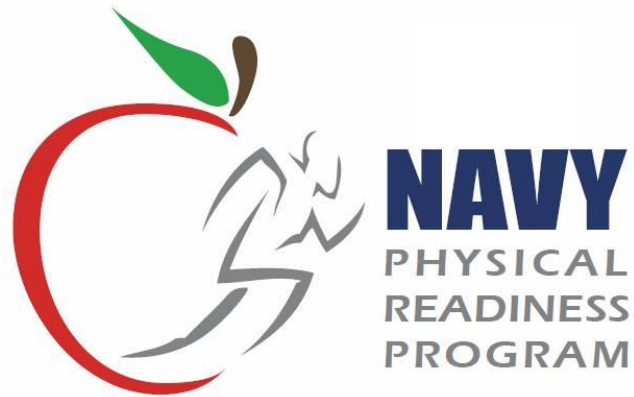


JAN 2023



## GUIDE 4

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# BODY COMPOSITION ASSESSMENT (BCA)

APPROVED  
THOMAS P. YAVORSKI  
N171 BRANCH HEAD

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## Section 1: BCA Standards

1. BCA Requirements. Sailors are required to complete an official BCA, regardless of ability or authorization to participate in the PRT portion of the PFA unless medically waived or exempted for pregnancy/postpartum. This requirement includes a Sailor whose Physical Health Assessment (PHA), Deployment Health Assessment (DHA), or NAVPERS 6110/3 (PARFQ) is overdue or incomplete. The BCA must be completed within 45 days of, but not less than 24 hours prior to, participation in the PRT. The official BCA is the first and only BCA authorized once the command PFA cycle has begun. At CO/OIC's discretion, the CO/OIC may assign a participation status of "UA" if the PRT is not completed within 45 days of the official BCA.

a. Only certified CFLs or trained ACFLs are authorized to conduct official BCA measurements. A minimum of two certified, trained, and designated in writing CFL/ACFLs are required to conduct official BCA measurements.

b. BCA measurements conducted by Medical and/or Morale Welfare and Recreation personnel cannot be used for official reporting nor do they override measurements taken by the CFL or ACFL.

c. Private (i.e. one-on-one) BCA measurements are not authorized. Sailors are not entitled to private, same gender CFL/ACFL measurements. However, commands are encouraged to have both qualified male and female CFL/ACFLs whenever possible.

2. BCA Methods. The methods to determine Sailors BCA are as follows:

a. Maximum Weight for Height (Step-1). Sailors who are within maximum weight for height pass the BCA. See [Table 1](#) for male and female maximum weight for height. In the center column, locate the Sailor's height (with fractions rounded up to the nearest whole inch). The maximum weight (in pounds) for men is located in the left column and the maximum weight (in pounds) for women is located in the right column. Sailors who are not within standards for Step-1 must participate in the Abdominal Circumference (AC) Measurement (Step-2).

b. AC measurement (Step-2). Sailors who are within their gender-specific AC measurement pass the BCA. Sailors who exceed 39 inches for males and 35.5 inches for females must participate in the Body Composition (BC) measurement (Step-3).

c. Body Circumference (BC) measurement (Step-3). Sailors who are within their gender-specific BC measurements pass the BCA. Sailors who exceed the maximum allowable body fat limits of 26 percent for males and 36 percent for females fail the BCA and the overall PFA for the cycle, regardless of PRT results. See [Table 2](#) for the Percent Body Fat Estimation for Men and [Table 3](#) for Percent Body Fat Estimation for Women.

(1) Sailors who fail Step-3 must participate in the PRT and require medical clearance prior to PRT participation.

(2) BC measurements must be conducted in the official Navy Physical Training Uniform (PTU) (i.e. shorts).

(3) Sailors who pass the BCA but are not within the Age-Adjusted Standards (AAS) for their gender must be enrolled in FEP until they are within the AAS. Below are the AAS for Sailors by gender and age:

Gender	Age Groups (Years)			
	17-21	22-29	30-39	40+
Male	22%	23%	24%	26%
Female	33%	34%	35%	36%

d. No substitute methods (e.g., underwater weighing, skin fold calipers, body mass index, bio-impedance, etc.) of assessment are permitted.

e. The official BCA is final and will not be reversed by a subsequent medical waiver for BCA. Sailors must address any potential medical issues prior to the official BCA.

