Ten rows and five columns of the body data set

Obs	case	fat_brozek	fat_siri	dens	age
1	1	12.6	12.3	1.0708	23
2	2	6.9	6.1	1.0853	22
3	3	24.6	25.3	1.0414	22
4	4	10.9	10.4	1.0751	26
5	5	27.8	28.7	1.0340	24
6	6	20.6	20.9	1.0502	24
7	7	19.0	19.2	1.0549	26
8	8	12.8	12.4	1.0704	25
9	9	5.1	4.1	1.0900	25
10	10	12.0	11.7	1.0722	23

The CONTENTS Procedure

Data Set Name	MODULE02.BODY	**Observations**	252
Member Type	DATA	**Variables**	19
Engine	V9	**Indexes**	0
Created	06/20/2025 13:06:51	**Observation Length**	152
Last Modified	06/20/2025 13:06:51	**Deleted Observations**	0
Protection		**Compressed**	NO
Data Set Type		**Sorted**	NO
Label			
Data Representation	WINDOWS_64		
Encoding	wlatin1 Western (Windows)		

Engine/Host Dependent Information	
Data Set Page Size	65536
Number of Data Set Pages	1
First Data Page	1
Max Obs per Page	430
Obs in First Data Page	252
Number of Data Set Repairs	0
ExtendObsCounter	YES
Filename	q:\5507-2025b\02\data\body.sas7bdat
Release Created	9.0401M7
Host Created	X64_SRV19
Owner Name	UM-AD\simons
File Size	128KB
File Size (bytes)	131072

Alphabetic List of Variables and Attributes				
#	**Variable**	**Type**	**Len**	**Label**
12	abdomen	Num	8	Abdomen circumference (cm)
5	age	Num	8	Age (yrs)
16	ankle	Num	8	Ankle circumference (cm)
17	biceps	Num	8	Biceps circumference (cm)
8	bmi	Num	8	Body mass index (kg/m^2)
1	case	Num	8	Case number
11	chest	Num	8	Chest circumference (cm)
4	dens	Num	8	Density

The CONTENTS Procedure

Alphabetic List of Variables and Attributes				
#	Variable	Type	Len	Label
2	fat_brozek	Num	8	Fat (Brozek's equation)
3	fat_siri	Num	8	Fat (Siri's equation)
9	ffw	Num	8	Fat Free Weight (lbs)
18	forearm	Num	8	Forearm circumference (cm)
13	hip	Num	8	Hip circumference (cm)
7	ht	Num	8	Height (inches)
15	knee	Num	8	Knee circumference (cm)
10	neck	Num	8	Neck circumference (cm)
14	thigh	Num	8	Thigh circumference (cm)
19	wrist	Num	8	Wrist circumference (cm)
6	wt	Num	8	Weight (lbs)

Descriptive statistics for ht
The minimum is very low

The MEANS Procedure

Analysis Variable : ht Height (inches)				
N	Mean	Std Dev	Minimum	Maximum
252	70.1488095	3.6628558	29.5000000	77.7500000

The row with the smallest ht
Note the inconsistency with wt

Obs	case	fat_brozek	fat_siri	dens	age	wt	ht	bmi	ffw	neck	chest	abdomen	hip
1	42	31.7	32.9	1.025	44	205	29.5	29.9	140.1	36.6	106	104.3	115.5

Obs	thigh	knee	ankle	biceps	forearm	wrist
1	70.6	42.5	23.7	33.6	28.7	17.4

The row with the largest ht
This seems quite normal to me

Obs	case	fat_brozek	fat_siri	dens	age	wt	ht	bmi	ffw	neck	chest	abdomen	hip
1	96	17.3	17.4	1.0991	53	224.5	77.75	26.1	185.7	41.1	113.2	99.2	107.5

Obs	thigh	knee	ankle	biceps	forearm	wrist
1	61.7	42.3	23.2	32.9	30.8	20.4

Printing negative values for ht (wrong way)
Use where ht ^= . & ht < 0 instead

Obs	case	fat_brozek	fat_siri	dens	age	wt	ht	bmi	ffw	neck	chest	abdomen	hip
252	42	31.7	32.9	1.025	44	205	.	29.9	140.1	36.6	106	104.3	115.5

