									O O	O O O O O			
(H45) ZYGION-BACK OF HEAD										O O			
(H46) ZYGION-TOP OF HEAD										O O			
(H47) ZYGOFRONTALE-BACK OF HEAD										O O			
(H48) ZYGOFRONTALE-TOP OF HEAD										O O			

## APPENDIX B.

### The Statistical Measures

The statistical measures used in this report to summarize the survey data are univariate statistics selected to provide potential users with a maximum of useful information. They are, too, the statistics that are used in other anthropometric reports prepared by the U.S. Army.

The statistics provided for each variable are the following:

1. The arithmetic mean ( $\bar{x}$ ). This is the arithmetic average and is computed as the sum of the values divided by the number of values:

$$\bar{x} = \frac{\sum X}{N}$$

where X is the individual measurement and N is the sample size.

2. The standard error of the mean ( $Se_{\bar{x}}$ ). This is a standard deviation type of statistic and is an estimate of the sampling error of the mean. It is computed as:

$$Se_{\bar{x}} = \frac{SD}{\sqrt{N}}$$

where SD is the standard deviation for that variable and N is the sample size.

3. The standard deviation (SD). This is a measure of variability and is computed as:

$$SD = \sqrt{\frac{\sum (X - \bar{x})^2}{N}}$$

where X is the individual measurement,  $\bar{x}$  is the mean value for that measurement, and N is the sample size.

4. The standard error of the SD ( $Se_{SD}$ ). This is another measure of variability and is an estimate of the sampling error of the SD. It is computed as:

$$Se_{SD} = \frac{SD}{\sqrt{2N}}$$

where SD is the standard deviation of the variable of interest and N is the sample size.

5. Minimum. The smallest observed value for a particular variable.
6. Maximum. The largest observed value for a particular variable.
7. N. The number of subjects measured for a particular variable.
8. Symmetry ( $\beta_1$ ). A dimensionless statistic that is an indicator of whether a set of data is symmetrically distributed. It is computed as:

$$\beta_1 = \frac{\sum (X - \bar{X})^3}{N \cdot SD^3}$$

where  $X$  is the individual measurement,  $\bar{X}$  is the mean of that measurement,  $N$  is the sample size, and  $SD$  is the standard deviation of the measurement. The normal distribution value for  $\beta_1$  is 0.

9. Kurtosis ( $\beta_2$ ). A dimensionless statistic that indicates the level of agreement between a normal distribution and the actual distribution of the data. The normal distribution value for  $\beta_2$  is 3.
10. The coefficient of variation. A statistic that restates the standard deviation as a percent of the mean and is computed as:

$$CV = 100 \cdot \frac{SD}{\bar{X}}$$

where  $\bar{X}$  is the mean and  $SD$  is the standard deviation of a measurement.

11. The frequency tables. These tables group the data for a variable into a series of intervals. The intervals used in this output are 1 mm, 2 mm, 2.5 mm, 5 mm, 10 mm, 15 mm, and 20 mm. The tables list, for each interval, the start and end point of the interval, the number of subjects that fall within the interval (frequency or F); the cumulative frequency (CumF); and the values of F and CumF expressed as a percentage of the total number of measurements for that variable (F Pct and CumF Pct).
12. The percentiles. This group of statistics represents measures of order or position. These measures can be thought of as being obtained by arranging the data in order from the smallest to the largest and then observing the value of the datum which lies at a specified position in the array. The 99 percentiles--ranging from the first to the 99th--are the values at the points which separate consecutive blocks or units of 1% of the data in the ordered array. The first percentile is the value which separates the smallest 1% of the data from the 99% of the data with larger values; the second percentile separates the smallest 2% from the larger 98% and so on. Twenty-five of these percentiles which are believed to be most useful to designers and engineers have been included for each measurement.

The calculation of the percentiles uses a procedure developed by Edmund Churchill specifically for anthropometric survey data; it is described in detail in Herzberg et al, 1963.<sup>29</sup> The percentile values are first calculated by routine interpolation within the cumulative frequency distribution. These values are then smoothed by the use of a fourth-degree polynomial in terms of normal-curve deviates. The procedure approximates a graphic process of deriving percentiles using normal probability paper.

