



CCI 241.01
EFFECTIVE DATE: 22 June 2018

By Order of the Assistant Secretary for Health:

ADM Brett P. Giroir, M.D.

SUBJECT: Readiness and Duty Requirements

1. PURPOSE: This Instruction establishes individual readiness standards and duty requirements to which officers in the Commissioned Corps of the U.S. Public Health Service (Corps) must adhere while on active duty in the Corps.
2. APPLICABILITY: This Instruction applies to all Regular and Ready Reserve Corps officers unless exempted by the Assistant Secretary for Health (ASH). This Instruction does not apply to officers appointed under the Junior or Senior Commissioned Officer Student Training and Extern Programs (See [CCI 371.02](#), "Junior Commissioned Officer Student Training and Extern Program," and [CCI 371.03](#), "Senior Commissioned Officer Student Training and Extern Program," respectively).
3. AUTHORITY:
 - 3-1. [42 U.S.C. §202](#), "Administration and supervision of Service"
 - 3-2. [42 U.S.C. §204](#), "Commissioned Corps and Ready Reserve Corps"
 - 3-3. [42 U.S.C. §204a](#), "Deployment readiness"
 - 3-4. CCD 111.03, "Conditions of Service"
 - 3-5. CCD 121.02, "Commissioned Corps Deployments"
 - 3-6. "Delegations of Authorities Relating to the U.S. Public Health Service (PHS) Commissioned Corps," dated 24 July 2003.
4. PROPONENT: The proponent of this Instruction is the Assistant Secretary for Health (ASH). The Surgeon General (SG) is responsible for assuring the day-to-day management of the Corps.
5. SUMMARY OF REVISIONS AND UPDATES: This is the first issuance of this Instruction in the electronic Commissioned Corps Issuance System (eCCIS) and replaces Commissioned Corps Personnel Manual (CCPM) CC26.1.8, "PHS Readiness Standards," dated 18 December 2003.
 - 5-1. Rescinds Sections 5.b and 5.c of CCPM Manual Circular No. 377, "Basic Level of Force Readiness Standards for the Commissioned Corps of the U.S. Public Health

Service (Corps),” dated 4 June 2014, and incorporates the provisions Physical Readiness Standards and Training and Professional Competency Standards, respectively.

- 5-2. Incorporates provisions of and rescinds Personnel Policy Memorandum (PPM) 14-004, “Revisions to Manual Circular 377 and PPM 04-003,” dated 4 June 2014. The provisions incorporated include extending the readiness requirement to all Corps officers serving on extended active duty, except Junior and Senior Commissioned Officer Student Training and Extern Programs officers; designating the SG as responsible for establishing an evidence-based Annual Physical Fitness Test (APFT); and authorizing the SG to issue Personnel Operations Memoranda.
- 5-3. Rescinds PPM 08-016, “Amendments – Promotion/Readiness,” dated 8 May 2008, and incorporates the provision that officers who fail to meet or maintain force readiness standards without an approved waiver are subject to disciplinary action and/or separation from active duty.
- 5-4. Defines Weight Standards which will become effective 1 October 2018.

6. POLICY:

6-1. General.

- a. This Instruction establishes policy, assigns responsibilities and prescribes procedures to ensure overall Commissioned Corps force readiness. Individual officers must maintain effective performance, growth and professional development, proper conduct, professionalism, and flexibility to ensure the readiness of the Corps to respond to urgent or emergency public health care needs that cannot otherwise be met at the Federal, State, and local levels.
- b. Pursuant to 42 U.S.C. 204a, officers who fail to meet or maintain force readiness standards established by the ASH without an approved waiver, may be subject to disciplinary action for misconduct. Failure to meet or maintain force readiness standards may constitute grounds for involuntary separation or involuntary retirement.
- c. As members of a uniformed service, Corps officers have a continuing duty and responsibility to maintain deployment readiness. In order to maintain deployment readiness, this Instruction provides the standards used to determine the basic level of readiness (basic readiness) for all Corps officers.

6-2. Requirements.

- a. Professional Competence. All officers are required to maintain competence consistent with their profession and their designated deployment role(s), including but not limited to:
 - (1) A current professional license/certification/registration appropriate for the officer's category and discipline;
 - (2) Additional professional training as determined by the SG.
- b. Deployment Readiness. In order to maintain the continuous deployment readiness of the Corps, officers are required to continuously maintain deployment-specific skills and knowledge, demonstrate physical fitness requirements, and be prepared to deploy at the request of the Secretary and his or her designee to urgent or emergency public health care needs in sometimes austere conditions both within or outside of the continental United States.
 - (1) Physical Fitness.
 - (a) Annual Physical Fitness Test (APFT). The APFT is comprised of four categories: cardiorespiratory endurance, upper body endurance, core endurance, and a flexibility component. The standards and details regarding performance and scoring of each category, as well as required reporting are to be determined by the SG.
 - (b) All officers are required annually, prior to the expiration of the previous year's test, to successfully complete an APFT, and to report and record results in accordance with guidance by the SG.