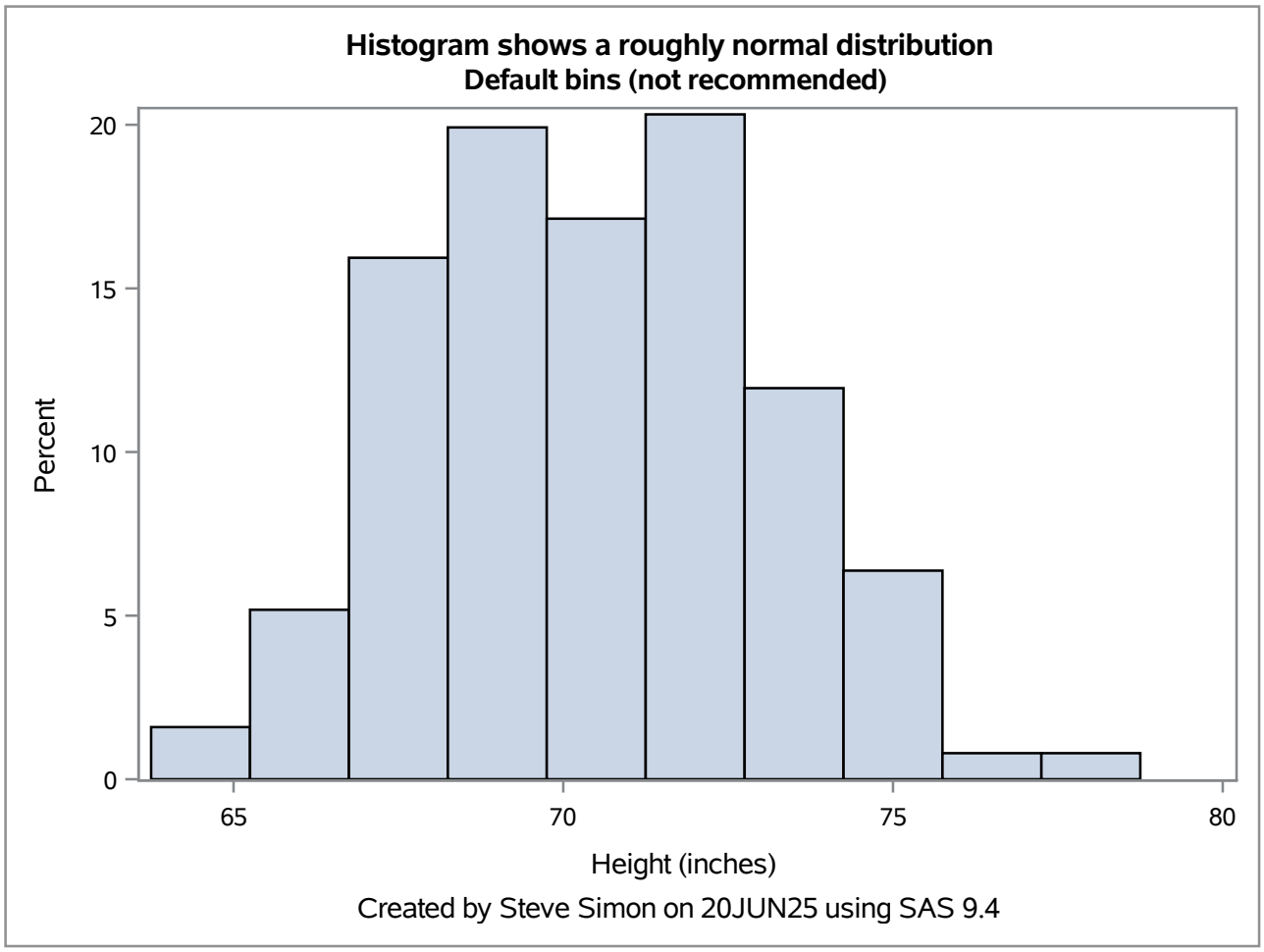
Obs	thigh	knee	ankle	biceps	forearm	wrist
252	70.6	42.5	23.7	33.6	28.7	17.4