## APPENDIX C.

### Comparability of ANSUR Dimensions with Dimensions of Other Large-scale Surveys

The primary objective of this appendix is to document the comparability of ANSUR dimensions with like or similarly named dimensions measured in other large-scale anthropometric surveys. Data from surveys are frequently used to compare body-size distributions among and between populations, e.g., males and females, occupational groups, racial groups, age categories. A particularly vexing problem in drawing conclusions from such comparisons is whether differences between the data are reflecting real population differences or are the result of using different techniques to measure what may be described or named as the same dimension. Differences in landmark definitions, subject positioning, instruments and their techniques of use can and do lead to significantly different results.

It is particularly important that the body-size comparability among U.S. military populations be known. Items of personal-protective equipment, clothing, and weapon systems are sometimes designed to be used by more than one U.S. military service and/or by allied services in other countries. In recent years, design for commonality of use among NATO services has received increased emphasis. This kind of cooperative effort requires knowledge of population distributions of dimensions which form the basis for sizing, procurement and issue of protective equipment, and determination of the comparability of persons who may be called upon to use often-restrictive workspaces, as in the case of pilots from one country undergoing training in another nation's aircraft.

Dimensions measured in ANSUR are compared to like or similarly named dimensions measured in six earlier U.S. and two foreign military surveys and two surveys of U.S. civilians. Data from the earlier military surveys serve as the basis for the design of current equipment, clothing, and systems. Many of these, of course, will remain in military inventories for some time.

The following means were used to judge the comparability of ANSUR dimensions to other survey dimensions:

1. published descriptions of the dimensions and how they were measured.
2. published definitions of the landmarks used.
3. knowledge of measuring and landmarking techniques observed in the field by one or two of the authors\* during five of the six U.S. military surveys and personal interaction with the principal investigators of all the other surveys except O'Brien's.
4. examination of summary statistics.

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\* John T. McConville; Charles E. Clauser.

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Table C-1 presents the authors' judgments about the comparability of the ANSUR data to data from the other surveys listed. The following codes are used:

**C - COMPARABLE** -- The landmarks and measuring techniques used are of such comparability that differences between data from surveys can be considered to reflect real anthropometric differences between populations.

**PC - PROBABLY COMPARABLE** -- Differences in landmark definitions and/or measuring techniques are of insufficient magnitude to make the resulting data inappropriate to use for most human engineering purposes such as the sizing, design, procurement, and issuing of military equipment or assessing the suitability of assigning personnel to restrictive workspaces.

**NC - NOT COMPARABLE** -- Landmark differences and measuring techniques are believed to be different enough so that dimensions so coded should not be used as the basis for answering any population comparison questions.

**CU - COMPARABILITY UNKNOWN** -- Most of the dimensions receiving this designation are bust-related dimensions found among those measured in the O'Brien<sup>36</sup> effort. In this survey a bandeau instead of a bra was worn and comparability cannot be determined. Data from the few other dimensions coded CU reflect discrepancies for which no explanation is readily apparent.

The comparability between derived dimensions in ANSUR and like dimensions measured directly in other surveys is, and will remain, unknown without extensive analyses. Therefore, derived dimensions do not appear in this table.

Although the ANSUR automated headboard was a unique measuring device, the technique was sufficiently similar in principle to older headboard measuring techniques to make comparisons valid. A general comparison of headboard data from ANSUR to headboard data from the 1967 and 1968 Air Force survey and the 1970 Army survey demonstrates that the coefficients of variation in ANSUR are smaller than the coefficients of variation of like dimensions from the other three surveys. These smaller coefficients are believed to indicate that a more stable subject head position was achieved using the automated headboard than could be achieved with headboards used in previous surveys.

TABLE C-1. ANSUR Dimensions:  
Assessment of Comparability  
with Other Surveys.