3. Height Measurement. Procedures for properly conducting height measurement are as follows:

a. Sailor removes shoes and must have socks on. Sailors are prohibited from including any type of height enhancements (e.g., gel inserts) and are subject to military disciplinary action under the Uniform Code of Military Justice (UCMJ) if in violation of this order.

b. Sailor will stand on flat surface, at attention, with head held horizontal, looking directly forward, with the line of vision horizontal, and the chin parallel to the deck. The body should be straight, but not rigid.

c. Height measurement will be taken at the closest part of the Sailor's scalp. Hair bulk for Sailor will not exceed the prescribed grooming standards in the Navy Uniform Regulations manual.

d. Height measurement will be rounded up to nearest full inch. The exact (i.e., raw score) height measurement is to be recorded on the BCA Score Sheet and used to determine the Sailor's maximum allowable weight, as described in [Table-1](#).

e. Sailors are authorized to conduct the weight for height assessment in the uniform of the day, if Steps-2 and Step-3 are not required.

4. Weight Measurement. Procedures for properly conducting weight measurement are as follows:

a. The weight measurement will be taken with the Sailor in Navy PTU or in the uniform of the day, on calibrated scales (balance beam or digital), shoes removed, and socks worn.

b. Weight measurement will be recorded to the nearest pound. If the weight fraction is less than  $\frac{1}{2}$  pound, round down to the nearest pound. If the weight fraction is  $\frac{1}{2}$  pound or greater, round up to the nearest pound. No deduction for clothing is permitted.

c. If Sailor's weight is less than or equal to the maximum weight listed for their gender and rounded height, they are considered to be within BCA standards, and Step-2 and Step-3 are not required.

d. If Sailor's weight is greater than the maximum weight listed for their gender and rounded height, and the Sailor exceeds their gender-specific maximal AC measurement (Step-2), Step-3 must be performed. When performing Step-3, the raw (actual/measured/exact) height measurement from Step-1 is to be referenced to determine the Sailor's circumference value. For example, if the Sailor's measured height is  $67 \frac{1}{4}$  inches, for Step-1 (maximal weight for height) 68 inches ( $67 \frac{1}{4}$  rounded up to the nearest inch) will be used to determine the maximal weight measurement, but 67.5 inches ( $67 \frac{1}{4}$  rounded up to the nearest  $\frac{1}{2}$  inch) will be used to determine the maximal circumference value if required for Step-3.

*Note: Height measurements are rounded up to the nearest inch but the height measurement for the BC value will only be rounded up to the nearest  $\frac{1}{2}$  inch.*

5. Single-Site Abdominal Circumference (AC) Measurement (Step-2). Sailors are to be measured immediately above the uppermost hipbone (superior border of the iliac crest) on the right side of the body, vertically in line with the armpit (mid-axillary line). CFL/ACFL will start the measurement on the right side of the Sailor.

6. BC Measurement. Sailors who are within neither maximum weight for height standards (Step-1) nor AC measurement (Step-2) must complete the BC measurement (Step-3).

a. Male Sailors are to be measured at the neck and abdomen.

b. Female Sailors are to be measured at the neck, natural waist, and hips.

7. Altering BCA. CFL/ACFLs are required to remain vigilant for Sailors who attempt to alter their BCA measurements. Sailors are discouraged from using extreme body fat reducing methods to meet BCA standards. Dehydration methods are dangerous and Sailors put themselves at risk during the PFA if they have not reduced body fat through a proper diet and exercise program. If temporary altering is detected, the Sailor must wait at least 72 hours before re-attempting the official BCA measurement. Any attempt to influence the

BCA measurement through intimidation, coercion, or other means shall be reported to the CO/OIC and may result in disciplinary action under the UCMJ.

