

TANITA®

Monitoring Your Health

Body Composition Guide *for* ***InnerScan***®

The Tanita InnerScan Body Composition Monitor product provides readings for informational purposes only. This product is not intended to diagnose or treat any disease or abnormalities. Please consult with your physician about any questions or concerns related to your health.

For more details about the Tanita body composition measurements and other health-related information, please visit our website at www.tanita.asia.



www.tanita.asia

NOTE: This product may not have all the measurement functions described in this Guide. For children, the functions available are limited. Please refer to the product manual for more details.

MONITORING YOUR BODY COMPOSITION WITH TANITA

WHY MONITOR BODY COMPOSITION?

Body composition monitors are designed for healthier living by giving you an insight into key health indicators that will enable you to monitor the impact of changes to your lifestyle:

- See the impact of a change in diet on the body to make sure you are dieting in the healthy way
- Fine-tune your fitness program by monitoring progress of muscle mass and Basal Metabolic Rate
- Monitor the level of visceral fat, which has been linked as a possible risk factor for developing Type 2 diabetes and/or heart disease.
- Set a target for your physique and monitor your progress towards it.

HOW DOES A BODY COMPOSITION MONITOR WORK?

Tanita Body Composition Monitors calculate your body composition using Bioelectrical Impedance Analysis (BIA).

Safe, low-level electrical signals are passed through the body via the patented Tanita foot pads on the monitor platform. It is easy for the signal to flow through fluids in the muscle and other body tissues but meets resistance as it passes through body fat, as it contains little fluid. This resistance is called impedance. The impedance readings are then entered into medically researched mathematical formulas to calculate your body composition.

WHEN IS THE BEST TIME TO USE MY BODY COMPOSITION MONITOR?

Your body water levels naturally fluctuate throughout the day and night. Any significant changes in body water may affect your body composition readings; for example, the body tends to be dehydrated after a long night sleep so if you take a reading first thing in the morning your weight will be lower and your body fat percentage higher. Eating large meals, drinking alcohol, menstruation, illness, exercising, and bathing may also cause variations in your hydration levels.

To get the most reliable reading it is important to use your Body Composition Monitor at a consistent time of day under consistent conditions. We suggest taking a reading before your evening meal.

FOR SEGMENTAL BODY COMPOSITION MONITOR

Tanita has developed an accurate segmental body composition analyzer which correlates with the gold standard, DEXA, Dual Energy X-ray Absorptiometry. Tanita can now analyze the distribution of body fat as well as muscle in one's body.

Using this Segmental Body Composition Scale/Monitor, distribution in right arm, left arm, right leg, and left leg of body fat % and muscle mass can be determined. This is especially useful for anyone who is monitoring the balance of left and right side of the body or trying to build a particular part of one's body. It has been said that men tend to carry body fat in the upper body while women have a tendency to carry body fat in lower body. In addition, as you age, there is a tendency to lose muscle and gain fat.

It is important to monitor change in the distribution of body fat and muscle.

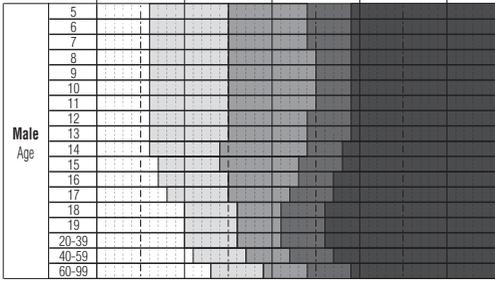
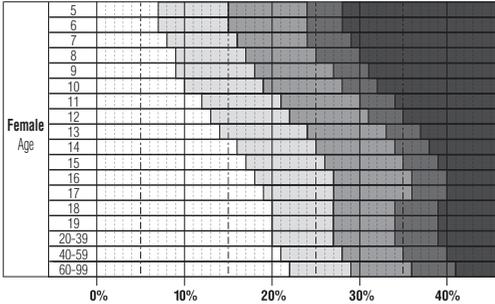


WHAT IS BODY FAT PERCENTAGE?

Body fat percentage is the amount of body fat as a proportion of your body weight.

Reducing excess levels of body fat has shown to reduce the risk of certain conditions such as high blood pressure, heart disease, diabetes and cancer. The chart below shows the healthy ranges for body fat.

Body Fat Ranges for Standard Children ¹ Body Fat Ranges for Standard Adults ^{2,3}



□ Underfat □ Standard Minus □ Standard Plus □ Overfat □ Obese

- ¹ HD McCarthy, et al. "Body fat reference curves for children." *International Journal of Obesity* 2006; 30, 598-602.
- ² Gallagher D et al. *Am J Clin Nutr* 2000, 72:694-701 *Healthy percentage body fat ranges: an approach for developing guidelines based on body mass index.*
- ³ Based on NIH/WHO BMI Guidelines.

Your Body Composition Monitor automatically compares your body fat percentage reading to the Healthy Body Fat Range chart.

Underfat: below the healthy body fat range. Increased risk for health problems.

Standard Minus/Standard Plus: within the healthy body fat percentage range for your age/gender.

Overfat: above the healthy range. Increased risk for health problems.