C = comparable  
NC = not comparable  
CU = comparability unknown  
PC = probably comparable

	USN '64 <sup>30</sup>	USA '68 <sup>1</sup>	USA '70 <sup>31</sup>	USAF '67 <sup>32</sup>	RAF 2,000 <sup>25</sup>	CF <sup>33</sup>	USAF '68 Women <sup>34</sup>	USA '77 Women <sup>3</sup>	HES <sup>35</sup>	O'Brien <sup>36</sup>
(1) ABDOMINAL EXTENSION DEPTH, SIT										
(2) ACROMIAL HEIGHT	NC	NC	PC	PC	NC		PC	PC		
(3) ACROMIAL HEIGHT, SITTING				NC	NC					
(4) ACROMION-RADIALE LENGTH			PC				PC	PC		
(H1) ALARE-BACK OF HEAD										
(H2) ALARE-TOP OF HEAD	C	C	C	C	C		C	C		C
(5) ANKLE CIRCUMFERENCE	C	PC	C	C	NC		C	C		
(6) AXILLA HEIGHT							C	C		
(7) AXILLARY ARM CIRCUMFERENCE							C	C	NC	C
(8) BALL OF FOOT CIRCUMFERENCE							C	C		
(9) BALL OF FOOT LENGTH	NC	C	C	C	NC		NC	C		
(10) BIACROMIAL BREADTH	C	NC	NC	NC	NC	NC	NC	NC		
(11) BICEPS CIRCUMFERENCE, FLEXED	C	C	C	C	C	C	C	C		
(12) BIDELTOID BREADTH	PC			PC			C	C		
(H3) BIGONIAL BREADTH							PC			
(H4) BIINFRAORBITALE BREADTH										
(13) BIMALLEOLAR BREADTH					C					
(H5) BIOCULAR BREADTH, MAXIMUM										
(14) BISPINOUS BREADTH	PC	PC	PC	PC			PC	CU		
(H6) BITRAGION BREADTH							PC	PC		
(15) BITRAGION CHIN ARC	C						C	C		
(16) BITRAGION CORONAL ARC		C		C	C	C	C	C		
(17) BITRAGION CRINION ARC	C			C						
(18) BITRAGION FRONTAL ARC	C			C						
(19) BITRAGION SUBMANDIBULAR ARC	C			C						
(20) BITRAGION SUBNASALE ARC	C			C						
(21) BIZYGMATIC BREADTH	PC	C	C	C			C	C		
(H7) BIZYGMATIC BREADTH	PC	PC	PC	PC		C	PC	PC		
(22) BSTPT/THELION-BSTPT/THELION BR					PC	C	C	PC		
(23) BUTTOCK CIRCUMFERENCE	C	C	C	C	C	C	C	C		NC

TABLE C-1. Continued

	USN '64	USA '66	USA '70	USAF '67	RAF 2,000	CF	USAF '68 Women	USA '77 Women	HES	O'Brien
(24) BUTTOCK DEPTH	C			C			C			
(25) BUTTOCK HEIGHT				C			C	C		NC
(26) BUTTOCK-KNEE LENGTH	NC	NC	NC	NC	NC		NC	NC		NC
(27) BUTTOCK-POPLITEAL LENGTH	NC	NC	NC	NC		NC	NC	NC		NC
(28) CALF CIRCUMFERENCE	C	C	C	C	C		C	C		C
(29) CALF HEIGHT		C	C	C				PC		
(30) CERVICALE HEIGHT	NC	NC	NC	NC			C	C		C
(31) CERVICALE HEIGHT, SITTING										C
(H8) CHEILION-BACK OF HEAD										
(H9) CHEILION-TOP OF HEAD										
(32) CHEST BREADTH	PC	PC	PC	PC			PC	PC		
(33) CHEST CIRCUMFERENCE	PC	PC	PC	PC	PC	PC	PC	PC	NC	CU
(34) CHEST CIRCUMFERENCE AT SCYE				C			CU	CU	NC	CU
(35) CHEST CIRC BELOW BREAST							PC	PC		
(36) CHEST DEPTH	C	C	C	C		C	C			
(37) CHEST HEIGHT	CU			CU			CU	CU		
(H10) CHIN-BACK OF HEAD				PC			PC	PC		
(H11) CHIN-TOP OF HEAD										
(H12) CRINION-BACK OF HEAD										
(H13) CRINION-TOP OF HEAD										
(38) CROTCH HEIGHT	PC	PC	PC	PC	PC	PC	PC	PC		NC
(39) CROTCH LENGTH (NI)										
(40) CROTCH LENGTH (O)					NC					
(41) CROTCH LENGTH, POSTERIOR (NI)										
(42) CROTCH LENGTH, POSTERIOR (O)										
(43) EAR BREADTH	C			C			C	C		
(44) EAR LENGTH	C			C			C	C		
(45) EAR LENGTH ABOVE TRAGION				C						
(46) EAR PROTRUSION				NC						
(H14) ECTOORBITALE-BACK OF HEAD										

