Understanding Your Body Composition Analysis Results

seca
Precision for health

This guide will help you make sense of the numbers and measurements obtained from your body composition analysis which go far beyond the traditional BMI. Weight and BMI alone are not enough to tell us the composition of your weight, such as your fat mass and muscle mass. By exploring parameters like body fat percentage, visceral adipose tissue, skeletal muscle mass, and energy expenditure, you'll gain a comprehensive understanding of your body's composition. These insights are valuable for setting realistic fitness goals, tracking progress, and crafting a targeted plan that suits your needs. With this knowledge, you can work in tandem with your healthcare providers to make informed choices that promote a healthier, more balanced you.

Body Mass Index (BMI)

What is the parameter and what are normal ranges?

BMI is calculated from the measured weight and height and is presented in weight in kg divided by meters squared (kg/m²) so body weight can be assessed irrespective of height.

BodyMass Index - BMI

↗ **29.3** kg/m²

Overweight

18.5   25.0   30.0

Weight:
215.8 lbs
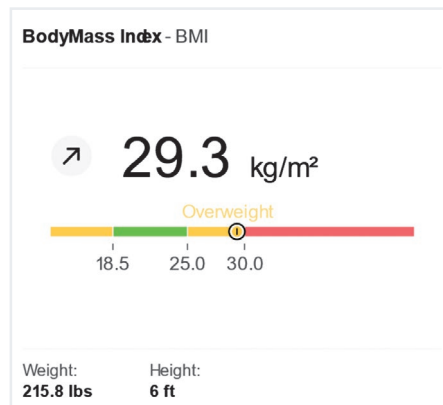
Height:
6 ft

BMI is represented with normal range parameters for World Health Organization (WHO) BMI ranges:

- BMI <18.5 kg/m² in yellow corresponds to underweight category
- BMI 18.5-25 kg/m² in green corresponds to normal weight category
- BMI 25-30 kg/m² in yellow corresponds to overweight category
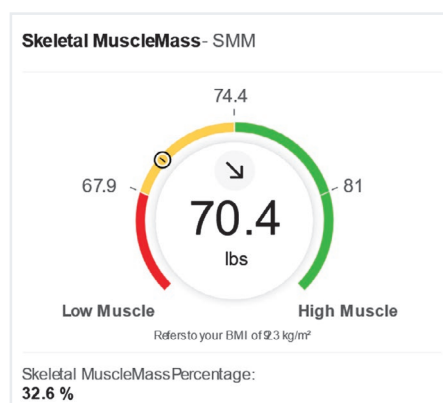- BMI >30 kg/m² in red corresponds to obesity category

Tips for understanding this measurement:

BMI and weight alone are insufficient measures to assesses health for individuals as it does not measure body composition or overall health and cannot distinguish between fat, muscle, or water. Historically, BMI has been historically used in medical contexts and by insurance companies to evaluate access to obesity treatments. However, the medical community is recognizing its limitations and moving towards more comprehensive ways to gauge health and excess adiposity.

Skeletal Muscle Mass (SMM)

What is the parameter and what are normal ranges?

Skeletal muscle mass (SMM) refers to the muscles that are connected to your bones and play a critical role in movement and posture. Having a healthy amount of skeletal muscle is beneficial as it contributes to your overall strength, metabolism, and daily activities. It's a great indicator of your physical well-being and fitness level.

Skeletal MuscleMass - SMM

74.4

67.9

↘ **70.4** lbs

81

Low Muscle   **High Muscle**

Refers to your BMI of 92.3 kg/m²

Skeletal MuscleMassPercentage:
32.6 %

SMM is represented in pounds for your total skeletal muscle mass and colors correspond to comparison to your reference group based on age, gender, ethnicity, and BMI.

- Low muscle mass falls in the red zone and corresponds to <5% compared to your reference group
- Low/normal muscle mass falls in the yellow zone and corresponds to 5-50%
- High/normal muscle mass falls in the green zone and corresponds to 50-95%
- High muscle mass falls in the green zone and corresponds to >95%

Tips for understanding this measurement:

The amount of skeletal muscle mass you have is calculated using validation studies that compare it to a whole-body MRI, making this measurement incredibly accurate, with a 97% reliability rate. This data is valuable for tracking trends as you embark on a journey to increase muscle mass through strength and resistance training, coupled with a higher protein intake. While pursuing weight loss, it's crucial to focus on both diet and exercise. This helps preserve your lean muscle mass, as rapid and substantial weight loss can lead to reductions in both body fat and muscle mass. By putting emphasis on maintaining your muscle health, you're ensuring a strong foundation for your overall well-being.