- (2) Training. In addition to any supplemental training requirements established by the SG, officers are required to complete deployment-specific training that includes the following:
- (a) Basic Life Support Training. Officers must complete and maintain currency in one of the following basic life support (BLS) training classes:
 - (i) American Heart Association (AHA) Basic Life Support for health care providers;
 - (ii) AHA Advanced Cardiac Life Support (ACLS);
 - (iii) American Red Cross CPR/AED for the professional rescuer;
 - (iv) American Safety and Health Institute (ASHI) CPR for the professional rescuer (CPR PRO);
 - (v) Instructor certification for any of the above courses; or
 - (vi) Another basic life support training that is equivalent to the courses listed above and which is reviewed and approved by the SG.
 - (b) Deployment role-specific training. In order to accomplish the Department's mission(s), officers must possess a basic level of knowledge and competency. The SG will determine the specific courses required to meet the basic level of readiness which will include, but are not limited to, the following topics:
 - (i) Public health and basic infectious disease management;
 - (ii) Deployment and emergency response activities, to include natural and man-made disasters;
 - (iii) Incident command and management;
 - (iv) Basic safety, security, force health protection, and preventive medicine for field operations; and
 - (v) Resiliency, potential behavioral health impacts of deployment, and cultural awareness.
 - c. Deployment Role. Officers must identify their primary deployment role, based on their professional licensure or certification, in the Readiness Self Service application in the Officer Secure Area of CCMIS. Officers may also request an additional role or roles for which they qualify. Officers are advised to update their deployment role as circumstances change regarding training and competency.
 - d. Clinical Hours. All officers deploying in clinical positions must perform a minimum of 120 clinical hours per year in their clinical discipline or specialty, consistent with current professional license, certification, or registration. Proof of completion of the performance of clinical hours must be submitted on an annual basis and include formal documentation from the institution(s) where the officer completed the

clinical services. The SG will establish procedures for documentation and submission.

- e. Uniforms. All officers shall maintain all required components of the Service Dress Blue (SDB) and Operational Dress Uniform (ODU) uniforms. Additionally, in certain deployment environments the Service Khaki may be prescribed. Each uniform must be serviceable and worn properly. Officers who do not have these required uniforms may be denied the opportunity to deploy, and may be subject to disciplinary action as appropriate.
- f. Health Standards. All officers must maintain medical readiness standards determined by the ASH so that they remain deployable. The Readiness and Deployment Operations Group will consult with Medical Affairs who will evaluate an officer's health status in relationship to specific missions to determine the officer's deployability. Absent a specific temporary medical waiver, all officers must be continuously able to fully perform their deployment responsibilities without significant long term impact from any medical, mental health, or dental conditions. Any officer considered medically non-deployable for more than 24 consecutive months must be referred to Medical Affairs for a fitness for duty determination (see CCI 393.01, "Medical Review Board").
 - (1) All officers must maintain and submit basic immunization status by obtaining all required immunizations outlined in Section 5.a.2 of CCPM Manual Circular No. 377. Because the Corps can be deployed to various environments, officers may be required to obtain additional immunizations specific to the deployment mission or location as determined by the Director, Division of Commissioned Corps Personnel and Readiness (DCCPR).
 - (2) All officers must submit periodic health updates to keep their medical readiness status current, as outlined in Section 5.a.1 of CCPM Manual Circular No. 377.
 - (3) In order to fulfill the mission and responsibilities of the Corps, all officers must be able to be deployed to various environments and areas of need. When deployed, all officers must be able to:
 - (a) Hand carry all of their required treatment modalities;
 - (b) Suspend any ongoing professional treatment (e.g. physical therapy, counselling) for the period of deployment without anticipated adverse health consequences;
 - (c) Wait for at least 72 hours for replacement of lost medications without anticipated significant adverse health consequences;
 - (d) Manage the physical and mental stress of deployment; and
 - (e) Manage dietary and environmental changes without anticipated adverse health consequences.
 - (f) In addition, officers may not have a medical or mental health condition that, if it exacerbates would require emergent and/or high level medical care (e.g. allergies with risk of anaphylaxis).