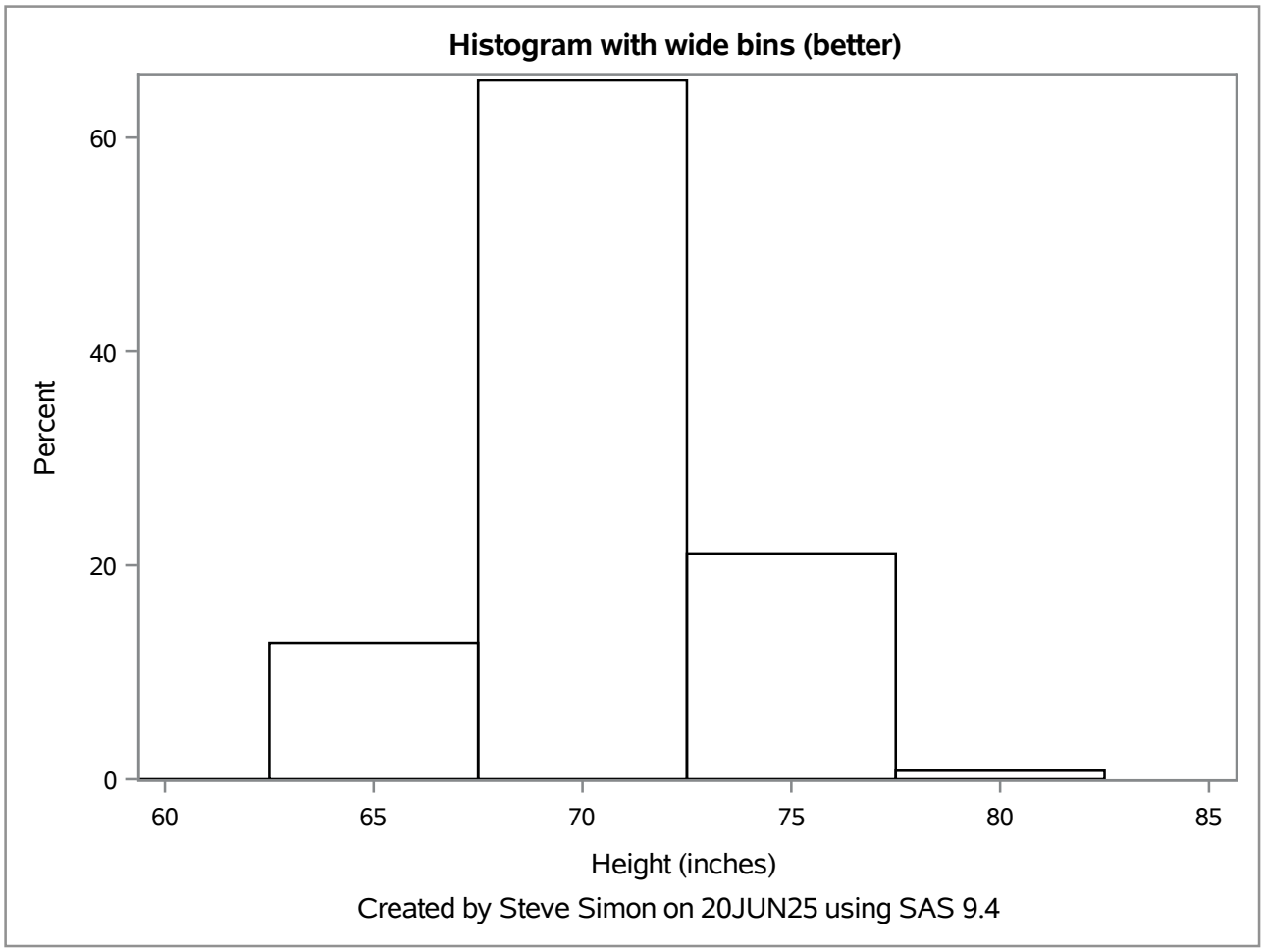
The MEANS Procedure

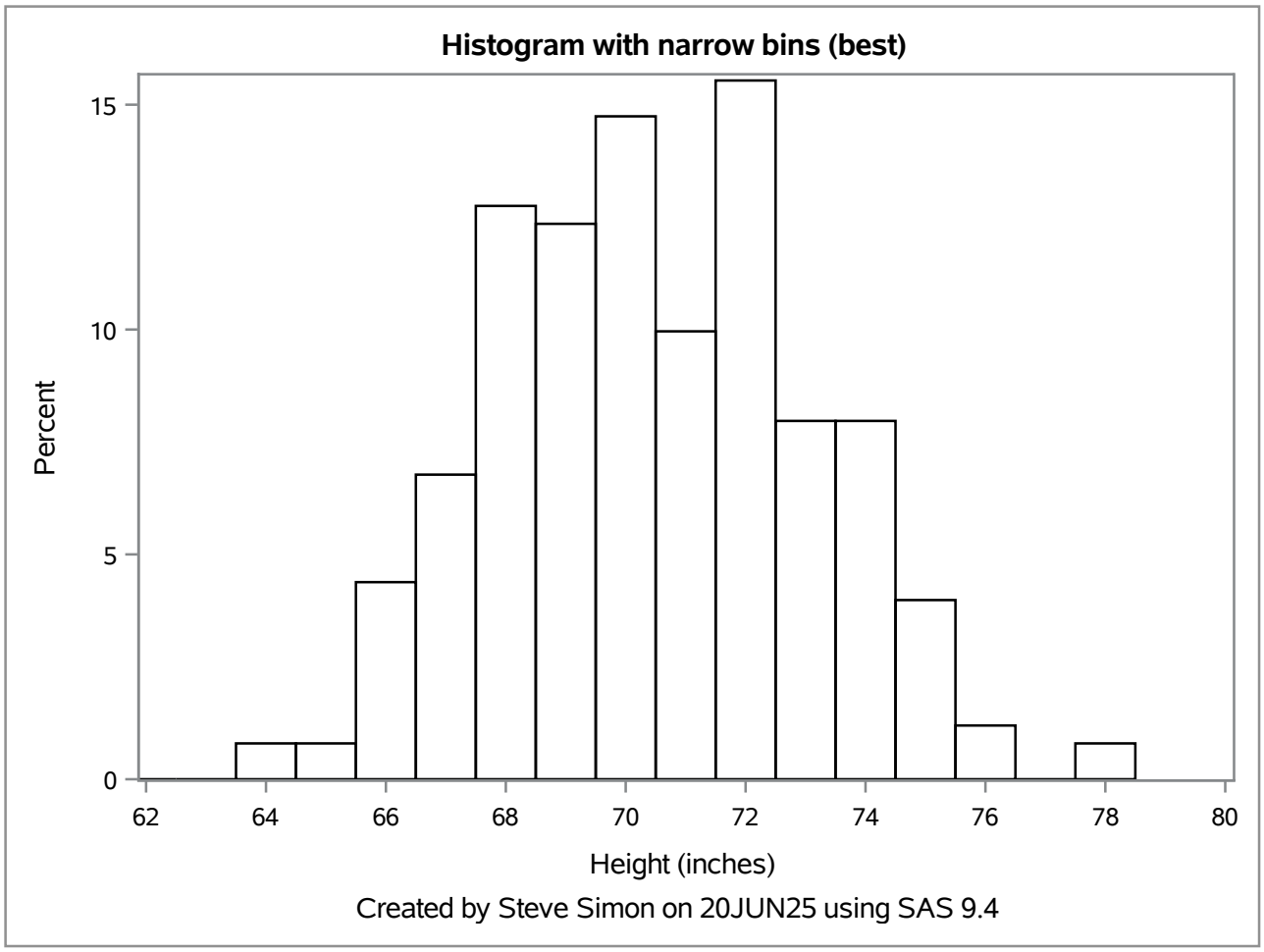
Analysis Variable : ht Height (inches)					
N	N Miss	Mean	Std Dev	Minimum	Maximum
251	1	70.3107570	2.6142960	64.0000000	77.7500000