8. Tape Measure Specifications. Use a tape measure made of non-stretchable material, preferably fiberglass. Do not use cloth or steel tape measures. The preferred tape is one that is self-retracting, with locking capability, which can accurately measure circumference in both 1/16" inch and millimeter increments (e.g., Myotape). The tape measure width should be ¼ inch – 3/8 inch and calibrated (i.e., compared with a yardstick or metal ruler). This is done by aligning the tape measure with the quarter inch markings on the ruler.

## Section 2: Single-Site AC Measurement

1. AC Measurement Guidelines. AC measurements for both males and females will be conducted with the same procedure.

a. AC measurements are to be taken on the right side of the body with the tape parallel to the deck.

b. When measuring circumferences, apply the tape measure so that it makes contact with the skin, conforms to the body surface being measured, and does not compress the underlying soft tissues.

c. All circumference measurements are to be taken two times, sequentially, and rounded down to the nearest 1/2 inch. If the measurements differ by more than one-inch, take an additional measurement and compute a mathematical average of the two closest measurements, which have been rounded down to the nearest 1/2 inch, and record the exact average value (which is NOT rounded again)

Male

Example:

AC 1 = 39.25

AC 2 = 37.5

AC 3 = 38.75

Rounding

39

37.5

38.5

Average AC:

1. Add 39 and 38.5 (the two closest rounded measurements); then

2. Divide the sum by 2; then

3.  $(39 + 38.5) / 2 = 38.75$  and the male Sailor passes.

2. AC Measurement Procedures. The CFL will locate the measurement landmark immediately above the right uppermost hip bone (superior border of the iliac crest) on the side of the body vertically in line with the right armpit (mid-axillary line). If desired, the Sailor may assist the CFL in locating the measurement landmark by resting the right hand on the hip, using rearward facing right thumb to locate the iliac crest. The CFL will determine final horizontal - vertical intersection point for landmark confirmation. The Sailor will stand on a flat surface with feet no more than shoulder width apart. The head should be horizontal, looking directly forward with the chin parallel to the deck. The Sailor may use one hand to initially assist the CFL in anchoring the tape measure to the body, but must remove the hand from the tape measure before the official measurement is recorded. Measurement will be taken on bare skin. The free hand may be used to hold the shirt out of the way, but no part of the hands or arms may extend above the shoulders. The Sailor will remain stationary while the CFL conducts the measurement by initially moving around the Sailor to place the tape in a horizontal plane around the

abdomen. The CFL will ensure tape is parallel to the floor at the level of the landmark (bottom edge of the tape just contacts landmark), is snug, but does not compress the bare skin. The CFL will take the measurement at the end of the Sailor's normal respiration. If redness and lines in the skin are observed, turn the Sailor away for 72 hours and report this incident to the triad.

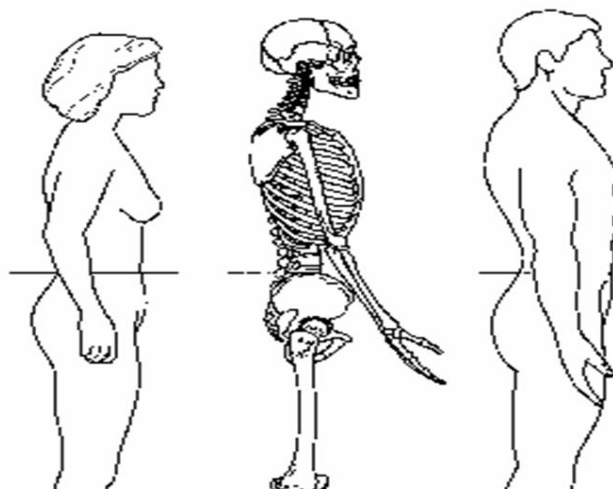


Photo: Abdominal Circumference (AC) Measurement: the landmark for obtaining the AC measurement is the Superior border of the iliac crest on the right side of the body vertically in line with the armpit (mid-axillary line).

\*\* Amplifying information and videos are located on the Physical Readiness Program web page.



