

Tomorrow's Wellness Center

What is Body Composition Analysis? (And why do you need one?)

Bioelectrical Impedance Analysis or Bioimpedance Analysis (*BIA*) is a method of assessing your “*body composition*”—*the measurement of body fat in relation to lean body mass*. It is an integral part of a comprehensive health and nutrition assessment.

Why is Body Composition Important to My Health?

Research has shown that body composition is directly related to health. A normal balance of body fat is associated with good health and longevity. Excess fat in relation to lean body mass, a condition known as altered body composition, can greatly increase your risks for cardiovascular disease, diabetes, and more. BIA fosters early detection of an improper balance in your body composition, which allows for earlier intervention and prevention. BIA also provides a measurement of fluid and body mass that can be a critical assessment tool for your current state of health.

BIA also serves to measure your progress as you work to improve your health. Improving your BIA measurement, or maintaining a healthy BIA measurement, can help keep your body functioning properly for healthy aging and reduced risk for illness. With your BIA results, we can recommend a personalized dietary plan, nutritional supplements, and exercise to help you support optimal health and well-being.

How Does a BIA Work?

BIA is much more sophisticated than your bathroom scale, but just as painless—and almost as quick. BIA is a simple procedure that can be performed right in our office in a matter of minutes with the help of a sophisticated, computerized analysis.

This analyzer “calculates” your tissue and fluid compartments—using an imperceptible electrical current passed through pads placed on one hand and foot as you lie comfortably clothed on an exam table. In just minutes, we’ll have very accurate measurements to help create an effective, personalized program to improve your health status.

Interpreting Your BIA Results

We will go over your results in detail. Briefly, here are the measurements your BIA will provide:

Phase Angle—Calculated using the measurements of resistance and reactance, which are indicative of cellular health independent of weight. Normal values vary with age and gender.

Body Capacitance—An indicator of the quantity of healthy cell membranes in the body.

Resistance—Related to body water. Since more water is stored in low resistance, fat-free mass, a lower value indicates healthier, lean tissue.

Reactance—The ability of cells to store energy (related to body capacitance). A low reactance indicates a breakdown in cell membranes' selective permeability. A higher reactance means healthier cells.

Body Cell Mass—The “living” cells of the body, such as those found in muscle, organs, blood, and immune cells. Also include intracellular water (water contained within your cells).

Fat-Free Mass—A measure of total nonfat body compartments (also called lean body mass). Contains most of the body's water.

Fat Mass—The amount of stored fat in the body.

Body Mass Index (BMI)—A ratio of weight to height used as a quick measure of health status. Values from 18-24.9 are desirable.

Basal Metabolic Rate—Based on the fat-free mass, the minimal number of calories your body uses each day to maintain basic life-supporting functions. It does not include the extra calories you burn through exercise.

Intracellular Water (ICW)—Water volume inside you cells. (i.e., water in the “living” cells).

Extracellular Water (ECW)—Water volume outside the body cell mass (i.e., water in the “inactive” cells).

Total Body Water (TBW)—Sum of ICW and ECW.

TBW/Fat-Free Mass—The percentage of fat-free mass that is water.

TBW/Total Weight—The percentage of total weight that is water.

Follow-Up Tests

We can conduct a series of follow-up BIA tests to monitor your health and measure your progress.

Body Composition Testing

Bioimpedance analysis (BIA) is a reliable method of measuring body composition, including percentage of body fat and lean body mass. Measurements are taken with a bioimpedance analyzer, which uses electrodes similar to EKG electrodes. The machine passes a harmless, ultra-low level electrical current through the body. Lean tissue, which is over 70% water, is a good conductor of electrical current. Fatty tissue—low in water, is not. Thus the resistance to the flow of electrical current measured by the analyzer can be used to calculate body composition.

Participants will need to remove their right shoes and sock or stocking. The electrodes are placed on the right hand and foot while the individual is lying down on an exam table. This whole procedure takes only a few minutes and a computer prints out the results. Optimal body fat ranges from 12%-15% for women, and 5%-20% for men.

Over 100 independent studies, conducted by researchers over the past 20 years, have demonstrated that bioimpedance analysis can provide an accurate and clinically useful assessment of body composition. However, for the most accurate results, the following guidelines should be followed:

- 1. Do not eat for 4 hours prior testing.***
- 2. Do not exercise for 12 hours prior to testing.***
- 3. Do not consume alcohol for 24 hours prior to testing.***
- 4. Drink at least 1-quart water one hour before you test (you may void as needed).***
- 5. Do not drink caffeine the day of your test.***
- 6. Do not wear pantyhose.***