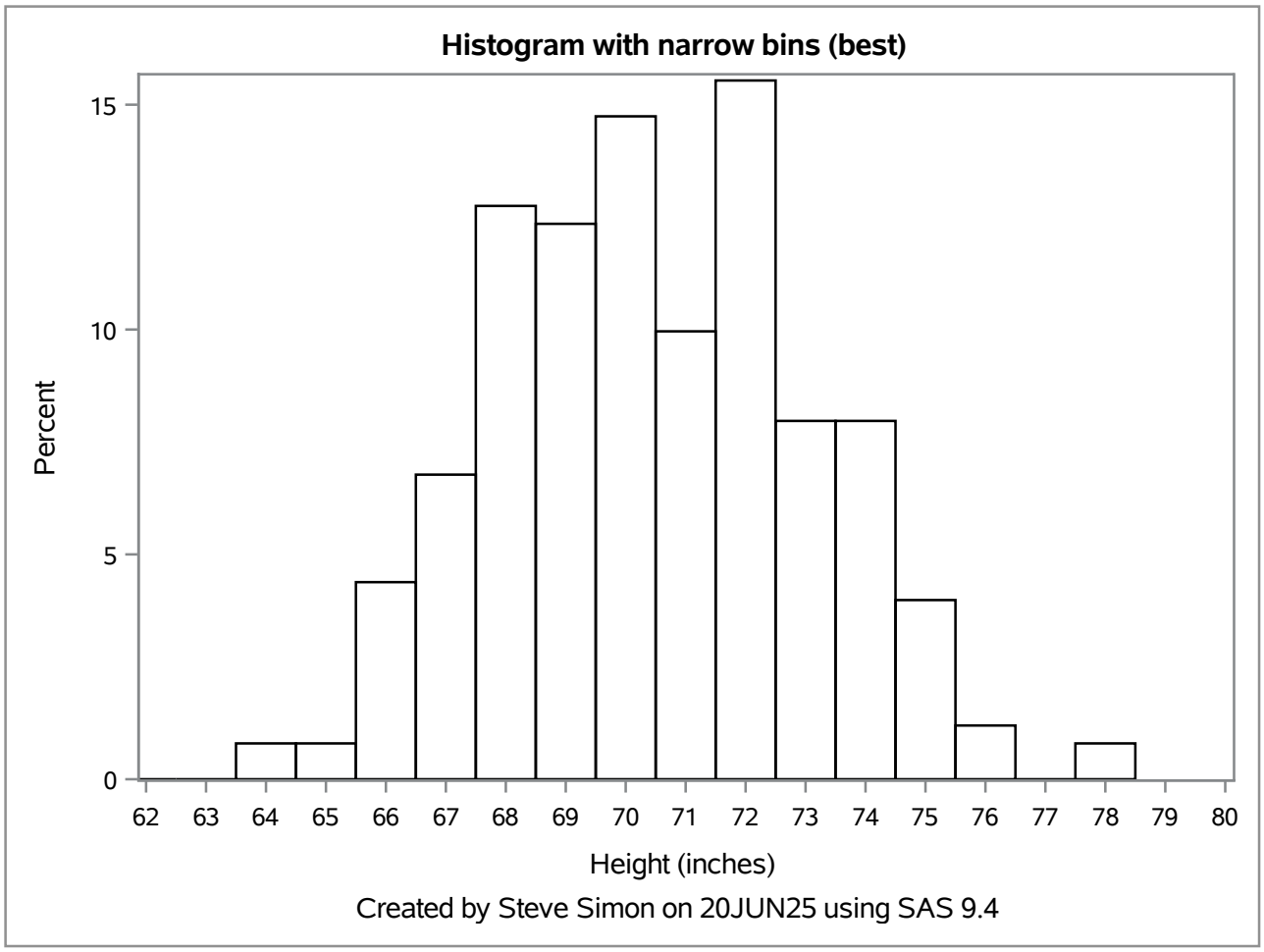
Recalculating ht, wt, and bmi
Assuming two out of three are correct.

