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A SUPPLEMENT TO THE 1995 MATCHED ANTHROPOMETRIC DATABASE OF U.S. MARINE CORPS PERSONNEL: SUMMARY STATISTICS

**By
Steven P. Paquette
Claire C. Gordon
J. David Brantley
Henry W. Case*
and
Donna J. Gaeta***

***GEO CENTERS, INC.
Newton Centre, MA 02159**

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13. ABSTRACT (Maximum 200 words) Anthropometric databases that are representative of the user population are necessary for the design and sizing of clothing, equipment and workspaces. In 1996, a U.S. Marine Corps (USMC) anthropometric database of 76 dimensions for males and females was derived from the large 1988 U.S. Army Anthropometric Survey (ANSUR) database using a statistical matching procedure. The need to include USMC body size information in the Jack human figure model provided the impetus to derive additional anthropometric variables. Summary statistics and the measurement descriptions for the 36 dimensions contained herein are provided as a supplement to the initial USMC matching report.				
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PREFACE

The impetus for this report was a request from the U.S. Army Human Research and Equipment Directorate, Aberdeen Proving Ground, provide USMC male percentile data for inclusion in the Jack human figure model. This work, funded by the USMC, was conducted during the period of August thru December 1996.

Successful completion of this report would not have been possible without the support of Major B.A. Smith of the USMC. Several GEO-CENTERS, INC. personnel have contributed directly or indirectly to this report. The Marine Corps demographic and anthropometric survey data used for matching and validation of the matching were collected under the direction of Ms. Wendy Todd. Other survey team members from GEO-CENTERS, INC. included Ms. Nancy Bell, Ms. Heather Foti, and Mr. Henry Case. The matching program was written by Ms. Sarah Donelson. Dr. Robert J. Woods and Ms. Amy Polcyn both reviewed the drafts of this report and have provided valuable comments.

A SUPPLEMENT TO THE 1995 MATCHED ANTHROPOMETRIC DATABASE OF U.S. MARINE CORPS PERSONNEL: SUMMARY STATISTICS

CHAPTER 1

INTRODUCTION

Anthropometric databases that are representative of the user population are necessary for the design and sizing of clothing, equipment, and workspaces. The last major U.S. Marine Corps (USMC) anthropometric survey, consisting of males only, was conducted in 1966¹. In 1996, a new USMC anthropometric database², demographically and anthropometrically representative of the current Marine population, was derived from the large 1988 U.S. Army Anthropometric Survey (ANSUR)³ database using a statistical matching procedure. Seventy-six of the most commonly used dimensions were derived for the Marine Corps database. Summary statistics for these dimensions and the matching procedures are reported in 1995 Matched Anthropometric Database of U.S. Marine Corps Personnel: Summary Statistics². Validation of the matching procedure is discussed at length in Validation of a Statistical Matching Procedure Used to Create the United States Marine Corps Anthropometric Databases⁴.

Recent requests to provide the Marine Corps with additional anthropometric data for Human Figure Modelling have required that 36 additional variables be derived from ANSUR. Summary statistics for these matched dimensions are provided here to supplement the original USMC publications.

Matching criteria and procedures used to derive the USMC supplementary data are identical to those used in the previous USMC matching^{2,4}, and these sources should be consulted for a complete discussion of the methods used. Male and female data were matched separately. Within each sex, matching was done on age, race/ethnic group, height, and weight. Data in this report are demographically and anthropometrically representative of the USMC as of February 1995. The demographic distributions for this time period are reproduced from the original USMC matching report² in Tables 1 and 2 for males and females, respectively.

Table 1. USMC Male Demographic Distribution (Age by Race), February 1995

	White	Black	Hispanic	Asian/Pa Islander	American Indian	Mixed/ Other	Total
≤20	31,821 19.16%	5,178 3.12%	4,502 2.71%	693 0.42%	392 0.24%	507 0.31%	43,093 25.95%
21-24	41,689 25.10%	7,667 4.61%	5,626 3.39%	994 0.60%	481 0.29%	656 0.39%	57,113 34.39%
25-30	21,078 12.69%	5,602 3.37%	2,270 1.37%	546 0.33%	233 0.14%	299 0.18%	30,028 18.08%
≥31	25,168 15.15%	7,384 4.44%	2,300 1.38%	528 0.32%	201 0.12%	275 0.17%	35,856 21.59%
Total	119,756 72.10%	25,831 15.55%	14,698 8.85	2,761 1.66%	1,307 0.79%	1,737 1.04%	166,090 100.00%

Table 2. USMC Female Demographic Distribution (Age by Race), February 1995

	White	Black	Hispanic	Asian/Pa Islander	American Indian	Mixed/ Other	Total
≤20	1,322 17.05%	385 4.96%	271 3.50%	50 0.64%	40 0.52%	26 0.34%	2,094 27.01%
21-24	1,456 18.78%	551 7.11%	269 3.47%	50 0.64%	46 0.59%	42 0.54%	2,414 31.14%
25-30	882 11.38%	476 6.14%	134 1.73%	32 0.41%	21 0.27%	36 0.46%	1,581 20.39%
≥31	987 12.73%	510 6.58%	125 1.61%	13 0.17%	12 0.15%	17 0.22%	1,664 21.46%
Total	4,647 59.94%	1,922 24.79%	799 10.31%	145 1.87%	119 1.53%	121 1.56%	7,753 100.00%

CHAPTER 2

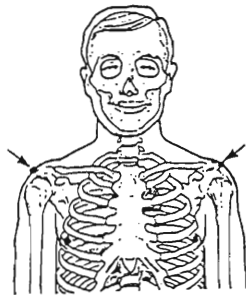
ANTHROPOMETRIC LANDMARKS

Body measurements are taken using easily identifiable anatomical points, or landmarks, in order to standardize measurement procedures. These landmarks define the end points of certain body measurements and/or the level at which other measurements are taken.

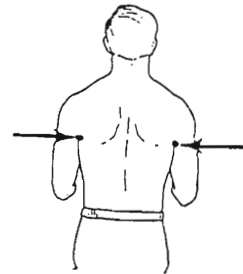
Landmarks are located on the body by palpation or visual inspection. A general description and illustration of the landmarks used for obtaining the dimensions in this report are shown below. A more detailed discussion of the methods used for landmark identification are given in Measurer's Handbook: U.S. Army Anthropometric Survey 1987-1988⁵ and Hand Anthropometry of U.S. Army Personnel.⁶

Landmark Definitions and Illustrations

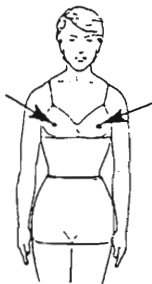
Acromion, right and left: The point of intersection of the lateral border of the acromial process and a line running down the middle of the shoulder from the neck to the tip of the shoulder.



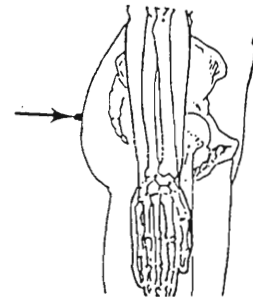
Axillary fold, posterior: right and left: The highest points of the right and left axillary folds on the back.



Bustpoint, right and left: The anterior points of the bra cups.

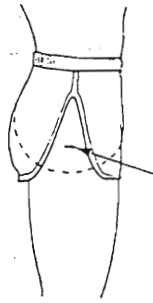


Buttock point, posterior: Point of maximum protrusion of the right buttock of a standing subject.

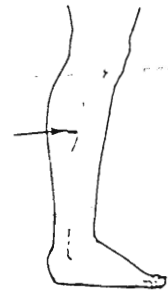


Buttock point, right lateral and left

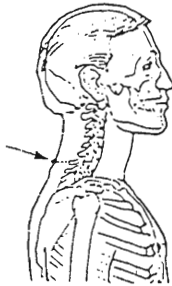
lateral: Points on the thigh or hip at the level of the maximum protrusion of the right buttock.



Calf: A point on the side of the calf at the level of the maximum circumference of the right calf.



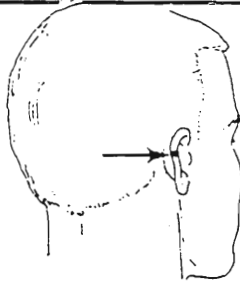
Cervicale: The superior palpable point of the spine of the seventh cervical vertebra.



Ear, bottom: The lowest point of the right ear on its long axis.



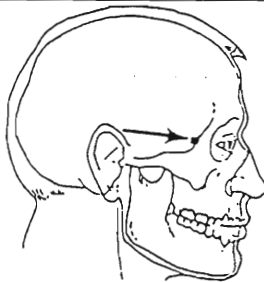
Ear point: The lateral point (farthest from the head) of the right ear.



Ear, top: The highest point of the right ear on its long axis.



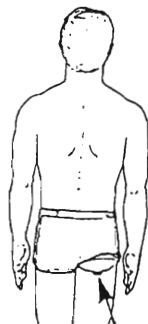
Ectoorbitale, right and left: The posterior point on the frontal process of the zygomatic bone at the level of the outer corner of the eye.



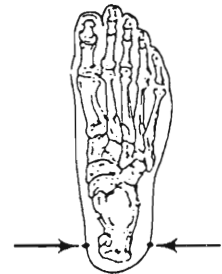
Elbow crease: The skin crease on the inside of the right elbow joint when the elbow is flexed 90 degrees.

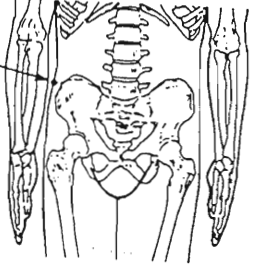
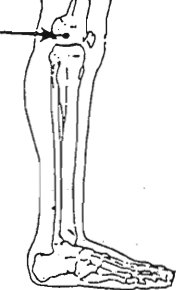
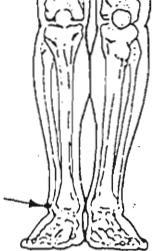
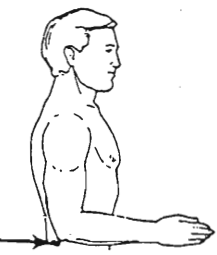
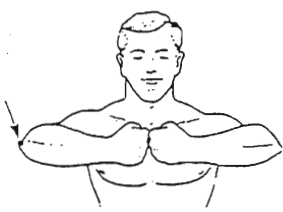
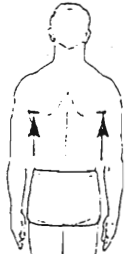
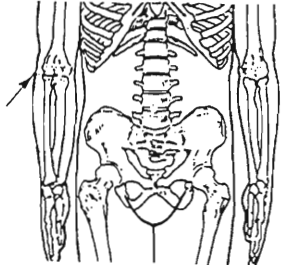
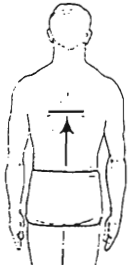


Gluteal furrow point: The lowest point of the lowest furrow or crease at the juncture of the right buttock and the thigh.

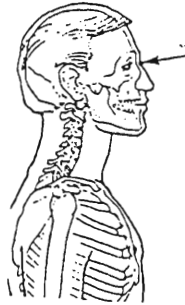


Heel point, lateral and medial: The lateral and medial points of the right heel located at or behind the most protruding point of the lateral malleolus (outside ankle bone).

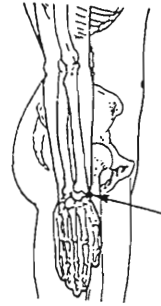


Iliocristale: The highest palpable point of the right iliac crest of the pelvis, one half the distance between the anterior superior iliac and posterior superior iliac spines. 	Lateral femoral epicondyle, standing and sitting: Lateral point of the right femoral epicondyle (knee pivot point). 
Lateral malleolus: The lateral point of the right lateral malleolus (outside ankle bone). 	Menton: The inferior point of the mandible in the midsagittal plane (bottom of the chin). 
Midpatella: The anterior point halfway between the top and bottom of the right patella (the kneecap). 	Olecranon, bottom and rear: The lowest and rearmost points of the right elbow with the elbow flexed 90 degrees. 
Olecranon, center: A point on the center of the curvature of the right olecranon process with the elbow flexed about 115 degrees. 	Posterior horizontal scye, right and left: A short horizontal line on the back originating at the apex of the posterior axillary fold. 
Radiale: The highest point on the outside edge of the right radius. 	Scye level at midspine: A short horizontal line across the spine at the level of the Posterior horizontal scye landmarks. 

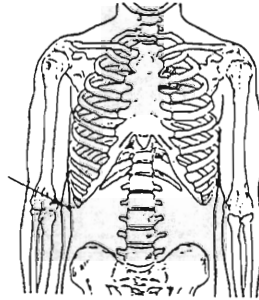
Sellion: The point of the deepest depression of the nasal bones at the top of the nose.



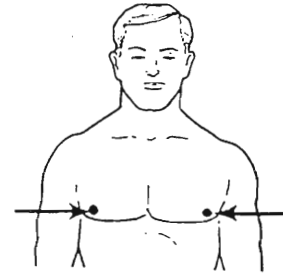
Stylian: The lowest point of the bottom of the right radius.



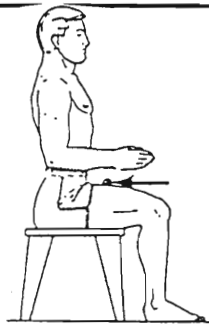
Tenth rib: The inferior point of the right tenth rib (bottom of the rib cage).



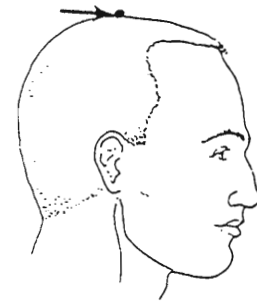
Thelion, right and left: Center of the nipple (on males).



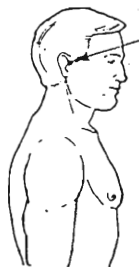
Thigh point, top: The highest point of the top of the right thigh of a seated subject.



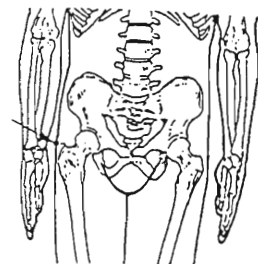
Top of head: The highest point on the head when the head is in Frankfort plane.



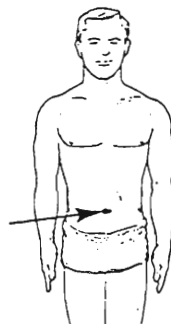
Tragion, right and left: The superior point on the juncture of the cartilaginous flap (tragus) of the ear with the head.



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

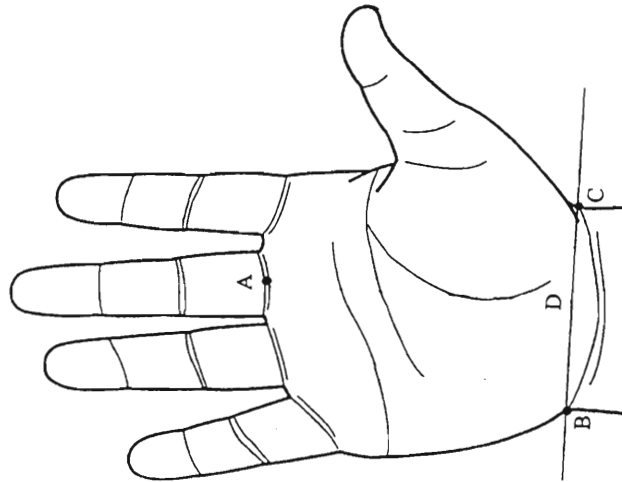


Waist (omphalion): right and left; anterior and posterior: Level of the center of the navel.



Wrist and Hand:

- A) Base of digit 3: Point at the center of the middle finger on the proximal flexion crease.
- B) Ulnar edge of the distal wrist crease: Located at the projection of the digital wrist crease to the ulnar edge of the wrist.
- C) Radial edge of the distal wrist crease: Located at the projection of the distal wrist crease to the radial edge of the wrist.
- D) Wrist base line: A line across the wrist drawn between points B and C.



CHAPTER 3

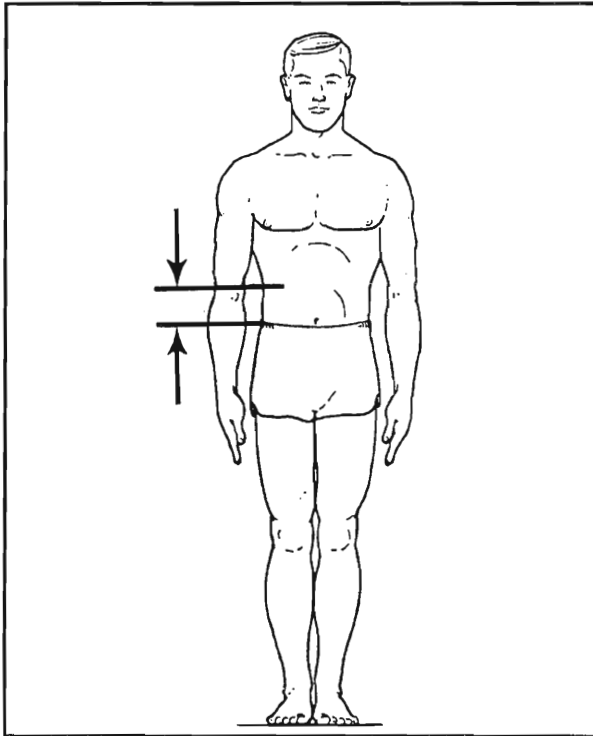
ANTHROPOMETRIC DEFINITIONS AND SUMMARY STATISTICS

Means, standard deviations, and percentiles for 36 dimensions in the derived male and female USMC anthropometric databases are included in the following pages. Measurement procedures and illustrations are included for each dimension.

Most of the dimensions were measured using conventional anthropometric instruments (an anthropometer, beam caliper, sliding caliper, and tape measure). Ectoorbitale-Top of Head, Menton-Top of Head, and Sellion-Top of Head were all measured with an automated headboard device⁷. Palm length was determined from photographs taken using a specially designed hand photographic device⁸. Several dimensions, termed “links,” are distances between joint centers, and were calculated from two or more measured dimensions. Detailed descriptions of the measurement procedures can be found in the measurers handbook⁵ and the hand report⁶.

(1) 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 ILIOCRISTALE HEIGHT.



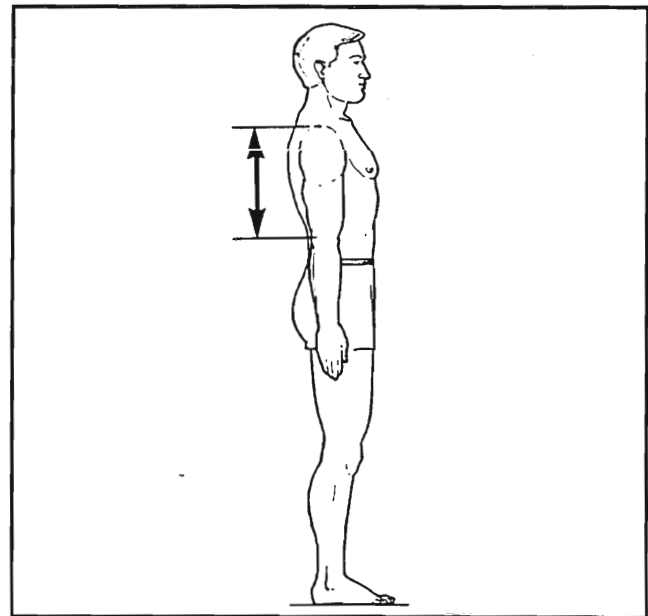
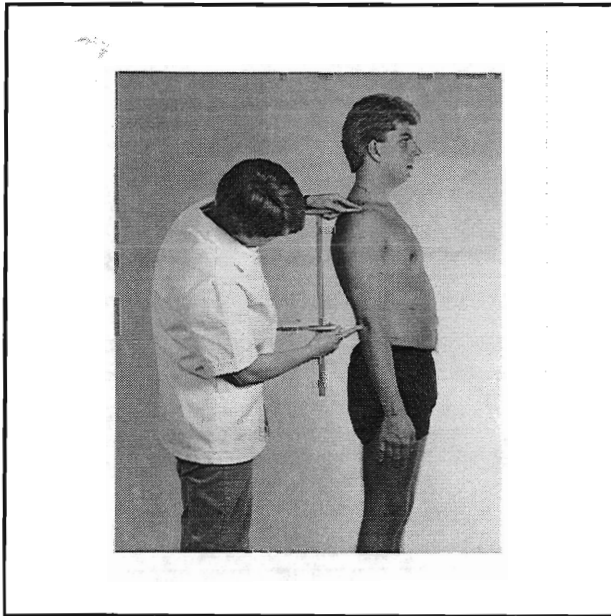
Abdominal Link

Males		
Millimeters		Inches
47.00	Mean	1.85
0.80	SE(Mean)	0.03
15.60	SD(Mean)	0.61
0.58	SE(SD)	0.02
1.00	Minimum	0.04
115.00	Maximum	4.53
Symmetry-Veta I		5.00
Kurtosis-Veta II		6.70
Coeff. of Variation		33.2%
Sample Size		4446
Percentiles		
Millimeters		Inches
14.80	1st	0.58
18.40	2nd	0.72
20.70	3rd	0.81
23.90	5th	0.94
28.80	10th	1.13
32.10	15th	1.26
34.70	20th	1.37
37.00	25th	1.46
39.00	30th	1.54
40.90	35th	1.61
42.70	40th	1.68
44.50	45th	1.75
46.30	50th	1.82
48.10	55th	1.89
50.00	60th	1.97
51.90	65th	2.04
54.10	70th	2.13
56.50	75th	2.22
59.30	80th	2.33
62.70	85th	2.47
67.40	90th	2.65
75.30	95th	2.96
81.00	97th	3.19
85.70	98th	3.37
93.90	99th	3.70

Females		
Millimeters		Inches
55.00	Mean	2.17
0.80	SE(Mean)	0.03
14.60	SD(Mean)	0.57
0.56	SE(SD)	0.02
6.00	Minimum	0.24
110.00	Maximum	4.33
Symmetry-Veta I		1.20
Kurtosis-Veta II		1.40
Coeff. of Variation		26.5%
Sample Size		2887
Percentiles		
Millimeters		Inches
21.30	1st	0.84
25.50	2nd	1.00
28.20	3rd	1.11
31.70	5th	1.25
37.00	10th	1.46
40.60	15th	1.60
43.30	20th	1.70
45.70	25th	1.80
47.80	30th	1.88
49.80	35th	1.96
51.60	40th	2.03
53.40	45th	2.10
55.20	50th	2.17
57.00	55th	2.24
58.80	60th	2.31
60.70	65th	2.39
62.80	70th	2.47
65.00	75th	2.56
67.50	80th	2.66
70.50	85th	2.78
74.40	90th	2.93
80.40	95th	3.17
84.50	97th	3.33
87.70	98th	3.45
92.90	99th	3.66

(2) 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.



