

Understanding Body Composition

What is Body Composition?

Body composition is the ratio of fat to lean body mass. Lean mass includes muscle, bones, organs, and water. The human body also needs some fat for normal bodily functions and energy requirements. However, the higher your level of body fat, the greater your risk of developing heart disease, cancer, diabetes, and hypertension. Musculoskeletal problems such as knee or back pain, ankle weakness, and muscle weakness may also develop.

When you step on a scale, it tells you how much you weigh. What it doesn't tell you is how much of that weight is fat. A person who appears to be trim may actually be carrying an unhealthy amount of fat. Without enough exercise your body fat may increase while your muscle mass decreases. Because fat weighs less than muscle, a person can be overfat without being overweight. Therefore, what is really important is a person's body composition, not their scale weight, which is usually expressed as percent body fat.

The range of "normal," healthy values for body fat content in adults is about 12 to 22 percent for men and 18 to 30 percent for women. The values for women are higher because women need more body fat for certain reproductive functions, including regular menstruation. Individuals who engage in vigorous, regular exercise may have much less body fat. However, too little body fat (less than 8 percent for women or 5 percent for men) can cause health problems, including muscle wasting and fatigue. For women, a very low percentage of body fat is also associated with amenorrhea, or absence of menstruation, and loss of bone mass.

Fat vs. Muscle



Some people mistakenly believe that muscle turns to fat if not used. This does not happen. Body fat is created by storing unused calories and having a sedentary lifestyle. Muscle is increased by activity. Muscle and fat are two separate tissues; one cannot turn into the other. When an active person stops exercising regularly, they begin to lose muscle mass. Generally, this person continues to eat the same quantity of food as before. Because they are not as active, their energy expenditure decreases and fat tissue accumulates while muscle tissue decreases.

What Can I Do?

♦ Be Active

Regular aerobic activity (constant, repetitive movements involving large muscle groups) is an excellent means of getting rid of excess fat when performed for at least 30 minutes, five days a week. If you are too busy to maintain a regular exercise program, try to keep active throughout the day. A high activity level helps to increase your metabolism and thus use fat calories.



♦ Start a weight training program

Weight training increases muscle mass. Having more muscle mass means having more lean mass, which increases your metabolism. A higher metabolism enhances caloric expenditure, thereby burning more fat. The result is improved body composition.

♦ Eat Healthy Food

A well balanced diet does not mean boring, tasteless food. Your body needs over 50 different nutrients every day. Eat a variety of dairy products, meats, breads, cereals, fruits and vegetables. Avoid processed foods and simple sugars, both of which contain a lot of "empty" calories.

♦ Eat less fat

Dietary fat contributes to increases in body fat, cholesterol level, and the likelihood of developing heart disease. It is recommended that less than 30% of your daily caloric intake is from fat, with no more than 10% of that from saturated fats. You can decrease the fat in your diet by making simple adjustments such as cutting away visible fat on meat, eating nonfat frozen yogurt instead of ice cream, or using balsamic vinegar or pesto

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on bread rather than butter or margarine. When cooking, try to use olive oil instead of butter. Keep in mind that all oils are fat (although some types of oils are better than others), so use them sparingly.

- ♦ **Choose high fiber foods**

High fiber foods such as whole grains, fresh fruits and vegetables provide sufficient energy to keep you going throughout the day. By eating a variety of these foods daily, you are taking steps to help decrease body fat and decrease the risk of developing heart disease and/or cancer.

- ♦ **Drink water**

Drink a sufficient amount of water throughout the day to stay well hydrated - usually 8 - 8 oz glasses of water. Proper hydration provides fluids for your system to transport nutrients throughout your body.

Weight Management Tip

When you restrict your caloric intake, your ability to utilize stored calories (metabolism) decreases because your body is mistakenly preparing for a period of starvation. You may lose weight in the short term; however, when you resume a normal diet, your metabolism will remain reduced. Reduced metabolism and an increase in caloric intake will cause your scale weight to bounce back up to and occasionally beyond your original weight. The key to managing your weight is exercising and eating a balanced diet.

Determining Your Body Composition

There are a variety of ways to determine your body composition:

- *Hydrostatic weighing*, or under water weighing, is based on the principle that fat mass is less dense than lean body mass. Since the density differs, these masses can be estimated by either measuring the amount of water displaced or by comparing the difference between the underwater and the dry weighings. While hydrostatic weighing is the most accurate form of measuring body composition, it is also the most inconvenient and the most expensive method.
- *Skinfold measurement* involves using an instrument called a caliper to measure the fat beneath the skin's surface at specific locations on the body (front and back of upper arm, below the shoulder blade, front of thigh and hip). Measuring skinfold thickness gives a reasonable estimate of body fat composition.
- *Bioelectrical impedance* consists of a small electrical current passing through the body, allowing the electrical resistance of the body to be measured. Bioelectrical impedance is

based on the principle that lean body mass conducts electricity better than fat body mass.

Keep in mind that these measures of body fat are "estimates." Accurate measures of body fat are sometimes difficult to determine because of limitations within each method. For best results, use the same method, the same body sites, and the same technician to most accurately measure changes each time you assess your body composition.

Where Can I Get My Body Composition Tested?

Check with your Primary Care Manager (PCM) or contact the military wellness center closest to you for more information on where to have your body composition tested. Many civilian health clubs also offer body composition analysis at little or no cost.

Record your Results:

Date of Test:	_____
Lean Mass:	_____ lbs
Fat Mass:	_____ lbs
Body Fat Composition:	_____ %

Recommended Ranges for Body Fat Composition

Age	18-35	36-45	45+
Men	12-18%	14-20%	16-22%
Women	18-26%	20-28%	22-30%

This information is part of the *Healthy Lifestyles* educational series provided by Health Net Federal Services' Preventive Care Services. Education is one of your best defenses against health risk factors and this series has been developed to help you maintain and improve your health. Health Net Federal Services is committed to your health and well-being.

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