TABLE C-1. Continued

	USN '64	USA '66	USA '70	USAF '67	RAF 2,000	CF	USAF '68 Women	USA '77 Women	HES	O'Brien
(H15) ECTOORBITALE-TOP OF HEAD										
(47) ELBOW CIRCUMFERENCE	PC		PC	C	PC					
(48) ELBOW REST HEIGHT	C	C	C	C	PC		C	C		
(49) EYE HEIGHT, SITTING	C	C	C	C	PC	C	C	C		
(50) FOOT BREADTH, HORIZONTAL	C	C	C	C	C		C	C		NC
(51) FOOT LENGTH	C	C	C	C	PC	C	C	C		
(52) FOREARM CIRCUMFERENCE, FLEXED	PC	PC	PC	C			C	PC		
(53) FOREARM-FOREARM BREADTH	C	C	C	C			C			
(54) FOREARM-HAND LENGTH					C					
(H16) FRONTOTEMPORALE-BACK OF HEAD										
(H17) FRONTOTEMPORALE-TOP OF HEAD										
(55) FUNCTIONAL LEG LENGTH			NC		NC				NC	
(H18) GLABELLA-BACK OF HEAD				PC					PC	
(H19) GLABELLA-TOP OF HEAD				PC					PC	
(56) GLUTEAL FURROW HEIGHT	C			C			C	C		
(H20) GONION-BACK OF HEAD										
(H21) GONION-TOP OF HEAD	C	C	C	C		C	C	C		
(57) HAND BREADTH	C	C	C	C		PC	C	C		
(58) HAND CIRCUMFERENCE	PC	PC	PC	C		PC	C	C		
(59) HAND LENGTH							C	CU		
(60) HEAD BREADTH	C	C	C	C	C	C	C	C		
(61) HEAD CIRCUMFERENCE	C	C	C	C	NC	NC	C	C		
(62) HEAD LENGTH	C	C	C	C	C		C	C		
(63) HEEL-ANKLE CIRCUMFERENCE	C	C	C	C	NC		C	C		
(64) HEEL BREADTH	CU	NC					PC			
(65) HIP BREADTH	PC	PC	PC	PC			PC	PC		
(66) HIP BREADTH, SITTING	CU	C	NC	NC			NC	C		
(67) ILOCRISTALE HEIGHT	C			PC			C			
(H22) INFRAORBITALE-BACK OF HEAD										
(H23) INFRAORBITALE-TOP OF HEAD									C	

TABLE C-1. Continued

	USN '64	USA '68	USA '70	USAF '67	RAF 2,000	CF	USAF '68 Women	USA '77 Women	HES	O'Brien
(68) INTERPUPILLARY BREADTH	NC	NC	NC	NC			C	NC		
(69) INTERSCYE I	C	C	C	NC			C	NC		
(70) INTERSCYE II							C	PC		
(71) KNEE CIRCUMFERENCE				C			C	NC		
(72) KNEE HEIGHT, MIDPATELLA				PC						NC
(73) KNEE HEIGHT, SITTING	CU	CU	NC	C	NC			NC		PC
(74) LATERAL FEMORAL EPICONDYLE HT										
(75) LATERAL MALLEOLUS HEIGHT	CU			PC			CU			
(H24) LIP LENGTH	PC	PC	PC	CU			CU			
(76) LOWER THIGH CIRCUMFERENCE										
(H25) MAXIMUM FRONTAL BREADTH	CU			CU						
(H26) MENTON-BACK OF HEAD					NC		NC	NC		
(H27) MENTON-CRINION LENGTH							NC	PC		
(77) MENTON-SELLION LENGTH	C	NC	C			C	NC	NC		
(H28) MENTON-SELLION LENGTH	PC	NC	PC		PC	NC	NC	NC		
(H29) MENTON-SUBNASALE LENGTH										
(H30) MENTON-TOP OF HEAD		C	C	NC	NC		NC	NC		
(78) MIDSHOULDER HEIGHT, SITTING				C			C			
(H31) MINIMUM FRONTAL BREADTH				PC			PC	PC		
(79) NECK-BUSTPOINT/THELION LENGTH							NC	NC		NC
(80) NECK CIRCUMFERENCE	C	C	C	NC	C	NC	NC	NC		
(81) NECK CIRCUMFERENCE, BASE							PC	PC		NC
(82) NECK HEIGHT, LATERAL	PC			PC						
(H32) NOSE BREADTH	CU									
(H33) NOSE PROTRUSION										
(83) OVERHEAD FINGERTIP REACH										
(84) OVERHEAD FINGERTIP REACH, EXT										
(85) OVERHEAD FINGERTIP REACH, SIT	NC	NC	C				NC	PC		
(86) POPLITEAL HEIGHT	PC	PC	NC	NC			NC	NC		
(H34) PRONASALE-BACK OF HEAD			PC	PC			PC	PC		CU