## Section 3: BC Measurement

### 1. BC Guidelines.

a. All BC measurements will be performed from the right side of the Sailor's body with the tape parallel to the deck.

b. When measuring circumferences, apply the tape measure so that it makes contact with the skin, conforms to the body surface being measured, and does not compress the underlying soft tissues.

c. All circumference measurements are to be taken two times, sequentially, and recorded to the nearest  $\frac{1}{2}$  inch. If the measurements differ by more than one-inch, take an additional measurement and compute a mathematical average of the two closest measurements to the nearest  $\frac{1}{2}$  inch and record this value.

d. Each set of measurements will be completed sequentially to discourage assumption of repeated measurement readings. For example: Do not complete two neck circumferences followed by two abdomen circumferences. Continue the process until both sets of measurements have been taken.

### 2. BC Procedures for Men. BC circumference measurements will be taken on the neck and abdomen.

#### a.. Neck measurement will:

(1) Be taken on bare skin, at the point just below the larynx (Adam's Apple) and perpendicular to the long axis of the neck. Do not place the tape measure over the larynx. Sailor must look straight ahead during measurement with shoulders down and relaxed (not hunched).

(2) Ensure tape is as close to a horizontal line as anatomically feasible (the tape line in the front of the neck should be at the same height as the tape line in the back of the neck). Care should be taken so as not to involve the shoulder/neck muscles (trapezius) in the measurement.

(3) Round the measurement up to the nearest  $\frac{1}{2}$  inch and record (e.g., round 16  $\frac{1}{4}$  inches to 16  $\frac{1}{2}$  inches).

#### b. Abdomen measurement will:

(1) Be taken on bare skin, across the naval (belly button) with the Sailor's arms down to their side. If there are any indications the Sailor has attempted to alter the BC measurement, turn the Sailor away for 72 hours and report this incident to the triad.

(2) Be taken at the end of the Sailor's normal, relaxed exhalation. Discourage the Sailor from holding their breath by taking the measurement after several exhales.

(3) Round the measurement down to the nearest ½ inch and record (e.g., round 34 ¾ inches to 34 ½ inches).

3. Body Fat Calculation for Men. Subtract neck circumference from abdominal circumference to obtain the circumference value (CV).

Abdominal – Neck = CV

a. Use the Percent Body Fat Estimation for Men ([Table 2](#)) to locate the column which matches the Sailor's height (rounded up to nearest half inch) and the appropriate row in the table which matches the Sailor's cumulative circumference value (rounded down to nearest half inch).

b. Follow applicable column down and row across until they intersect; this number represents Sailor's estimated percent body fat. Note: This is only an estimate and the official BCA is determined once entered in PRIMIS.

c. For circumference values less than the lowest value in [Table 2](#), body fat percentage is less than or equal to smallest body fat percentage in the column. For circumference values greater than the largest value in table, body fat percentage is greater than or equal to largest body fat percentage in the column.

d. For height values that are greater (i.e., taller) than the value in Table 2 (i.e., 79.5 inches), record the raw height in inches on the official BCA score sheet (NAVPERS 6110/10). On Table 2 use the tallest height measurement column (i.e., 79.5 inches) and find the row which matches the Sailor's cumulative circumference value (rounded down to the nearest half inch). Follow the applicable column down and row across until they intersect; this number represents Sailor's estimated percent body fat (BCA). Record this estimated percent body fat on the official BCA score sheet. Submit the official BCA score sheet and a letter of correction to the Physical Readiness Program (PRP) office, which will manually override the BCA failure within PRIMIS-2.

4. BC Procedures for Women. BC circumference measurements for women will be taken at the neck, natural waist, and hips.

a. Neck measurements will:

(1) Be taken on bare skin, at a point just below the larynx and perpendicular to the long axis of the neck. Do not place the tape measure over the larynx. Sailor looks straight ahead during measurement, with shoulders down and relaxed (not hunched).

(2) Ensure tape is as close to a horizontal line as anatomically feasible (the tape line in the front of the neck should be at the same height as the tape line in the back of the neck). Care should be taken so as not to involve the shoulder/neck muscles (trapezius) in the measurement.

(3) Round neck measurement up to the nearest 1/2 inch and record (e.g., round 13 3/8 inches to 13 1/2 inches).

b. Natural Waist measurements will:

(1) Be taken on bare skin, at point of minimal abdominal circumference, usually located about halfway between the navel and the lower end of the sternum (breastbone). When this site is not easily observed, take several measurements at probable sites and use smallest value.