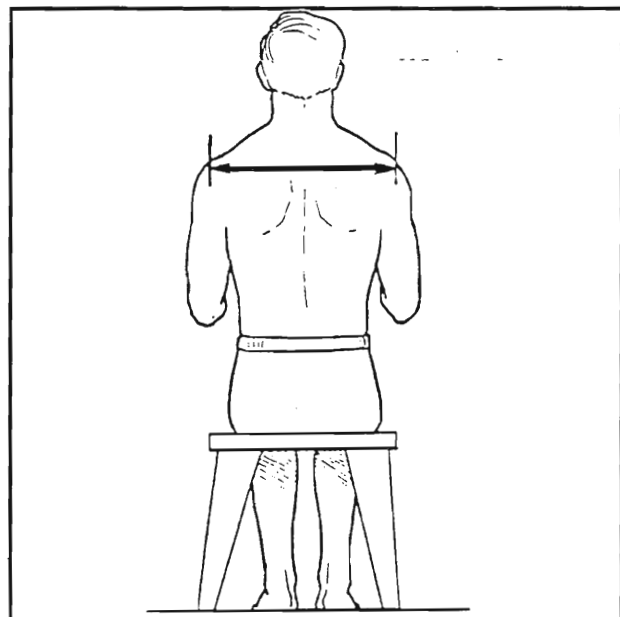
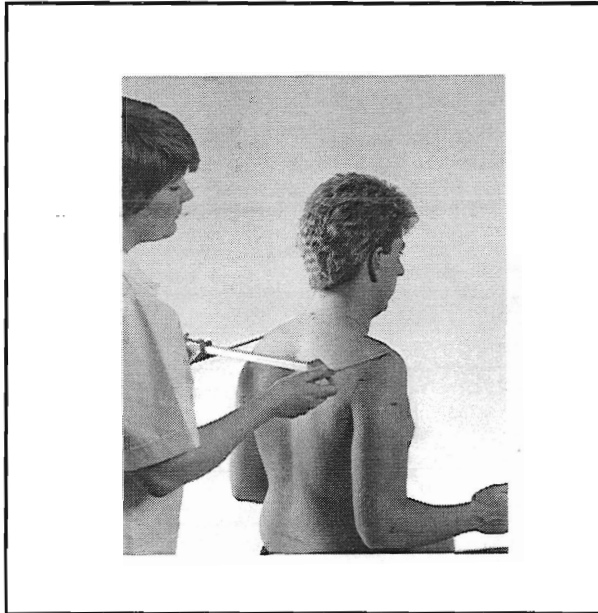
Acromion-Radiale Length

Males		
Millimeters		Inches
340.00	Mean	13.39
0.90	SE(Mean)	0.04
16.80	SD(Mean)	0.66
0.62	SE(SD)	0.02
277.00	Minimum	10.91
408.00	Maximum	16.06
Symmetry-Veta I		0.60
Kurtosis-Veta II		-0.40
Coeff. of Variation		4.9%
Sample Size		4447
Percentiles		
Millimeters		Inches
302.40	1st	11.91
306.50	2nd	12.07
309.20	3rd	12.17
313.00	5th	12.32
319.00	10th	12.56
323.20	15th	12.72
326.50	20th	12.85
329.40	25th	12.97
331.90	30th	13.07
334.30	35th	13.16
336.50	40th	13.25
338.60	45th	13.33
340.70	50th	13.41
342.80	55th	13.50
344.90	60th	13.58
347.10	65th	13.67
349.40	70th	13.76
351.90	75th	13.85
354.80	80th	13.97
358.10	85th	14.10
362.30	90th	14.26
368.90	95th	14.52
373.40	97th	14.70
376.90	98th	14.84
382.70	99th	15.07

Females		
Millimeters		Inches
311.00	Mean	12.24
0.90	SE(Mean)	0.04
16.30	SD(Mean)	0.64
0.62	SE(SD)	0.02
264.00	Minimum	10.39
379.00	Maximum	14.92
Symmetry-Veta I		1.30
Kurtosis-Veta II		0.30
Coeff. of Variation		5.2%
Sample Size		2888
Percentiles		
Millimeters		Inches
274.30	1st	10.80
278.20	2nd	10.95
280.80	3rd	11.06
284.40	5th	11.20
290.10	10th	11.42
294.00	15th	11.57
297.10	20th	11.70
299.90	25th	11.81
302.30	30th	11.90
304.60	35th	11.99
306.70	40th	12.07
308.80	45th	12.16
310.90	50th	12.24
313.00	55th	12.32
315.10	60th	12.41
317.30	65th	12.49
319.60	70th	12.58
322.20	75th	12.69
325.00	80th	12.80
328.30	85th	12.93
332.60	90th	13.09
339.10	95th	13.35
343.50	97th	13.52
346.90	98th	13.66
352.30	99th	13.87

(3) 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 respirations.



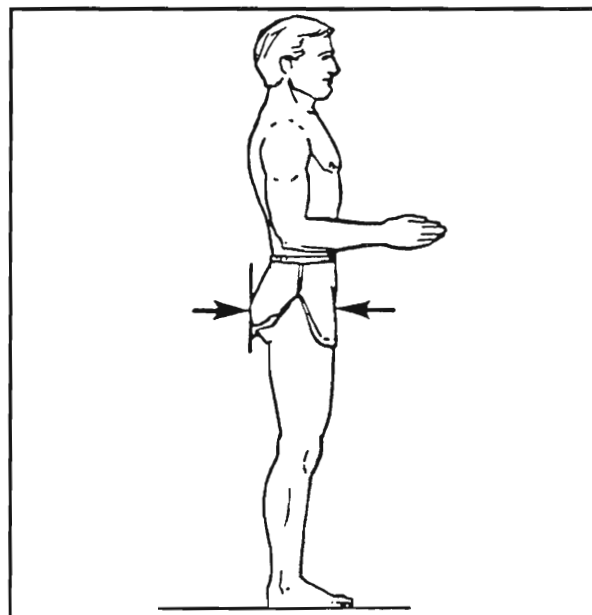
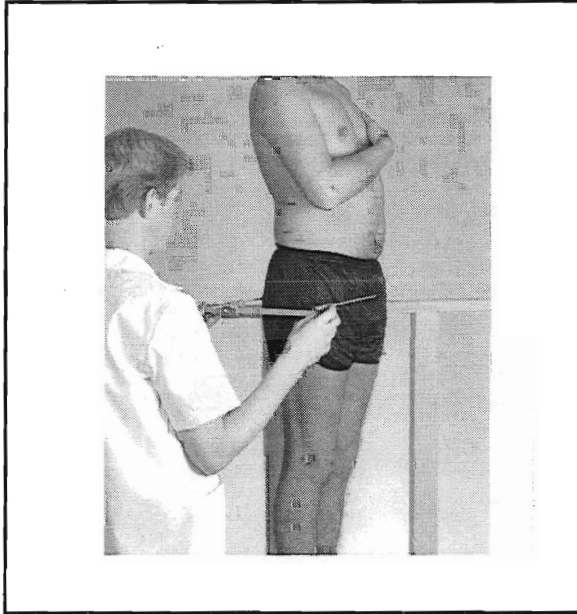
Biacromial Breadth

Males		
Millimeters		Inches
397.00	Mean	15.63
0.90	SE(Mean)	0.04
18.10	SD(Mean)	0.71
0.67	SE(SD)	0.03
330.00	Minimum	12.99
457.00	Maximum	17.99
Symmetry-Veta I		-0.40
Kurtosis-Veta II		-0.70
Coeff. of Variation		4.6%
Sample Size		4445
Percentiles		
Millimeters		Inches
354.80	1st	13.97
359.70	2nd	14.16
362.80	3rd	14.28
367.10	5th	14.45
373.80	10th	14.72
378.30	15th	14.89
381.90	20th	15.04
385.00	25th	15.16
387.80	30th	15.27
390.40	35th	15.37
392.80	40th	15.46
395.10	45th	15.56
397.40	50th	15.65
399.80	55th	15.74
402.10	60th	15.83
404.50	65th	15.93
407.00	70th	16.02
409.80	75th	16.13
412.80	80th	16.25
416.40	85th	16.39
420.90	90th	16.57
427.50	95th	16.83
431.80	97th	17.00
435.00	98th	17.13
440.00	99th	17.32

Females		
Millimeters		Inches
362.00	Mean	14.25
0.90	SE(Mean)	0.04
17.30	SD(Mean)	0.68
0.66	SE(SD)	0.03
296.00	Minimum	11.65
417.00	Maximum	16.42
Symmetry-Veta I		-1.40
Kurtosis-Veta II		2.70
Coeff. of Variation		4.8%
Sample Size		2887
Percentiles		
Millimeters		Inches
319.90	1st	12.59
325.40	2nd	12.81
328.80	3rd	12.94
333.50	5th	13.13
340.50	10th	13.41
345.20	15th	13.59
348.80	20th	13.73
351.80	25th	13.85
354.50	30th	13.96
356.90	35th	14.05
359.20	40th	14.14
361.30	45th	14.22
363.40	50th	14.31
365.50	55th	14.39
367.60	60th	14.47
369.80	65th	14.56
372.00	70th	14.65
374.50	75th	14.74
377.20	80th	14.85
380.40	85th	14.98
384.50	90th	15.14
390.80	95th	15.39
395.20	97th	15.56
398.60	98th	15.69
404.40	99th	15.92

(4) 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.



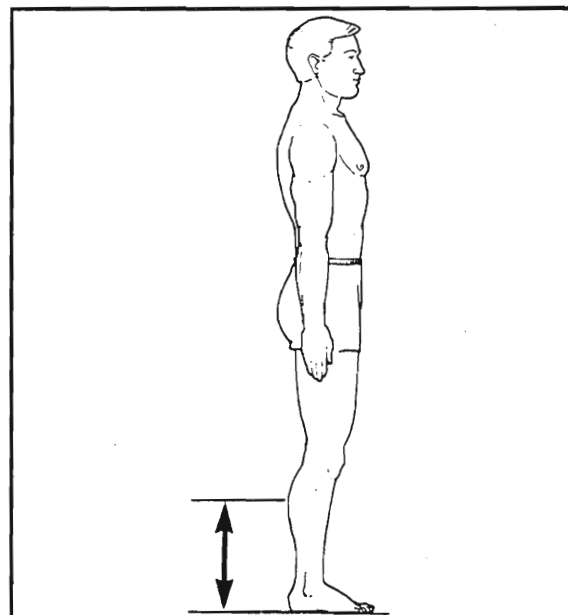
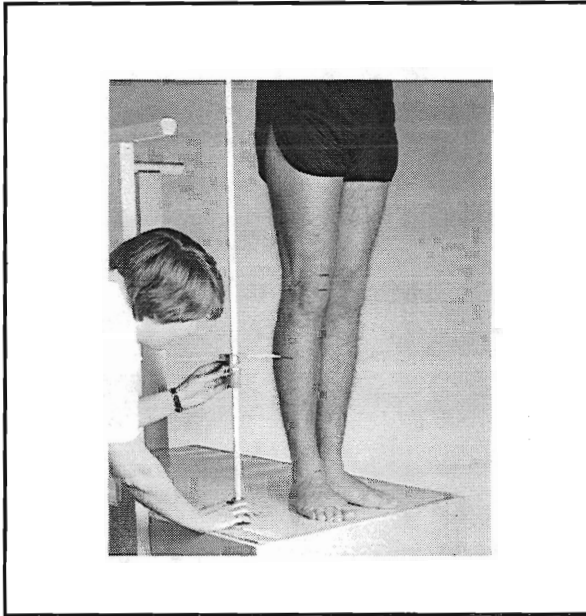
Buttock Depth

Males		
Millimeters		Inches
249.00	Mean	9.80
1.00	SE(Mean)	0.04
20.00	SD(Mean)	0.79
0.74	SE(SD)	0.03
189.00	Minimum	7.44
387.00	Maximum	15.24
Symmetry-Veta I		3.10
Kurtosis-Veta II		5.30
Coeff. of Variation		8.0%
Sample Size		4445
Percentiles		
Millimeters		Inches
206.60	1st	8.13
211.00	2nd	8.31
213.90	3rd	8.42
217.90	5th	8.58
224.40	10th	8.83
228.80	15th	9.01
232.50	20th	9.15
235.60	25th	9.28
238.50	30th	9.39
241.20	35th	9.50
243.80	40th	9.60
246.30	45th	9.70
248.80	50th	9.80
251.30	55th	9.89
253.90	60th	10.00
256.60	65th	10.10
259.50	70th	10.22
262.60	75th	10.34
266.20	80th	10.48
270.40	85th	10.65
275.80	90th	10.86
284.00	95th	11.18
289.60	97th	11.40
293.70	98th	11.56
300.40	99th	11.83

Females		
Millimeters		Inches
226.00	Mean	8.90
1.10	SE(Mean)	0.04
20.80	SD(Mean)	0.82
0.80	SE(SD)	0.03
170.00	Minimum	6.69
334.00	Maximum	13.15
Symmetry-Veta I		7.90
Kurtosis-Veta II		16.50
Coeff. of Variation		9.2%
Sample Size		2886
Percentiles		
Millimeters		Inches
187.00	1st	7.36
190.20	2nd	7.49
192.60	3rd	7.58
196.10	5th	7.72
202.10	10th	7.96
206.40	15th	8.13
209.80	20th	8.26
212.80	25th	8.38
215.50	30th	8.48
218.00	35th	8.58
220.30	40th	8.67
222.70	45th	8.77
225.00	50th	8.86
227.40	55th	8.95
229.80	60th	9.05
232.40	65th	9.15
235.20	70th	9.26
238.30	75th	9.38
242.00	80th	9.53
246.60	85th	9.71
252.90	90th	9.96
264.00	95th	10.39
272.50	97th	10.73
279.60	98th	11.01
292.40	99th	11.51

(5) 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.



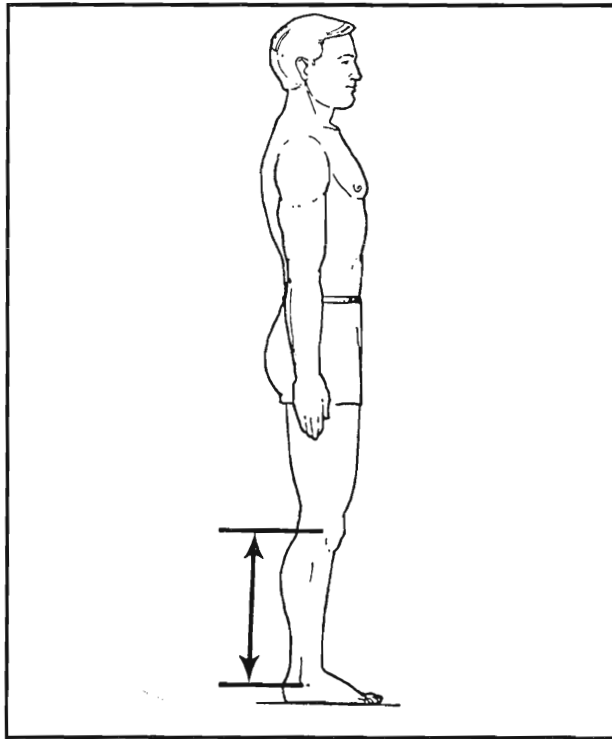
Calf Height

Males		
Millimeters		Inches
352.00	Mean	13.86
1.20	SE(Mean)	0.05
22.90	SD(Mean)	0.90
0.85	SE(SD)	0.03
264.00	Minimum	10.39
454.00	Maximum	17.87
Symmetry-Veta I		1.20
Kurtosis-Veta II		1.00
Coeff. of Variation		6.5%
Sample Size		4431
Percentiles		
Millimeters		Inches
300.70	1st	11.84
306.40	2nd	12.06
310.10	3rd	12.21
315.20	5th	12.41
323.30	10th	12.73
328.80	15th	12.94
333.20	20th	13.12
337.00	25th	13.27
340.50	30th	13.41
343.60	35th	13.53
346.60	40th	13.65
349.50	45th	13.76
352.40	50th	13.87
355.30	55th	13.99
358.20	60th	14.10
361.20	65th	14.22
364.40	70th	14.35
367.90	75th	14.48
371.80	80th	14.64
376.40	85th	14.82
382.30	90th	15.05
391.40	95th	15.41
397.60	97th	15.65
402.30	98th	15.84
410.10	99th	16.15

Females		
Millimeters		Inches
313.00	Mean	12.32
1.30	SE(Mean)	0.05
23.10	SD(Mean)	0.91
0.88	SE(SD)	0.03
244.00	Minimum	9.61
413.00	Maximum	16.26
Symmetry-Veta I		3.00
Kurtosis-Veta II		2.70
Coeff. of Variation		7.4%
Sample Size		2881
Percentiles		
Millimeters		Inches
264.70	1st	10.42
269.60	2nd	10.61
272.90	3rd	10.74
277.50	5th	10.93
284.90	10th	11.22
290.10	15th	11.42
294.20	20th	11.58
297.90	25th	11.73
301.10	30th	11.85
304.20	35th	11.98
307.10	40th	12.09
309.90	45th	12.20
312.70	50th	12.31
315.60	55th	12.43
318.50	60th	12.54
321.60	65th	12.66
324.80	70th	12.79
328.40	75th	12.93
332.50	80th	13.09
337.40	85th	13.28
343.80	90th	13.54
354.00	95th	13.94
361.10	97th	14.22
366.70	98th	14.44
376.10	99th	14.81

(6) 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.



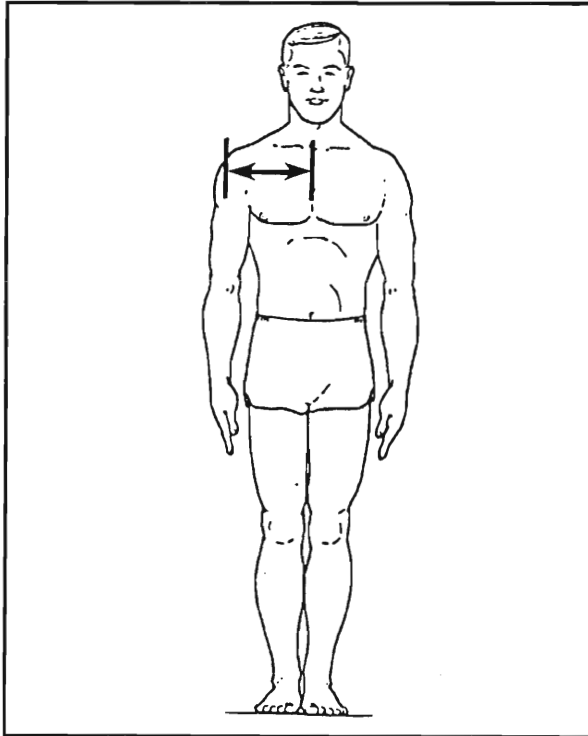
Calf Link

Males		
Millimeters		Inches
434.00	Mean	17.09
1.30	SE(Mean)	0.05
23.90	SD(Mean)	0.94
0.89	SE(SD)	0.03
341.00	Minimum	13.43
523.00	Maximum	20.59
Symmetry-Veta I		1.00
Kurtosis-Veta II		0.50
Coeff. of Variation		5.5%
Sample Size		4431
Percentiles		
Millimeters		Inches
380.70	1st	14.99
386.40	2nd	15.21
390.20	3rd	15.36
395.40	5th	15.57
403.80	10th	15.90
409.50	15th	16.12
414.00	20th	16.30
418.00	25th	16.46
421.50	30th	16.59
424.80	35th	16.72
427.90	40th	16.85
430.90	45th	16.96
433.90	50th	17.08
436.90	55th	17.20
439.90	60th	17.32
443.00	65th	17.44
446.30	70th	17.57
450.00	75th	17.72
454.10	80th	17.88
458.90	85th	18.07
465.10	90th	18.31
474.70	95th	18.69
481.30	97th	18.95
486.40	98th	19.15
494.80	99th	19.48

Females		
Millimeters		Inches
398.00	Mean	15.67
1.20	SE(Mean)	0.05
22.80	SD(Mean)	0.90
0.87	SE(SD)	0.03
333.00	Minimum	13.11
509.00	Maximum	20.04
Symmetry-Veta I		2.40
Kurtosis-Veta II		0.40
Coeff. of Variation		5.7%
Sample Size		2881
Percentiles		
Millimeters		Inches
350.10	1st	13.78
355.00	2nd	13.98
358.20	3rd	14.10
362.70	5th	14.28
369.90	10th	14.56
375.00	15th	14.76
379.10	20th	14.93
382.80	25th	15.07
386.10	30th	15.20
389.20	35th	15.32
392.20	40th	15.44
395.10	45th	15.56
398.00	50th	15.67
400.90	55th	15.78
403.90	60th	15.90
407.10	65th	16.03
410.40	70th	16.16
414.00	75th	16.30
418.10	80th	16.46
422.90	85th	16.65
428.90	90th	16.89
438.00	95th	17.24
444.00	97th	17.48
448.30	98th	17.65
455.20	99th	17.92

(7) 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.



