Results
guide

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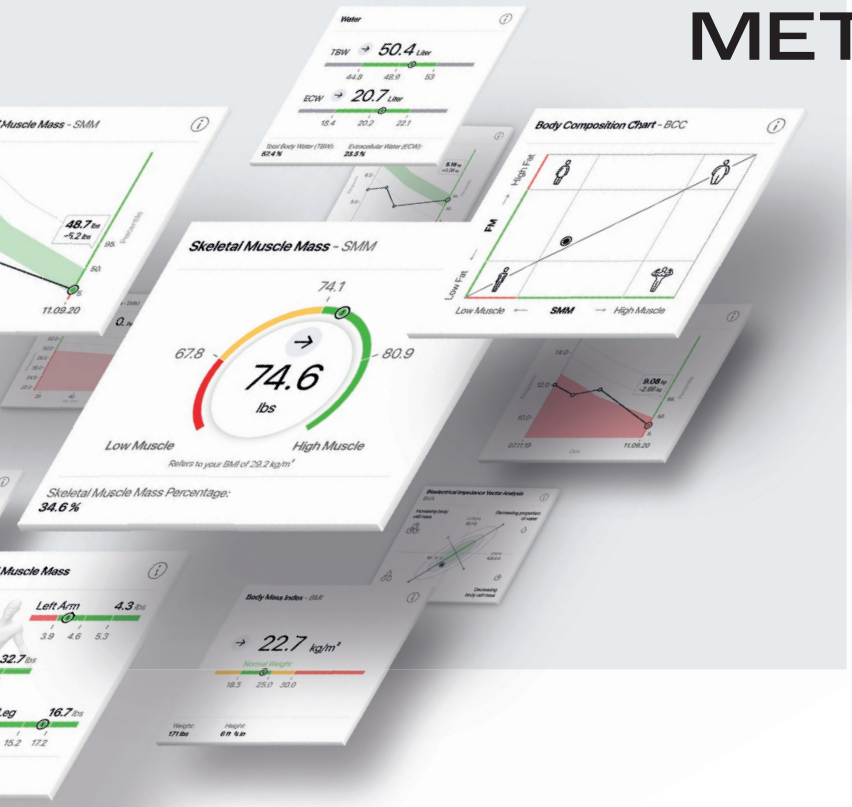
PRIMARY CARE

Body composition analysis goes beyond traditional health metrics to provide a comprehensive view of patient health. The seca Primary Care Results Guide offers a detailed exploration of key parameters, provides normal ranges and offers tips to help interpret each measurement for deeper insights into the unique makeup of your individual body. By integrating these measurements into your practice, you can uncover deeper insights into your patients' health profiles, address underlying concerns, and develop personalized care plans that support prevention, chronic disease management, and overall well-being.

Helping you help.

KEY BODY COMPOSITION METRICS



Discover which key body composition metrics are most valuable in primary care and how to prioritize them in assessments.

seca has 19+ parameters that can be visualized as a rectangular tile, and customized to show up to 6 per page. When reviewing all the parameters, it may be best to consider your options by type of measurement: anthropometric, muscle mass, fat mass, water parameters and other/combination parameters/charts.

Scan or Click Here to Watch the Video "Setting Up Custom Reports"

Anthropometric	Muscle Mass	Fat Mass	Water Parameters	Other/combination
Weight	Skeletal Muscle Mass (SMM)	Fat Mass Index	Total Body Water, Extracellular Water	Resting Energy Expenditure (REE)
BMI	Skeletal Muscle Mass over age	Fat Mass %	Water Ratio (ECW/TBW)	TRU Body Score
	Segmental Skeletal Muscle Mass	Waist Circumference	Bioelectrical Impedance Vector Analysis (BIVA)	Body Composition Chart (BCC)
	Fat Free Mass Index (FFMI)	Visceral Adipose Tissue (VAT)		
	Skeletal Muscle Index by MRI (SMI)			
	Appendicular Skeletal Muscle Index by DXA (ASMI)			
	Phase Angle			

We have suggested these as key parameters for Primary Care Practices: BMI, FM%, VAT, SMM over Age, Segmental SMM, and BCC.