(2) Ensure the tape is level and parallel to the deck and make sure the Sailor's arms are at their sides. Take measurements at the end of Sailor's normal, relaxed exhalation.

Example:

Neck 1 = 13.0

Neck 2 = 14.5

Neck 3 = 13.5

Average Neck: 13.5

1. Adding 13.0 and 13.5 (the two closest measurements); then

2. Dividing the sum by 2; then

3. Rounding the quotient; so

$(13.0 + 13.5) / 2 = 13.25$  which is rounded to 13.5

(3) Be rounded down to nearest 1/2 inch and recorded (e.g., round 28 5/8 inches to 28 1/2 inches).

c. Hip measurements will:

(1) Only be taken over the Navy PTU shorts. Control-top panty hose, spandex tights, and other shaping garments are prohibited during measurements. Tight-fitting rubberized foundation garments or exercise belts are also prohibited at least 30 minutes prior to measurement.

(2) Be taken from Sailor's right side by placing the tape around the hips so that it passes over the greatest protrusion of the gluteus muscles (buttocks) as viewed from the side. CFL/ACFL is to ensure the tape is level and parallel to deck. Apply sufficient tension on the tape to minimize effect of clothing.

(3) Be rounded down to nearest 1/2 inch and recorded (e.g., round 44 3/8 inches to 44 inches).

5. Body Fat Calculation for Women. Add waist and hip circumferences, then subtract neck circumference to obtain Sailor's circumference value (CV).  
 $Waist + Hips - Neck = CV$ .

a. Use the Percent Body Fat Estimation for Women ([Table 3](#)) to locate the column which matches the Sailor's height (rounded up to nearest half inch) and the row which matches the Sailor's cumulative circumference value (rounded down to nearest half inch).

b. Follow applicable column down and row across until they intersect; this number represents Sailor's estimated percent body fat (BCA). This is only an estimate and the official BCA is determined once entered in PRIMIS.

c. For circumference values less than the lowest value in [Table 3](#), body fat percentage is less than or equal to smallest body fat percentage in the column. For circumference values greater than the largest value in Table 3, body fat percentage is greater than or equal to largest body fat percentage in column.

d. For height values that are greater (i.e., taller) than the largest value in [Table 3](#) (i.e., 77.5 inches), record the raw height in inches on the official BCA score sheet (NAVPERS 6110/10). On Table 3 use the tallest height measurement column (i.e., 77.5 inches) and find the row which matches the Sailor's cumulative circumference value (rounded down to the nearest half inch). Follow the applicable column down and row across until they intersect; this number represents Sailor's estimated percent body fat (BCA). Record this estimated percent body fat on the official BCA score sheet. Submit the official BCA score sheet and a letter of correction to the PRP office, which will manually override the BCA failure within PRIMIS-2.

## Section 4: BCA Tables

Table 1: Maximum Weight for Height

Table 2: Percent Body Fat Estimation for Men

Table 3: Percent Body Fat Estimation for Women

**TABLE 1**  
**MAXIMUM WEIGHT FOR HEIGHT SCREENING TABLE**

<b>Men Maximum Weight (pounds)</b>	<b>Sailor's Height (inches) (fractions rounded up to nearest whole inch)</b>	<b>Women Maximum Weight (pounds)</b>
97	51	102
102	52	106
107	53	110
112	54	114
117	55	118
122	56	123
127	57	127
131	58	131
136	59	136
141	60	141
145	61	145
150	62	149
155	63	152
160	64	156
165	65	160
170	66	163
175	67	167
181	68	170
186	69	174
191	70	177
196	71	181
201	72	185
206	73	189
211	74	194
216	75	200
221	76	205
226	77	211
231	78	216
236	79	222
241	80	227
246	81	233
251	82	239
256	83	245
261	84	251
266	85	257
271	86	263

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**TABLE 2  
PERCENT BODY FAT ESTIMATION FOR MEN**