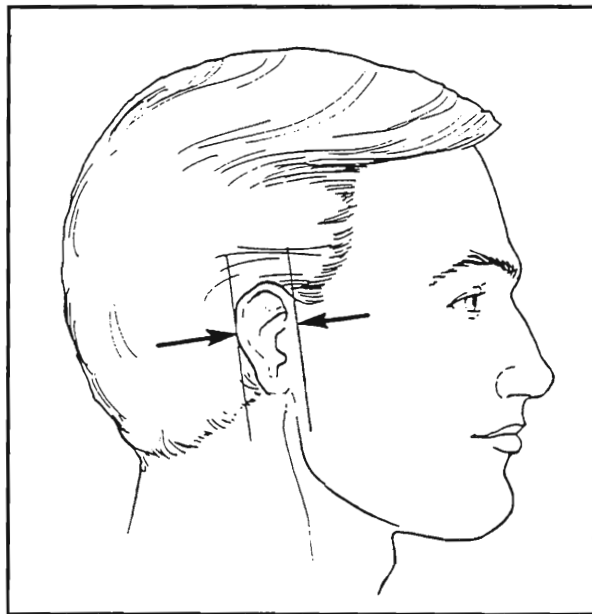
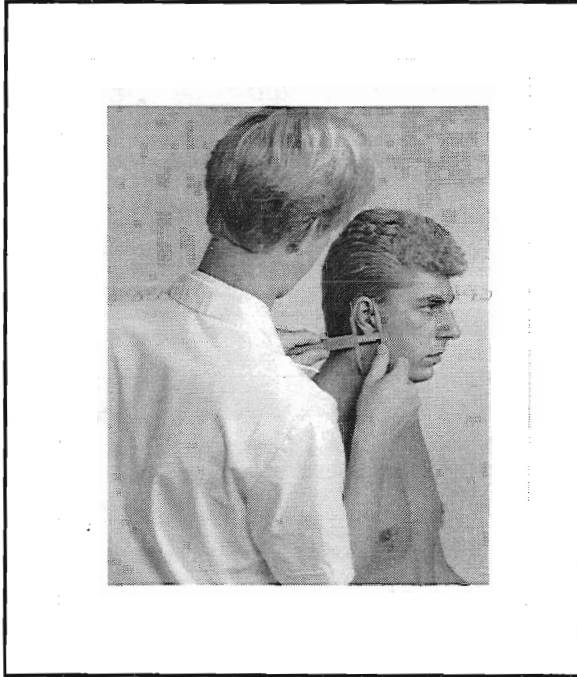
Clavicle Link

Males		
Millimeters		Inches
198.00	Mean	7.80
0.50	SE(Mean)	0.02
9.00	SD(Mean)	0.35
0.33	SE(SD)	0.01
165.00	Minimum	6.50
228.00	Maximum	8.98
Symmetry-Veta I		-0.40
Kurtosis-Veta II		-0.70
Coeff. of Variation		4.5%
Sample Size		4445
Percentiles		
Millimeters		Inches
177.40	1st	6.98
179.90	2nd	7.08
181.40	3rd	7.14
183.60	5th	7.23
186.90	10th	7.36
189.20	15th	7.45
191.00	20th	7.52
192.50	25th	7.58
193.90	30th	7.63
195.20	35th	7.69
196.40	40th	7.73
197.60	45th	7.78
198.70	50th	7.82
199.90	55th	7.87
201.00	60th	7.91
202.30	65th	7.96
203.50	70th	8.01
204.90	75th	8.07
206.40	80th	8.13
208.20	85th	8.20
210.40	90th	8.28
213.70	95th	8.41
215.90	97th	8.50
217.50	98th	8.56
220.00	99th	8.66

Females		
Millimeters		Inches
181.00	Mean	7.13
0.50	SE(Mean)	0.02
8.60	SD(Mean)	0.34
0.33	SE(SD)	0.01
148.00	Minimum	5.83
208.00	Maximum	8.19
Symmetry-Veta I		-1.40
Kurtosis-Veta II		2.70
Coeff. of Variation		4.8%
Sample Size		2887
Percentiles		
Millimeters		Inches
160.00	1st	6.30
162.70	2nd	6.41
164.40	3rd	6.47
166.70	5th	6.56
170.30	10th	6.70
172.60	15th	6.80
174.40	20th	6.87
175.90	25th	6.93
177.20	30th	6.98
178.40	35th	7.02
179.60	40th	7.07
180.70	45th	7.11
181.70	50th	7.15
182.80	55th	7.20
183.80	60th	7.24
184.90	65th	7.28
186.00	70th	7.32
187.20	75th	7.37
188.60	80th	7.43
190.20	85th	7.49
192.20	90th	7.57
195.40	95th	7.69
197.60	97th	7.78
199.30	98th	7.85
202.20	99th	7.96

(8) Ear Breadth

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



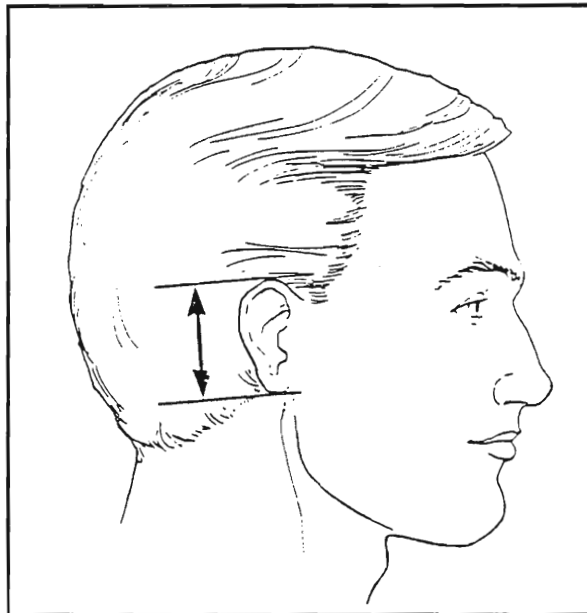
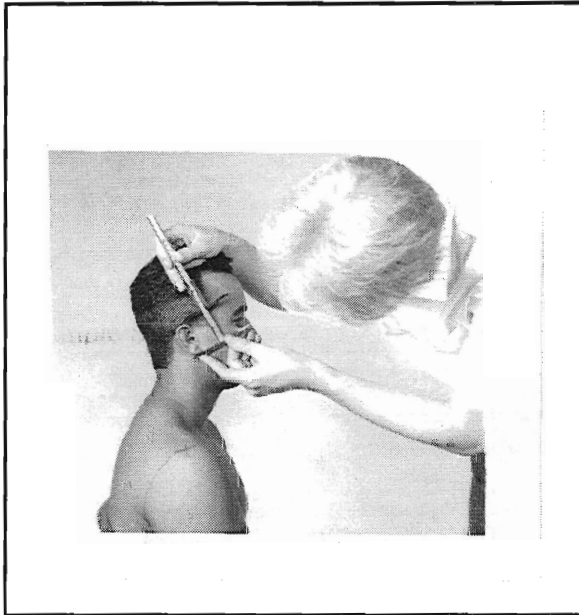
Ear Breadth

Males		
Millimeters		Inches
37.00	Mean	1.46
0.10	SE(Mean)	0.00
2.80	SD(Mean)	0.11
0.10	SE(SD)	0.00
27.00	Minimum	1.06
51.00	Maximum	2.01
Symmetry-Veta I		1.30
Kurtosis-Veta II		2.30
Coeff. of Variation		7.6%
Sample Size		4444
Percentiles		
Millimeters		Inches
31.20	1st	1.23
32.00	2nd	1.26
32.50	3rd	1.28
33.10	5th	1.30
34.10	10th	1.34
34.80	15th	1.37
35.30	20th	1.39
35.70	25th	1.41
36.10	30th	1.42
36.40	35th	1.43
36.80	40th	1.45
37.10	45th	1.46
37.40	50th	1.47
37.80	55th	1.49
38.10	60th	1.50
38.40	65th	1.51
38.80	70th	1.53
39.20	75th	1.54
39.70	80th	1.56
40.30	85th	1.59
41.00	90th	1.61
42.20	95th	1.66
43.10	97th	1.70
43.80	98th	1.72
45.00	99th	1.77

Females		
Millimeters		Inches
34.00	Mean	1.34
0.10	SE(Mean)	0.00
2.50	SD(Mean)	0.10
0.10	SE(SD)	0.00
27.00	Minimum	1.06
46.00	Maximum	1.81
Symmetry-Veta I		2.00
Kurtosis-Veta II		0.30
Coeff. of Variation		7.4%
Sample Size		2888
Percentiles		
Millimeters		Inches
29.10	1st	1.15
29.80	2nd	1.17
30.20	3rd	1.19
30.70	5th	1.21
31.50	10th	1.24
32.10	15th	1.26
32.50	20th	1.28
32.90	25th	1.30
33.20	30th	1.31
33.60	35th	1.32
33.90	40th	1.33
34.20	45th	1.35
34.50	50th	1.36
34.80	55th	1.37
35.20	60th	1.39
35.50	65th	1.40
35.90	70th	1.41
36.30	75th	1.43
36.70	80th	1.44
37.30	85th	1.47
38.00	90th	1.50
39.00	95th	1.54
39.70	97th	1.56
40.20	98th	1.58
41.00	99th	1.61

(9) 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.



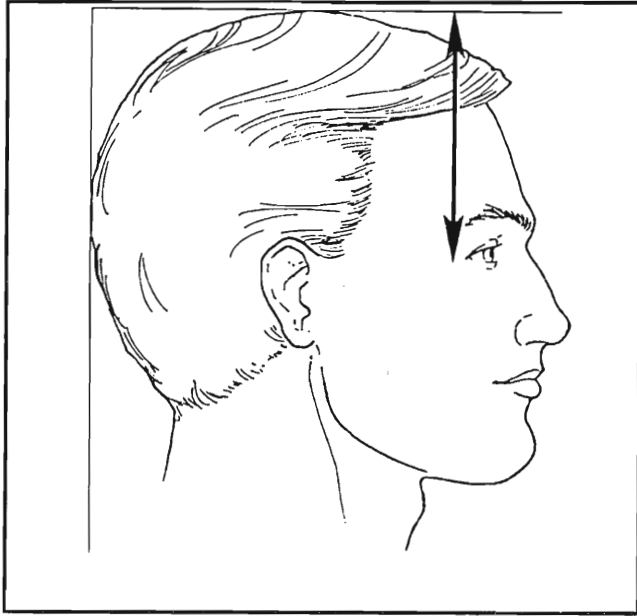
Ear Length

Males		
Millimeters		Inches
64.00	Mean	2.52
0.20	SE(Mean)	0.01
4.20	SD(Mean)	0.17
0.16	SE(SD)	0.01
50.00	Minimum	1.97
80.00	Maximum	3.15
Symmetry-Veta I		1.20
Kurtosis-Veta II		2.50
Coeff. of Variation		6.6%
Sample Size		4444
Percentiles		
Millimeters		Inches
54.80	1st	2.16
56.20	2nd	2.21
57.00	3rd	2.24
58.10	5th	2.29
59.60	10th	2.35
60.60	15th	2.39
61.40	20th	2.42
62.00	25th	2.44
62.60	30th	2.46
63.20	35th	2.49
63.70	40th	2.51
64.10	45th	2.52
64.60	50th	2.54
65.10	55th	2.56
65.60	60th	2.58
66.20	65th	2.61
66.70	70th	2.63
67.40	75th	2.65
68.10	80th	2.68
69.00	85th	2.72
70.10	90th	2.76
71.80	95th	2.83
73.00	97th	2.87
74.00	98th	2.91
75.50	99th	2.97

Females		
Millimeters		Inches
59.00	Mean	2.32
0.20	SE(Mean)	0.01
3.60	SD(Mean)	0.14
0.14	SE(SD)	0.01
45.00	Minimum	1.77
73.00	Maximum	2.87
Symmetry-Veta I		1.10
Kurtosis-Veta II		0.50
Coeff. of Variation		6.1%
Sample Size		2888
Percentiles		
Millimeters		Inches
51.90	1st	2.04
52.70	2nd	2.07
53.20	3rd	2.09
53.90	5th	2.12
55.20	10th	2.17
56.00	15th	2.20
56.70	20th	2.23
57.30	25th	2.26
57.90	30th	2.28
58.40	35th	2.30
58.90	40th	2.32
59.40	45th	2.34
59.90	50th	2.36
60.30	55th	2.37
60.80	60th	2.39
61.30	65th	2.41
61.80	70th	2.43
62.40	75th	2.46
63.00	80th	2.48
63.80	85th	2.51
64.70	90th	2.55
66.20	95th	2.61
67.10	97th	2.64
67.90	98th	2.67
69.00	99th	2.72

(10) 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.



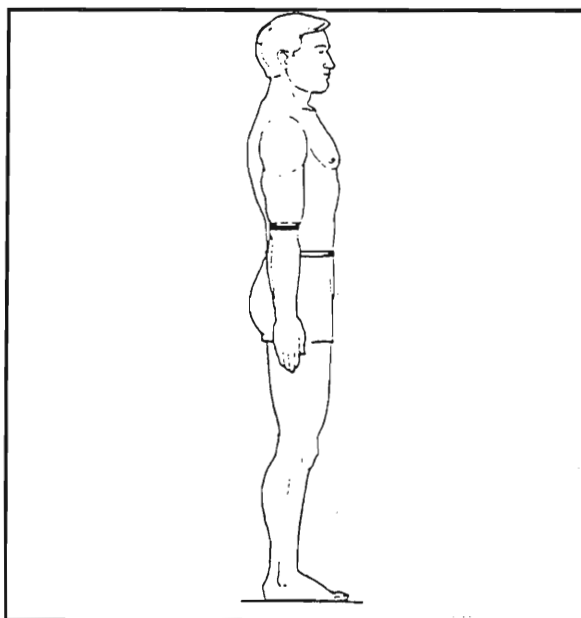
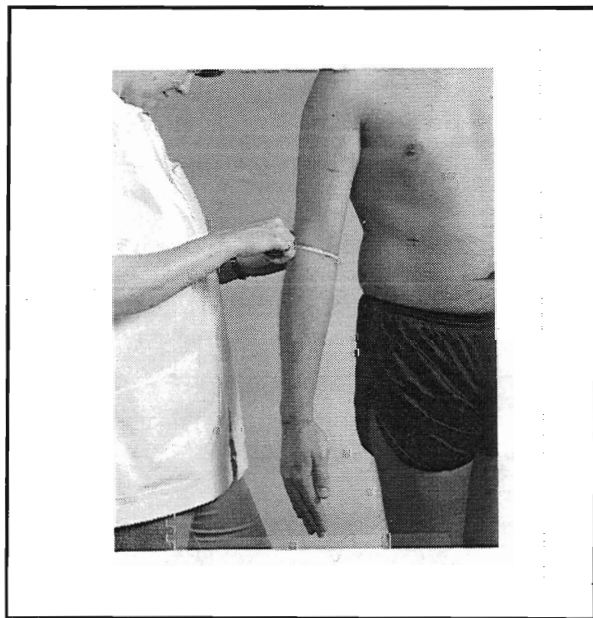
Ectoorbitale - Top of Head

Males		
Millimeters		Inches
119.00	Mean	4.69
0.30	SE(Mean)	0.01
6.20	SD(Mean)	0.24
0.24	SE(SD)	0.01
94.00	Minimum	3.70
142.00	Maximum	5.59
Symmetry-Veta I		0.80
Kurtosis-Veta II		2.40
Coeff. of Variation		5.2%
Sample Size		4201
Percentiles		
Millimeters		Inches
104.50	1st	4.11
106.40	2nd	4.19
107.60	3rd	4.24
109.10	5th	4.30
111.40	10th	4.39
112.80	15th	4.44
114.00	20th	4.49
115.00	25th	4.53
115.90	30th	4.56
116.70	35th	4.59
117.40	40th	4.62
118.20	45th	4.65
119.00	50th	4.69
119.70	55th	4.71
120.50	60th	4.74
121.30	65th	4.78
122.20	70th	4.81
123.10	75th	4.85
124.20	80th	4.89
125.50	85th	4.94
127.10	90th	5.00
129.60	95th	5.10
131.30	97th	5.17
132.60	98th	5.22
134.60	99th	5.30

Females		
Millimeters		Inches
111.00	Mean	4.37
0.30	SE(Mean)	0.01
5.90	SD(Mean)	0.23
0.23	SE(SD)	0.01
85.00	Minimum	3.35
134.00	Maximum	5.28
Symmetry-Veta I		-0.10
Kurtosis-Veta II		3.40
Coeff. of Variation		5.3%
Sample Size		2722
Percentiles		
Millimeters		Inches
97.50	1st	3.84
99.20	2nd	3.91
100.40	3rd	3.95
101.90	5th	4.01
104.30	10th	4.11
105.80	15th	4.17
107.00	20th	4.21
108.00	25th	4.25
108.80	30th	4.28
109.60	35th	4.31
110.40	40th	4.35
111.10	45th	4.37
111.80	50th	4.40
112.50	55th	4.43
113.20	60th	4.46
113.90	65th	4.48
114.70	70th	4.52
115.50	75th	4.55
116.40	80th	4.58
117.60	85th	4.63
119.10	90th	4.69
121.50	95th	4.78
123.20	97th	4.85
124.60	98th	4.91
127.00	99th	5.00

(11) 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.



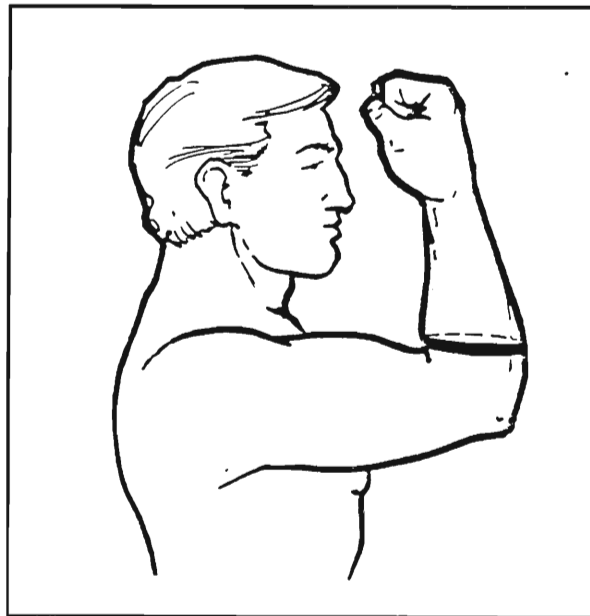
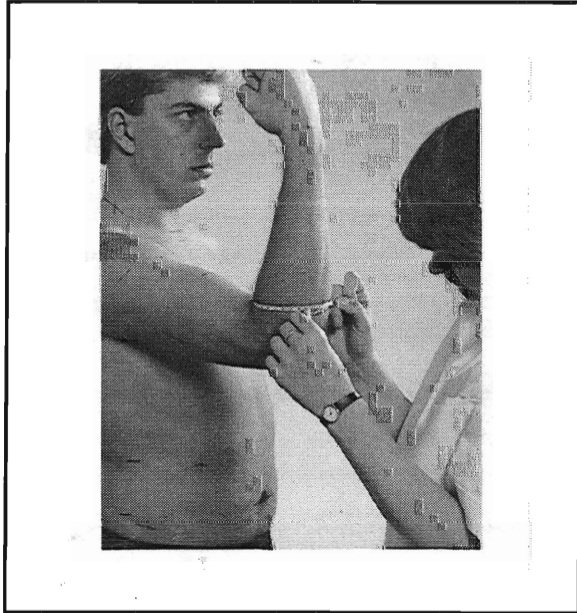
Elbow Circumference

Males		
Millimeters		Inches
277.00	Mean	10.91
0.80	SE(Mean)	0.03
14.60	SD(Mean)	0.57
0.54	SE(SD)	0.02
219.00	Minimum	8.62
339.00	Maximum	13.35
Symmetry-Veta I		1.50
Kurtosis-Veta II		3.40
Coeff. of Variation		5.3%
Sample Size		4447
Percentiles		
Millimeters		Inches
243.80	1st	9.60
248.20	2nd	9.77
250.80	3rd	9.87
254.30	5th	10.01
259.60	10th	10.22
263.00	15th	10.35
265.70	20th	10.46
268.00	25th	10.55
270.10	30th	10.63
272.00	35th	10.71
273.80	40th	10.78
275.60	45th	10.85
277.30	50th	10.92
279.10	55th	10.99
280.90	60th	11.06
282.80	65th	11.13
284.80	70th	11.21
287.10	75th	11.30
289.60	80th	11.40
292.60	85th	11.52
296.50	90th	11.67
302.50	95th	11.91
306.50	97th	12.07
309.60	98th	12.19
314.60	99th	12.39

Females		
Millimeters		Inches
238.00	Mean	9.37
0.70	SE(Mean)	0.03
13.40	SD(Mean)	0.53
0.51	SE(SD)	0.02
201.00	Minimum	7.91
292.00	Maximum	11.50
Symmetry-Veta I		3.40
Kurtosis-Veta II		3.60
Coeff. of Variation		5.6%
Sample Size		2888
Percentiles		
Millimeters		Inches
209.80	1st	8.26
212.70	2nd	8.37
214.70	3rd	8.45
217.40	5th	8.56
221.80	10th	8.73
224.80	15th	8.85
227.20	20th	8.94
229.40	25th	9.03
231.30	30th	9.11
233.00	35th	9.17
234.70	40th	9.24
236.40	45th	9.31
238.00	50th	9.37
239.60	55th	9.43
241.30	60th	9.50
243.10	65th	9.57
244.90	70th	9.64
247.00	75th	9.72
249.40	80th	9.82
252.20	85th	9.93
255.90	90th	10.07
261.80	95th	10.31
266.00	97th	10.47
269.30	98th	10.60
274.90	99th	10.82

(12) 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.



