

Understanding Tanita Measurements

What does BMI mean?

Body Mass Index (BMI) is the simplest and most common method of determining if someone is the correct weight for their height. The method, though widely used, does not distinguish between lean muscle and fat and can therefore be highly inaccurate.

What is Basal Metabolic Rate?

Basal Metabolic Rate (BMR) is the minimum level of energy your body needs when at rest to function properly. 70% of the calories we consume each day are used for basal metabolism and energy is used when we do any kind of activity

What is muscle mass?

Your Body Composition Monitor will calculate the weight of muscle in your body as a percentage of your total weight. Muscle mass includes the skeletal and smooth muscles - such as cardiac and digestive muscles - and the water content of these muscles.

What is the Physique Rating?

Your Physique Rating is determined by the ratio of muscle-to-fat in your body. You might have a high amount of muscle as well as a large amount of fat, or a low amount of muscle that makes you look slim but with hidden fat that could be unhealthy for you in the long-term.

What is bone mass?

Your Body Composition Monitor will calculate the amount of bone (bone mineral level, calcium or other minerals) in the body. Research shows that increased exercise with a corresponding increase in muscle mass is related to stronger, healthier bones. This reading is not an indication of hardness or strength of the bones and can be inaccurate for people who suffer from osteoporosis or low bone density due to age, pregnancy or hormone treatment.

How is Daily Calorie Intake calculated?

Your recommended Daily Calorie Intake (DCI) is an estimate of the number of calories you can consume in the next 24 hours to maintain your current weight. It is the sum of calories required for BMR, daily activity metabolism (activities including daily household chores) and diet-induced thermogenesis (energy used in connection with digestion, absorption, metabolism and other eating activities).

How is Total Water Percentage calculated?

Your Total Water Percentage is the total amount of fluid in your body as a percentage of your total weight. Your reading should act as a guide to help you to improve your health and performance and should be monitored over time. If you have a high body fat percentage, your average water percentage may be low. As you lose body fat and increase your lean muscle mass, your body water percentage will gradually increase.

Why should I use a Body Composition Monitor?

A Body Composition Monitor is designed to give you detailed information on the proportions of muscle, fat, water and bone in your body. When used regularly it can provide a valuable insight into how lifestyle changes such as diet and exercise affect your body and your health.

How do I use my Body Composition Monitor?

To obtain reliable readings, it is important to use a Body Composition Monitor at the same time of day and under the same conditions each time. As body water levels fluctuate throughout the day and we are generally dehydrated on waking, the best time to use a Body Composition Monitor is in the evening before eating your main meal.

Setting your baseline will help you to get the most out of your Monitor. To find out more, [click here](#).

Why is my body fat % different when I change the male/female/athlete setting?

The Tanita Body Fat Monitor does not measure body fat directly. The only two values measured directly are weight and impedance; % body fat is calculated using an equation based on these and other values such as height, gender, activity level etc. Impedance is measured by sending a low, safe electrical signal through the body, and can be described as a measurement of the strength and speed of that signal. Because muscle tissue has a high water and electrolyte content, the electrical signal passes through with ease. However, when the signal encounters fat mass, it must work harder to pass through because fat contains only a small percentage of water.

Men, women and children have differing bone structures, and different ways of depositing fat around the body. During extensive research, Tanita found that it was necessary to develop individual equations to reflect these differences. In a similar way, research showed that a further equation was necessary to maintain accuracy in the elite athletic population to address a change in water to muscle ratio seen in athletes who exercise at intensive rates over long periods of time.

Since the equations have been developed to give different results to reflect a person's body type, if you use the wrong equation, you will get a wrong result. This is similar to "cheating" the scales by holding weights, or holding on to something to get a lighter weight - an interesting experiment, but an invalid result.

No matter how much I drink I never seem to have the right hydration level

The Tanita Body Fat Monitor relies on the body's electrical conductivity, which in turn relies on the body's fluid levels. Fat tissue is anhydrous and resists an electrical signal, while muscle tissue is relatively hydrated and conducts an electrical signal. However, factors such as temperature, how much exercise you have done, when you last had a drink, medical conditions (including menstruation), medications, alcohol, caffeine etc., can also affect the hydration level of a person's muscle tissue, which can then affect the body fat reading. The time of day can also affect hydration levels, as well as fluid distribution in the body. It is for this reason that Tanita recommends that readings are most consistent when taken between 5 and 7 pm before the evening meal. If your body fat % is not within the healthy range it will be impossible to obtain the 50-55% hydration levels.

My body fat monitor weighs me but will not give my fat readings - why?

To obtain a Body Fat % reading, the electrical signal must pass through the body. If you are wearing socks or tights (even very thin tights) the signal will receive excessive resistance and may not give out a reading. Also, severe calluses or hard skin on the soles of the feet can affect the reading. The body fat monitor cannot detect body fat of less than 3%.