Fat Mass Percentage (FM%)

What is the parameter and what are normal ranges?

The "Fat Mass %" indicates the percentage of your total body weight that is composed of fat.

Fat Mass Percentage - FM %

↗ 32.9 %

High

10.4   24.5   31.2

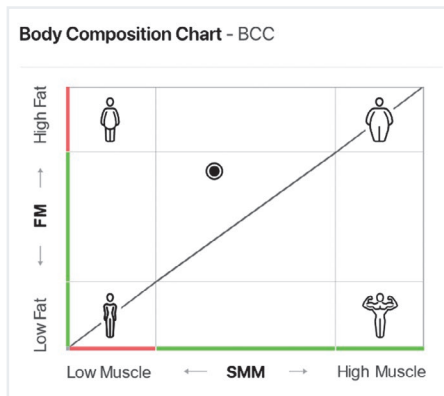Fat Mass: Fat Mass Index (FMI):
70.9 lbs   9.6 kg/m²
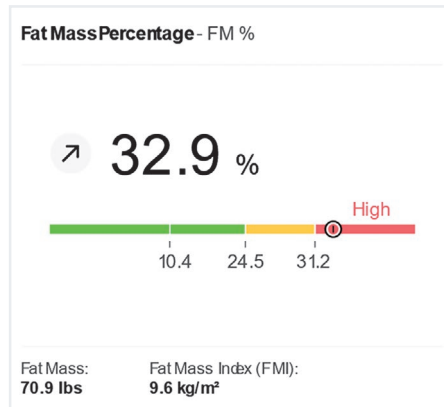
This percentage is evaluated using benchmarks established by the World Health Organization (WHO), which take into account factors such as gender, ethnicity, and age. This assessment is closely linked to BMI categories:

- A low fat mass % falls in the green zone and corresponds to a BMI below 25 kg/m²

- An increased fat mass % is depicted in yellow and aligns with a BMI ranging from 25 to 30 kg/m²

- A high fat mass % is marked in red and is associated with a BMI exceeding 30 kg/m²

Tips for understanding this measurement

While there isn't a universally defined body fat percentage that signifies "health," it's important to note that having excess body fat, particularly around your internal organs, has been associated with an elevated risk of health problems such as heart disease, diabetes, and specific types of cancers. During weight loss efforts, the primary objective is to shed excess body fat while retaining your lean muscle mass and hydration levels. Monitoring your body fat percentage becomes a valuable tool in assessing the effectiveness of interventions or treatments aimed at weight loss. By focusing on reducing body fat and maintaining muscle mass, you're working towards a healthier body composition and overall well-being.

Body Composition Chart (BCC)

Body Composition Chart - BCC

High Fat / FM / Low Fat

Low Muscle ← SMM → High Muscle

High Fat / FM / Low Fat

UNFAVORABLE

FAVORABLE

Low Muscle ← SMM → High Muscle

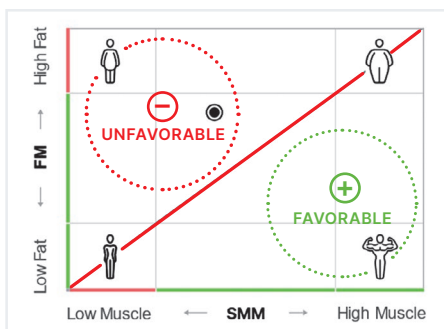## What is the parameter and what are normal ranges?

The body composition chart (BCC) combines Fat Mass (FM) and Skeletal Muscle Mass (SMM) in a coordinate system. Looking at the FM and SMM together can allow you to describe body composition as one of 4 generalized types and show you how your body composition is changing over time.

The values of Fat Mass and Skeletal Muscle Mass are individual values for age, ethnicity, and gender of reference population:
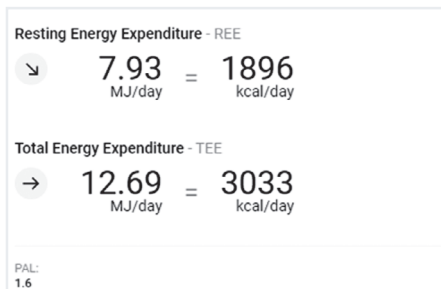
- Low Muscle falls in red on the x axis and represents below the 5th percentile

- Normal/high muscle mass is in green and represents above the 5th percentile

- High fat mass falls in red on the y axis and represents above 95th percentile

- Normal/low fat mass is in green and represents below the 95th percentile

Tips for understanding this measurement

Archetypes are a graphical representation but are not used to label or phenotype. The graph can be helpful to visualize starting place and direction of where you want to be. Beneficial weight loss where mainly fat mass is lost is seen by a move down and to the right. Unfavorable weight loss where mainly muscle mass is lost is seen by a move to the left.