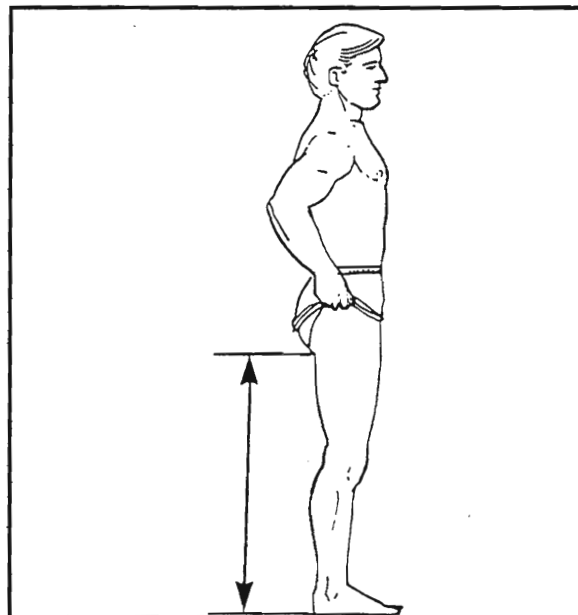
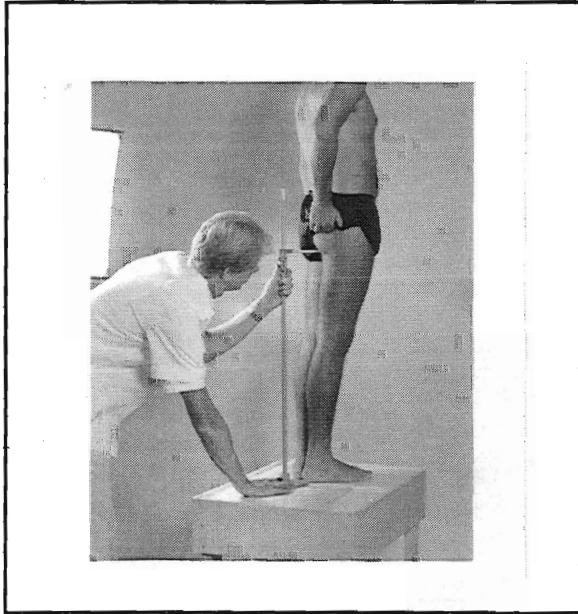
Forearm Circumference, Flexed

Males		
Millimeters		Inches
301.59	Mean	11.87
0.94	SE(Mean)	0.04
17.90	SD(Mean)	0.70
0.65	SE(SD)	0.03
232.47	Minimum	9.15
373.85	Maximum	14.72
Symmetry-Veta I		1.30
Kurtosis-Veta II		3.00
Coeff. of Variation		5.9%
Sample Size		4447
Percentiles		
Millimeters		Inches
263.60	1st	10.38
268.30	2nd	10.56
271.10	3rd	10.67
275.20	5th	10.83
281.20	10th	11.07
285.60	15th	11.24
288.70	20th	11.37
291.50	25th	11.48
294.10	30th	11.58
296.60	35th	11.68
298.80	40th	11.76
301.00	45th	11.85
303.20	50th	11.94
305.40	55th	12.02
307.60	60th	12.11
291.5	65th	12.31
312.60	70th	12.21
315.40	75th	12.42
318.60	80th	12.54
322.00	85th	12.68
327.00	90th	12.87
334.60	95th	13.17
339.60	97th	13.37
343.40	98th	13.52
349.30	99th	13.75

Females		
Millimeters		Inches
251.32	Mean	9.89
0.94	SE(Mean)	0.04
15.07	SD(Mean)	0.59
0.56	SE(SD)	0.02
210.48	Minimum	8.29
323.58	Maximum	12.74
Symmetry-Veta I		2.80
Kurtosis-Veta II		3.80
Coeff. of Variation		6.0%
Sample Size		2888
Percentiles		
Millimeters		Inches
220.20	1st	8.67
224.00	2nd	8.82
226.20	3rd	8.91
229.30	5th	9.03
234.70	10th	9.24
238.10	15th	9.37
241.00	20th	9.49
243.20	25th	9.57
245.40	30th	9.66
247.20	35th	9.73
249.40	40th	9.82
251.00	45th	9.88
252.90	50th	9.96
254.80	55th	10.03
256.70	60th	10.11
258.60	65th	10.18
260.80	70th	10.27
263.00	75th	10.35
265.80	80th	10.46
268.60	85th	10.57
272.70	90th	10.74
279.00	95th	10.98
283.10	97th	11.15
286.20	98th	11.27
291.50	99th	11.48

(13) 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.



Gluteal Furrow Height

Males		
Millimeters		Inches
814.00	Mean	32.05
2.30	SE(Mean)	0.09
44.50	SD(Mean)	1.75
1.65	SE(SD)	0.06
638.00	Minimum	25.12
990.00	Maximum	38.98
Symmetry-Veta I		1.30
Kurtosis-Veta II		0.90
Coeff. of Variation		5.5%
Sample Size		4445

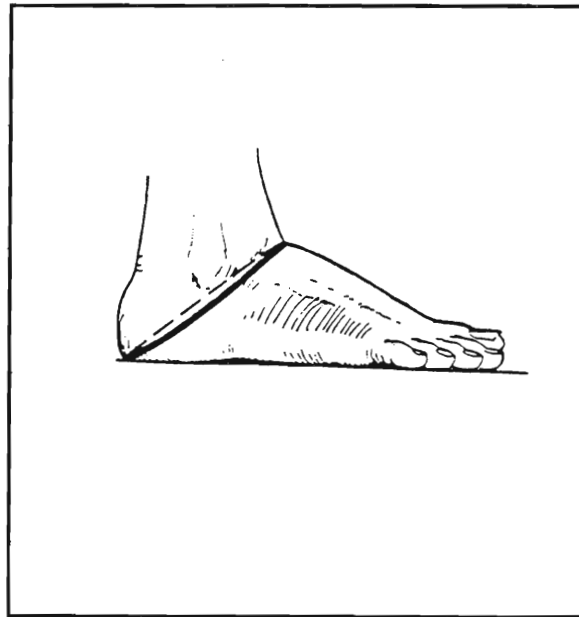
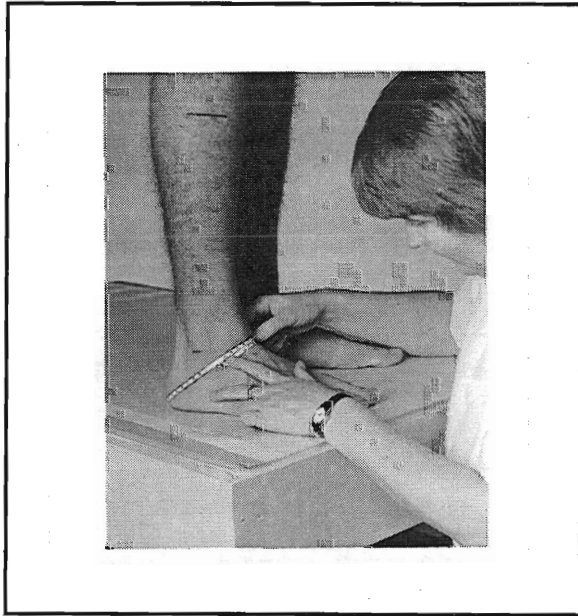
Percentiles		
Millimeters		Inches
713.20	1st	28.08
725.00	2nd	28.54
732.50	3rd	28.84
742.60	5th	29.24
758.10	10th	29.85
768.50	15th	30.26
776.80	20th	30.58
783.90	25th	30.86
790.40	30th	31.12
796.40	35th	31.35
802.00	40th	31.57
807.60	45th	31.80
813.10	50th	32.01
818.60	55th	32.23
824.30	60th	32.45
830.10	65th	32.68
836.40	70th	32.93
843.20	75th	33.20
850.90	80th	33.50
860.00	85th	33.86
871.70	90th	34.32
889.40	95th	35.02
901.30	97th	35.48
910.10	98th	35.83
924.40	99th	36.39

Females		
Millimeters		Inches
742.00	Mean	29.21
2.30	SE(Mean)	0.09
41.70	SD(Mean)	1.64
1.59	SE(SD)	0.06
616.00	Minimum	24.25
932.00	Maximum	36.69
Symmetry-Veta I		2.10
Kurtosis-Veta II		1.00
Coeff. of Variation		5.6%
Sample Size		2886

Percentiles		
Millimeters		Inches
648.80	1st	25.54
660.00	2nd	25.98
667.00	3rd	26.26
676.20	5th	26.62
690.30	10th	27.18
699.80	15th	27.55
707.30	20th	27.85
713.90	25th	28.11
719.80	30th	28.34
725.30	35th	28.56
730.60	40th	28.76
735.80	45th	28.97
740.90	50th	29.17
746.20	55th	29.38
751.60	60th	29.59
757.20	65th	29.81
763.20	70th	30.05
769.80	75th	30.31
777.40	80th	30.61
786.20	85th	30.95
797.70	90th	31.41
815.20	95th	32.09
826.70	97th	32.55
835.40	98th	32.89
849.10	99th	33.43

(14) 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.



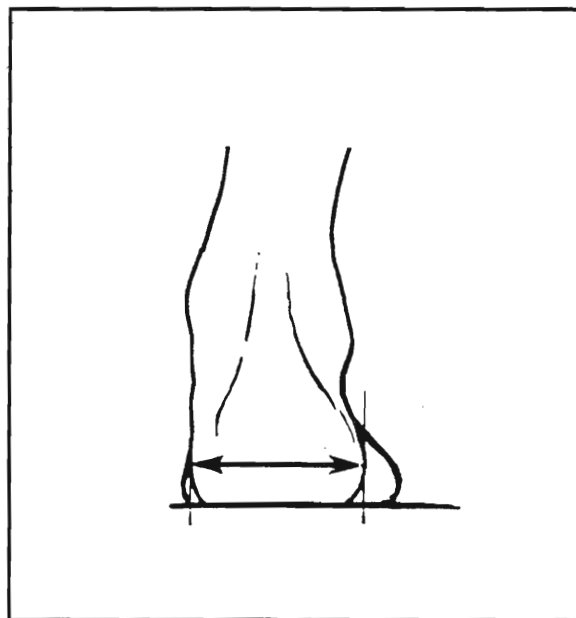
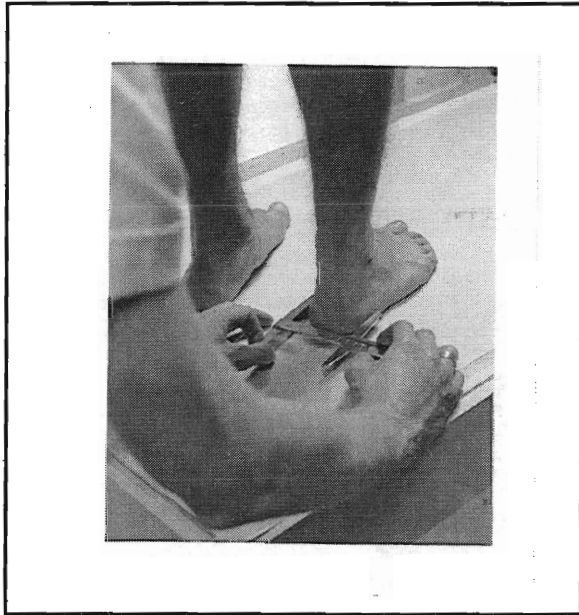
Heel Ankle Circumference

Males		
Millimeters		Inches
339.00	Mean	13.35
0.80	SE(Mean)	0.03
15.80	SD(Mean)	0.62
0.59	SE(SD)	0.02
282.00	Minimum	11.10
402.00	Maximum	15.83
Symmetry-Veta I		1.20
Kurtosis-Veta II		1.50
Coeff. of Variation		4.7%
Sample Size		4431
Percentiles		
Millimeters		Inches
303.40	1st	11.94
307.80	2nd	12.12
310.50	3rd	12.22
314.10	5th	12.37
319.60	10th	12.58
323.30	15th	12.73
326.20	20th	12.84
328.80	25th	12.94
331.00	30th	13.03
333.10	35th	13.11
335.20	40th	13.20
337.10	45th	13.27
339.10	50th	13.35
341.00	55th	13.43
343.10	60th	13.51
345.10	65th	13.59
347.40	70th	13.68
349.80	75th	13.77
352.60	80th	13.88
355.80	85th	14.01
359.90	90th	14.17
366.20	95th	14.42
370.30	97th	14.58
373.30	98th	14.70
378.20	99th	14.89

Females		
Millimeters		Inches
304.00	Mean	11.97
0.80	SE(Mean)	0.03
14.50	SD(Mean)	0.57
0.56	SE(SD)	0.02
258.00	Minimum	10.16
365.00	Maximum	14.37
Symmetry-Veta I		2.10
Kurtosis-Veta II		2.20
Coeff. of Variation		4.8%
Sample Size		2881
Percentiles		
Millimeters		Inches
272.40	1st	10.72
275.30	2nd	10.84
277.40	3rd	10.92
280.50	5th	11.04
285.50	10th	11.24
289.10	15th	11.38
291.90	20th	11.49
294.30	25th	11.59
296.50	30th	11.67
298.40	35th	11.75
300.30	40th	11.82
302.10	45th	11.89
303.90	50th	11.96
305.60	55th	12.03
307.40	60th	12.10
309.20	65th	12.17
311.10	70th	12.25
313.20	75th	12.33
315.60	80th	12.43
318.40	85th	12.54
322.20	90th	12.69
328.30	95th	12.93
332.80	97th	13.10
336.50	98th	13.25
342.90	99th	13.50

(15) 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.



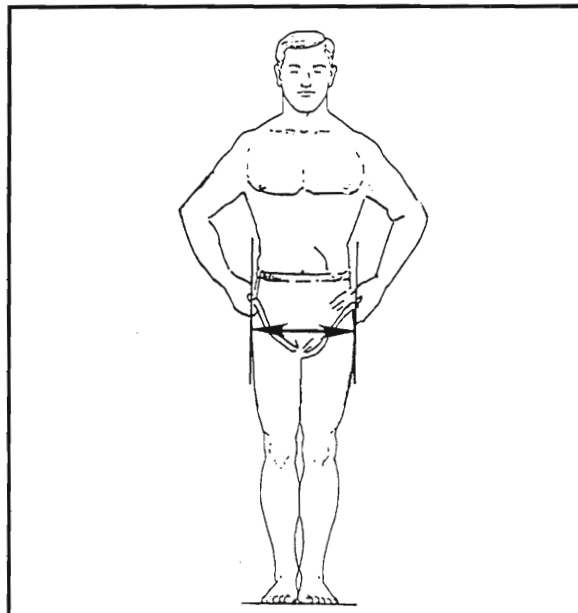
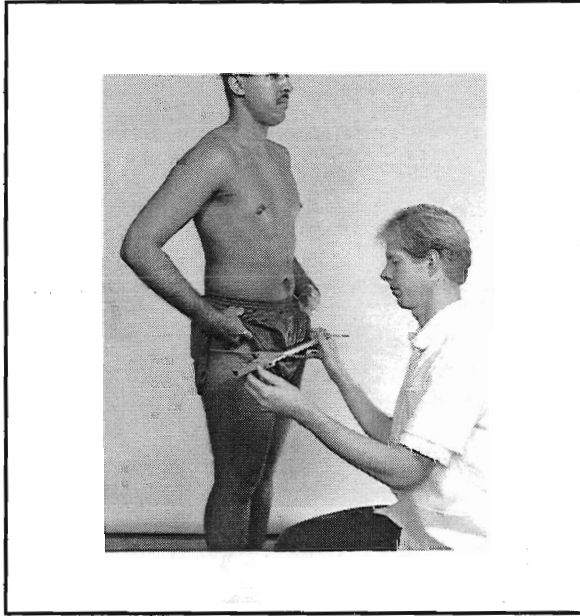
Heel Breadth

Males		
Millimeters		Inches
69.00	Mean	2.72
0.30	SE(Mean)	0.01
4.90	SD(Mean)	0.19
0.18	SE(SD)	0.01
55.00	Minimum	2.17
97.00	Maximum	3.82
Symmetry-Veta I		5.70
Kurtosis-Veta II		8.60
Coeff. of Variation		7.1%
Sample Size		4445
Percentiles		
Millimeters		Inches
59.90	1st	2.36
60.80	2nd	2.39
61.40	3rd	2.42
62.30	5th	2.45
63.80	10th	2.51
64.90	15th	2.56
65.80	20th	2.59
66.50	25th	2.62
67.20	30th	2.65
67.90	35th	2.67
68.50	40th	2.70
69.10	45th	2.72
69.60	50th	2.74
70.20	55th	2.76
70.80	60th	2.79
71.50	65th	2.81
72.10	70th	2.84
72.90	75th	2.87
73.70	80th	2.90
74.80	85th	2.94
76.20	90th	3.00
78.60	95th	3.09
80.40	97th	3.17
81.80	98th	3.22
84.40	99th	3.32

Females		
Millimeters		Inches
62.00	Mean	2.44
0.20	SE(Mean)	0.01
4.50	SD(Mean)	0.18
0.17	SE(SD)	0.01
50.00	Minimum	1.97
90.00	Maximum	3.54
Symmetry-Veta I		5.00
Kurtosis-Veta II		6.50
Coeff. of Variation		7.3%
Sample Size		2886
Percentiles		
Millimeters		Inches
53.10	1st	2.09
54.10	2nd	2.13
54.80	3rd	2.16
55.60	5th	2.19
56.90	10th	2.24
57.80	15th	2.28
58.60	20th	2.31
59.20	25th	2.33
59.80	30th	2.35
60.30	35th	2.37
60.90	40th	2.40
61.40	45th	2.42
61.90	50th	2.44
62.50	55th	2.46
63.00	60th	2.48
63.60	65th	2.50
64.30	70th	2.53
65.00	75th	2.56
65.90	80th	2.59
66.90	85th	2.63
68.20	90th	2.69
70.30	95th	2.77
71.80	97th	2.83
72.90	98th	2.87
74.60	99th	2.94

(16) 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.



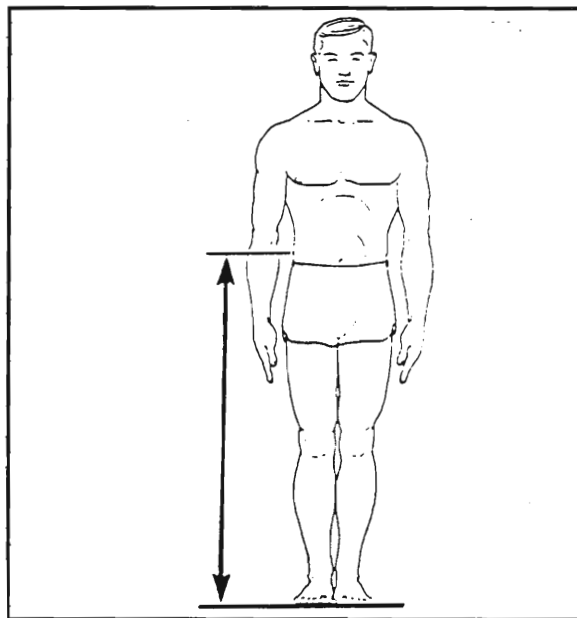
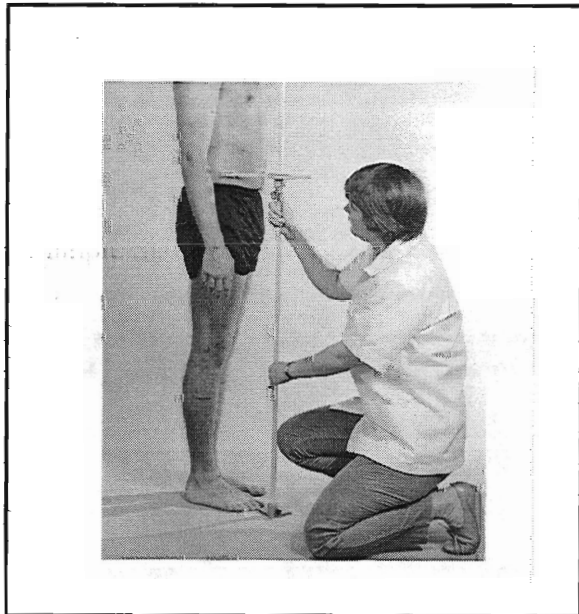
Hip Breadth

Males		
Millimeters		Inches
343.00	Mean	13.50
1.00	SE(Mean)	0.04
19.80	SD(Mean)	0.78
0.73	SE(SD)	0.03
282.00	Minimum	11.10
436.00	Maximum	17.17
Symmetry-Veta I		2.00
Kurtosis-Veta II		0.70
Coeff. of Variation		5.8%
Sample Size		4447
Percentiles		
Millimeters		Inches
299.60	1st	11.80
304.50	2nd	11.99
307.60	3rd	12.11
311.90	5th	12.28
318.50	10th	12.54
323.10	15th	12.72
326.70	20th	12.86
329.90	25th	12.99
332.70	30th	13.10
335.40	35th	13.20
337.90	40th	13.30
340.40	45th	13.40
342.80	50th	13.50
345.30	55th	13.59
347.90	60th	13.70
350.50	65th	13.80
353.30	70th	13.91
356.40	75th	14.03
359.90	80th	14.17
364.00	85th	14.33
369.40	90th	14.54
377.60	95th	14.87
383.10	97th	15.08
387.30	98th	15.25
394.00	99th	15.51

Females		
Millimeters		Inches
344.00	Mean	13.54
1.20	SE(Mean)	0.05
21.50	SD(Mean)	0.85
0.82	SE(SD)	0.03
270.00	Minimum	10.63
420.00	Maximum	16.54
Symmetry-Veta I		2.90
Kurtosis-Veta II		0.50
Coeff. of Variation		6.3%
Sample Size		2888
Percentiles		
Millimeters		Inches
300.10	1st	11.81
303.80	2nd	11.96
306.60	3rd	12.07
310.60	5th	12.23
317.40	10th	12.50
322.30	15th	12.69
326.20	20th	12.84
329.60	25th	12.98
332.80	30th	13.10
335.60	35th	13.21
338.40	40th	13.32
341.10	45th	13.43
343.70	50th	13.53
346.40	55th	13.64
349.10	60th	13.74
352.00	65th	13.86
355.00	70th	13.98
358.30	75th	14.11
362.00	80th	14.25
366.50	85th	14.43
372.40	90th	14.66
381.80	95th	15.03
388.50	97th	15.30
393.80	98th	15.50
403.00	99th	15.87

(17) 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.