- g. Weight Standards. Officers shall maintain compliance with Retention Weight Standards. Procedures for monitoring, enforcing, and reporting height and weight information are determined by the SG. Effective 1 October 2018, the Corps' Retention Weight Standards are as follows:
- (1) All Corps officers are expected to maintain a body mass index (BMI) between 19 kg/m² and 27.5 kg/m², regardless of age and gender. See chart titled "Minimum and Maximum Allowable Weights (in pounds) based on officer Height (in inches)," In Appendix A.
 - (2) Officers who exceed the maximum BMI must be under the threshold (allowable) estimated percent (%) body fat (see chart titled "Threshold Percent Body Fat for Officers Exceeding Maximum BMI," In Appendix A). The Estimated Percent Body Fat shall be calculated as outlined in Appendix B. The limits are based on age and gender as follows:
 - (a) Ages less than 28 years: less than or equal to 24% for males, less than or equal to 32% for females;
 - (b) Ages 28 – 39 years: less than or equal to 26% for males, less than or equal to 35% for females;
 - (c) Ages 40 years and greater: less than or equal to 28% for males, less than or equal to 38% for females.
 - (3) Officers are required to submit height and weight information (BMI and/or measurements needed to calculate estimated percent body fat) annually when reporting APFT scores as noted in Section 6-2.b.(1), and with submission of periodic health updates, or as required by the ASH or SG.
- h. Family Care Plan. Officers must review a Family Care Plan. Officers are strongly recommended to not only review a Family Care Plan, but to establish and to update this plan annually, after a change in family circumstances, or a change in personal status. Family care plans are designed to enhance officer and dependent readiness by facilitating the care and support of the officer's dependent family during planned and unplanned absence of the officer. Basic components of a family care plan include, but are not limited to:
- (1) Officer's duty station and supervisory points of contact (POC), including names, telephone numbers, e-mail addresses; and agency liaison and Commissioned Corps POCs and corresponding contact information.
 - (2) Dependent family member information, and any special needs or accommodations these dependent family members require, as well as short (less than or equal to 30 days) and long (over 30 days) term care plans and who will provide care/coverage for each dependent family member.
 - (3) Emergency or alternate caregivers who could assume responsibility for dependent family members if the officer was deployed emergently or incapacitated.
 - (4) Consideration of logistical needs, such as transporting the officer's dependent family member(s) to and from school, daycare, or other healthcare-related facilities.

(5) Consideration of legal and financial arrangements, such as regular bill payment, unexpected costs that might arise from accident or injury while the officer is unavailable, and other legal documents such as Power of Attorney, advanced directives, or Will and Testament.

i. Any additional standards determined by the ASH or the SG.

6-3. Failure to Meet or Maintain Readiness Requirements.

a. Absent an approved waiver, officers who fail to meet or maintain the basic level of force readiness will have 30 days to meet and maintain the basic level of force readiness. Officers who are not 'basic ready' are not eligible for promotion in accordance with CCI 331.01, "Permanent Grade Promotions," and CCI 332.01, "Temporary Promotions." Such officers are also subject to disciplinary action.

b. Failure to meet or maintain the basic level of force readiness also constitutes grounds for involuntary separation or involuntary retirement.

7. RESPONSIBILITIES:

7-1. The ASH is responsible for establishing policies related to readiness and duty requirements to ensure the readiness of Corps officers to respond to urgent or emergency public health care needs.

7-2. The SG is responsible for the day-to-day management of the Corps.

b. The SG is delegated the authority to establish readiness and duty requirements in accordance with this Instruction.

a. The SG will establish procedures to monitor and manage the individual readiness and duty requirements outlined in this Instruction.

7-3. All officers are responsible for adhering to the requirements established in this Instruction.

a. Each officer is responsible to obtain necessary periodic health updates/examinations, immunizations, training, and uniforms in order to continuously meet basic readiness requirements.

b. Each officer is responsible to verify and assure his or her personnel record reflects his or her continuous basic readiness.

8. HISTORICAL NOTES: This is the first issuance of this Instruction in the eCCIS, replaces CCPM CC26.1.8, "PHS Readiness Standards," dated 18 December 2003, and creates a standalone Instruction within the eCCIS.