TABLE C-1. Continued

	USN '64	USA '66	USA '70	USAF '67	RAF 2,000	CF	USAF '68 Women	USA '77 Women	HES	O'Brien
(H35) PRONASALE-TOP OF HEAD				CU			CU	CU		
(87) RADIALE-STYLIUM LENGTH	C	C	C	C			C	C		
(88) SCYE CIRCUMFERENCE				NC			C	C		
(89) SCYE DEPTH							C	C		
(H36) SELLION-BACK OF HEAD	CU	CU	CU	CU			CU	CU		NC CU
(H37) SELLION-TOP OF HEAD	C	C	C	CU			C	CU		
(90) SHOULDER CIRCUMFERENCE	NC	PC	PC	C			C	C		
(91) SHOULDER-ELBOW LENGTH	NC	NC	NC	NC			NC	PC		
(92) SHOULDER LENGTH	C	C	C	C	NC		C	NC		NC
(93) SITTING HEIGHT							C	C	C	
(94) SLEEVE LENGTH: SPINE-ELBOW	C			NC			C			NC
(95) SLEEVE LENGTH: SPINE-SCYE		NC	C	NC			PC			
(96) SLEEVE LENGTH: SPINE-WRIST				NC			PC			
(97) SLEEVE OUTSEAM						C	NC			
(98) SPAN						C				
(99) STATURE	C	C	C	C	NC	C	C	C	NC	C
(H38) STOMION-BACK OF HEAD					PC		C	CU		
(H39) STOMION-TOP OF HEAD							CU	CU		
(100) STRAP LENGTH					CU		NC	NC		
(H40) SUBNASALE-BACK OF HEAD							PC	CU		
(H41) SUBNASALE-SELLION LENGTH	PC			PC			PC	PC		
(H42) SUBNASALE-TOP OF HEAD	C			PC			CU	CU		
(101) SUPRASTERNALE HEIGHT				C			C	C		
(102) TENTH RIB HEIGHT	C	C	C	C	C		C	C		
(103) THIGH CIRCUMFERENCE										
(104) THIGH CLEARANCE	PC		NC	C	CU		NC	PC	NC	
(105) THUMB BREADTH	PC	PC	PC	PC	PC	PC	PC	PC		
(106) THUMBTIP REACH	CU	PC	PC	PC	PC	PC	PC	PC		
(H43) TRAGION-BACK OF HEAD	PC	PC	PC	PC	PC	PC	PC	CU		
(H44) TRAGION-TOP OF HEAD	PC	PC	PC	PC	PC	PC	PC	CU		