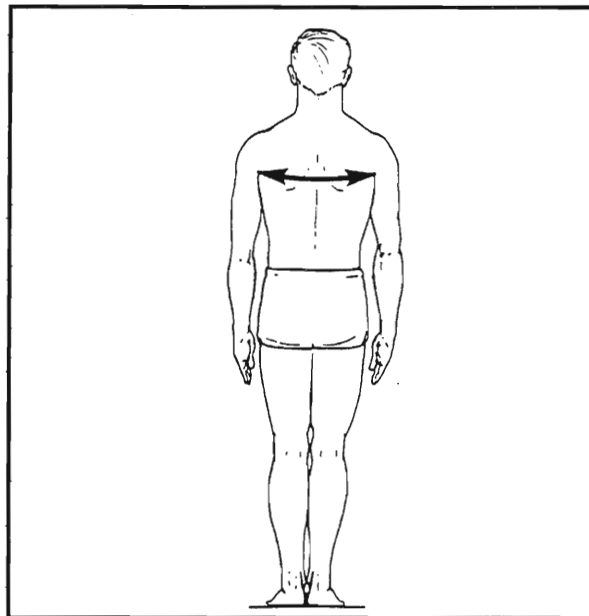
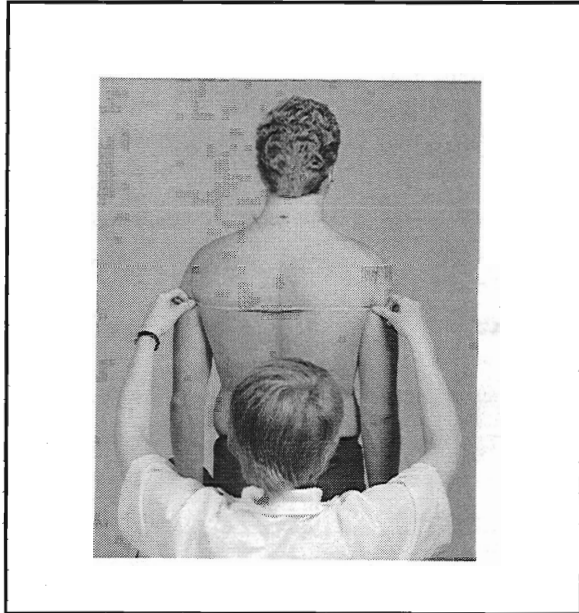
Iliocristale Height

Males		
Millimeters		Inches
1074.00	Mean	42.28
2.70	SE(Mean)	0.11
50.90	SD(Mean)	2.00
1.88	SE(SD)	0.07
877.00	Minimum	34.53
1272.00	Maximum	50.08
Symmetry-Veta I		0.40
Kurtosis-Veta II		1.00
Coeff. of Variation		4.7%
Sample Size		4447
Percentiles		
Millimeters		Inches
955.10	1st	37.60
969.80	2nd	38.18
979.00	3rd	38.54
991.20	5th	39.02
1009.80	10th	39.76
1022.20	15th	40.24
1031.90	20th	40.63
1040.40	25th	40.96
1047.90	30th	41.26
1054.80	35th	41.53
1061.50	40th	41.79
1067.90	45th	42.04
1074.20	50th	42.29
1080.60	55th	42.54
1087.00	60th	42.80
1093.70	65th	43.06
1100.80	70th	43.34
1108.60	75th	43.65
1117.30	80th	43.99
1127.40	85th	44.39
1140.30	90th	44.89
1159.60	95th	45.65
1172.20	97th	46.15
1181.50	98th	46.52
1196.20	99th	47.09

Females		
Millimeters		Inches
988.00	Mean	38.90
2.50	SE(Mean)	0.10
47.10	SD(Mean)	1.85
1.80	SE(SD)	0.07
856.00	Minimum	33.70
1190.00	Maximum	46.85
Symmetry-Veta I		1.60
Kurtosis-Veta II		0.30
Coeff. of Variation		4.8%
Sample Size		2888
Percentiles		
Millimeters		Inches
880.60	1st	34.67
894.30	2nd	35.21
902.60	3rd	35.54
913.50	5th	35.96
929.70	10th	36.60
940.50	15th	37.03
949.00	20th	37.36
956.40	25th	37.65
963.10	30th	37.92
969.30	35th	38.16
975.30	40th	38.40
981.10	45th	38.63
986.90	50th	38.85
992.80	55th	39.09
998.90	60th	39.33
1005.20	65th	39.57
1012.00	70th	39.84
1019.50	75th	40.14
1027.90	80th	40.47
1037.80	85th	40.86
1050.50	90th	41.36
1069.60	95th	42.11
1081.90	97th	42.59
1091.00	98th	42.95
1104.90	99th	43.50

(18) 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.



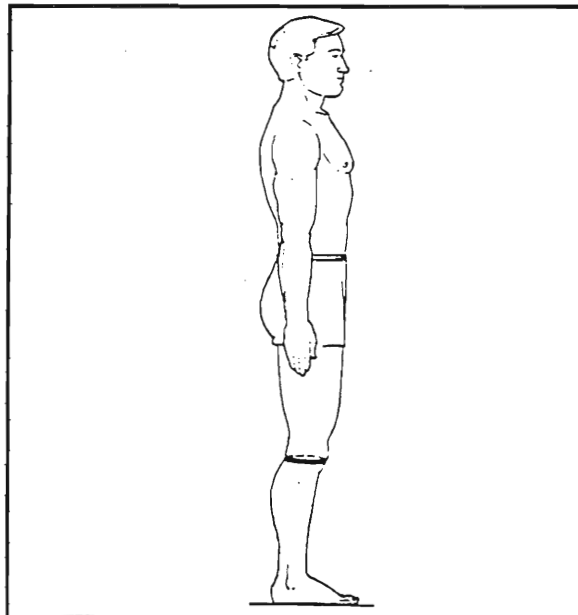
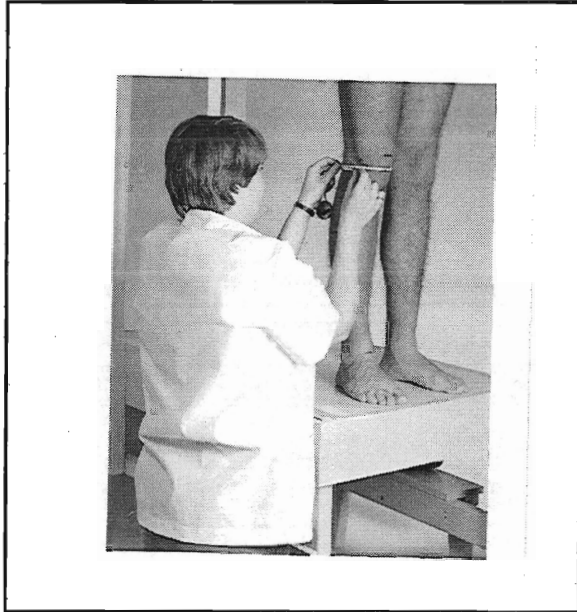
Interscye I

Males		
Millimeters		Inches
403.00	Mean	15.87
1.60	SE(Mean)	0.06
30.60	SD(Mean)	1.20
1.13	SE(SD)	0.04
285.00	Minimum	11.22
541.00	Maximum	21.30
Symmetry-Veta I		1.80
Kurtosis-Veta II		0.50
Coeff. of Variation		7.6%
Sample Size		4447
Percentiles		
Millimeters		Inches
338.10	1st	13.31
344.30	2nd	13.56
348.60	3rd	13.72
354.70	5th	13.96
364.70	10th	14.36
371.70	15th	14.63
377.40	20th	14.86
382.30	25th	15.05
386.80	30th	15.23
391.00	35th	15.39
395.00	40th	15.55
398.90	45th	15.70
402.70	50th	15.85
406.60	55th	16.01
410.60	60th	16.17
414.70	65th	16.33
419.00	70th	16.50
423.70	75th	16.68
429.10	80th	16.89
435.30	85th	17.14
443.40	90th	17.46
455.90	95th	17.95
464.30	97th	18.28
470.80	98th	18.54
481.40	99th	18.95

Females		
Millimeters		Inches
352.00	Mean	13.86
1.40	SE(Mean)	0.06
26.50	SD(Mean)	1.04
1.01	SE(SD)	0.04
266.00	Minimum	10.47
464.00	Maximum	18.27
Symmetry-Veta I		2.00
Kurtosis-Veta II		0.10
Coeff. of Variation		7.5%
Sample Size		2888
Percentiles		
Millimeters		Inches
294.30	1st	11.59
300.80	2nd	11.84
304.90	3rd	12.00
310.60	5th	12.23
319.40	10th	12.57
325.50	15th	12.81
330.40	20th	13.01
334.60	25th	13.17
338.40	30th	13.32
342.00	35th	13.46
345.50	40th	13.60
348.80	45th	13.73
352.10	50th	13.86
355.50	55th	14.00
358.90	60th	14.13
362.50	65th	14.27
366.40	70th	14.43
370.50	75th	14.59
375.30	80th	14.78
380.80	85th	14.99
388.00	90th	15.28
398.80	95th	15.70
405.90	97th	15.98
411.30	98th	16.19
419.80	99th	16.53

(19) 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.



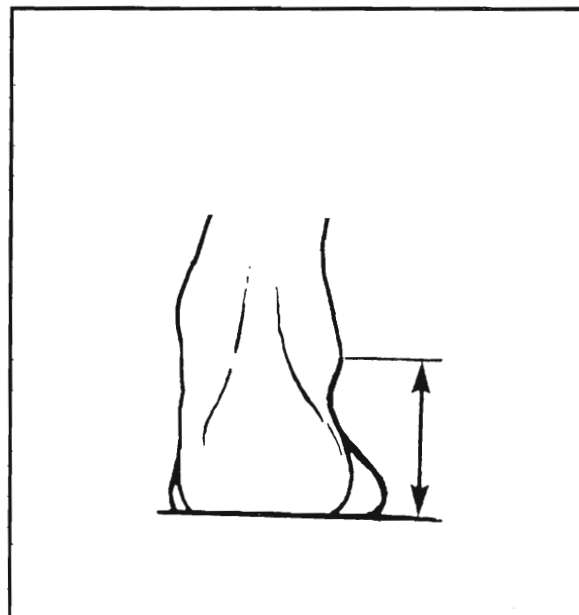
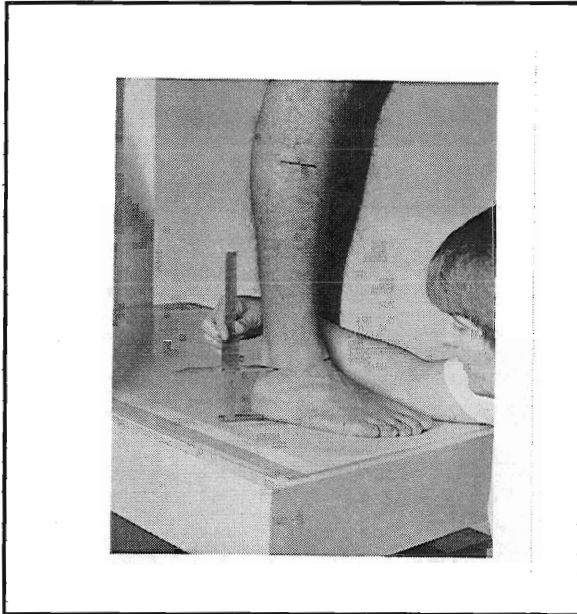
Knee Circumference

Males		
Millimeters		Inches
388.00	Mean	15.28
1.20	SE(Mean)	0.05
22.00	SD(Mean)	0.87
0.82	SE(SD)	0.03
312.00	Minimum	12.28
492.00	Maximum	19.37
Symmetry-Veta I		2.30
Kurtosis-Veta II		1.90
Coeff. of Variation		5.7%
Sample Size		4430
Percentiles		
Millimeters		Inches
340.80	1st	13.42
345.10	2nd	13.59
348.10	3rd	13.70
352.60	5th	13.88
360.00	10th	14.17
365.30	15th	14.38
369.50	20th	14.55
373.10	25th	14.69
376.40	30th	14.82
379.40	35th	14.94
382.20	40th	15.05
385.00	45th	15.16
387.70	50th	15.26
390.40	55th	15.37
393.10	60th	15.48
395.90	65th	15.59
398.90	70th	15.70
402.20	75th	15.83
405.90	80th	15.98
410.40	85th	16.16
416.20	90th	16.39
425.60	95th	16.76
432.40	97th	17.02
437.80	98th	17.24
447.20	99th	17.61

Females		
Millimeters		Inches
365.00	Mean	14.37
1.20	SE(Mean)	0.05
22.80	SD(Mean)	0.90
0.87	SE(SD)	0.03
302.00	Minimum	11.89
461.00	Maximum	18.15
Symmetry-Veta I		4.00
Kurtosis-Veta II		5.60
Coeff. of Variation		6.2%
Sample Size		2881
Percentiles		
Millimeters		Inches
316.20	1st	12.45
321.50	2nd	12.66
324.90	3rd	12.79
329.70	5th	12.98
337.20	10th	13.28
342.30	15th	13.48
346.40	20th	13.64
349.90	25th	13.78
353.00	30th	13.90
355.90	35th	14.01
358.70	40th	14.12
361.40	45th	14.23
364.10	50th	14.33
366.80	55th	14.44
369.60	60th	14.55
372.50	65th	14.67
375.70	70th	14.79
379.10	75th	14.93
383.10	80th	15.08
388.00	85th	15.28
394.50	90th	15.53
405.10	95th	15.95
412.80	97th	16.25
418.90	98th	16.49
429.60	99th	16.91

(20) 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.



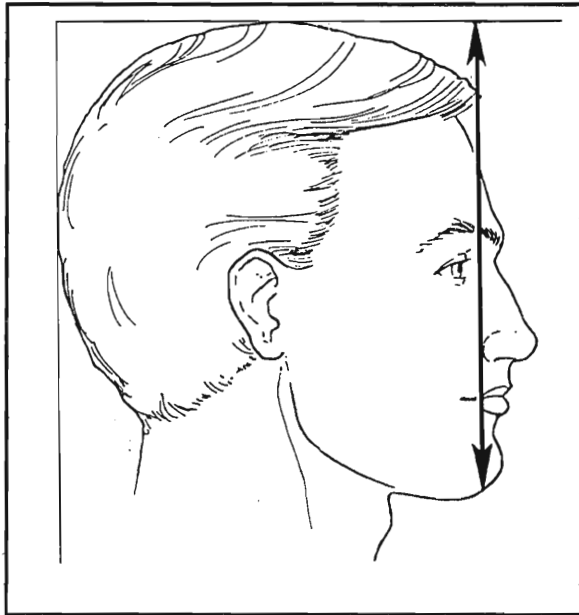
Lateral Malleolus Height

Males		
Millimeters		Inches
67.00	Mean	2.64
0.30	SE(Mean)	0.01
5.40	SD(Mean)	0.21
0.20	SE(SD)	0.01
49.00	Minimum	1.93
88.00	Maximum	3.46
Symmetry-Veta I		1.60
Kurtosis-Veta II		1.50
Coeff. of Variation		8.1%
Sample Size		4431
Percentiles		
Millimeters		Inches
54.70	1st	2.15
56.50	2nd	2.22
57.60	3rd	2.27
58.90	5th	2.32
60.90	10th	2.40
62.10	15th	2.44
63.10	20th	2.48
63.90	25th	2.52
64.60	30th	2.54
65.30	35th	2.57
66.00	40th	2.60
66.60	45th	2.62
67.30	50th	2.65
68.00	55th	2.68
68.70	60th	2.70
69.40	65th	2.73
70.20	70th	2.76
71.00	75th	2.80
72.00	80th	2.83
73.20	85th	2.88
74.70	90th	2.94
76.90	95th	3.03
78.40	97th	3.09
79.40	98th	3.13
81.00	99th	3.19

Females		
Millimeters		Inches
61.00	Mean	2.40
0.30	SE(Mean)	0.01
5.20	SD(Mean)	0.20
0.20	SE(SD)	0.01
42.00	Minimum	1.65
83.00	Maximum	3.27
Symmetry-Veta I		2.40
Kurtosis-Veta II		0.90
Coeff. of Variation		8.5%
Sample Size		2881
Percentiles		
Millimeters		Inches
49.50	1st	1.95
51.00	2nd	2.01
51.90	3rd	2.04
53.00	5th	2.09
54.70	10th	2.15
55.90	15th	2.20
56.80	20th	2.24
57.50	25th	2.26
58.30	30th	2.30
58.90	35th	2.32
59.60	40th	2.35
60.20	45th	2.37
60.90	50th	2.40
61.50	55th	2.42
62.20	60th	2.45
62.90	65th	2.48
63.70	70th	2.51
64.50	75th	2.54
65.50	80th	2.58
66.60	85th	2.62
68.10	90th	2.68
70.30	95th	2.77
71.70	97th	2.82
72.80	98th	2.87
74.30	99th	2.93

(21) 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.



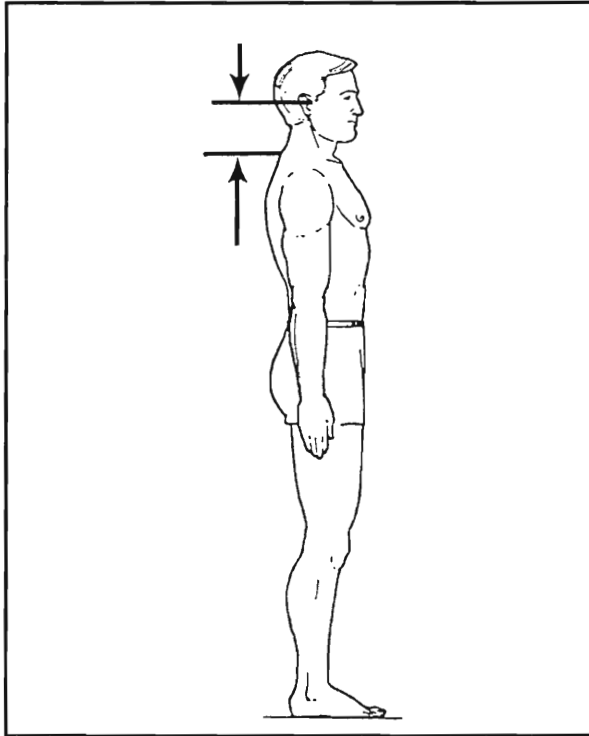
Menton - Top of Head

Males		
Millimeters		Inches
232.00	Mean	9.13
0.50	SE(Mean)	0.02
8.90	SD(Mean)	0.35
0.34	SE(SD)	0.01
204.00	Minimum	8.03
272.00	Maximum	10.71
Symmetry-Veta I		1.90
Kurtosis-Veta II		2.20
Coeff. of Variation		3.8%
Sample Size		4201
Percentiles		
Millimeters		Inches
212.90	1st	8.38
214.90	2nd	8.46
216.30	3rd	8.52
218.30	5th	8.59
221.40	10th	8.72
223.50	15th	8.80
225.20	20th	8.87
226.70	25th	8.93
228.00	30th	8.98
229.20	35th	9.02
230.30	40th	9.07
231.40	45th	9.11
232.40	50th	9.15
233.50	55th	9.19
234.60	60th	9.24
235.70	65th	9.28
236.90	70th	9.33
238.20	75th	9.38
239.70	80th	9.44
241.50	85th	9.51
243.90	90th	9.60
247.80	95th	9.76
250.70	97th	9.87
253.00	98th	9.96
257.00	99th	10.12

Females		
Millimeters		Inches
217.00	Mean	8.54
0.50	SE(Mean)	0.02
8.10	SD(Mean)	0.32
0.32	SE(SD)	0.01
186.00	Minimum	7.32
247.00	Maximum	9.72
Symmetry-Veta I		-0.20
Kurtosis-Veta II		0.90
Coeff. of Variation		3.7%
Sample Size		2721
Percentiles		
Millimeters		Inches
199.10	1st	7.84
200.90	2nd	7.91
202.20	3rd	7.96
204.10	5th	8.04
207.10	10th	8.15
209.20	15th	8.24
210.90	20th	8.30
212.30	25th	8.36
213.60	30th	8.41
214.80	35th	8.46
215.80	40th	8.50
216.90	45th	8.54
217.90	50th	8.58
218.90	55th	8.62
219.90	60th	8.66
220.90	65th	8.70
222.00	70th	8.74
223.10	75th	8.78
224.40	80th	8.83
225.90	85th	8.89
227.90	90th	8.97
231.00	95th	9.09
233.20	97th	9.18
235.00	98th	9.25
238.20	99th	9.38

(22) Neck Link

The vertical distance between the cervicale landmark at the base of the back of the neck and the tracion landmark on the catilaginous flap of flesh in front of the earhole is calculated as follows: STATURE minus TRACION-TOP OF HEAD minus CERVICALE HEIGHT.



