

Understanding Your Body Composition Numbers

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You will be measured in a variety of different ways to give us a more comprehensive picture of your body morphology and your metabolism. There are certain relationships that we can uncover that can tell us if you are at a higher risk for heart disease, sleep apnea or osteoporosis or if you have metabolic syndrome.

Bio Impedance Testing (BIA)

BIA testing using the medical grade Tanita scale gives us a lot of insight into your body's metabolism. It gives us your overall weight, but much more importantly, it tells us what this weight is made up of by distinguishing between Fat Mass (FM) and Fat Free Mass (FFM) which is everything but fat. It does this by testing your body's resistance or impedance to a mild electrical wave sent up one leg to mid torso and then down the other. Fat provides more resistance than water which is a better conductor so from this it can determine your Total Body Water (TBW) and then predict your Body Fat % (BF%).

Total Body Water reflects the amount of water in the body. To monitor hydration level, use the following formula: $TBW / Weight \times 100 = \% \text{ hydration}$. According to dialysis standards, women should be approximately 50-60% hydrated, and males should be approximately 60-70% hydrated. If you are even slightly dehydrated you will raise stress hormones and slow down your metabolism.

When you initially weigh in on the Tanita Scale you may show higher TBW and lower BF% than you actually are if you are currently consuming a high carbohydrate diet. When you shift to a more balanced diet, your next weigh in will show a higher BF% and a lower TBW and this will be considered your true starting BF% and TBW.

Men have 3-5% essential fat and their ideal range is 8-18% BF with clinical obesity starting at 22%. At 27% most men will have metabolic syndrome (insulin resistance).

Women have 10-15% essential fat and their ideal range is 18-28%. They are considered to be clinically obese at 32% and at 37% most women will have metabolic syndrome.

At a Body Mass Index (BMI) of 27 or above you are considered overweight and at 30 and above you are considered to be obese. As BMI gets lower (ie below 22) with a high bodyfat (above 25%), this shows increasing need for more FFM and this can be increased by adding muscle via a comprehensive resistance training program.

Your basal metabolic rate (BMR) should be equal to your weight +/- 10 %. If it is lower than this you have too little lean mass relative to your total body weight. If your BMI is between 18 and 24 and your bodyfat % is higher than it should be, this elevation in bodyfat % is due more to not having enough metabolically active lean tissue (i.e. fat burning muscle) than it is to how much actual bodyfat you have.

Measurements/Circumferences

Waist

This is taken at the narrowest point around the waist. A circumference of 35 inches or more (female) or 40 inches or more(male) indicates an increased risk of cardiovascular disease.

Hip

This measurement is taken at the widest point with the feet together.

Waist to Hip Ratio

There has been considerable scientific evidence that the amount of fat accumulation around the waist and hips is more dangerous (metabolic disease-wise) than fat elsewhere in the body. Waist to Hip ratio evaluates this fat accumulation. It is an easy-to-take measurement and is used extensively in epidemiological studies to describe the risk of metabolic disease in large populations. Example: if the waist girth were the same as the hip girth the ratio would be 1.0. Since the waist girth should be smaller than the hips, the ratio should always be less than 1.0. This is not a good measurement to monitor changes within an individual, but is good to classify an individual for health risk.

Neck measurement

Neck size is a reliable index as a predictor of sleep apnea. In men sleep apnea is more prevalent in those with a neck size > 17 inches; in women, neck size > 15.5 inches.

Check frame size

Take your middle finger and thumb of your right hand and encircle your left wrist. If your fingers barely touch you have a large frame, if they slightly overlap you have a medium frame, if they overlap to the edge of the start of both of your nail beds you have a small frame. A small or small-medium frame puts you at higher risk for osteoporosis.