Energy Expenditure (REE/TEE)

Resting Energy Expenditure - REE

↘ **7.93** MJ/day = **1896** kcal/day

Total Energy Expenditure - TEE

→ **12.69** MJ/day = **3033** kcal/day

PAL: 1.6

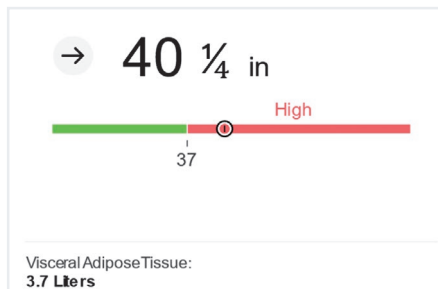## What is the parameter and what are normal ranges?

Resting Energy Expenditure (REE) is the amount of energy your body requires to maintain it's basic functions while at rest. This includes essential processes like breathing, circulating blood, and maintaining body temperature. REE is influenced by factors like age, gender, weight, height, and body composition (muscle and fat). Rather than an equation that simply uses body weight, seca's device uses fat free mass and fat mass to calculate REE taking your body composition into account.

Physical activity level (PAL) is a factor that considers the daily activity of work and leisure. Multiplying the REE by the PAL gives you an estimate of your Total Energy Expenditure (TEE), or how many calories per day needed prior to adjustment for weight loss, maintenance, or weight gain goals.

Tips for understanding this measurement:

When you have more muscle mass, your resting energy expenditure (REE) increases. This means your body naturally burns more calories while at rest. Building and preserving muscle mass through strength training or resistance exercises is a key way to raise your REE. Physical activity further contributes by boosting your overall energy expenditure. To maintain a healthy REE, it's important to eat regularly and avoid extreme diets that could lead to drops in metabolic rate. A higher REE allows you to consume more calories each day while still maintaining your weight.

Waist Circumference

→ **40 ¼** in

High

37

Visceral Adipose Tissue:
3.7 Liters

What is the parameter and what are normal ranges?

Waist Circumference (WC) is measured by finding the midpoint between the lowest rib and the top of your hipbone with a measuring tape. A high waist circumference, especially due to abdominal obesity, is associated with increased health risks such as type 2 diabetes, cardiovascular disease, metabolic syndrome, certain cancers, and fatty liver disease.

Normal ranges are defined in seca's device from specific thresholds from the International Diabetes Federation (IDF) for gender and ethnicity:

- Women: Above 31.5 inches is considered high in red
- Men (European, South Asian, Middle Eastern, North African): Above 37 inches is considered high in red
- Men (Sub-Saharan African, Eastern Mediterranean, South/Central American): Above 35.4 inches is considered high in red

Tips for understanding this measurement

If you have an elevated waist circumference measurement, it indicates you are carrying excess adiposity (body fat) in your abdominal area and can help you make informed decisions about interventions and your individualized risk for disease. The National Heart, Lung, And Blood Institute (NHLBI) uses waist circumference guidelines above which is considered high, and associated with increased risk of health issues: women (35 inches), and men (40 inches). Talk to your healthcare provider about your numbers for more individualized guidance.

Visceral Adipose Tissue (VAT)

→ **3.7** Liters

Increased

2.5   4.0

Waist Circumference:
40 ¼ in
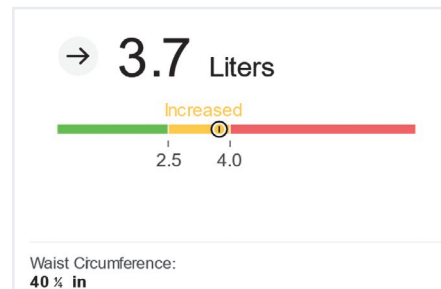
What is the parameter and what are normal ranges?

Visceral Adipose Tissue (VAT) refers to fat that is stored deep within your abdominal cavity surrounding your internal organs such as your liver, pancreas, and intestines. Excess adipose tissue around your organs is linked to type 2 diabetes, heart disease, and high blood pressure.

The VAT values are individual values for age, ethnicity, and gender linked to WHO BMI reference ranges:

- Normal visceral adipose tissue in green
- Increased visceral adipose tissue in yellow
- High visceral adipose tissue in red

Tips for understanding this measurement

The gold standard to measure VAT is using whole-body MRI, but this is not feasible or accessible, so validation studies have been done to show that using Bioimpedance Analysis is 97% accurate compared to MRI. Combining waist circumference with BIA allows for a more comprehensive understanding of body composition and impact on health.

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