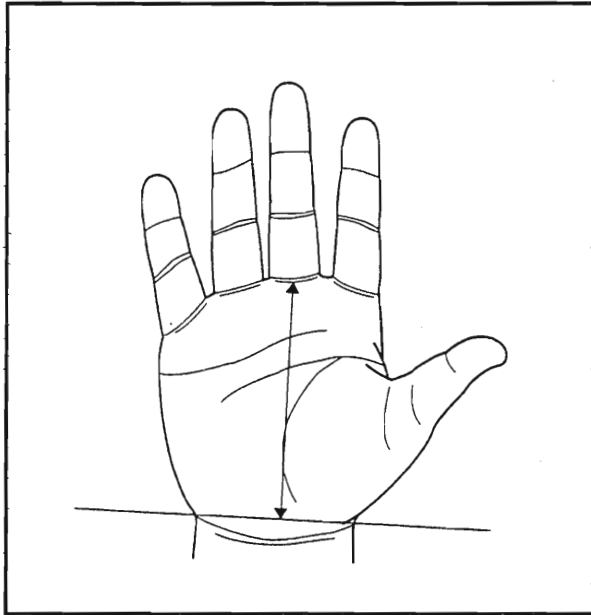
Neck Link

Males		
Millimeters		Inches
106.00	Mean	4.17
0.60	SE(Mean)	0.02
11.60	SD(Mean)	0.46
0.44	SE(SD)	0.02
64.00	Minimum	2.52
147.00	Maximum	5.79
Symmetry-Veta I		-0.10
Kurtosis-Veta II		1.40
Coeff. of Variation		10.9%
Sample Size		4201
Percentiles		
Millimeters		Inches
78.50	1st	3.09
81.90	2nd	3.22
84.00	3rd	3.31
86.90	5th	3.42
91.40	10th	3.60
94.30	15th	3.71
96.60	20th	3.80
98.60	25th	3.88
100.30	30th	3.95
101.90	35th	4.01
103.40	40th	4.07
104.80	45th	4.13
106.30	50th	4.19
107.70	55th	4.24
109.10	60th	4.30
110.60	65th	4.35
112.20	70th	4.42
113.90	75th	4.48
115.80	80th	4.56
118.00	85th	4.65
120.90	90th	4.76
125.40	95th	4.94
128.50	97th	5.06
130.80	98th	5.15
134.70	99th	5.30

Females		
Millimeters		Inches
97.00	Mean	3.82
0.60	SE(Mean)	0.02
11.00	SD(Mean)	0.43
0.43	SE(SD)	0.02
55.00	Minimum	2.17
134.00	Maximum	5.28
Symmetry-Veta I		0.20
Kurtosis-Veta II		1.10
Coeff. of Variation		11.3%
Sample Size		2722
Percentiles		
Millimeters		Inches
72.30	1st	2.85
75.10	2nd	2.96
77.00	3rd	3.03
79.70	5th	3.14
83.80	10th	3.30
86.60	15th	3.41
88.80	20th	3.50
90.70	25th	3.57
92.30	30th	3.63
93.90	35th	3.70
95.30	40th	3.75
96.70	45th	3.81
98.00	50th	3.86
99.40	55th	3.91
100.70	60th	3.96
102.10	65th	4.02
103.60	70th	4.08
105.20	75th	4.14
107.00	80th	4.21
109.10	85th	4.30
111.90	90th	4.41
116.20	95th	4.57
119.20	97th	4.69
121.50	98th	4.78
125.50	99th	4.94

(23) Palm Length

The longest dimension of the palm, calculated as the perpendicular distance from the base of digit 3 to the wrist crease base line.



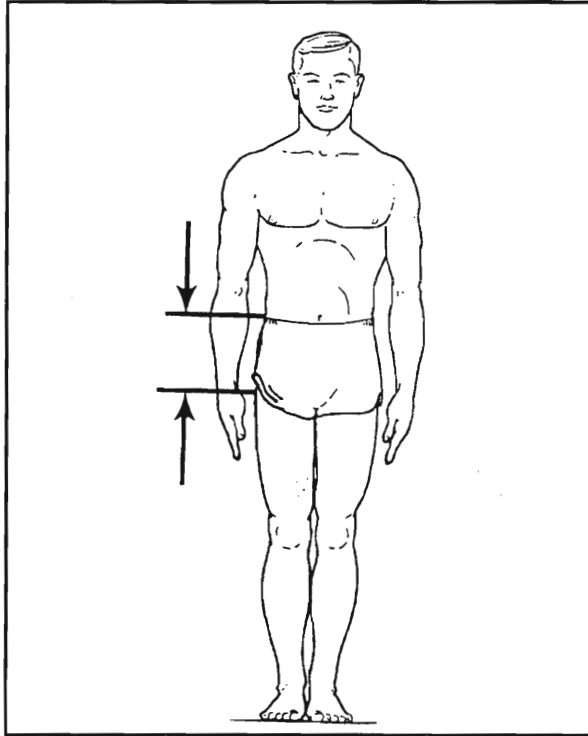
Palm Length

Males		
Millimeters		Inches
110.00	Mean	4.33
0.40	SE(Mean)	0.02
5.80	SD(Mean)	0.23
0.26	SE(SD)	0.01
77.00	Minimum	3.03
136.00	Maximum	5.35
Symmetry-Veta I		-0.10
Kurtosis-Veta II		8.60
Coeff. of Variation		5.3%
Sample Size		3053
Percentiles		
Millimeters		Inches
96.30	1st	3.79
98.00	2nd	3.86
99.10	3rd	3.90
100.50	5th	3.96
102.70	10th	4.04
104.10	15th	4.10
105.20	20th	4.14
106.20	25th	4.18
107.10	30th	4.22
107.80	35th	4.24
108.60	40th	4.28
109.30	45th	4.30
110.00	50th	4.33
110.70	55th	4.36
111.40	60th	4.39
112.10	65th	4.41
112.90	70th	4.44
113.80	75th	4.48
114.80	80th	4.52
115.90	85th	4.56
117.50	90th	4.63
119.90	95th	4.72
121.60	97th	4.79
123.00	98th	4.84
125.30	99th	4.93

Females		
Millimeters		Inches
100.00	Mean	3.94
0.30	SE(Mean)	0.01
5.50	SD(Mean)	0.22
0.22	SE(SD)	0.01
79.00	Minimum	3.11
124.00	Maximum	4.88
Symmetry-Veta I		2.00
Kurtosis-Veta II		1.70
Coeff. of Variation		5.5%
Sample Size		2537
Percentiles		
Millimeters		Inches
88.30	1st	3.48
89.70	2nd	3.53
90.60	3rd	3.57
91.80	5th	3.61
93.50	10th	3.68
94.70	15th	3.73
95.70	20th	3.77
96.50	25th	3.80
97.20	30th	3.83
97.90	35th	3.85
98.60	40th	3.88
99.30	45th	3.91
99.90	50th	3.93
100.60	55th	3.96
101.30	60th	3.99
102.10	65th	4.02
102.90	70th	4.05
103.70	75th	4.08
104.70	80th	4.12
105.90	85th	4.17
107.40	90th	4.23
109.70	95th	4.32
111.20	97th	4.38
112.30	98th	4.42
114.00	99th	4.49

(24) Pelvic Link

The vertical distance between the iliocrestale landmark on the right side of the pelvis and the level of the trochanterion landmark on the right hip is calculated as follows: ILIOCRISTALE HEIGHT minus TROCHANTERION HEIGHT.



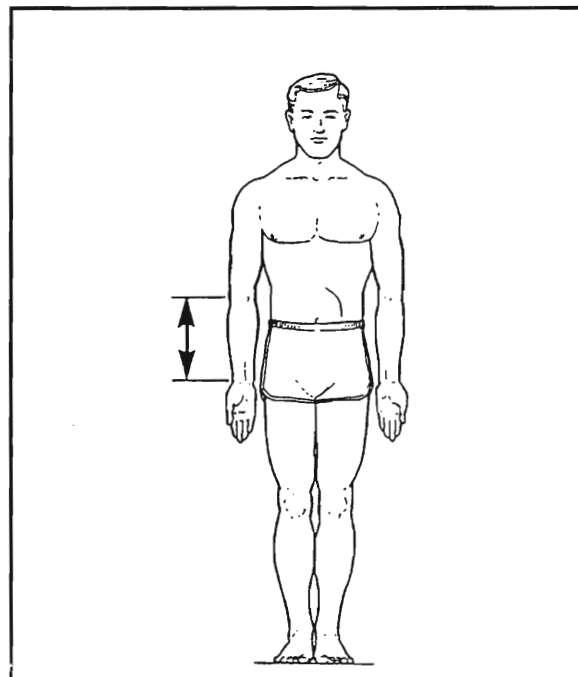
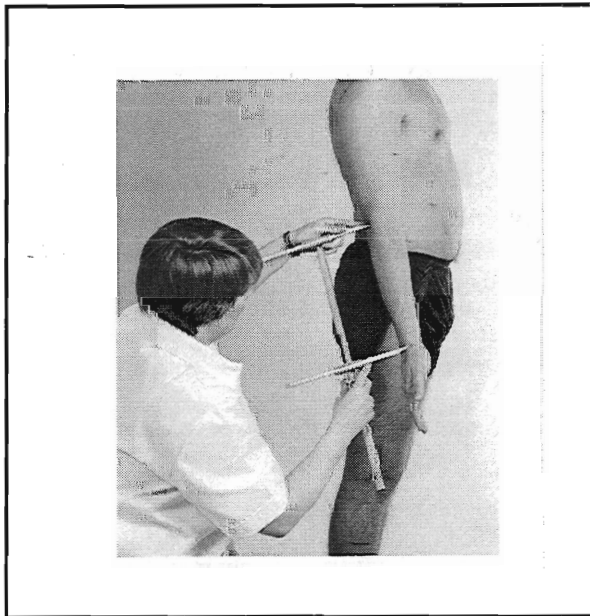
Pelvic Link

Males		
Millimeters		Inches
146.00	Mean	5.75
0.80	SE(Mean)	0.03
15.40	SD(Mean)	0.61
0.57	SE(SD)	0.02
71.00	Minimum	2.80
206.00	Maximum	8.11
Symmetry-Veta I		0.40
Kurtosis-Veta II		1.60
Coeff. of Variation		10.5%
Sample Size		4445
Percentiles		
Millimeters		Inches
109.80	1st	4.32
114.70	2nd	4.52
117.60	3rd	4.63
121.50	5th	4.78
127.10	10th	5.00
130.80	15th	5.15
133.70	20th	5.26
136.20	25th	5.36
138.40	30th	5.45
140.50	35th	5.53
142.50	40th	5.61
144.40	45th	5.69
146.30	50th	5.76
148.30	55th	5.84
150.30	60th	5.92
152.30	65th	6.00
154.50	70th	6.08
156.90	75th	6.18
159.70	80th	6.29
162.80	85th	6.41
166.80	90th	6.57
172.70	95th	6.80
176.40	97th	6.94
179.00	98th	7.05
183.00	99th	7.20

Females		
Millimeters		Inches
129.00	Mean	5.08
0.80	SE(Mean)	0.03
14.70	SD(Mean)	0.58
0.56	SE(SD)	0.02
81.00	Minimum	3.19
181.00	Maximum	7.13
Symmetry-Veta I		0.30
Kurtosis-Veta II		2.80
Coeff. of Variation		11.4%
Sample Size		2886
Percentiles		
Millimeters		Inches
92.20	1st	3.63
97.40	2nd	3.83
100.60	3rd	3.96
104.70	5th	4.12
110.60	10th	4.35
114.40	15th	4.50
117.30	20th	4.62
119.80	25th	4.72
121.90	30th	4.80
123.90	35th	4.88
125.80	40th	4.95
127.50	45th	5.02
129.30	50th	5.09
131.10	55th	5.16
132.90	60th	5.23
134.70	65th	5.30
136.70	70th	5.38
138.80	75th	5.46
141.30	80th	5.56
144.20	85th	5.68
147.90	90th	5.82
153.70	95th	6.05
157.70	97th	6.21
160.70	98th	6.33
165.70	99th	6.52

(25) Radiale-Stylian Length

The distance between the radiale landmark on the right elbow and the stylian 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.



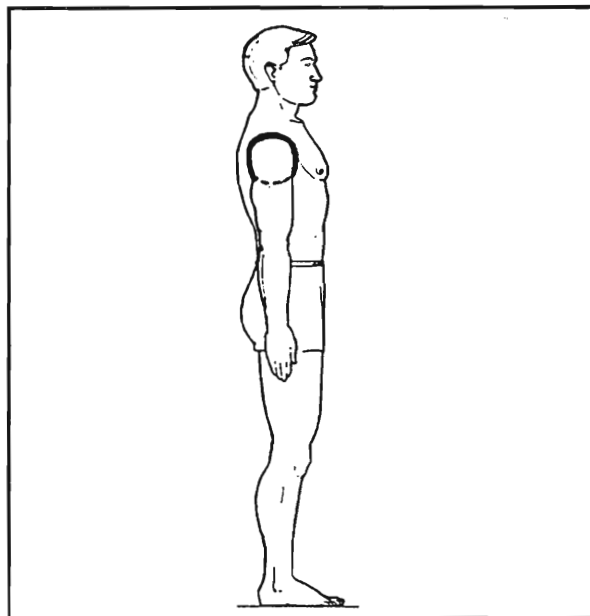
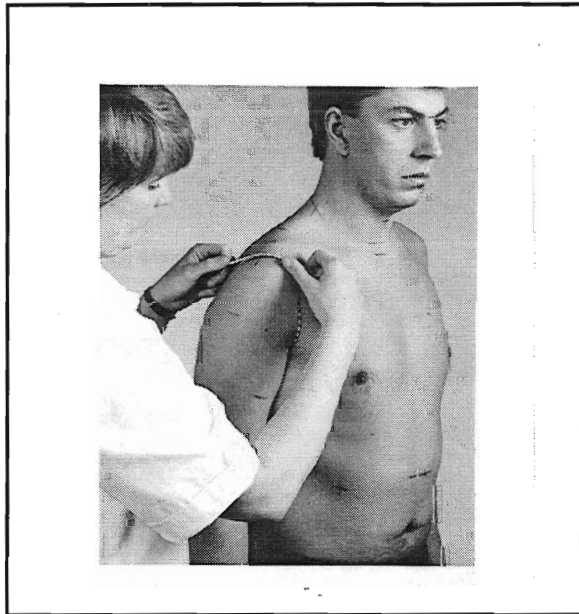
Radiale-Stylian Length

Males		
Millimeters		Inches
269.00	Mean	10.59
0.80	SE(Mean)	0.03
15.00	SD(Mean)	0.59
0.56	SE(SD)	0.02
208.00	Minimum	8.19
330.00	Maximum	12.99
Symmetry-Veta I		1.10
Kurtosis-Veta II		2.30
Coeff. of Variation		5.6%
Sample Size		4447
Percentiles		
Millimeters		Inches
233.50	1st	9.19
238.10	2nd	9.37
241.00	3rd	9.49
244.80	5th	9.64
250.40	10th	9.86
254.00	15th	10.00
256.90	20th	10.11
259.30	25th	10.21
261.40	30th	10.29
263.40	35th	10.37
265.30	40th	10.44
267.20	45th	10.52
269.00	50th	10.59
270.80	55th	10.66
272.70	60th	10.74
274.60	65th	10.81
276.70	70th	10.89
279.00	75th	10.98
281.60	80th	11.09
284.60	85th	11.20
288.60	90th	11.36
294.90	95th	11.61
299.20	97th	11.78
302.40	98th	11.91
307.90	99th	12.12

Females		
Millimeters		Inches
241.00	Mean	9.49
0.80	SE(Mean)	0.03
14.70	SD(Mean)	0.58
0.56	SE(SD)	0.02
195.00	Minimum	7.68
312.00	Maximum	12.28
Symmetry-Veta I		3.20
Kurtosis-Veta II		1.60
Coeff. of Variation		6.1%
Sample Size		2888
Percentiles		
Millimeters		Inches
211.90	1st	8.34
214.60	2nd	8.45
216.50	3rd	8.52
219.20	5th	8.63
223.60	10th	8.80
226.70	15th	8.93
229.20	20th	9.02
231.50	25th	9.11
233.50	30th	9.19
235.50	35th	9.27
237.30	40th	9.34
239.10	45th	9.41
241.00	50th	9.49
242.80	55th	9.56
244.70	60th	9.63
246.70	65th	9.71
248.80	70th	9.80
251.20	75th	9.89
253.80	80th	9.99
257.00	85th	10.12
261.10	90th	10.28
267.50	95th	10.53
271.90	97th	10.70
275.20	98th	10.83
280.60	99th	11.05

(26) 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.



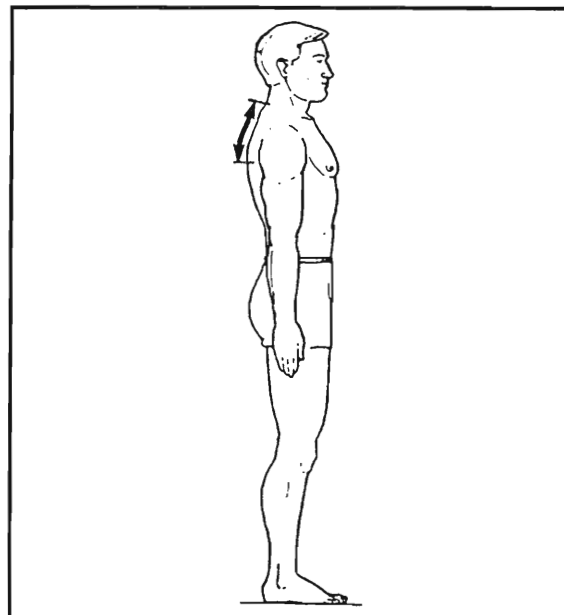
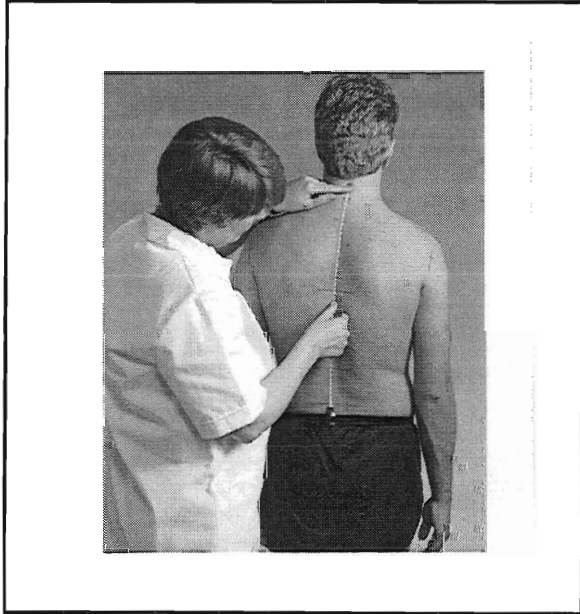
Scye Circumference

Males		
Millimeters		Inches
447.00	Mean	17.60
1.40	SE(Mean)	0.06
26.10	SD(Mean)	1.03
0.97	SE(SD)	0.04
358.00	Minimum	14.09
558.00	Maximum	21.97
Symmetry-Veta I		1.90
Kurtosis-Veta II		2.50
Coeff. of Variation		5.8%
Sample Size		4447
Percentiles		
Millimeters		Inches
387.90	1st	15.27
395.30	2nd	15.56
399.90	3rd	15.74
405.90	5th	15.98
415.00	10th	16.34
421.00	15th	16.57
425.70	20th	16.76
429.80	25th	16.92
433.50	30th	17.07
436.90	35th	17.20
440.10	40th	17.33
443.30	45th	17.45
446.50	50th	17.58
449.70	55th	17.70
453.00	60th	17.83
456.50	65th	17.97
460.10	70th	18.11
464.20	75th	18.28
468.80	80th	18.46
474.20	85th	18.67
481.30	90th	18.95
492.10	95th	19.37
499.40	97th	19.66
504.90	98th	19.88
513.60	99th	20.22

Females		
Millimeters		Inches
372.00	Mean	14.65
1.20	SE(Mean)	0.05
23.10	SD(Mean)	0.91
0.88	SE(SD)	0.03
298.00	Minimum	11.73
462.00	Maximum	18.19
Symmetry-Veta I		4.40
Kurtosis-Veta II		3.10
Coeff. of Variation		6.2%
Sample Size		2888
Percentiles		
Millimeters		Inches
324.70	1st	12.78
329.90	2nd	12.99
333.20	3rd	13.12
337.70	5th	13.30
344.70	10th	13.57
349.50	15th	13.76
353.40	20th	13.91
356.80	25th	14.05
359.80	30th	14.17
362.70	35th	14.28
365.50	40th	14.39
368.20	45th	14.50
371.00	50th	14.61
373.80	55th	14.72
376.80	60th	14.83
379.90	65th	14.96
383.20	70th	15.09
386.90	75th	15.23
391.30	80th	15.41
396.50	85th	15.61
403.50	90th	15.89
414.80	95th	16.33
422.70	97th	16.64
428.90	98th	16.89
439.30	99th	17.30

(27) 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.