Circumference Value*	Height (inches)																			
	60	60.5	61	61.5	62	62.5	63	63.5	64	64.5	65	65.5	66	66.5	67	67.5	68	68.5	69	69.5
13	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9
13.5	9	9	9	9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9
14	11	11	10	10	10	10	9	9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9
14.5	12	12	12	11	11	11	11	10	10	10	10	9	9	<9	<9	<9	<9	<9	<9	<9
15	13	13	13	13	12	12	12	12	11	11	11	11	10	10	10	10	10	9	9	<10
15.5	15	14	14	14	14	13	13	13	13	12	12	12	12	11	11	11	11	11	10	10
16	16	16	15	15	15	15	14	14	14	14	13	13	13	13	12	12	12	12	12	11
16.5	17	17	16	16	16	16	15	15	15	15	14	14	14	14	14	13	13	13	13	12
17	18	18	18	17	17	17	17	16	16	16	16	15	15	15	15	14	14	14	14	14
17.5	19	19	19	18	18	18	18	17	17	17	17	16	16	16	16	16	15	15	15	15
18	20	20	20	19	19	19	19	18	18	18	18	18	17	17	17	17	16	16	16	16
18.5	21	21	21	20	20	20	20	19	19	19	19	19	18	18	18	18	17	17	17	17
19	22	22	22	21	21	21	21	20	20	20	20	20	19	19	19	19	18	18	18	18
19.5	23	23	23	22	22	22	22	21	21	21	21	21	20	20	20	20	19	19	19	19
20	24	24	24	23	23	23	23	22	22	22	22	21	21	21	21	21	20	20	20	20
20.5	25	25	25	24	24	24	24	23	23	23	23	22	22	22	22	21	21	21	21	21
21	26	26	25	25	25	25	24	24	24	24	24	23	23	23	23	22	22	22	22	21
21.5	27	27	26	26	26	26	25	25	25	25	24	24	24	24	23	23	23	23	23	22
22	28	27	27	27	27	26	26	26	26	25	25	25	25	25	24	24	24	24	23	23
22.5	29	28	28	28	28	27	27	27	27	26	26	26	26	25	25	25	25	24	24	24
23	29	29	29	29	28	28	28	28	27	27	27	27	26	26	26	26	26	25	25	25
23.5	30	30	30	29	29	29	29	28	28	28	28	27	27	27	27	27	26	26	26	26
24	31	31	30	30	30	30	29	29	29	29	28	28	28	28	28	27	27	27	27	26
24.5	32	31	31	31	31	30	30	30	30	29	29	29	29	29	28	28	28	28	27	27

\*Circumference value = abdomen circumference – neck circumference (in inches)

**TABLE 2  
PERCENT BODY FAT ESTIMATION MEN (CONT'D)**

Circumference Value*	Height (inches)																			
	70	70.5	71	71.5	72	72.5	73	73.5	74	74.5	75	75.5	76	76.5	77	77.5	78	78.5	79	79.5
15	9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9
15.5	10	10	9	9	9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9
16	11	11	11	10	10	10	10	10	9	9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9
16.5	12	12	12	12	11	11	11	11	11	10	10	10	10	10	9	9	<9	<9	<9	<9
17	13	13	13	13	13	12	12	12	12	11	11	11	11	11	10	10	10	10	10	9
17.5	14	14	14	14	14	13	13	13	13	13	12	12	12	12	12	11	11	11	11	11
18	15	15	15	15	15	14	14	14	14	14	13	13	13	13	13	12	12	12	12	12
18.5	17	16	16	16	16	15	15	15	15	15	14	14	14	14	14	13	13	13	13	13
19	18	17	17	17	17	16	16	16	16	16	15	15	15	15	15	14	14	14	14	14
19.5	18	18	18	18	18	17	17	17	17	17	16	16	16	16	16	15	15	15	15	15
20	19	19	19	19	19	18	18	18	18	18	17	17	17	17	17	16	16	16	16	16
20.5	20	20	20	20	19	19	19	19	19	18	18	18	18	18	17	17	17	17	17	16
21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	18	18	18	18	18	17
21.5	22	22	22	21	21	21	21	21	20	20	20	20	20	19	19	19	19	19	18	18
22	23	23	23	22	22	22	22	22	21	21	21	21	20	20	20	20	20	20	19	19
22.5	24	24	23	23	23	23	23	22	22	22	22	22	21	21	21	21	21	20	20	20
23	25	24	24	24	24	24	23	23	23	23	22	22	22	22	22	22	21	21	21	21
23.5	25	25	25	25	25	24	24	24	24	24	23	23	23	23	23	22	22	22	22	22
24	26	26	26	26	25	25	25	25	25	24	24	24	24	24	23	23	23	23	23	22
24.5	27	27	27	26	26	26	26	26	25	25	25	25	25	24	24	24	24	24	23	23
25	28	28	27	27	27	27	27	26	26	26	26	25	25	25	25	25	24	24	24	24
25.5	29	28	28	28	28	27	27	27	27	27	26	26	26	26	26	25	25	25	25	25
26	29	29	29	29	28	28	28	28	28	27	27	27	27	27	26	26	26	26	26	25
26.5	30	30	30	29	29	29	29	28	28	28	28	28	27	27	27	27	27	26	26	26
27	31	30	30	30	30	30	29	29	29	29	29	28	28	28	28	28	27	27	27	27
27.5	31	31	31	31	30	30	30	30	30	29	29	29	29	29	28	28	28	28	28	27
28	32	32	32	31	31	31	31	31	30	30	30	30	29	29	29	29	29	29	28	28