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BMI

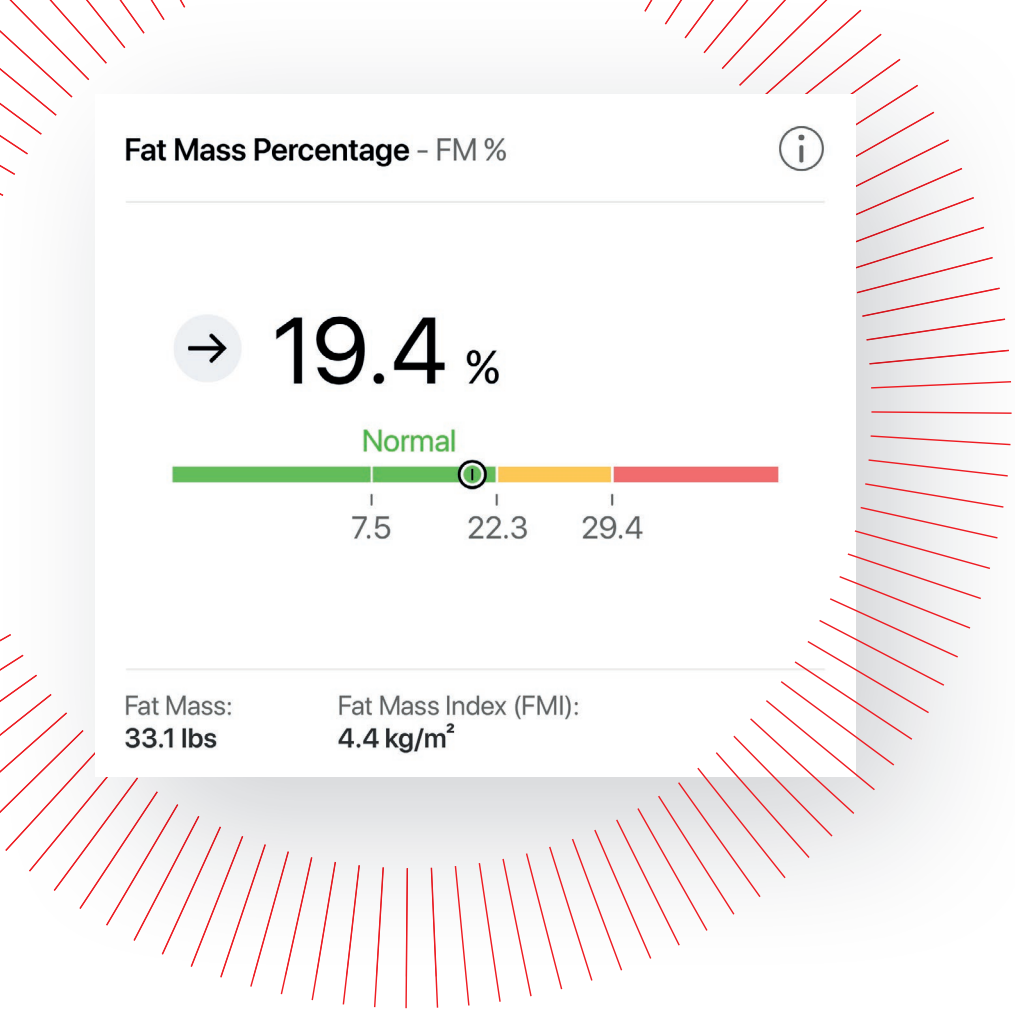
What is the parameter and what are normal ranges?

BMI is calculated from the measured weight and height and is presented in weight in kg divided by meters squared (kg/m^2) so body weight can be assessed irrespective of height.

- BMI is represented with normal range parameters for World Health Organization (WHO) BMI ranges:
- BMI <18.5 kg/m^2 in yellow corresponds to underweight category
- BMI 18.5-25 kg/m^2 in green corresponds to normal weight category
- BMI 25-30 kg/m^2 in yellow corresponds to overweight category
- BMI >30 kg/m^2 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.



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FAT MASS PERCENTAGE

What is the parameter and what are normal ranges?