I get different weight readings from other scales, is my body fat monitor out of calibration?

Tanita have a very low rate of returns of faulty products - less than 1%. Often it turns out that when tested with calibrated weights it is the Tanita scale that is correct and the others that are faulty! The only way to be sure is to test the scale with a calibrated weight. If, exceptionally, the scale is incorrect it is fully guaranteed for 3 years PROVIDED YOU KEEP YOUR PROOF OF PURCHASE.

Why do I get different Body Fat % readings in the same day?

The weight of fat in a person's body is unlikely to change by a large amount during the course of a day: In the same way that the bones and internal organs do not change. However, the weight of a person's body is constantly changing as food and water is taken in and passed out.

In addition, a person's hydration status is changing constantly - this is water contained not in the stomach, but in the muscle tissue where it is needed for the body to function. So why does the body fat % change? It is important to remember that the reading shows the PERCENTAGE of your total weight that is fat, not the actual WEIGHT of fat. So, mathematically, if your total weight goes up because you have more water in your body, the percentage of your weight that is fat will be lower even though the actual weight of fat has not changed.

Conversely, if you are dehydrated, your total weight will be lower giving a higher % of fat. This is easier to see with scales that show total body water because as the water % increases the fat % decreases and vice versa.

Please bear in mind that the body fat monitor calculates the water, muscle, and bone as the first part of the equation, and then subtracts this from the total weight - the rest being fat. If you "cheat" the scales by standing on them with a pile of books it will give a (incorrect) higher fat reading. In the same way having a very full stomach or anything that increases the weight abnormally will give an incorrect reading. The answer is - don't cheat if you want accurate results!

What is Athlete Mode and should I be using it? Am I an Athlete?

The points below will categorise whether you should use athlete mode or not:

People who do large amounts of aerobic exercise will have different body types to those who don't. Their hydration levels will be different, and the composition of their muscle tissue may differ too. If such individuals use the Standard TANITA Body Fat Monitor, their reading may well be overestimated. The Athlete mode in several models of the TANITA Body Fat Monitor takes into account these differences to give a more accurate measurement of body fat % in such individuals.

People often ask - "Am I an athlete?" The answer is that there is no exact point at which a person becomes an athlete. As a guide, if someone is doing more than 10 hours a week vigorous exercise, and has a resting heart rate of fewer than 60 beats a minute they should use the Athlete mode. The same could apply to a person who is currently doing less exercise, but who has had a "lifetime of fitness" (e.g., an ex international rugby player).

Children who are also athletes should interpret results with care. The calculations rely on an estimation of "average" bone density and other body composition factors. In children these body composition factors can vary widely and the readings may not represent an absolute picture of the body fat %. However, the readings for any individual will remain constant over a period of time and the scales can be reliably used to measure changes in body fat.

What are the Body Fat Guidelines for children?

Despite the rise in childhood obesity levels there are currently no healthy body fat ranges for children. The fact is it is difficult to establish such ranges for children.

Firstly, as every child's development is different, as their bodies change dramatically and rapidly throughout adolescence, it is not practical to concoct a "one-size-fits-all" range for children.

Secondly, because the clinical methods used to get reference data for body fat analysis involve exposing the body to low doses of X-ray radiation; there are particular ethical problems in doing this on children. This means that there is a lack of appropriate clinical research for Tanita to base its methods on.

Thirdly, even international bodies such as the WHO do not give clear-cut healthy weight ranges for children. There are no international standards even for 'height/weight' ranges.

Establishing healthy body fat ranges for children is a research priority for us, and we will publish more information when this becomes available.

I have had a sex change - should I use the male or female settings?

There is no definitive answer for this question. The equations used in the male and female settings are very different as men and women, on average, have different amounts of fat in their bodies.

The general rule is that you should stick to the gender setting that you were born with, as this will give the most accurate and repeatable results for your gender.

Why is my body fat scale not measuring water for my child?

Currently the Tanita Body Fat Monitors with Total Body Water will not measure Body Water in Children, as there are no published guidelines for Children. Research to date has concentrated on developing accurate equations for adults.

As medical research continues, equations suitable for children's bodies will be developed. As a responsible manufacturer, Tanita will not show readings for children on the scales until the relevant background medical research has been done.

Is it possible to have too little body fat?

Yes.

Both extremes--too much or too little body fat put an individual at risk for serious medical and/or psychological conditions. Having a very low body fat percentage, particularly for women, can result in musculoskeletal problems and osteoporosis. And it can upset the hormonal balance causing loss of menstruation. Striving for extremely low body fat can also result in severe eating disorders, such as anorexia nervosa, bulimia, and binge eating; which have significant health implications. Too much body fat is also linked to Type 2 Diabetes, Heart Disease, Stroke and certain cancers.