Appendix A

Commissioned Corps Allowable Weight Standards

Minimum and Maximum Allowable Weights (in pounds)¹
(Regardless of age or gender)

Height (inches) ²	Minimum (BMI 19.0)	Maximum (BMI 27.5)
58	91	131
59	94	136
60	97	141
61	100	145
62	104	150
63	107	155
64	110	160
65	114	165
66	117	170
67	121	175
68	125	180
69	128	186
70	132	191
71	136	197
72	140	202
73	144	208
74	148	214
75	152	220
76	156	225
77	160	231
78	164	237
79	168	244
80	173	250

Classification of Underweight, Overweight and Obesity by BMI

	BMI (kg/m ²)
Underweight	≤ 18.5
Normal weight	18.5 - 24.9
Overweight	25.0 - 29.9
Obesity	30.0 - 39.9
Extreme Obesity	≥ 40

¹ The weight measurement will be taken with the officer in light clothing (e.g., workout clothing) on calibrated scales (balance beam or digital), shoes removed and socks worn. The measurement will be recorded to the nearest pound (i.e., round down for values 0.4 and lower and round up for values 0.5 or higher). No deduction for clothing is permitted.

² The height measurement is taken with the officer standing on flat surface, at attention, with head held horizontal, looking directly forward, with the line of vision horizontal, and the chin parallel to the floor. The body should be straight, but not rigid. The measurement is rounded to the nearest inch (i.e., round down for values 0.4 and lower and round up for values 0.5 or higher).

Appendix B

Estimated Percent Body Fat Calculations³

1. General.

- a. This Appendix outlines the method to determine an officer's Estimated Percent Body Fat (EPBF). No substitute methods (e.g., underwater weighing, skin fold calipers, bio impedance, etc.) of assessment are permitted.
- b. The official EPBF is final and will not be reversed by a subsequent medical waiver for EPBF. Officers must address any potential medical issues prior to the official EPBF. Standards are determined by established maximum weight for height standards.
- c. Threshold EPBF for Officers Exceeding Maximum BMI:

Age	Male	Female
< 28 y.o.	≤ 24%	≤ 32%
28-39 y.o.	≤ 26%	≤ 35%
> 40 y.o.	≤ 28%	≤ 38%

2. Altering EPBF.

- a. Officers are discouraged from using extreme body fat reducing tricks to meet EPBF standards. Dehydration methods are dangerous and officers put themselves at risk if they have not reduced fat through a proper diet and exercise program.
- b. Testing Officials should be certain that an officer is not attempting to alter their EPBF measurements (e.g., using body wraps, starvation, and sauna suits is prohibited). If temporary altering is detected by the testing official, the member will be required to wait at least 72 hours before attempting the official EPBF measurement. Any attempt to influence the EPBF measurement through intimidation, coercion or other means may result in disciplinary action.

3. Tape Measure Specifications.

- a. 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.
- b. The tape measure width should be 1/4 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.

³ Adopted from the Navy Physical Readiness Program, Guide 4, The Body Composition Assessment (BCA), dated January 2016.

Appendix B (continued)

4. Measurement Guidelines.
 - a. Males are to be measured at the neck and abdomen and females are to be measured at the neck, waist, and hips.
 - b. All measurements for men and women are to be taken on the right side of the body with the tape parallel to the floor.
 - c. 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.
 - d. All circumference measurements are to be taken two times, sequentially and recorded to the nearest 1/2 inch. If one of the two measurements differs by more than one-inch, take an additional measurement and compute a mathematical average of the two closest measurements to the nearest 1/2 inch and record this value.
 - e. Each set of measurements will be completed sequentially to discourage assumption of repeated measurement readings. Do not, for example, complete two neck circumferences followed by two abdomen circumferences. Continue the process until both sets of measurements have been taken (e.g., for a woman measure the neck, then the waist, then the hips, and then repeat the series of measurements: neck, waist, hips).

5. Procedures for Men.
 - a. Circumference measurements for men are to be taken at the neck and abdomen. Neck measurements shall 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. The officer looks straight ahead during measurement with shoulders down and relaxed (not hunched).
 - b. The tape will be as close to horizontal 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).
 - c. Care should be taken so as not to involve the shoulder/neck muscles (trapezius) in the measurement.
 - d. Round the neck measurement up to the nearest 1/2 inch and record (e.g., round 16 $\frac{1}{4}$ inches to 16 $\frac{1}{2}$ inches).
 - e. Abdomen measurements shall be taken on bare skin, across the naval (belly button) and with the officer's arms down on the sides. If redness and lines in the skin are observed, turn the officer away for 72 hours. This is an indication that officer has attempted to alter the EPBF circumference measurement.
 - (1) Take measurements at the end of officer's normal, relaxed exhalation. Discourage the officer from holding his breath by taking the measurement after several exhales.
 - (2) Round the abdominal measurement down to nearest 1/2 inch and record (e.g., round 34 $\frac{3}{4}$ inches to 34 $\frac{1}{2}$ inches).

