

BODY COMPOSITION ASSESSMENT (BCA)

1. Background and Rationale

a. National Institutes of Health (NIH) determined excess body fat is associated with negative health consequences, including an increased risk of high blood pressure, diabetes, cancer, and cardiovascular disease. Excess body fat is also associated with the inability to maintain physical performance (especially in hot climates) and may be correlated with a lack of fitness and stamina.

b. NAVHLTHRESHCEN scientists recommended the NIH definition of obesity as the upper limits for Navy standards. Since Department of Defense (DOD) prescribes body fat percentage as the measure of body composition, NAVHLTHRESHCEN determined upper allowable Navy limits to correspond to 22 percent for men and 33 percent for women. Most members should have a significantly lower level of body fat than the upper allowable Navy limits.

2. Purpose

a. Provide members with goals to promote basic physical fitness, health, and readiness.

b. Provide command a means of assessing the general fitness of members of command.

3. Maximum Allowable Body Fat Percentages

a. Age-adjusted maximum allowable Navy body fat percentages are

	Age (years)	
	17-39	40-40+
Male	22%	23%
Female	33%	34%

b. Most personnel should have a significantly lower percentage of body fat.

4. Body Composition Assessment (BCA) Procedures

a. Maximum weight for height screening

(1) Height measurement

(a) Member removes shoes.

(b) Member stands with feet together, flat on the deck, takes a deep breath, and stretches tall.

(c) Record height. Fractions of an inch in height shall be rounded up to the nearest half-inch.

(2) Weight measurement

(a) Member shall be weighed on a balance beam or digital scale in PT-type clothing (shorts, T-shirt) or uniform of the day, without shoes. Ensure scale is calibrated. No deduction for clothing is allowed.

(b) Record weight. Fractions of a pound in weight shall be recorded to nearest whole pound per the following:

1. Round **down** weight fractions less than 1/2 pound.

2. Round **up** for weight fractions greater than 1/2 pound.

(3) Maximum weight determination

(a) In center column of maximum-weight-for-height table (enclosure (6), appendix A), find smallest value equal to or exceeding member's height.

(b) If member's weight is less than or equal to the maximum weight listed for their gender, members are within body composition assessment standards and percentage body fat determination is not required.

b. Body fat percentage determination

(1) Tape Measure. Non-stretching material preferably fiberglass, tape measure shall be applied to body landmarks with sufficient tension to keep it in place following the contour of the body without indenting skin surface. Do not use cloth or steel tape measures. Tape measure width should be 1/4"-3/8" and should be calibrated (i.e. compared with a yardstick or metal ruler to ensure validity). This is done by aligning the fiberglass tape measure with the quarter inch markings on the ruler. If the markings do not match, use a different tape measure that is valid. All measurements will be taken on the right side of the body and made in the horizontal plane (i.e. parallel to the deck).

(2) Measurement Method

(a) Take all circumference measurements three times and record them to the nearest 1/2 inch. If any of the three measurements differs by more than **one inch** from the other two, take an additional measurement and compute a mathematical average of the three closest measurements to the nearest 1/2 inch and record this value.

(b) Each set of measurements will be completed sequentially to discourage assumption of repeated measurement readings. For males, complete 1 set of abdomen and neck measurements, **not** for example, three abdomen circumferences followed by three neck circumferences. Continue the process by measuring the abdomen and neck in series until you have three sets of measurements. For females, complete one set of waist, hip, and neck, measurements, **not** for example, three waist measurements followed by 3 hip measurements. Continue the process by measuring the waist, hip, and neck series until you have 3 sets of measurements.

(3) Procedures for Men

(a) Body fat percentage for men is calculated from measurements of standing height, neck circumference, and abdomen circumference.

(b) Members shall be measured in presence of another member (preferably of member's sex), if requested.

(c) Standing height. Use height measurement from maximum weight for height screening.

(d) Neck circumference

1. Measurement shall be taken on bare skin.
2. Members look straight ahead with shoulders down (not hunched).
3. Measure neck circumference at a point just below larynx (Adam's Apple) perpendicular to long axis of neck. Do not place tape measure over the Adam's Apple. 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). Care should be taken so as not to involve the shoulder and/or neck muscles (trapezium) in the measurement.
4. Round neck measurement up to nearest 1/2 inch and record (e.g., round 16 1/4 inches to 16 1/2 inches).