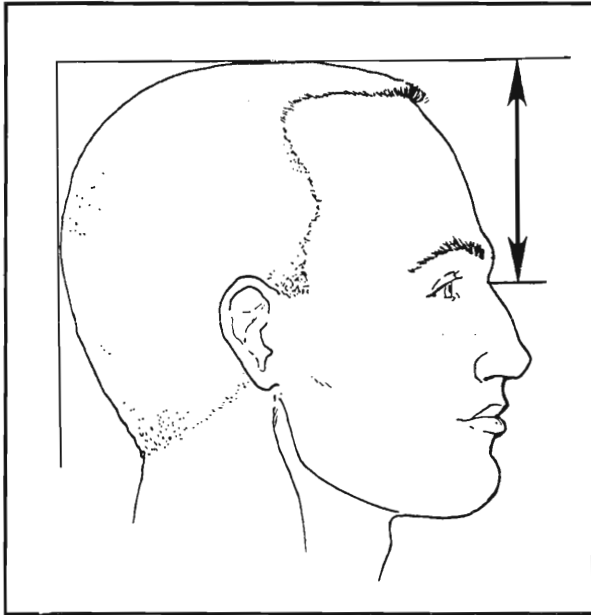
Scye Depth

Males		
Millimeters		Inches
213.00	Mean	8.39
0.80	SE(Mean)	0.03
15.20	SD(Mean)	0.60
0.56	SE(SD)	0.02
158.00	Minimum	6.22
284.00	Maximum	11.18
Symmetry-Veta I		1.40
Kurtosis-Veta II		4.60
Coeff. of Variation		7.1%
Sample Size		4447
Percentiles		
Millimeters		Inches
179.00	1st	7.05
182.20	2nd	7.17
184.60	3rd	7.27
188.00	5th	7.40
193.60	10th	7.62
197.50	15th	7.78
200.60	20th	7.90
203.30	25th	8.00
205.60	30th	8.09
207.80	35th	8.18
209.80	40th	8.26
211.70	45th	8.33
213.50	50th	8.41
215.30	55th	8.48
217.20	60th	8.55
219.00	65th	8.62
221.00	70th	8.70
223.10	75th	8.78
225.50	80th	8.88
228.30	85th	8.99
231.90	90th	9.13
237.70	95th	9.36
242.00	97th	9.53
245.50	98th	9.67
251.60	99th	9.91

Females		
Millimeters		Inches
186.00	Mean	7.32
0.80	SE(Mean)	0.03
14.20	SD(Mean)	0.56
0.54	SE(SD)	0.02
142.00	Minimum	5.59
238.00	Maximum	9.37
Symmetry-Veta I		2.00
Kurtosis-Veta II		0.20
Coeff. of Variation		7.6%
Sample Size		2888
Percentiles		
Millimeters		Inches
154.50	1st	6.08
158.60	2nd	6.24
161.00	3rd	6.34
164.20	5th	6.46
168.90	10th	6.65
172.10	15th	6.78
174.60	20th	6.87
176.70	25th	6.96
178.70	30th	7.04
180.50	35th	7.11
182.30	40th	7.18
184.10	45th	7.25
185.80	50th	7.31
187.60	55th	7.39
189.50	60th	7.46
191.40	65th	7.54
193.50	70th	7.62
195.80	75th	7.71
198.40	80th	7.81
201.50	85th	7.93
205.40	90th	8.09
211.20	95th	8.31
215.00	97th	8.46
217.60	98th	8.57
221.70	99th	8.73

(28) 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.



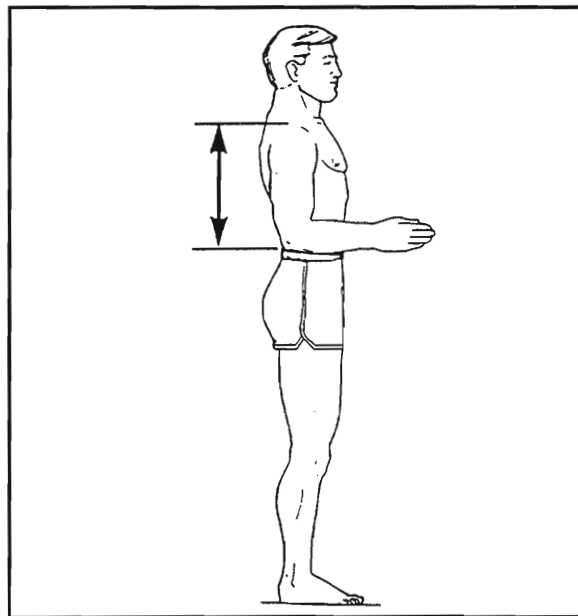
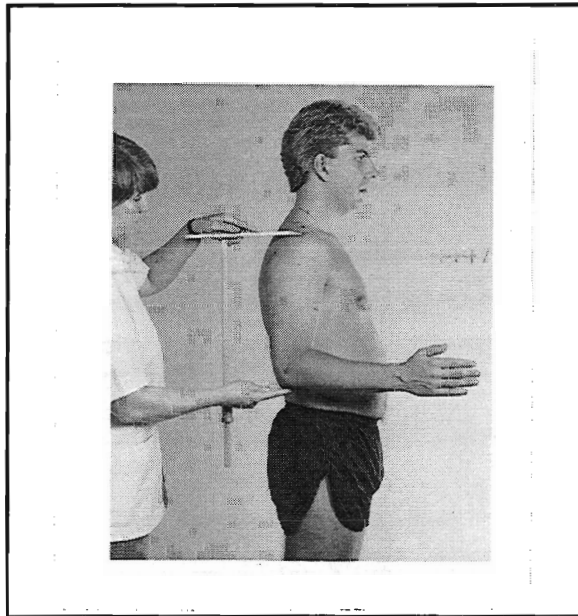
Sellion - Top of Head

Males		
Millimeters		Inches
112.00	Mean	4.41
0.40	SE(Mean)	0.02
7.10	SD(Mean)	0.28
0.27	SE(SD)	0.01
88.00	Minimum	3.46
136.00	Maximum	5.35
Symmetry-Veta I		1.40
Kurtosis-Veta II		1.30
Coeff. of Variation		6.3%
Sample Size		4201
Percentiles		
Millimeters		Inches
96.70	1st	3.81
98.50	2nd	3.88
99.60	3rd	3.92
101.20	5th	3.98
103.70	10th	4.08
105.40	15th	4.15
106.70	20th	4.20
107.90	25th	4.25
108.90	30th	4.29
109.80	35th	4.32
110.70	40th	4.36
111.60	45th	4.39
112.50	50th	4.43
113.30	55th	4.46
114.20	60th	4.50
115.10	65th	4.53
116.10	70th	4.57
117.10	75th	4.61
118.30	80th	4.66
119.80	85th	4.72
121.70	90th	4.79
124.70	95th	4.91
126.80	97th	4.99
128.50	98th	5.06
131.30	99th	5.17

Females		
Millimeters		Inches
105.00	Mean	4.13
0.40	SE(Mean)	0.02
6.30	SD(Mean)	0.25
0.25	SE(SD)	0.01
78.00	Minimum	3.07
128.00	Maximum	5.04
Symmetry-Veta I		0.50
Kurtosis-Veta II		2.80
Coeff. of Variation		6.0%
Sample Size		2722
Percentiles		
Millimeters		Inches
90.40	1st	3.56
92.30	2nd	3.63
93.50	3rd	3.68
95.10	5th	3.74
97.50	10th	3.84
99.10	15th	3.90
100.30	20th	3.95
101.40	25th	3.99
102.30	30th	4.03
103.20	35th	4.06
104.00	40th	4.09
104.70	45th	4.12
105.50	50th	4.15
106.20	55th	4.18
107.00	60th	4.21
107.80	65th	4.24
108.60	70th	4.28
109.50	75th	4.31
110.50	80th	4.35
111.80	85th	4.40
113.40	90th	4.46
116.00	95th	4.57
117.80	97th	4.64
119.30	98th	4.70
121.90	99th	4.80

(29) 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.



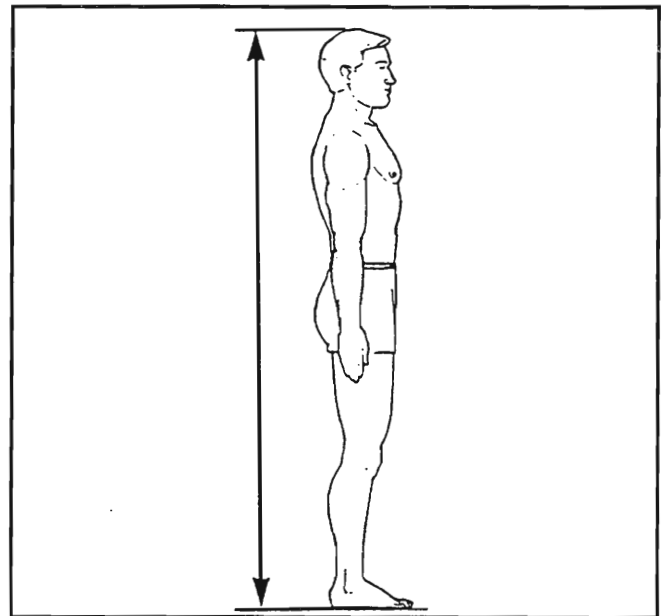
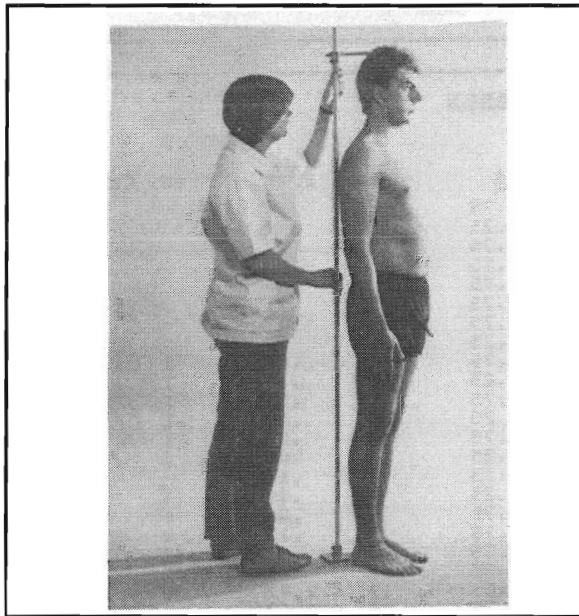
Shoulder-Elbow Length

Males		
Millimeters		Inches
369.00	Mean	14.53
0.90	SE(Mean)	0.04
17.70	SD(Mean)	0.70
0.66	SE(SD)	0.03
305.00	Minimum	12.01
440.00	Maximum	17.32
Symmetry-Veta I		0.30
Kurtosis-Veta II		-0.40
Coeff. of Variation		4.8%
Sample Size		4447
Percentiles		
Millimeters		Inches
328.90	1st	12.95
333.00	2nd	13.11
335.80	3rd	13.22
339.80	5th	13.38
346.10	10th	13.63
350.40	15th	13.80
353.90	20th	13.93
356.90	25th	14.05
359.60	30th	14.16
362.10	35th	14.26
364.50	40th	14.35
366.70	45th	14.44
369.00	50th	14.53
371.20	55th	14.61
373.50	60th	14.70
375.80	65th	14.80
378.30	70th	14.89
380.90	75th	15.00
383.90	80th	15.11
387.30	85th	15.25
391.80	90th	15.43
398.40	95th	15.69
402.90	97th	15.86
406.40	98th	16.00
412.00	99th	16.22

Females		
Millimeters		Inches
335.00	Mean	13.19
0.90	SE(Mean)	0.04
17.10	SD(Mean)	0.67
0.65	SE(SD)	0.03
282.00	Minimum	11.10
404.00	Maximum	15.91
Symmetry-Veta I		1.10
Kurtosis-Veta II		-0.10
Coeff. of Variation		5.1%
Sample Size		2888
Percentiles		
Millimeters		Inches
296.50	1st	11.67
300.70	2nd	11.84
303.40	3rd	11.94
307.20	5th	12.09
313.20	10th	12.33
317.30	15th	12.49
320.60	20th	12.62
323.40	25th	12.73
326.00	30th	12.83
328.30	35th	12.93
330.60	40th	13.02
332.80	45th	13.10
334.90	50th	13.19
337.10	55th	13.27
339.30	60th	13.36
341.60	65th	13.45
344.00	70th	13.54
346.70	75th	13.65
349.60	80th	13.76
353.10	85th	13.90
357.50	90th	14.07
364.20	95th	14.34
368.60	97th	14.51
371.90	98th	14.64
377.20	99th	14.85

(30) 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.



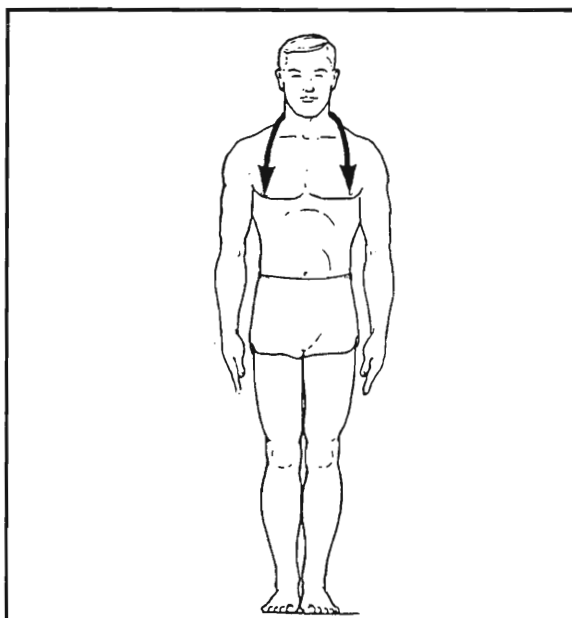
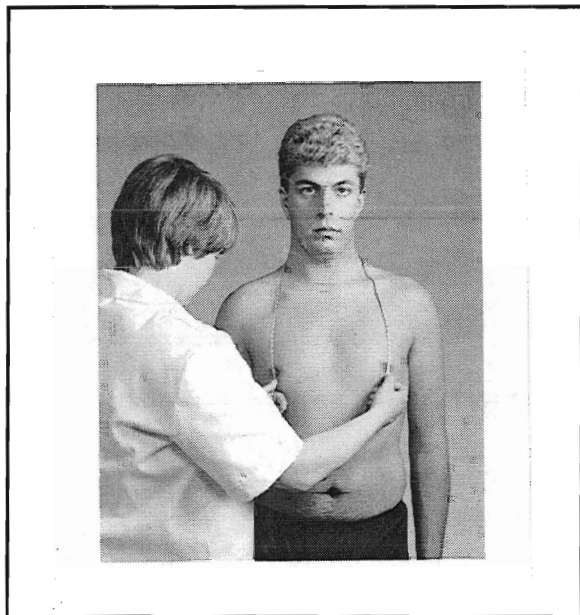
Stature

Males		
Millimeters		Inches
1759.00	Mean	69.25
3.50	SE(Mean)	0.14
66.50	SD(Mean)	2.62
2.46	SE(SD)	0.10
1513.00	Minimum	59.57
1980.00	Maximum	77.95
Symmetry-Veta I		0.20
Kurtosis-Veta II		-0.90
Coeff. of Variation		3.8%
Sample Size		4447
Percentiles		
Millimeters		Inches
1607.90	1st	63.30
1623.80	2nd	63.93
1634.40	3rd	64.35
1649.20	5th	64.93
1672.80	10th	65.86
1689.10	15th	66.50
1702.10	20th	67.01
1713.40	25th	67.46
1723.60	30th	67.86
1732.90	35th	68.22
1741.90	40th	68.58
1750.50	45th	68.92
1759.00	50th	69.25
1767.50	55th	69.59
1776.10	60th	69.93
1784.90	65th	70.27
1794.30	70th	70.64
1804.30	75th	71.04
1815.60	80th	71.48
1828.60	85th	71.99
1845.10	90th	72.64
1869.60	95th	73.61
1885.70	97th	74.24
1897.70	98th	74.71
1917.00	99th	75.47

Females		
Millimeters		Inches
1631.00	Mean	64.21
3.30	SE(Mean)	0.13
61.90	SD(Mean)	2.44
2.36	SE(SD)	0.09
1460.00	Minimum	57.48
1836.00	Maximum	72.28
Symmetry-Veta I		0.80
Kurtosis-Veta II		-0.40
Coeff. of Variation		3.8%
Sample Size		2888
Percentiles		
Millimeters		Inches
1486.70	1st	58.53
1504.10	2nd	59.22
1515.10	3rd	59.65
1529.90	5th	60.23
1552.40	10th	61.12
1567.50	15th	61.71
1579.40	20th	62.18
1589.60	25th	62.58
1598.80	30th	62.94
1607.20	35th	63.28
1615.30	40th	63.59
1623.00	45th	63.90
1630.80	50th	64.20
1638.50	55th	64.51
1646.40	60th	64.82
1654.50	65th	65.14
1663.20	70th	65.48
1672.60	75th	65.85
1683.30	80th	66.27
1695.70	85th	66.76
1711.70	90th	67.39
1736.00	95th	68.35
1752.10	97th	68.98
1764.30	98th	69.46
1783.80	99th	70.23

(31) 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.



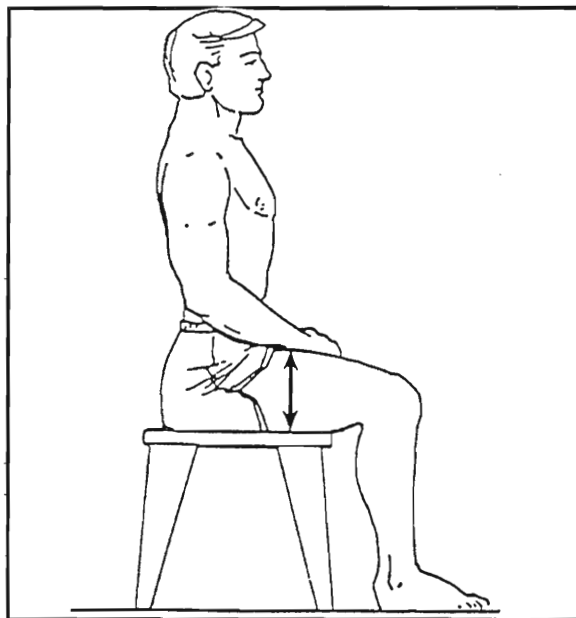
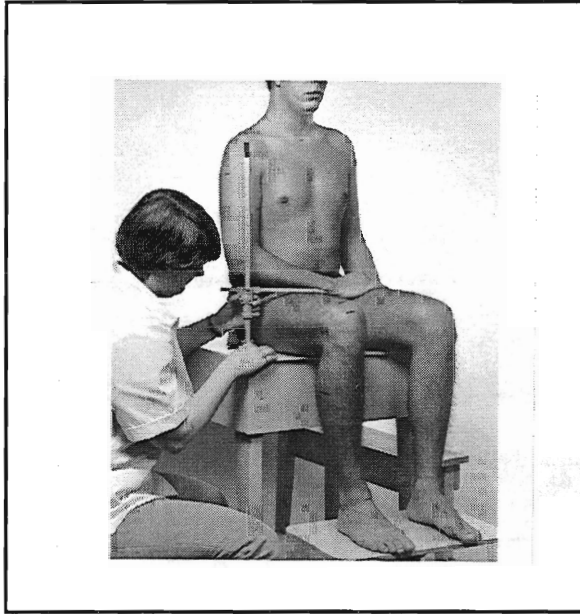
Strap Length

Males		
Millimeters		Inches
713.00	Mean	28.07
2.10	SE(Mean)	0.08
39.30	SD(Mean)	1.55
1.45	SE(SD)	0.06
585.00	Minimum	23.03
882.00	Maximum	34.72
Symmetry-Veta I		2.30
Kurtosis-Veta II		2.40
Coeff. of Variation		5.5%
Sample Size		4447
Percentiles		
Millimeters		Inches
629.20	1st	24.77
636.30	2nd	25.05
641.60	3rd	25.26
649.50	5th	25.57
662.70	10th	26.09
672.10	15th	26.46
679.70	20th	26.76
686.30	25th	27.02
692.10	30th	27.25
697.60	35th	27.46
702.70	40th	27.67
707.60	45th	27.86
712.50	50th	28.05
717.30	55th	28.24
722.20	60th	28.43
727.30	65th	28.63
732.60	70th	28.84
738.40	75th	29.07
745.00	80th	29.33
752.70	85th	29.63
763.00	90th	30.04
779.30	95th	30.68
791.10	97th	31.15
800.60	98th	31.52
817.10	99th	32.17

Females		
Millimeters		Inches
680.00	Mean	26.77
2.40	SE(Mean)	0.09
44.20	SD(Mean)	1.74
1.69	SE(SD)	0.07
547.00	Minimum	21.54
867.00	Maximum	34.13
Symmetry-Veta I		2.60
Kurtosis-Veta II		1.00
Coeff. of Variation		6.5%
Sample Size		2888
Percentiles		
Millimeters		Inches
585.20	1st	23.04
595.40	2nd	23.44
602.00	3rd	23.70
611.10	5th	24.06
625.40	10th	24.62
635.30	15th	25.01
643.10	20th	25.32
650.00	25th	25.59
656.30	30th	25.84
662.10	35th	26.07
667.70	40th	26.29
673.20	45th	26.50
678.60	50th	26.72
684.20	55th	26.94
689.80	60th	27.16
695.70	65th	27.39
702.10	70th	27.64
709.10	75th	27.92
717.10	80th	28.23
726.50	85th	28.60
738.90	90th	29.09
758.10	95th	29.85
771.20	97th	30.36
781.30	98th	30.76
797.80	99th	31.41

(32) 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.