Obese: high above the healthy body fat range. Greatly increased risk of obesity-related health problems.



WHAT IS TOTAL BODY WATER PERCENTAGE?

Total Body Water Percentage is the total amount of fluid in a person's body expressed as a percentage of their total weight.

Water plays a vital role in many of the body's processes and is found in every cell, tissue and organ. Maintaining a healthy total body water percentage will ensure the body functions efficiently and will reduce the risk of developing associated health problems.

Your body water levels naturally fluctuate throughout the day and night. Your body tends to be dehydrated after a long night sleep and there are differences in fluid distribution between day and night. Eating large meals, drinking alcohol, menstruation, illness, exercising, and bathing may cause variations in your hydration levels.

Your body water percentage reading should act as a guide and should not be used to specifically determine your absolute recommended total body water percentage. It is important to look for long-term changes in total body water percentage and maintain a consistent, healthy total body water percentage.

Drinking a large quantity of water in one sitting will not instantly change your water level. In fact, it will increase your body fat reading due to the additional weight gain. Please monitor all readings over time to track the relative change.

Every individual varies but as a guide the average total body water percentage ranges for a healthy adult are:

Female : 45 to 60%

Male : 50 to 65%

Source : Based on Tanita's Internal Research

Note: The total body water percentage will tend to decrease as the percentage of body fat increases. A person with a high percentage of body fat may fall below the average body water percentage. As you lose body fat, the total body water percentage should gradually move towards the typical range given above.



WHAT IS VISCERAL FAT RATING?

This feature indicates the rating of visceral fat in your body.

Visceral fat is the fat that is in the internal abdominal cavity, surrounding the vital organs in the trunk (abdominal) area. Research shows that even if your weight and body fat remains constant, as you get older the distribution of fat changes and is more likely to shift to the trunk area especially post menopause. Ensuring you, have healthy levels of visceral fat may reduce the risk of certain diseases such as heart disease, high blood pressure, and the onset of type 2 diabetes.

The Tanita Body Composition Monitor will provide you with a visceral fat rating from 1 – 59.

Visceral Fat Rating	Indicator	Explanation
1 – 9.5 (0)	Healthy	Healthy level of visceral fat. Continue monitoring your rating to ensure that it stays within the healthy range.
10.0 – 14.5 (+)	Lower Risk	Slightly high level of visceral fat. Consider making changes in your lifestyle through diet and/or increasing exercise.
15.0 – 59.0 (++)	Higher Risk	Very high level of visceral fat. Please consult doctors for improvement.

Note:

- Even if you have a low body fat rate, you may have a high visceral fat level.
- For medical diagnosis, consult a physician.



WHAT IS BASAL METABOLIC RATE (BMR)?

WHAT IS BMR?

Your Basal Metabolic Rate (BMR) is the minimum level of energy your body needs when at rest to function effectively including your respiratory and circulatory organs, neural system, liver, kidneys, and other organs. You burn calories when sleeping.

About 70% of calories consumed every day is used for your basal metabolism. In addition, energy is used when doing any kind of activity however; the more vigorous the activity is the more calories are burned. This is because skeletal muscle (which accounts for approximately 40% of your body weight) acts as your metabolic engine and uses a large amount of energy. Your basal metabolism is greatly affected by the quantity of muscles you have, therefore increasing your muscle mass will help increase your basal metabolism.

By studying healthy individuals, scientists have found that as people age, their metabolic rate changes. Basal metabolism rises as a child matures. After a peak at the age of 16 or 17, it typically starts to decrease gradually.

Having a higher basal metabolism will increase the number of calories used and help decrease the amount of body fat. A low basal metabolic rate will make it harder to lose body fat and overall weight.

HOW DOES A TANITA BODY COMPOSITION MONITOR CALCULATE BMR?

The basic way of calculating Basal Metabolic Rate (BMR) is a standard equation using weight and age. Tanita has conducted in-depth research into the relationship of BMR and body composition giving a much more accurate and personalized reading for the user based on the impedance measurement. This method has been medically validated using indirect calorimetry (measuring the breath composition).

Reference:

Sakamoto Y, International Comparison: Resting Energy Expenditure Prediction Models. The American Journal of Clinical Nutrition 2002 (Nutrition Week: A Scientific and Clinical Forum and Exposition).



WHAT IS DAILY CALORIE INTAKE (DCI)?

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

HOW DOES A TANITA BODY COMPOSITION MONITOR CALCULATE DCI?

DCI = BMR × Activity Level
Activity Level

	1	2	3
Female	1.56	1.64	1.82
Male	1.55	1.78	2.10

Source: The World Health Organization (WHO)



WHAT IS METABOLIC AGE?

This feature calculates your BMR and indicates the average age associated with the type of metabolism.

If your Metabolic Age is higher than your actual age, it is an indication that you need to improve your metabolic rate. Increased exercise will build healthy muscle tissue, which will improve your metabolic age.

You will obtain a reading between 18 and 90. Under 18 will be displayed as "18" and over 90 displayed as "90".



WHAT IS MUSCLE MASS?