TABLE C-1. Continued

		USN '64	USA '66	USA '70	USAF '67	RAF 2,000	CF		USAF '68 Women	USA '77 Women	HES	O'Brien
(107) TROCHANTERION HEIGHT					C				NC	C		
(108) VERTICAL TRUNK CIRC (ASCC)		NC	PC	NC	NC	C			PC	PC		
(109) VERTICAL TRUNK CIRC (USA)						C						
(110) WAIST BACK LENGTH (NI)												
(111) WAIST BACK LENGTH (O)			CU	CU	CU							
(112) WAIST BREADTH		NC			C				NC	NC		
(113) WAIST CIRCUMFERENCE (NI)		CU										
(114) WAIST CIRCUMFERENCE (O)			C	C	C		C		NC	NC		
(115) WAIST DEPTH		NC			C							
(116) WAIST FRONT LENGTH (NI)												
(117) WAIST FRONT LENGTH (O)			CU			NC						
(118) WAIST HEIGHT (NI)				C	C	C						
(119) WAIST HEIGHT (O)												
(120) WAIST HEIGHT, SITTING (NI)										NC		
(121) WAIST HEIGHT, SITTING (O)												
(122) WAIST-HIP LENGTH												
(123) WAIST (NI) - WAIST (O) LENGTH		C	C	C	C	C	C	C	C	C	NC	C
(124) WEIGHT												
(125) WRIST-CENTER OF GRIP LENGTH		NC	NC	NC	C	C						
(126) WRIST CIRCUMFERENCE					C			C	C	C		
(127) WRIST HEIGHT						C						
(128) WRIST HEIGHT, SITTING												
(129) WRIST-INDEX FINGER LENGTH												
(130) WRIST-THUMBTIP LENGTH												
(131) WRIST-WALL LENGTH												
(132) WRIST-WALL LENGTH EXTENDED												
(H45) ZYGION-BACK OF HEAD												
(H46) ZYGION-TOP OF HEAD												
(H47) ZYGOFRONTALE-BACK OF HEAD												
(H48) ZYGOFRONTALE-TOP OF HEAD												

**APPENDIX D.**  
**A Glossary of Anatomical and Anthropometric Terms**

**anatomical position** -- a standard position of the body to which all anatomical directions (e.g., superior, medial, anterior) are referenced (see Figure D-1).

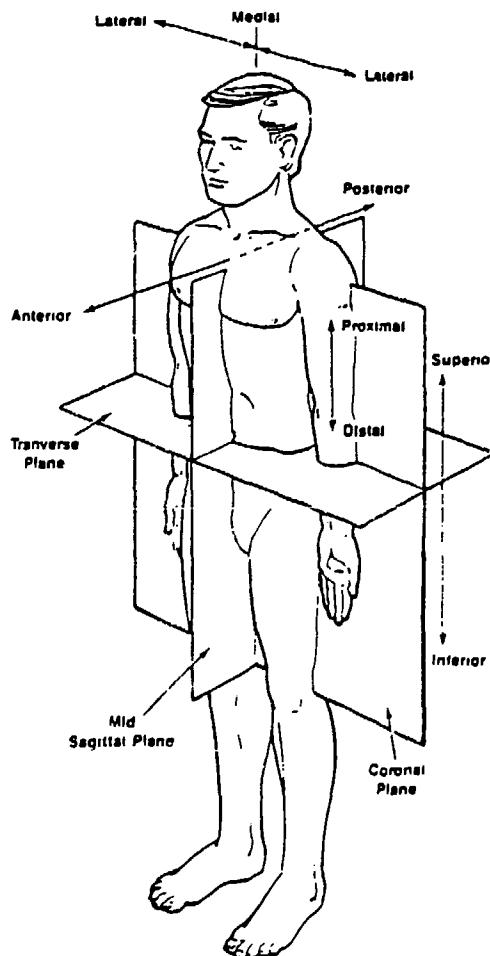
**anterior** -- pertaining to the front of the body; as opposed to posterior.

**axillary** -- pertaining to the armpit (axilla).

**bi** -- a prefix denoting connection with or relation to each of two symmetrically paired parts.

**biceps (brachii)** -- the large muscle on the anterior surface of the upper arm.

**canthus** -- a corner or angle formed by the meeting of the eyelids.



**Figure D-1. The body in the anatomical position.**

**coronal plane** -- any vertical plane at right angles to the midsagittal plane (see Figure D-1).

**deltoid muscle** -- the muscle that forms the flesh of the lateral side of the upper third of the upper arm.

**distal** -- the end of a bone or body segment farthest from the head; as opposed to proximal (see Figure D-1).

**dorsal** -- pertaining to the back of the body or one of its parts (on the hand, its top surface as opposed to its palmar surface).

**epicondyle** -- the bony eminence at the distal end of the humerus, radius, and femur.

**extend** -- to move adjacent segments so that the angle between them is increased, as when the leg is straightened; as opposed to flex.

**femoral epicondyle** -- the bony projections on either side of the distal end of the femur.

**femur** -- the thigh bone.

**flex** -- to move a joint in such a direction as to bring together the two parts which it connects, as when the elbow is bent; as opposed to extend.