\*Circumference value = abdomen circumference - neck circumference (in inches)



**TABLE 3  
PERCENT BODY FAT ESTIMATION FOR WOMEN**

Circumference Value*	Height (Inches)																			
	58	58.5	59	59.5	60	60.5	61	61.5	62	62.5	63	63.5	64	64.5	65	65.5	66	66.5	67	67.5
50.5	27	27	27	26	26	26	25	25	25	24	24	23	23	23	23	22	22	22	21	21
51	28	28	27	27	27	26	26	26	25	25	25	24	24	24	23	23	23	22	22	22
51.5	29	28	28	28	27	27	27	26	26	26	25	25	25	24	24	24	23	23	23	22
52	29	29	29	28	28	28	27	27	27	26	26	26	25	25	25	24	24	24	23	23
52.5	30	30	29	29	29	28	28	28	27	27	27	26	26	26	25	25	25	24	24	24
53	31	30	30	30	29	29	29	28	28	28	27	27	27	26	26	26	25	25	25	24
53.5	31	31	31	30	30	30	29	29	29	28	28	28	27	27	27	26	26	26	25	25
54	32	32	31	31	31	30	30	30	29	29	29	28	28	28	27	27	27	26	26	26
54.5	33	32	32	32	31	31	31	30	30	30	29	29	29	28	28	28	27	27	27	26
55	33	33	33	32	32	32	31	31	31	30	30	30	29	29	29	28	28	28	27	27
55.5	34	34	33	33	33	32	32	32	31	31	31	30	30	30	29	29	29	28	28	28
56	35	34	34	34	33	33	33	32	32	31	31	31	30	30	30	30	29	29	29	28
56.5	35	35	35	34	34	34	33	33	32	32	32	31	31	31	30	30	30	29	29	29
57	36	36	35	35	34	34	34	33	33	33	32	32	32	31	31	31	30	30	30	29
57.5	37	36	36	35	35	35	34	34	34	33	33	33	32	32	32	31	31	31	30	30
58	37	37	36	36	36	35	35	35	34	34	34	33	33	33	32	32	32	31	31	31
58.5	38	37	37	37	36	36	36	35	35	35	34	34	34	33	33	33	32	32	32	31
59	38	38	38	37	37	37	36	36	36	35	35	35	34	34	34	33	33	33	32	32
59.5	39	39	38	38	38	37	37	36	36	36	35	35	35	34	34	34	33	33	33	33
60	40	39	39	38	38	38	37	37	37	36	36	36	35	35	35	34	34	34	33	33
60.5	40	40	39	39	39	38	38	38	37	37	37	36	36	36	35	35	35	34	34	34
61	41	40	40	40	39	39	39	38	38	38	37	37	37	36	36	36	35	35	35	34
61.5	41	41	41	40	40	40	39	39	38	38	38	37	37	37	36	36	36	36	35	35
62	42	42	41	41	40	40	40	39	39	39	38	38	38	37	37	37	36	36	36	35
62.5	>42	>42	>41	>41	>40	>40	>40	>39	>39	>39	39	39	38	38	38	37	37	37	36	36
63	>42	>42	>41	>41	>40	>40	>40	>39	>39	>39	40	39	39	39	38	38	38	37	37	37
63.5	>42	>42	>41	>41	>40	>40	>40	>39	>39	>39	40	40	39	39	39	38	38	38	37	37
64	>42	>42	>41	>41	>40	>40	>40	>39	>39	>39	41	40	40	40	39	39	39	38	38	38