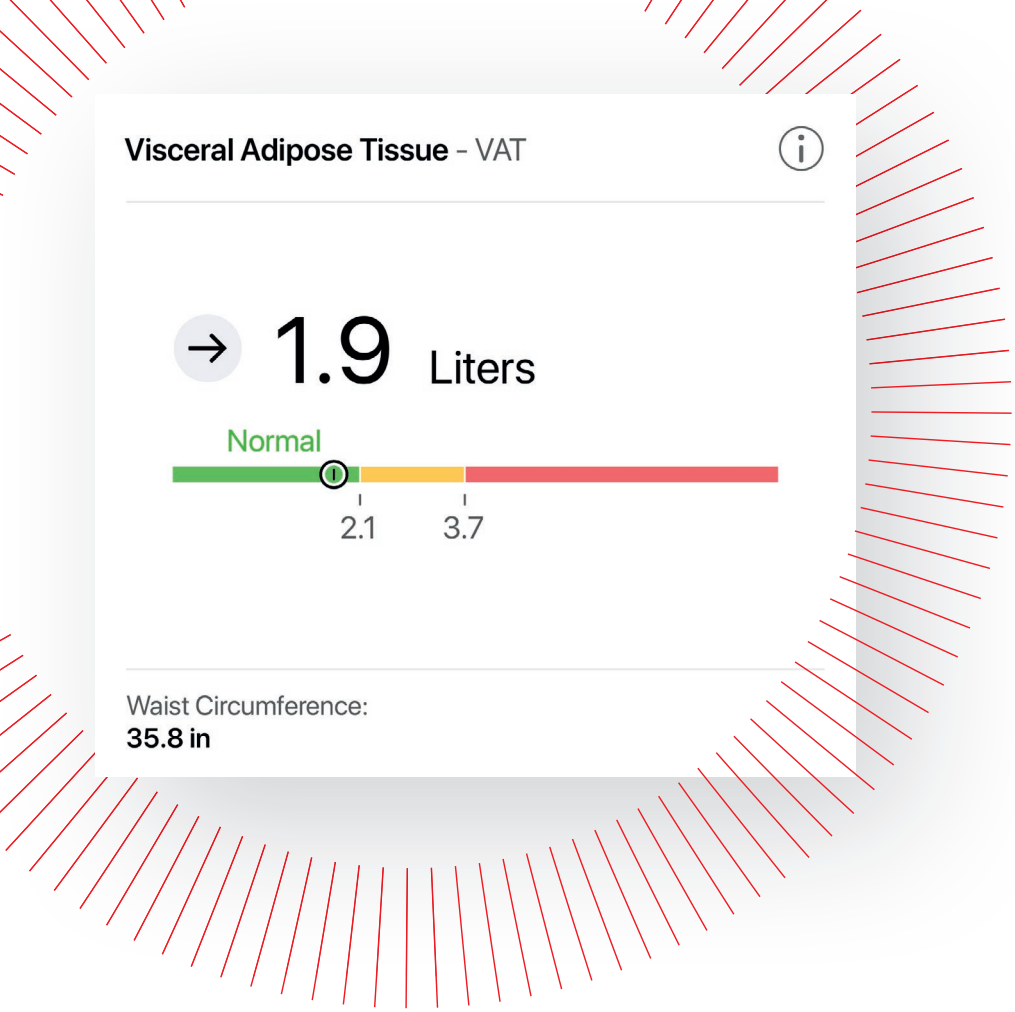
The "Fat Mass %" indicates the percentage of total body weight that is composed of adipose tissue. This percentage is evaluated using BMI benchmarks established by the World Health Organization (WHO), which takes into account factors such as gender, ethnicity, and age.

FM% and BMI are closely correlated, allowing for an interpretation of an individual's Fat Mass using a conversion formula developed to give context to the FMI (Peine et al., 2013). Limit values adapted for gender, ethnicity and age are linked to BMI values.

- Low FM% corresponds with BMI <18.5 kg/m² in green (underweight category)
- Normal FM% corresponds with BMI 18.5-25 kg/m² in green (normal weight category)
- Increased FM% corresponds with BMI 25-30 kg/m² in yellow (overweight category)
- High FM% corresponds with BMI >30 kg/m² in red (obesity category)

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 the 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 adiposity (body fat) while retaining lean muscle mass and hydration levels.
- Monitoring Body Fat % becomes a valuable tool in assessing the effectiveness of interventions or treatments aimed at weight loss/management.
- This parameter supports a focusing on a more favorable body composition by reducing body fat and maintaining muscle mass, rather than on weight loss alone.



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VISCERAL ADIPOSE TISSUE

What is the parameter and what are normal ranges?

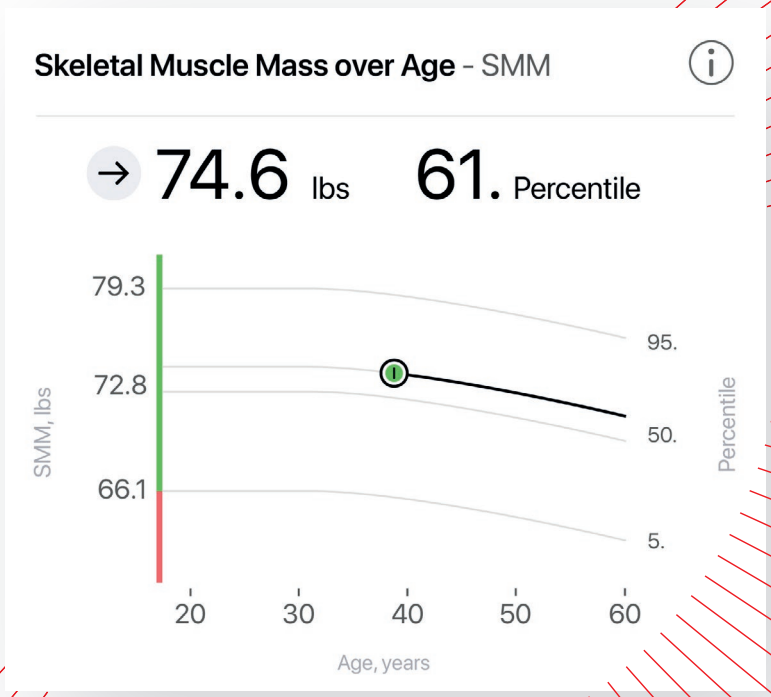
Visceral Adipose Tissue (VAT) refers to fat that is stored deep within the abdominal cavity surrounding internal organs such as the liver, pancreas, and intestines. Excess adipose tissue around the organs is linked to type 2 diabetes, heart disease, and high blood pressure because VAT is more metabolically active and produces hormones and inflammatory markers that contribute to inflammation and other metabolic diseases.