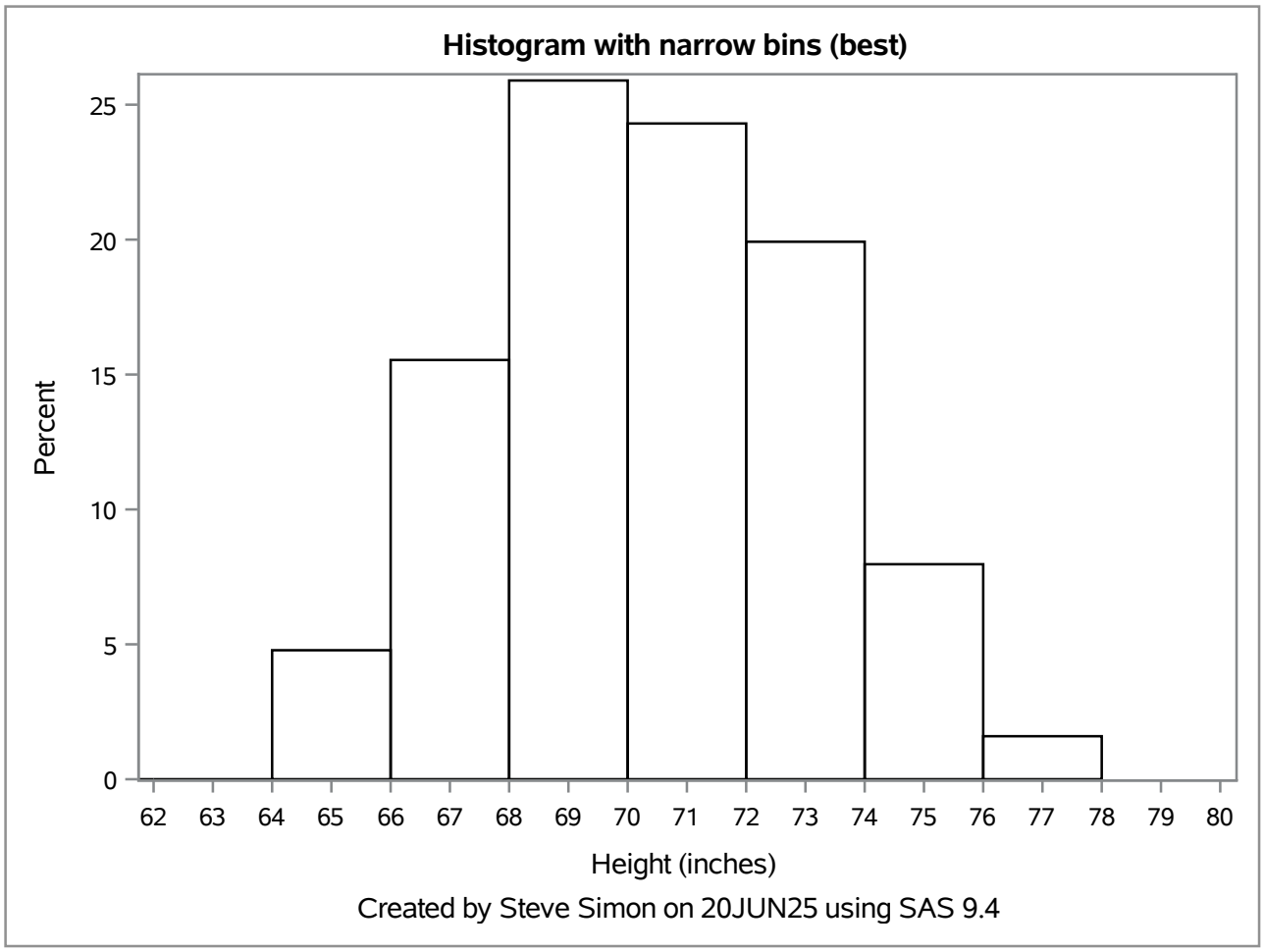
Obs	ht	check_ht	wt	check_wt	bmi	check_bmi
252	29.5	69.5017	205	36.9324	29.9	165.966