\* Circumference value = natural waist + hip - neck circumference (in inches)

**TABLE 3  
PERCENT BODY FAT ESTIMATION FOR WOMEN (CONT'D)**

Circumference Value*	Height (inches)																			
	68	68.5	69	69.5	70	70.5	71	71.5	72	72.5	73	73.5	74	74.5	75	75.5	76	76.5	77	77.5
56	28	28	27	27	27	26	26	26	25	25	25	25	24	24	24	23	23	23	23	22
56.5	29	28	28	28	27	27	27	26	26	26	26	25	25	25	24	24	24	24	23	23
57	29	29	29	28	28	28	27	27	27	26	26	26	26	25	25	25	24	24	24	24
57.5	30	29	29	29	29	28	28	28	27	27	27	26	26	26	26	25	25	25	25	24
58	30	30	30	29	29	29	29	28	28	28	27	27	27	27	26	26	26	25	25	25
58.5	31	31	30	30	30	29	29	29	29	28	28	28	27	27	27	27	26	26	26	25
59	32	31	31	31	30	30	30	29	29	29	29	28	28	28	27	27	27	27	26	26
59.5	32	32	32	31	31	31	30	30	30	29	29	29	29	28	28	28	27	27	27	27
60	33	32	32	32	32	31	31	31	30	30	30	30	29	29	29	28	28	28	28	27
60.5	33	33	33	32	32	32	32	31	31	31	30	30	30	30	29	29	29	28	28	28
61	34	34	33	33	33	32	32	32	32	31	31	31	30	30	30	30	29	29	29	28
61.5	35	34	34	34	33	33	33	32	32	32	32	31	31	31	30	30	30	30	29	29
62	35	35	35	34	34	34	33	33	33	32	32	32	32	31	31	31	30	30	30	30
62.5	36	35	35	35	34	34	34	34	33	33	33	32	32	32	32	31	31	31	30	30
63	36	36	36	35	35	35	34	34	34	34	33	33	33	32	32	32	32	31	31	31
63.5	37	37	36	36	36	35	35	35	34	34	34	34	33	33	33	32	32	32	32	31
64	37	37	37	36	36	36	36	35	35	35	34	34	34	34	33	33	33	32	32	32
64.5	38	38	37	37	37	36	36	36	36	35	35	35	34	34	34	33	33	33	33	32
65	38	38	38	38	37	37	37	36	36	36	35	35	35	35	34	34	34	33	33	33
65.5	39	39	38	38	38	37	37	37	37	37	36	36	36	35	35	35	35	34	34	33
66	40	39	39	39	38	38	38	37	37	37	37	36	36	36	35	35	35	35	34	34
66.5	40	40	39	39	39	39	38	38	38	37	37	37	37	36	36	36	35	35	35	35
67	41	40	40	40	39	39	39	39	38	38	38	37	37	37	36	36	36	36	35	35
67.5	41	41	41	40	40	40	39	39	39	38	38	38	38	37	37	37	36	36	36	36
68	42	41	41	41	40	40	40	40	39	39	39	38	38	38	38	37	37	37	36	36
68.5	42	42	42	41	41	41	40	40	40	39	39	39	39	38	38	38	37	37	37	37
69	43	42	42	42	41	41	41	41	40	40	40	39	39	39	39	38	38	38	37	37
69.5	43	43	43	42	42	42	41	41	41	41	40	40	40	39	39	39	39	38	38	38

\* Circumference value = natural waist + hip - neck circumference (in inches)