**fossa** -- a depression, usually somewhat longitudinal in shape, in the surface of a part, as in a bone.

**Frankfort plane** -- the standard horizontal plane or orientation of the head. The plane is established by a line passing through the right tragion (approximate earhole) and the lowest point of the right orbit (eye socket).

**frontal bone** -- the bone that underlies the forehead.

**hyperextend** -- to overextend a limb or other part of the body.

**iliac** -- pertaining to an ilium, which is one of the three fused bones that form one side of the pelvis.

**iliac crest** -- the superior rim of a pelvic bone.

**ilium** -- the largest and superior bone of the three fused bones that form one side of the pelvis.

**inferior** -- below, in relation to another structure; lower (see Figure D-1).

**lateral** -- lying near or toward the sides of the body; as opposed to medial (see Figure D-1).

**latissimus dorsi** -- the large muscle covering the lower half of the back above the waist and converging on the upper arm in such a way that its flesh forms the posterior border of the axilla (armpit).

**malleoli** -- rounded bony projection on either side of the ankle. The lateral malleolus, on the outside of the ankle, is at the distal end of the fibula (one of the two bones of the calf); the medial malleolus, on the inside of the ankle, is at the distal end of the tibia (shinbone).

**mandible** -- the jawbone.

**mastoid process** -- lowest bony projection behind and below the ear. It can best be felt immediately behind the earlobe.

**medial** -- lying near or toward the midline of the body; as opposed to lateral (see Figure D-1).

**metacarpophalangeal joint** -- a joint (knuckle) formed by the juncture of a finger bone (phalanx) with the palm bone (metacarpal).

**metatarsophalangeal joint** -- a joint formed by the juncture of a toe bone (phalanx) with the foot bone (metatarsal).

**midsagittal plane** -- the vertical plane which divides the body into right and left halves (see Figure D-1).

**olecranon** -- the proximal end of the ulna (elbow).

**palmar** -- pertaining to the palm side of the hand; as opposed to its dorsal surface.

**patella** -- the kneecap.

**phalanx** -- a finger or toe bone.

**pisiform** -- a wrist bone on the little finger side of the hand at the base of the palm. It can be felt as a bony protuberance just below the fleshy pad at the base of the palm.

**plantar** -- pertaining to the sole of the foot.

**posterior** -- pertaining to the back of the body; as opposed to anterior (see Figure D-1).

**proximal** -- the end of a bone or body segment nearest the head; as opposed to distal (see Figure D-1).

**radius** -- the bone of the forearm on the thumb side of the arm.

**scye** -- a tailoring term referring to the armhole of a garment.

**superior** -- above, in relation to another structure; higher (see Figure D-1).

**supra** -- prefix designating above or on.

**temporal crest** -- a ridge originating on the zygomatic process of the frontal bone and extending along the lateral aspect of the skull.

**thoracic** -- pertaining to the thorax; in this text, pertaining especially to the vertebra to which the ribs are attached.

**thorax** -- that part of the trunk between the neck and the abdomen enclosed by the rib cage.

**trapezius** -- the large muscle that originates on the neck and the upper half of the back and converges on the shoulder between midshoulder and acromion.

**vertebra** -- a bone of the spine. In humans there are seven cervical (neck), 12 thoracic (chest), five lumbar (lower back), five sacral (fused), and four caudal (tail) vertebrae.

**zygomatic arch** -- the bony arch below and to the side of the orbit of the skull extending horizontally along the side of the head from the cheekbone (the zygomatic bone) nearly to the external ear.

**zygomatic bone** -- a bone of the face underlying the upper part of the cheek.

## APPENDIX E

### The Biographical Data Form

US ARMY ANTHROPOMETRIC SURVEY (ANSUR)

#### BIOGRAPHICAL DATA: MILITARY HISTORY

TODAY'S DATE: ...../...../.....      TODAY'S POST: .....

Month Day Year

1. Name: .....  
                  (Last)                   (First)                   (Middle)

2. Unit to which you are assigned at this post:

...../...../...../...../.....  
(Company) (Battalion/Battery/Group) (Brigade/Regiment) (Division)

3. Military Component: /...../ Regular Army  
                          /...../ Army Reserve  
                          /...../ National Guard

4. Military Personnel Class:

/...../ Enlisted  
/...../ Warrant Officer (Specify Branch: .....)  
/...../ Commissioned Officer (Specify Branch: .....