Are there any illnesses directly linked to obesity?

Obesity is directly linked with Diabetes Type II and hypertension, and is a contributing risk factor for many other conditions including heart disease, sleep disorders, arthritis, gall bladder disease, stroke, and several forms of cancer. Awareness and monitoring of body fat percentage can be a motivational tool for a fitness or weight management program. Additionally, with any chronic degenerative disease, monitoring body fat and lean body mass is critical to evaluation, treatment, and management of the condition. This information is helpful in determining a suitable exercise and nutritional program on an individual basis.

Can I use the body fat monitor for my pet?

The simple answer is no.

The equations used in our monitors have been designed for human use only, so measuring your pet's body fat will not be at all accurate. If you are worried about the state of your pet's fat levels or general health then a trained Veterinarian will be able to assist.

How does Tanita BIA compare with other methods in terms of accuracy, repeatability, convenience and length of procedure?

DEXA (Dual Energy X-ray Absorptiometry). This method is very accurate and repeatable, but involves extremely expensive equipment and is generally 20-30 minutes while every section of their body is systematically X-rayed. This method is used mainly in research studies.

Hydrostatic Weighing (Dunk Tank). Done correctly, this method is also quite accurate, and the results are often repeatable. However, the test is somewhat subjective because it relies upon the subject's ability to expel all oxygen from their lungs while submerged in a tank of water. Oxygen remaining in the lungs will skew the results. This method is considerably inconvenient to the user. The 'tank' is also expensive, depending on the type of equipment used and the under water facility. In clinical settings, this procedure is repeated a number of times, and an average is taken. Because of the expense, lengthy testing process, and physical burden to the subject, this method is more suitable for research studies.

Conventional BIA. Conventional Bioelectrical Impedance Analysis methods are accurate, but more subjective based on the placement of electrodes (a 1cm electrode variation on any limb dramatically changes the reading); therefore trending results may not be accurate. The user lies down while electrodes and conductive jelly are placed on a wrist and opposite ankle. Although this procedure can

be performed in some physician's offices, it is neither as convenient nor objective as the Tanita BIA method.

Is the monitor safe to use if I am pregnant?

The monitors are perfectly safe for mother and baby. Due to the changes (hormone levels, changes in water content) in the mothers' body, the Body Fat readings should not be interpreted as completely accurate.

Why should I not use the body fat monitor if I have a heart pacemaker or other medical implants?

The Body Fat Monitor uses BIA (Bioelectrical Impedance Analysis), which involves sending a very low electrical signal through the body. There is a minute risk that this signal could cause a pacemaker or other implanted medical device to malfunction.

How do I change my monitor from kg to st/lbs?

If the monitor is a UK version and was purchased before 2002, then most of these models have a switch on the underside of the weighing platform so that kg can be switched to st/lb, and vice versa.

On most of the UK models manufactured after 2002, using the 'set' and 'arrow' buttons located under the LCD display can make the imperial/metric measurement switch. For many models you simply have to press and hold the buttons together, scroll through the weight measurements and then press SET to confirm. Please refer to the user instruction manual that was packaged with your monitor.

The Tanita monitors manufactured for sale to the European mainland display weight readings in kg measurements only. In this case it will be impossible to change to st/lb.

My body fat % is not within the healthy range - how bad is that?

The ideal proportion of body fat varies according to gender, age and body type. Biologically, women should have more body fat than men. As we get older, our body fat percentage will also increase slightly.

To see at a glance what levels of body fat are healthy please refer to our healthy ranges chart. This information has been clinically validated and is based on NIH/WHO BMI guidelines.

If your fat percentage is too high try making small adjustments to your lifestyle and diet. Cut down a little on dietary fats and eat lots of healthy fruit and vegetables. At the same time increase the amount of exercise you do. This will help you to achieve long lasting changes in your life. Expect the fat percentage to go down slowly - and stay down! If you are concerned about your body fat you should consult a doctor before starting an exercise regime.

How accurate are the Tanita monitors?

The weight readings are accurate to within +/- their graduation. The Body Fat % readings are within 5% of DEXA, which is a gold standard for measuring Body Fat.

I want the best monitor, so shall I buy the most expensive one?

Not necessarily. At Tanita we do not have a policy to keep bringing out new models that supersede older models and so making them out of date. We have developed a variety of functions and benefits available on our monitors that makes them personalised to the user. The most expensive monitor may not always be the best for you!

It also depends what you need from your body fat monitor. The most basic models will accurately measure your weight and body fat percentage, but the more expensive models include other functions and benefits such as showing total body water, or daily calorie intake for example. The most expensive models include graphs to show your changes over a period of time. For details of the various functions available, please visit the "understanding measurements" section on this website where there is further detailed information.