Appendix B (continued)

- f. EPBF Calculation for Men.⁴
- (1) Subtract neck circumference from abdominal circumference to obtain the circumference value (CV). (Abdominal – Neck = Circumference Value)
 - (2) Use the Percent Body Fat Estimation for the men's table to locate the column which matches the officer's height⁵ (rounded up to nearest half inch) and the appropriate row in the table which matches the officer's cumulative circumference value (rounded down to nearest half inch).
 - (3) Follow applicable column down and row across until they intersect; this number represents officer's EPBF.
 - (4) For circumference values less than the value in table, body fat percentage is less than or equal to smallest body fat percentage in the column. For circumference values greater than value in table, body fat percentage is greater than or equal to largest body fat percentage in the column.
6. Procedures for Women
- a. Circumference measurements for women are to be taken at the neck, natural waist, and hips. Neck measurements are to be taken on bare skin, at a point just below the larynx and perpendicular to the long axis of the neck.
 - b. Officer looks straight ahead during measurement, with shoulders down and relaxed (not hunched).
 - c. Round neck measurement up to the nearest 1/2 inch and record (e.g., round 13 3/8 inches to 13½ inches).
 - d. Natural Waist measurements are to 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).
 - (1) 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 floor and make sure the officer's arms are at her sides. Take measurements at the end of officer's normal, relaxed exhalation. Round natural waist measurement down and record to nearest ½ inch and record (e.g., round 28 5/8 inches to 28½ inches).
 - e. Hip measurements are to be taken over the shorts only. Control-top panty hose, spandex tights, and other "shaping" garments are not allowed to be worn during measurements. Tight-fitting rubberized foundation garments or exercise belts are also prohibited at least 30 minutes prior to measurement.

⁴ Using the PDF form PHS-7044-1, "Verified Weight Report," automatically performs the calculation and eliminates the need for the manual calculation and looking up the EPBF values in the chart.

⁵ The height measurement is taken with the officer standing on flat surface, at attention, with head held horizontal, looking directly forward, with the line of vision horizontal, and the chin parallel to the floor. The body should be straight, but not rigid.

Appendix B (continued)

- (1) Measure hip circumference while facing officer'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.
 - (2) Make sure the tape is level and parallel to the floor. Apply sufficient tension on the tape to minimize effect of clothing.
 - (3) Round hip measurement down to nearest 1/2 inch and record (e.g., round 44 3/8 inches to 44 inches).
- f. EPBF Calculation for Women⁶
- (1) Add waist and hip circumferences, then subtract neck circumference to obtain officer's circumference value (CV). (Waist + Hips - Neck = CV)
 - (2) Use the Percent Body Fat Estimation for Women Table (Table 3) to locate the column which matches the officer's height⁷ (rounded up to nearest half inch) and the row which matches the officer's cumulative circumference value (rounded down to nearest half inch).
 - (3) Follow applicable column down and row across until they intersect; this number represents officer's EPBF.
 - (4) For circumference values less than the value in table, body fat percentage is less than or equal to smallest body fat percentage in the column. For circumference values greater than the value in the table, body fat percentage is greater than or equal to largest body fat percentage in column.
7. Example Calculation.
- Neck Measurement #1 = 13.0 inches
- Neck Measurement #2 = 14.5 inches
- Neck Measurement #3 = 13.5 inches
- Add 13.0 and 13.5, which are the two closest measurements (13.0 + 13.5 = 26.5)
- Divide the sum by 2 (26.5 ÷ 2 = 13.25)
- Round the quotient up to the nearest 1/2 inch (13.25 is rounded up to 13.5)
- Therefore, the Average Neck Measurement is 13.5 inches

⁶ Using the PDF form PHS-7044-1, "Verified Weight Report," automatically performs the calculation and eliminates the need for the manual calculation and looking up the EPBF values in the chart.

⁷ The height measurement is taken with the officer standing on flat surface, at attention, with head held horizontal, looking directly forward, with the line of vision horizontal, and the chin parallel to the floor. The body should be straight, but not rigid.

Appendix B (continued)

Table for Men: Percent Body Fat Estimation

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)

Appendix B (continued)

Table for Men: Percent Body Fat Estimation (continued)

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	23	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	26	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)

Appendix B (continued)

Table for Women: Percent Body Fat Estimation

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)

Appendix B (continued)

Table for Women: Percent Body Fat Estimation (continued)

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	36	36	36	35	35	35	35	34	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)