



EFFECT OF AEROBIC TRAINING ON SELECTED PHYSIOLOGICAL VARIABLES OF HIGH SCHOOL GIRLS

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ABSTRACT

The purpose of the study was to investigate effect of aerobic training on selected physiological variables of high school girls. To achieve the purpose, thirty subjects were selected at random and their ages ranged from 14 to 16 years. The subjects were divided into two equal groups. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=30) were randomly assigned to two equal groups of fifteen subjects each. The groups were assigned as aerobic training group (ATG) and control group (CG) in an equivalent manner. The following are the selected criterion variables; physiological variables of Resting heart rate, Blood Pressure and vital capacity. All the subjects were tested immediately prior and after the experimental programme for the period of eight weeks. 't' ratio was applied to analyse the significant difference. To test the significance difference .05 level of confidence was fixed as the level of significance to test the 't' ratio obtained, which was considered as an appropriate. Based on the result of the study it was concluded that, the aerobic training programme produced a significant development on the selected physiological variables of high school girls.

Keywords

Aerobic training

Physiology

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Introduction

Numerous training procedures are in practice to improve each and every physical, motor fitness and physiological qualities at various levels. Each type of training produces its own effect on fitness. Training effect describes the physiological changes that occur from regular participation in a fitness program. These basic training procedures will serve better when utilized with modification suited to the individual or a group dealt with. The best training program is that which increases the desired quality at a higher rate without causing unwanted effects. The individual's physical and motor fitness qualities in which a definite improvement can be achieved through appropriate training. Although numerous types of studies exist in the

field of physical education, a physical educationist is in need to find some means that tends to encourage students to try harder to increase their level of performance and their breadth and depth of knowledge.

Aerobic training (also known as cardio) is physical exercise of relatively low intensity that depends primarily on the aerobic energy-generating process. Aerobic literally means "living in air", and refers to the use of oxygen to adequately meet energy demands during exercise via aerobic metabolism.

Methodology

To achieve the purpose of the present study, thirty subjects were selected at random and their ages ranged from 14 to 16 years. The subjects were divided into two equal groups. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=30) were randomly assigned to two equal groups of fifteen subjects each. The groups were assigned as Aerobic training (ATG), and control group (CG) in an equivalent manner.

The variables under lie the physiological fitness components which are highly related to the performance were chosen as criterion variables; physiological variables of resting heart rate, blood pressure and vital capacity. All the

subjects were tested immediately prior and after the experimental programme for the period of twelve weeks.

Analysis of Data

The t - ratio on selected physiological variables of the pre test and post test scores of Aerobic training group and control group have been analysed and presented in the following tables. To test the significance difference .05 level of confidence was fixed as the level of significance to test the 't' ratio obtained, which was considered as an appropriate.

TABLE - I
SUMMARY OF 't' RATIO ON PRE – TEST, POST – TEST OF AEROBIC TRAINING GROUP (ATG) ON SELECTED PHYSIOLOGICAL VARIABLES

S. No	Variables	Pre Test mean $\pm \sigma$	Post test mean $\pm \sigma$	Mean difference	σ DM	't' ratio
01	Resting Heart Rate	74.26 \pm 1.61	72.93 \pm 1.00	1.33	0.33	4.08*
02	Systolic Blood Pressure	122.4 \pm 2.09	121.6 \pm 1.50	0.80	0.38	2.54*
03	Diastolic Blood Pressure	82.67 \pm 1.19	79.73 \pm 2.29	2.94	0.51	5.80*
04	Vital Capacity	3.88 \pm 0.74	5.14 \pm 1.51	1.26	0.34	36.34*

An examination of the above table - I indicated that the results of t – ratio for pre test and post test scores of the aerobic training group. The obtained t-ratio for the aerobic training group was 4.08, 2.54, 5.80, and 36.34 respectively. It was found to be greater than the required 't' ratio of 2.14. The obtained 't' ratios on all the selected variables were found to be greater than the required table value of 2.14 at 0.05 level of significance for 1, 14 degrees of freedom. Hence it was found to be significant. The results of this study showed that 8 weeks practice of Aerobic training group were statistically significant and explained its effects positively.