5. Rank/Grade: ..... / ..... (e.g., LTC / O5)

6. Time in Service: .... Years, .... Months (e.g., 2 Years, 4 Months)

7. MOS: ..... (Primary) ..... (Secondary)

8. With which hand do you usually fire a weapon?

/...../ Right      /...../ Left      /...../ Either Hand

9. With which eye do you usually sight your weapon?

/...../ Right      /...../ Left      /...../ Either Eye

The Biographical Data Form (continued)

US ARMY ANTHROPOMETRIC SURVEY (ANSUR)

BIOGRAPHICAL DATA: PERSONAL HISTORY

1. Your Birthdate: ..... / ..... / .....  
(Month) (Day) (Year)
2. Age: ..... Years
3. Sex: / .... Male  
/ .... Female
4. Race: / .... White, not of Hispanic origin  
/ .... Black, not of Hispanic origin  
/ .... Hispanic  
/ .... Asian/Pacific Islander  
/ .... American Indian/Alaskan Native  
/ .... Mixed (Specify: .....)  
/ .... Other (Specify: .....)
5. How tall are you in bare feet? ..... ' ..... " (e.g., 5' 8")  
Feet Inches
6. How much do you weigh without clothes? ..... Pounds
7. Do you wear: / .... Prescription Glasses?  
/ .... Prescription Contact Lenses?  
/ .... Both?  
/ .... Neither?
8. With which hand do you usually write?  
/ .... Right      / .... Left      / .... Either Hand

The Biographical Data Form (continued)

9. Do you currently participate in resistance or free-weight training at least once a week?

/...../ Yes

/...../ No

If you answered "No", go to question 10.

If you answered "Yes", complete questions 9a, 9b, and 9c.

a. How long have you been involved in this training?

..... Years, ..... Months (Example: 2 Years, 7 Months)

b. How many days per week do you now train?

Upper body: ..... Days per week

Lower body: ..... Days per week

c. On the days that you train, how many hours per day do you train?

Upper body: ..... Hours per day

Lower body: ..... Hours per day

10. Do you currently run on a regular basis?

/...../ Yes

/...../ No

If you answered "No", go to question 11.

If you answered "Yes", complete questions 10a, 10b, and 10c.

a. How long have you been running?

..... Years, ..... Months (Example: 3 Years, 9 Months)

b. How many days per week do you now run?

..... Days per week

c. On the days that you run, how many miles do you usually cover?

..... Miles

**The Biographical Data Form (continued)**

11. Your Birthplace: .....
12. Mother's Birthplace: .....
13. Father's Birthplace: .....
14. Mother's Race: /...../ White, not of Hispanic origin  
/...../ Black, not of Hispanic origin  
/...../ Hispanic  
/...../ Asian/Pacific Islander  
/...../ American Indian/Alaskan Native  
/...../ Mixed (Specify: .....)  
/...../ Other (Specify: .....)
15. Father's Race: /...../ White, not of Hispanic origin  
/...../ Black, not of Hispanic origin  
/...../ Hispanic  
/...../ Asian/Pacific Islander  
/...../ American Indian/Alaskan Native  
/...../ Mixed (Specify: .....)  
/...../ Other (Specify: .....

-----  
DO NOT WRITE BELOW THIS LINE  
-----

16. Ethnicity/National Extraction:      17. Body Dimensions
- Subject: .....
- Mother: .....      Actual Height .....
- Father: .....      Actual Weight .....

**SUPPLEMENTARY**

**INFORMATION**

AD-A225094

ERRATA

TITLE: 1988 Anthropometric Survey of U.S. Army  
Personnel: Methods and Summary Statistics

AUTHORS: Claire C. Gordon, Thomas Churchill, Charles  
E. Clauser, Bruce Bradtmiller, John T.  
McConville, Ilse Tebbets, Robert A. Walker

TECHNICAL REPORT: Natick/TR-89/044

AD NUMBER: A225094

Publication Year: September 1989

For the above-referenced Technical Report, note should be made on page 465 that head and face dimensions measured with the automated headboard device were recorded to the nearest 0.1 millimeter, not the nearest millimeter.