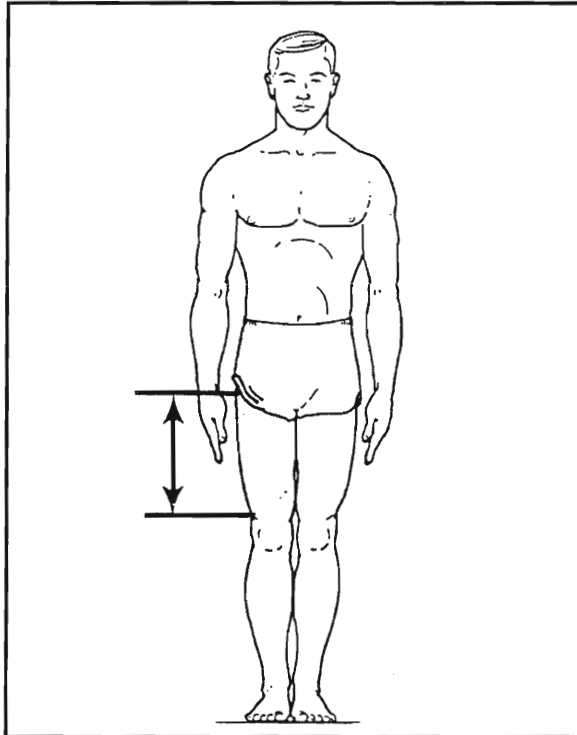
Thigh Clearance

Males		
Millimeters		Inches
168.00	Mean	6.61
0.60	SE(Mean)	0.02
12.10	SD(Mean)	0.48
0.45	SE(SD)	0.02
129.00	Minimum	5.08
225.00	Maximum	8.86
Symmetry-Veta I		3.30
Kurtosis-Veta II		3.90
Coeff. of Variation		7.2%
Sample Size		4445
Percentiles		
Millimeters		Inches
142.20	1st	5.60
145.10	2nd	5.71
147.00	3rd	5.79
149.60	5th	5.89
153.70	10th	6.05
156.50	15th	6.16
158.60	20th	6.24
160.50	25th	6.32
162.20	30th	6.39
163.80	35th	6.45
165.30	40th	6.51
166.70	45th	6.56
168.10	50th	6.62
169.60	55th	6.68
171.10	60th	6.74
172.60	65th	6.80
174.30	70th	6.86
176.10	75th	6.93
178.20	80th	7.02
180.70	85th	7.11
184.10	90th	7.25
189.50	95th	7.46
193.40	97th	7.61
196.50	98th	7.74
201.90	99th	7.95

Females		
Millimeters		Inches
158.00	Mean	6.22
0.60	SE(Mean)	0.02
11.90	SD(Mean)	0.47
0.45	SE(SD)	0.02
122.00	Minimum	4.80
206.00	Maximum	8.11
Symmetry-Veta I		2.70
Kurtosis-Veta II		0.50
Coeff. of Variation		7.5%
Sample Size		2888
Percentiles		
Millimeters		Inches
134.00	1st	5.28
136.10	2nd	5.36
137.60	3rd	5.42
139.80	5th	5.50
143.50	10th	5.65
146.20	15th	5.76
148.40	20th	5.84
150.30	25th	5.92
152.10	30th	5.99
153.70	35th	6.05
155.30	40th	6.11
156.80	45th	6.17
158.30	50th	6.23
159.90	55th	6.30
161.40	60th	6.35
163.10	65th	6.42
164.80	70th	6.49
166.70	75th	6.56
168.80	80th	6.65
171.30	85th	6.74
174.50	90th	6.87
179.30	95th	7.06
182.60	97th	7.19
185.10	98th	7.29
189.20	99th	7.45

(33) 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.



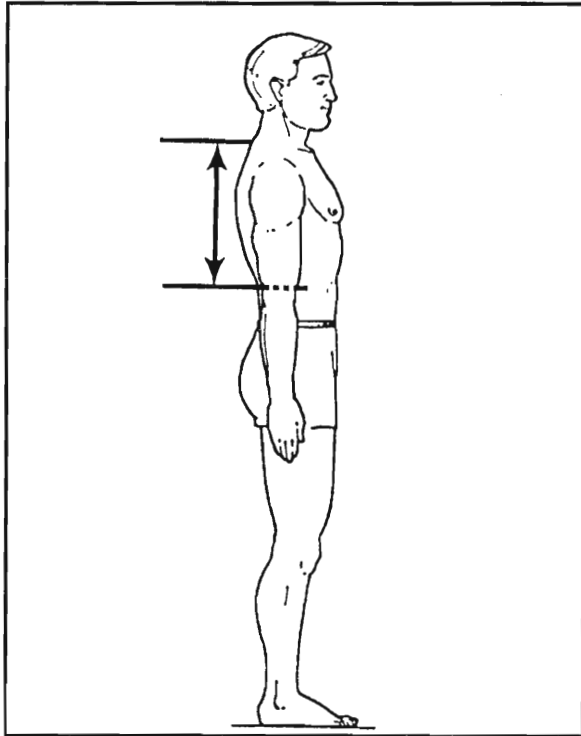
Thigh Link

Males		
Millimeters		Inches
426.00	Mean	16.77
1.30	SE(Mean)	0.05
25.10	SD(Mean)	0.99
0.93	SE(SD)	0.04
336.00	Minimum	13.23
510.00	Maximum	20.08
Symmetry-Veta I		0.20
Kurtosis-Veta II		1.40
Coeff. of Variation		5.89%
Sample Size		4430
Percentiles		
Millimeters		Inches
367.50	1st	14.47
374.60	2nd	14.75
379.10	3rd	14.93
385.10	5th	15.16
394.40	10th	15.53
400.50	15th	15.77
405.40	20th	15.96
409.50	25th	16.12
413.20	30th	16.27
416.60	35th	16.40
419.80	40th	16.53
422.90	45th	16.65
426.00	50th	16.77
429.10	55th	16.89
432.20	60th	17.02
435.40	65th	17.14
438.80	70th	17.28
442.60	75th	17.43
446.80	80th	17.59
451.70	85th	17.78
458.10	90th	18.04
467.90	95th	18.42
474.60	97th	18.69
479.70	98th	18.89
488.10	99th	19.22

Females		
Millimeters		Inches
399.00	Mean	15.71
1.20	SE(Mean)	0.05
23.00	SD(Mean)	0.91
0.88	SE(SD)	0.03
320.00	Minimum	12.60
504.00	Maximum	19.84
Symmetry-Veta I		1.70
Kurtosis-Veta II		4.10
Coeff. of Variation		5.76%
Sample Size		2879
Percentiles		
Millimeters		Inches
347.60	1st	13.69
352.80	2nd	13.89
356.40	3rd	14.03
361.50	5th	14.23
369.70	10th	14.56
375.40	15th	14.78
379.90	20th	14.96
383.80	25th	15.11
387.20	30th	15.24
390.30	35th	15.37
393.30	40th	15.48
396.10	45th	15.59
398.90	50th	15.70
401.70	55th	15.81
404.50	60th	15.93
407.40	65th	16.04
410.40	70th	16.16
413.70	75th	16.29
417.50	80th	16.44
422.00	85th	16.61
427.90	90th	16.85
437.50	95th	17.22
444.40	97th	17.50
450.00	98th	17.72
459.80	99th	18.10

(34) 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.



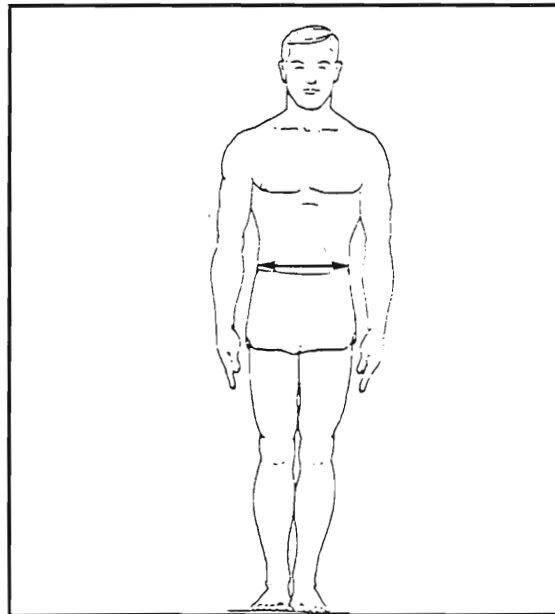
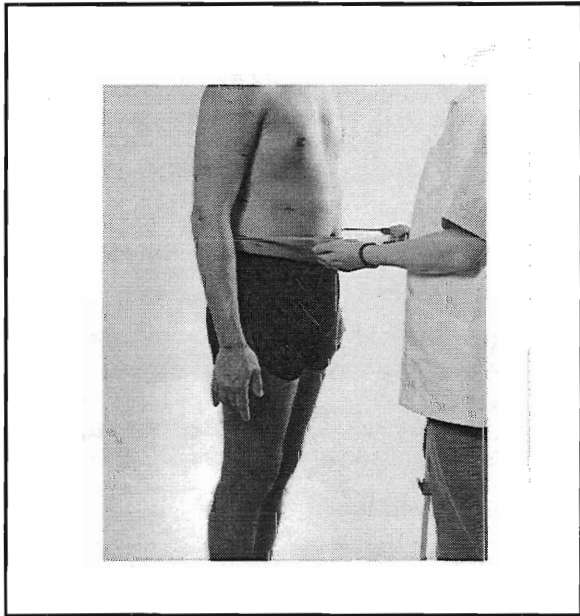
Thorax Link

Males		
Millimeters		Inches
399.00	Mean	15.71
1.10	SE(Mean)	0.04
21.10	SD(Mean)	0.83
0.78	SE(SD)	0.03
310.00	Minimum	12.20
498.00	Maximum	19.61
Symmetry-Veta I		0.40
Kurtosis-Veta II		2.10
Coeff. of Variation		5.3%
Sample Size		4447
Percentiles		
Millimeters		Inches
349.80	1st	13.77
355.90	2nd	14.01
359.70	3rd	14.16
364.90	5th	14.37
372.70	10th	14.67
377.90	15th	14.88
382.00	20th	15.04
385.50	25th	15.18
388.70	30th	15.30
391.50	35th	15.41
394.30	40th	15.52
396.90	45th	15.63
399.50	50th	15.73
402.10	55th	15.83
404.80	60th	15.94
407.50	65th	16.04
410.40	70th	16.16
413.50	75th	16.28
417.10	80th	16.42
421.10	85th	16.58
426.30	90th	16.78
434.10	95th	17.09
439.30	97th	17.30
443.10	98th	17.44
449.20	99th	17.69

Females		
Millimeters		Inches
365.00	Mean	14.37
1.10	SE(Mean)	0.04
19.70	SD(Mean)	0.78
0.75	SE(SD)	0.03
297.00	Minimum	11.69
432.00	Maximum	17.01
Symmetry-Veta I		0.10
Kurtosis-Veta II		-0.10
Coeff. of Variation		5.4%
Sample Size		2888
Percentiles		
Millimeters		Inches
319.40	1st	12.57
324.40	2nd	12.77
327.80	3rd	12.91
332.50	5th	13.09
339.90	10th	13.38
344.90	15th	13.58
348.90	20th	13.74
352.30	25th	13.87
355.30	30th	13.99
358.10	35th	14.10
360.70	40th	14.20
363.30	45th	14.30
365.70	50th	14.40
368.20	55th	14.50
370.70	60th	14.59
373.20	65th	14.69
375.90	70th	14.80
378.80	75th	14.91
382.00	80th	15.04
385.80	85th	15.19
390.60	90th	15.38
397.90	95th	15.67
402.90	97th	15.86
406.70	98th	16.01
413.10	99th	16.26

(35) 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.



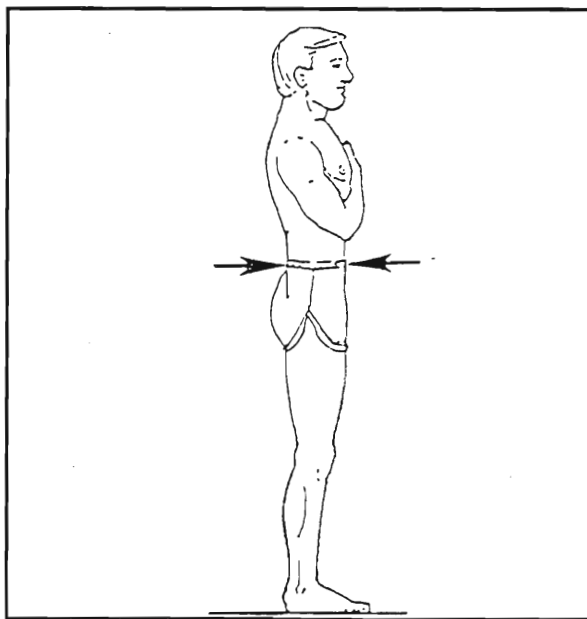
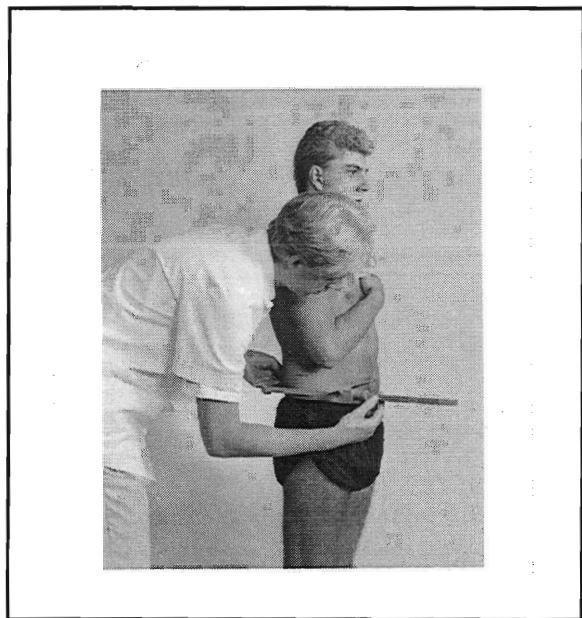
Waist Breadth

Males		
Millimeters		Inches
311.00	Mean	12.24
1.50	SE(Mean)	0.06
28.30	SD(Mean)	1.11
1.05	SE(SD)	0.04
229.00	Minimum	9.02
433.00	Maximum	17.05
Symmetry-Veta I		3.50
Kurtosis-Veta II		-0.80
Coeff. of Variation		9.1%
Sample Size		4447
Percentiles		
Millimeters		Inches
255.60	1st	10.06
260.40	2nd	10.25
263.70	3rd	10.38
268.40	5th	10.57
276.40	10th	10.88
282.20	15th	11.11
287.00	20th	11.30
291.30	25th	11.47
295.30	30th	11.63
299.10	35th	11.78
302.80	40th	11.92
306.40	45th	12.06
310.00	50th	12.20
313.70	55th	12.35
317.50	60th	12.50
321.50	65th	12.66
325.80	70th	12.83
330.50	75th	13.01
335.80	80th	13.22
342.00	85th	13.46
350.00	90th	13.78
361.90	95th	14.25
369.60	97th	14.55
375.30	98th	14.78
384.10	99th	15.12

Females		
Millimeters		Inches
292.00	Mean	11.50
1.50	SE(Mean)	0.06
27.00	SD(Mean)	1.06
1.03	SE(SD)	0.04
225.00	Minimum	8.86
391.00	Maximum	15.39
Symmetry-Veta I		5.50
Kurtosis-Veta II		3.20
Coeff. of Variation		9.2%
Sample Size		2888
Percentiles		
Millimeters		Inches
240.30	1st	9.46
244.60	2nd	9.63
247.70	3rd	9.75
252.00	5th	9.92
259.30	10th	10.21
264.60	15th	10.42
268.90	20th	10.59
272.80	25th	10.74
276.40	30th	10.88
279.70	35th	11.01
283.00	40th	11.14
286.30	45th	11.27
289.60	50th	11.40
292.90	55th	11.53
296.40	60th	11.67
300.20	65th	11.82
304.20	70th	11.98
308.70	75th	12.15
313.90	80th	12.36
320.20	85th	12.61
328.60	90th	12.94
342.20	95th	13.47
351.80	97th	13.85
359.30	98th	14.15
372.10	99th	14.65

(36) 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.



Waist Depth

Males		
Millimeters		Inches
226.00	Mean	8.90
1.30	SE(Mean)	0.05
25.00	SD(Mean)	0.98
0.93	SE(SD)	0.04
159.00	Minimum	6.26
368.00	Maximum	14.49
Symmetry-Veta I		6.20
Kurtosis-Veta II		4.30
Coeff. of Variation		11.1%
Sample Size		4447
Percentiles		
Millimeters		Inches
179.90	1st	7.08
184.10	2nd	7.25
186.80	3rd	7.35
190.50	5th	7.50
196.50	10th	7.74
200.90	15th	7.91
204.60	20th	8.06
207.90	25th	8.19
211.10	30th	8.31
214.20	35th	8.43
217.20	40th	8.55
220.20	45th	8.67
223.30	50th	8.79
226.50	55th	8.92
229.90	60th	9.05
233.40	65th	9.19
237.30	70th	9.34
241.70	75th	9.52
246.70	80th	9.71
252.60	85th	9.94
260.40	90th	10.25
272.20	95th	10.72
279.90	97th	11.02
285.60	98th	11.24
294.40	99th	11.59

Females		
Millimeters		Inches
203.00	Mean	7.99
1.30	SE(Mean)	0.05
24.10	SD(Mean)	0.95
0.92	SE(SD)	0.04
147.00	Minimum	5.79
333.00	Maximum	13.11
Symmetry-Veta I		8.70
Kurtosis-Veta II		12.40
Coeff. of Variation		11.9%
Sample Size		2888
Percentiles		
Millimeters		Inches
160.70	1st	6.33
164.50	2nd	6.48
166.90	3rd	6.57
170.40	5th	6.71
176.00	10th	6.93
180.00	15th	7.09
183.40	20th	7.22
186.40	25th	7.34
189.20	30th	7.45
191.90	35th	7.56
194.50	40th	7.66
197.20	45th	7.76
199.90	50th	7.87
202.80	55th	7.98
205.80	60th	8.10
209.00	65th	8.23
212.60	70th	8.37
216.60	75th	8.53
221.40	80th	8.72
227.30	85th	8.95
235.40	90th	9.27
248.90	95th	9.80
258.60	97th	10.18
266.30	98th	10.48
279.60	99th	11.01

REFERENCES

1. White, R.M., and E. Churchill. 1977. United States Marine Corps Anthropometry. Technical Report NATICK/TR-78/021, U.S. Army Natick Research and Development Command, Natick, Massachusetts.
2. Donelson, S.M. and C.C. Gordon. 1996. 1995 Matched Anthropometric Database of U.S. Marine Corps Personnel: Summary Statistics. Technical Report NATICK/TR-96/036, U.S. Army Soldier Systems Command, Natick Research, Development, and Engineering Center, Natick, Massachusetts.
3. Gordon, C.C., T. Churchill, C.E. Clauser, B. Bradtmiller, J.T. McConville, I.O. Tebbetts, R.A. Walker. 1989. 1988 Anthropometric Survey of U.S. Army Personnel: Methods and Summary Statistics. Technical Report NATICK/TR-89/044, U.S. Army Natick, Research, Development, and Engineering Center, Natick, Massachusetts.
4. Donelson, S.M. and C.C. Gordon. 1996. Validation of a Statistical Matching Procedure Used to Create the United States Marine Corps Anthropometric Databases. Technical Report NATICK/TR-96/035, U.S. Army Soldier Systems Command, Natick Research, Development, and Engineering Center, Natick, Massachusetts.
5. Clauser, C.E., I.O. Tebbetts, B. Bradtmiller, J.T. McConville, C.C. Gordon. 1988. Measurer's Handbook: U.S. Army Anthropometric Survey 1987-1988. Technical Report NATICK/TR-88/043, U.S. Army Natick Research, Development, and Engineering Center, Natick, Massachusetts.
6. Greiner, T.M. 1991. Hand Anthropometry of U.S. Army Personnel. Technical Report NATICK/TR-92/011, U.S. Army Natick Research, Development and Engineering Center, Natick, Massachusetts.
7. Annis, J.F. and C.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, U.S. Army Natick Research, Development, and Engineering Center, Natick, Massachusetts.
8. Zehner, G., V. Deason, C. Ervin, and C. Gordon. 1987. A Photographic Device for the Collection of Anthropometric Data on the Hand. Technical Report NATICK/TR-87/044, U.S. Army Natick Research Development and Engineering Center, Natick, Massachusetts.