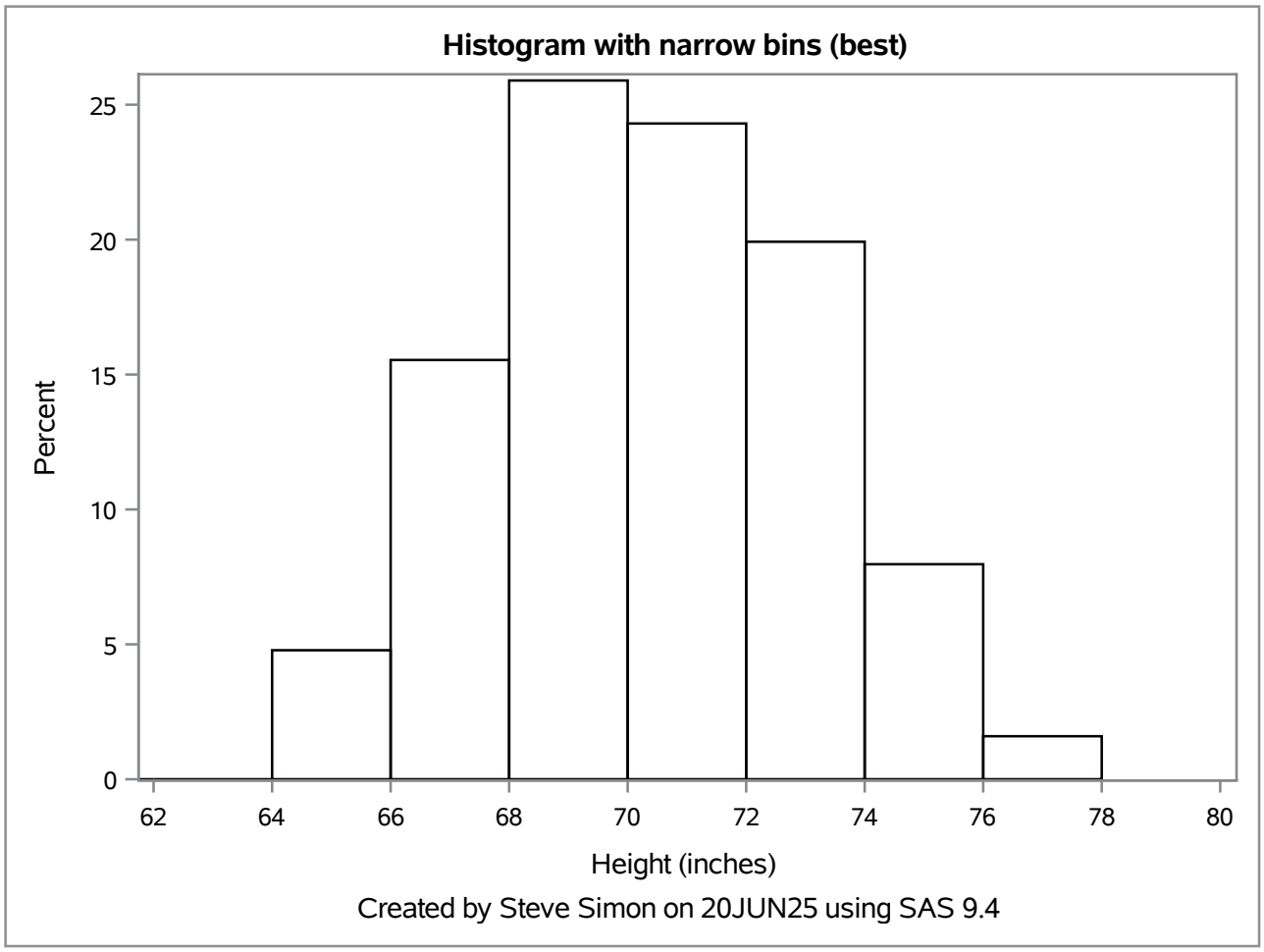

Histogram shows a roughly normal distribution
Default bins (not recommended)
Percent
20
15
10
5
0
65
70
75
80
Height (inches)
Created by Steve Simon on 20JUN25 using SAS 9.4