FIG.1: PRE – TEST AND POST – TEST MEAN OF AEROBIC TRAINING GROUP (ATG) ON SELECTED PHYSIOLOGICAL VARIABLES

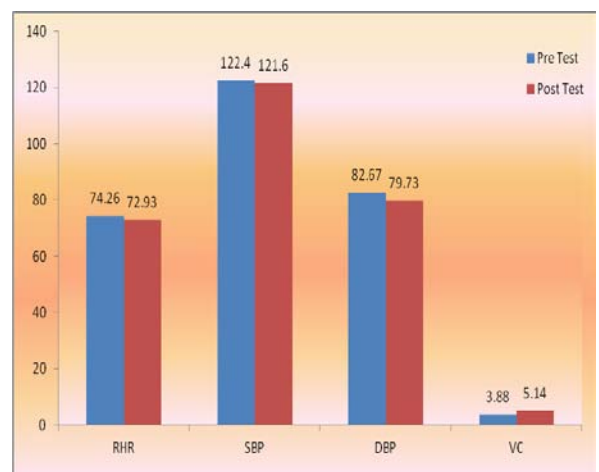
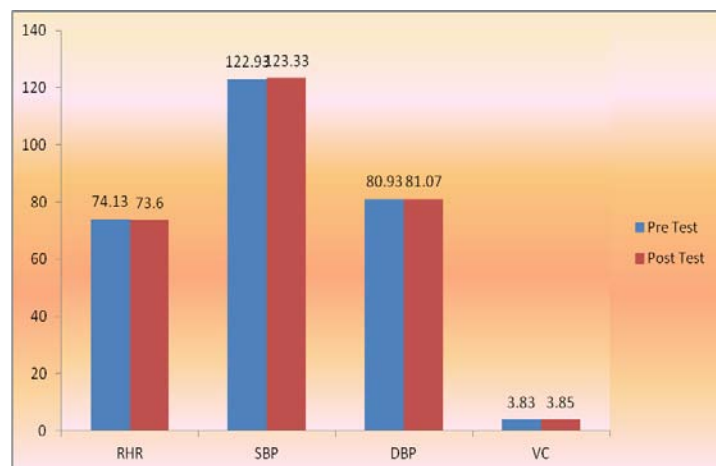


TABLE - II
SUMMARY OF 't' RATIO ON PRE – TEST, POST – TEST CONTROL GROUP (CG) ON SELECTED PHYSIOLOGICAL VARIABLES

S. No	Variables	Pre Test mean $\pm \sigma$	Post test mean $\pm \sigma$	Mean difference	σ DM	't' ratio
01	Resting Heart Rate	74.13 \pm 0.88	73.6 \pm 1.5	0.53	0.31	1.71
02	Systolic Blood Pressure	122.93 \pm 2.52	123.33 \pm 2.27	0.4	0.28	1.43
03	Diastolic Blood Pressure	80.93 \pm 2.62	81.07 \pm 3.09	0.14	0.42	0.32
04	Vital Capacity	3.83 \pm 0.58	3.85 \pm 0.64	0.02	0.15	1.98

An examination of the above table - II indicated that the results of t – ratio for pre test and post test scores of the control group. The obtained t-ratio for the control group was 1.71, 1.43, 0.32, and 1.98 respectively. It was found to be lesser than the required 't' ratio of 2.14. The obtained 't' ratios on all the selected variables were found to be lesser than the required table value of 2.14 at 0.05 level of significance for 1, 14 degrees of freedom. Hence it was found to be insignificant.

FIG.2: PRE – TEST AND POST – TEST MEAN OF CONTROL GROUP (CG) ON SELECTED PHYSIOLOGICAL VARIABLES



Result and Discussions

Aerobic training group and control group was compared; the present study demonstrated an increase in the resting heart rate 1.79% and 0.71% for aerobic training

group and control group respectively, systolic blood pressure 0.65% and 0.32% respectively, diastolic blood

pressure 3.55% and 0.17% respectively, vital capacity 31.77% and 0.75% respectively.

Thus the aerobic training programme is superior to the control group for developing the physiological variables (Resting heart rate, Blood Pressure and vital capacity)

Conclusions

The aerobic training programme produced a significant development on the selected physiological variables.

The control group did not exhibit any significant changes in the physiological variables.

References

- Donald K. Mathews, Measurement in Physical Education – (Philadelphia: W.B saunders Company, 1958)
- Harrison H. Clarke, "Application of Measurement to Health and Physical Education" (5th Edition) Englewood cliffs: N.J.Prentice Inc, 1976.
- Jack H. Willmore, david L. Costill, "Physiology of Sport and Exercise", (Third Edition, Human Kinetics, 2004)
- Scott K. Powers, Edward T. Howley, "Exercise Physiology" (Sixth Edition) Mc Graw – Hill Companies. 2007
- William D. McArdle, Frank I. Katch, Victor L. Katch, "Exercise Physiology" (Fifth edition, Lippincott Williams & Wilkins, 2001)