This feature indicates the weight of muscle in your body. The muscle mass displayed includes the skeletal muscles, smooth muscles (such as cardiac and digestive muscles) and the water contained in these muscles.

Muscles play an important role as they act as an engine in consuming energy. As your muscle mass increases, your energy consumption increases helping you reduce excess body fat levels and lose weight in a healthy way.



WHAT IS PHYSIQUE RATING?

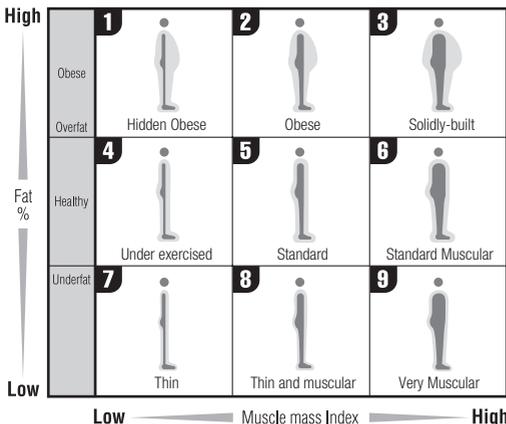
This feature assesses your physique according to the ratio of body fat and muscle mass in your body.

As you become more active and reduce the amount of body fat, your physique rating will also change accordingly. Even though your weight may not change, your muscle mass and body fat levels may be changing making you healthier and at lower risk of certain diseases.

Each person should set their own goal of which physique they would like and follow a diet and fitness program to meet that goal.

Result	Physique Rating	Explanation of Physique Rating Result
1	Hidden Obese	Small Frame Obese This person seems to have a healthy body type based on physical appearance; however, they have a high body fat percentage with low muscle mass level.
2	Obese	Medium Frame Obese This person has a high body fat percentage, with a moderate muscle mass level.
3	Solidly-built	Large Frame Obese This person has both a high body fat percentage and a high muscle mass.
4	Under exercised	Low Muscle & Average Body Fat percentage This person has an average body fat percentage and a less than average muscle mass level.
5	Standard	Ave. Muscle & Ave. Body Fat percentage This person has average levels of both body fat and muscle mass.
6	Standard Muscular	High Muscle & Ave. Body Fat percentage (Athlete) This person has an average body fat percentage and higher muscle mass level than the average.
7	Thin	Low Muscle & Low Fat Both body fat percentage and muscle mass are lower than the average.
8	Thin and muscular	Thin and muscular (Athlete) This person has lower normal body fat percentage than average while having adequate muscle mass.
9	Very Muscular	Very Muscular (Athlete) This person has lower normal body fat percentage than average, while having above-average muscle mass.

Source: Data from Columbia University (New York) & Tanita Institute (Tokyo)



Represents muscle

Represents fat

Index of amount of muscle against height = $\text{Muscle mass (kg)} / \text{height (cm)}^2$



WHAT IS BONE MASS?

This feature indicates the amount of bone (bone mineral level, calcium or other minerals) in the body.

Research has shown that exercise and the development of muscle tissue are related to stronger, healthier bones. While bone structure is unlikely to make noticeable changes in a short period, it is important that you develop and maintain healthy bones by having a balanced diet and plenty of exercise. People worried about bone disease should consult their physician. People who suffer from osteoporosis or low bone densities due to advanced age, young age, pregnancy, hormonal treatment or other causes, may not get accurate estimations of their bone mass.

Below is the result of estimated bone masses of persons aged 20 to 40, who are said to have the largest amounts of bone masses, by weight. (Source: Tanita Body Weight Science Institute)

Please use the below charts as a guide to compare your bone mass reading.

Women: Average of estimated bone mass

Weight (lb)		
Less than 99 lb	99 lb - 132 lb	132 lb and up
4.0 lb	4.9 lb	5.5 lb

Weight (kg)		
Less than 45 kg	45 kg - 60 kg	60 kg and up
1.8 kg	2.2 kg	2.5 kg

Men: Average of estimated bone mass

Weight (lb)		
Less than 132 lb	132 lb - 165 lb	165 lb and up
5.5 lb	6.4 lb	7.1 lb

Weight (kg)		
Less than 60 kg	60 kg - 75 kg	75 kg and up
2.5 kg	2.9 kg	3.2 kg

*lb is the estimation calculated based on kg.

Note:

- Persons described below may obtain varying readings and should take the values given for reference purposes only.
 - Elderly persons
 - Women during or after menopause
 - People receiving hormone therapy
- "Estimated bone mass" is a value estimated statistically based on its correlation with the fat-free amount (tissues other than the fat). "Estimated bone mass" does not give a direct judgment on the hardness or strength of the bones or the risks of bone fractures. If you have concerns over your bones, you are recommended to consult a specialist physician.



WHAT IS BODY MASS INDEX (BMI)?

This feature indicates the relationship between height and weight.

$$\text{BMI} = \text{Weight}(\text{kg}) \div \text{Height}(\text{m})^2$$

	Under Weight	Normal	Over Weight	Obese
				
BMI	<18.50	18.50-24.99	≥25.00	≥30.00

The World Health Organization (WHO) considers an index of 18.5 to 25 as optimal.