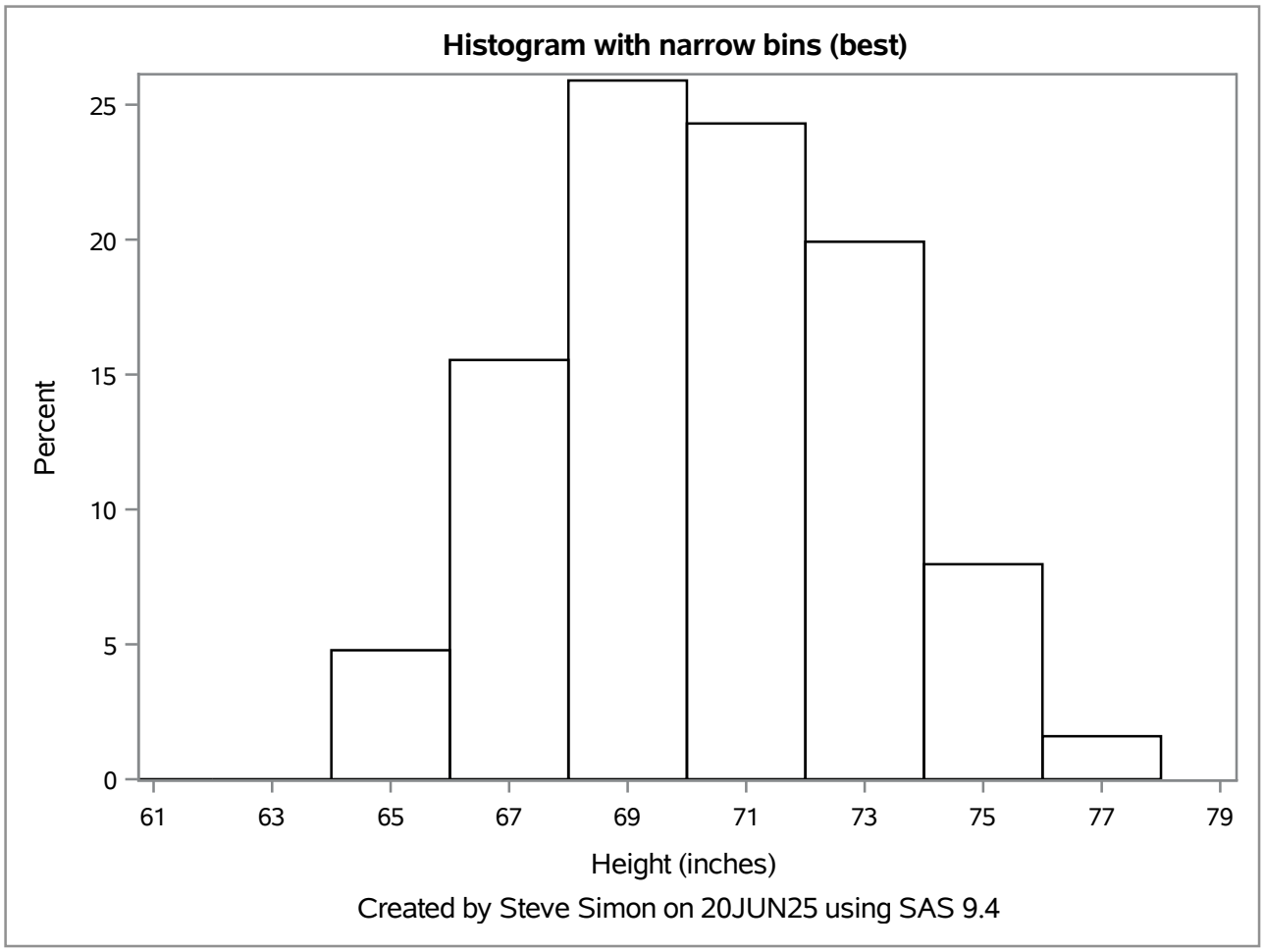

Histogram with wide bins (better)
Percent
60
40
20
0
60
65
70
75
80
85
Height (inches)
Created by Steve Simon on 20JUN25 using SAS 9.4


Histogram with narrow bins (best)
Percent
0
5
10
15
62
64
66
68
70
72
74
76
78
80
Height (inches)
Created by Steve Simon on 20JUN25 using SAS 9.4


Histogram with narrow bins (best)
Percent
0
5
10
15
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
Height (inches)
Created by Steve Simon on 20JUN25 using SAS 9.4


Histogram with narrow bins (best)
Percent
0
5
10
15
20
25
62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
Height (inches)
Created by Steve Simon on 20JUN25 using SAS 9.4


Histogram with narrow bins (best)
Percent
25
20
15
10
5
0
62
64
66
68
70
72
74
76
78
80
Height (inches)
Created by Steve Simon on 20JUN25 using SAS 9.4


Histogram with narrow bins (best)
Percent
0
5
10
15
20
25
61
63
65
67
69
71
73
75
77
79
Height (inches)
Created by Steve Simon on 20JUN25 using SAS 9.4

