

Exercise & Body Composition

By Vadim Mejerson, Ph.D.

How will regular exercise change my body and do I have any control over what type of changes occur ?

Along with low-fat low-sugar diet, exercise will have the strongest influence on your **weight** and **body composition**. The type of exercise activities you choose will determine whether you loose fat, gain muscle, or do a bit of both. To a certain extent, you can dictate your results by designing an exercise program that accomplishes specific goals.

The human body is a combination of fat and lean body mass (muscle, bone and body fluid). The percentage of person's weight which is fat is referred to as the body fat percentage. For example, a person weighing 100 pounds of which 20 pounds is fat, has 20 percent body fat.

Aerobic exercise is the most effective way to **reduce** body fat while maintaining lean body mass. Moderate intensity physical activities that utilize oxygen and move major muscles for extended periods of time, burn fat as fuel.

Performed four to six times a week for 30-60 minutes at a time, aerobic exercise will **decrease** your body fat percentage.

In addition to loosing fat through aerobic exercise, it is essential to **increase** your muscle mass in order to increase your metabolic rate (rate of burning calories). Muscle is metabolically more active than fat. -The most effective way to increase muscle mass is to overload the muscle on a regular basis through weight training or calisthenics.

Depending on your desired results, you may wish to perform both aerobic and muscle developing activities throughout your workouts.

As you trim down and firm up, you will notice changes in your body that may not be reflected on your bathroom scale. keep in mind that muscle is denser and heavier than fat, so a firmer body may not weigh a great deal less than a fat one. Don't get discouraged ! One look in the mirror or a quick check of your measurements will prove you are on the right track.

Recommended Body Composition

General population:

	<i>WOMEN</i>	<i>MEN</i>
Lean Body Mass	76-80%	83-87%
Body Fat	20-24%	14-18%

METHODS FOR MEASURING BODY FAT PERCENTAGE

Underwater Weighing

Based on the premise that muscle sinks and fat floats, underwater weighing is probably the most accurate measurement of body composition. The process requires sitting in a small seat suspended from an overhead scale, releasing all the air from the lungs, and submerging the entire body underwater in a large tank. A trained technician reads the specialized scale to determine your underwater weight.

The underwater weight is then plugged into a mathematical equation that takes into account your lung capacity and weight on land and gives you your body composition results.

Bioelectrical impedance

With electrodes attached at your hand and foot, this process sends an imperceptible electrical impulse through your entire body. Since electricity travels more easily through lean body weight than fat, individuals with greater lean body mass will offer less resistance than those who contain a larger fat mass. This information is entered into a computerized formula to predict body composition.

Not as accurate as underwater weighing, electric impedance, is logistically more convenient, doesn't require removing any clothes or getting wet. The level of accuracy is more than adequate for all general purposes.

Skin fold Caliper Measurements

The calipers are used to measure subcutaneous (under the skin) fat in specific body areas thought to be typical fat depots, including the abdomen, thigh, upper arm, and middle back. The measurements are plugged into a formula that determines your body composition percentages. Although the least accurate of the three most popular techniques, this is the most simple and the most economical.

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