(e) Abdomen circumference

1. Measurement shall be taken on bare skin.
2. Arms are at sides. Take measurement at end of member's normal, relaxed exhalation.
3. Measure abdominal circumference with tape at level of center of navel and parallel to deck.
4. Round abdominal measurement down to nearest 1/2 inch and record (e.g., round 34 3/4 to 34 1/2 inches).

(f) Body fat calculation

1. Subtract neck circumference from abdominal circumference to obtain member's circumference value.
2. On appropriate percent fat estimation table (appendix of this enclosure) find intersection of column equal to member's height (rounded up to nearest 1/2 inch) and row equal to member's circumference value.

3. Member's body fat percentage equals number at intersection of row and column. For circumference value less than value in table, body fat percentage is less than or equal to smallest body fat percentage in column. For circumference value greater than value in table, body fat percentage is greater than or equal to largest body fat percentage in column.

(4) Procedure for Women

(a) Body fat percentage for women is calculated from measurements of standing height, neck circumference, natural waist circumference, and hip circumference.

(b) Members shall be measured in presence of another member (preferably of member's sex), if requested.

(c) Standing height. Use height measurement from maximum weight for height screening.

(d) Neck circumference

1. Measurement shall be taken on bare skin.

2. Members look straight ahead with shoulders down (not hunched).

3. Measure neck circumference at a point just below larynx (Adam's Apple) perpendicular to long axis of neck.

4. Round neck measurement up to nearest 1/2 inch and record (e.g., round 16 1/4 inches to 16 1/2 inches).

(e) Natural waist circumference

1. Measurement shall be taken on bare skin.

2. Arms are at sides. Take measurement at end of member's normal, relaxed exhalation.

3. Measure natural waist circumference, at point of minimal abdominal circumference with tape level and parallel to deck. (Note: This site is usually located about halfway between navel and lower end of sternum breastbone. When

this site is not easily observed, take several measurements at probable sites and use smallest value).

4. Round natural waist measurement down and record to nearest 1/2 inch (e.g., round 28 5/8 inches to 28 1/2 inches).

(f) Hip circumference

1. Measurement shall be taken over lightweight loose-fitting gym shorts or pants. Tight-fitting rubberized foundation garments or exercise belts shall not be worn at least 30 minutes before measuring. Control-top panty hose, spandex tights, and other "shaping" garments shall not be worn during measuring.

2. While facing member's right side measure hip circumference by placing tape around hips so that it passes over greatest protrusion of gluteal muscles (buttocks) as viewed from side. Ensure tape is level and parallel to deck. Apply sufficient tension on tape to minimize effect of clothing.

3. Round hip measurement down to nearest 1/2 inch and record (e.g., round 44 and 3/8 inches to 44 inches).

(g) Body fat calculation

1. Add waist and hip circumferences, then subtract neck circumference to obtain member's circumference value.

2. On appropriate percent fat estimation table (enclosure (6), appendix B), find intersection of column equal to member's height (rounded up to nearest 1/2 inch) and row equal to member's circumference value.

3. Member's body fat percentage equals number at intersection of row and column. For circumference value less than value in table, body fat percentage is less than or equal to smallest body fat percentage in column. For circumference value greater than value in table, body fat percentage is greater than or equal to largest body fat percentage in column.

5. Grading BCA

a. BCA is failed (not within BCA standards) when members exceed both maximum weight for height and body fat percentage allowed for member's age and gender.

b. BCA is passed (within BCA standards) when members:

(1) Do not exceed maximum weight for height allowed for member's age and gender.

(2) Exceed maximum weight for height, but not maximum body fat percentage allowed for member's age and gender.

c. For personnel who score an overall "Outstanding" or "Excellent" on the PRT, with no single event scored below "good", COs are authorized to waive BCA criteria up to the DOD maximum standard of twenty-six percent (males) and thirty-six percent (females). Members must present a professional, military appearance to be eligible for consideration.