The CORR Procedure

10 With Variables:	neck chest abdomen hip thigh knee ankle biceps forearm wrist
2 Variables:	fat_brozek fat_siri

Simple Statistics

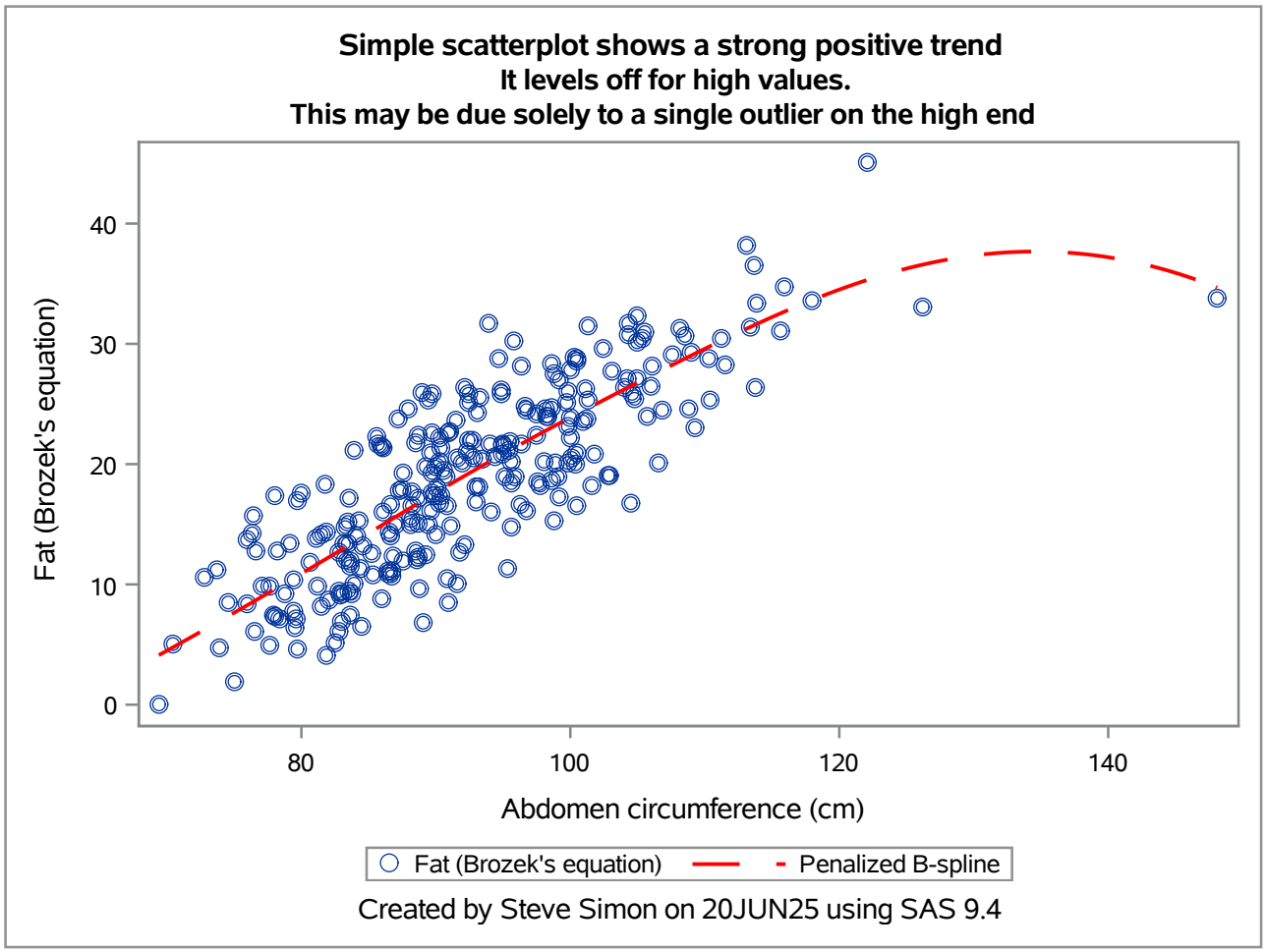
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
neck	252	37.99206	2.43091	9574	31.10000	51.20000	Neck circumference (cm)
chest	252	100.82421	8.43048	25408	79.30000	136.20000	Chest circumference (cm)
abdomen	252	92.55595	10.78308	23324	69.40000	148.10000	Abdomen circumference (cm)
hip	252	99.90476	7.16406	25176	85.00000	147.70000	Hip circumference (cm)
thigh	252	59.40595	5.24995	14970	47.20000	87.30000	Thigh circumference (cm)
knee	252	38.59048	2.41180	9725	33.00000	49.10000	Knee circumference (cm)
ankle	252	23.10238	1.69489	5822	19.10000	33.90000	Ankle circumference (cm)
biceps	252	32.27341	3.02127	8133	24.80000	45.00000	Biceps circumference (cm)
forearm	252	28.66389	2.02069	7223	21.00000	34.90000	Forearm circumference (cm)
wrist	252	18.22976	0.93358	4594	15.80000	21.40000	Wrist circumference (cm)
fat_brozek	252	18.93849	7.75086	4773	0	45.10000	Fat (Brozek's equation)
fat_siri	252	19.15079	8.36874	4826	0	47.50000	Fat (Siri's equation)

Pearson Correlation Coefficients, N = 252
Prob > |r| under H0: Rho=0

	fat_brozek	fat_siri
neck **Neck circumference (cm)**	0.49149 <.0001	0.49059 <.0001
chest **Chest circumference (cm)**	0.70289 <.0001	0.70262 <.0001
abdomen **Abdomen circumference (cm)**	0.81371 <.0001	0.81343 <.0001
hip **Hip circumference (cm)**	0.62570 <.0001	0.62520 <.0001
thigh **Thigh circumference (cm)**	0.56128 <.0001	0.55961 <.0001
knee **Knee circumference (cm)**	0.50779 <.0001	0.50867 <.0001
ankle **Ankle circumference (cm)**	0.26678 <.0001	0.26597 <.0001
biceps **Biceps circumference (cm)**	0.49303 <.0001	0.49327 <.0001
forearm **Forearm circumference (cm)**	0.36328 <.0001	0.36139 <.0001
wrist **Wrist circumference (cm)**	0.34757 <.0001	0.34657 <.0001

Abdomen, hip, and chest show the strongest correlations

Obs	_NAME_	fat_brozek	fat_siri
1	abdomen	0.81	0.81
2	chest	0.70	0.70
3	hip	0.63	0.63
4	thigh	0.56	0.56
5	knee	0.51	0.51
6	neck	0.49	0.49
7	biceps	0.49	0.49
8	forearm	0.36	0.36
9	wrist	0.35	0.35
10	ankle	0.27	0.27


Simple scatterplot shows a strong positive trend
It levels off for high values.
This may be due solely to a single outlier on the high end
Fat (Brozek's equation)
0
10
20
30
40
80
100
120
140
Abdomen circumference (cm)
Fat (Brozek's equation)
Penalized B-spline
Created by Steve Simon on 20JUN25 using SAS 9.4