VAT is represented with values adapted for age, gender, and ethnicity and linked to WHO BMI reference ranges:

- Normal VAT corresponds with BMI <25 kg/m^2 in green (normal weight category)
- Increased VAT corresponds with BMI 25-30 kg/m^2 in yellow (overweight category)
- High VAT corresponds with BMI >30 kg/m^2 in red (obesity category)

Tips for understanding this measurement:

- The gold standard to measure VAT is using precise 3D imaging with whole-body MRI, which 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.
- Looking at VAT in addition to BMI and FM% helps to individualize recommendations based on the location of excess adiposity.
- Someone with a high BMI and high FM% may have a smaller waist circumference and lower level of VAT, indicating that their individual risk for cardiometabolic disease is lower, even if BMI and FM% are higher.



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SKELETAL MUSCLE MASS OVER AGE

What is the parameter and what are normal ranges?

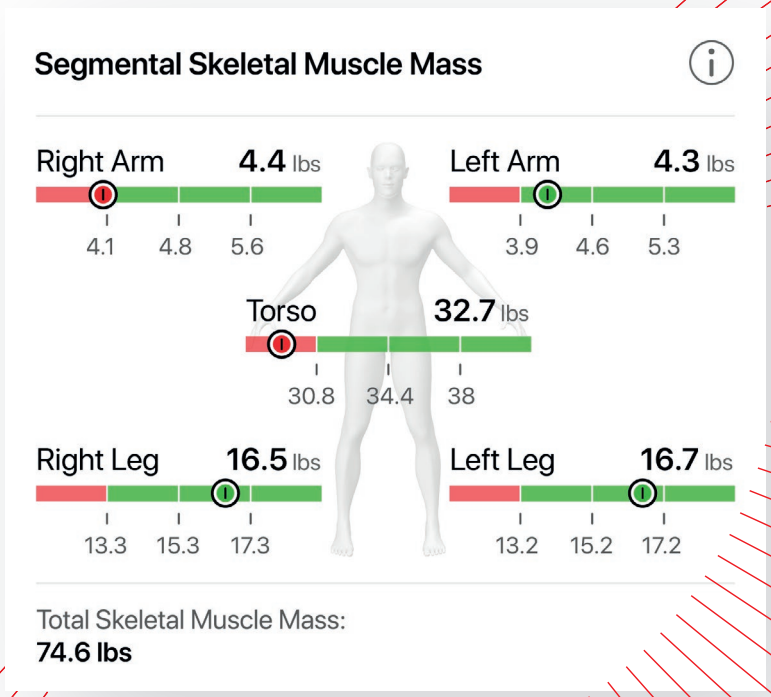
Skeletal Muscle Mass over Age is represented with time/age on the x axis, and SMM on the y axis. The circle/dot is where muscle mass is now, and the black line shows what is likely to happen over time, as muscle mass decreases approximately 3-8% per decade after age 30, and the rate of decline is even higher after age 60. This view is intended to show continuous loss of SMM with age and motivate people to engage in nutrition and physical activity regimens to mitigate rate of decline.

SMM is represented in pounds for total skeletal muscle mass and the percentile as compared to your reference group based on age, gender, ethnicity, and BMI. The light grey lines show the same degree of muscle mass loss over time and the marks on the y axis indicate pounds of muscle mass that correspond to 5, 50, and 95% of the reference group:

- Low muscle mass falls in the red zone and corresponds to <5% compared to your reference group
- Low/normal muscle mass falls in the green 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 SMM over age parameter with the barbell does not compare individuals to those in the same BMI category, so the reference group is larger and above average musculature becomes apparent and is only appropriate for certain fitness settings.
  - People at higher weights often show higher muscle mass when looking at the parameter with the barbell, because they are being compared to a group from all weights.
- Someone who weighs 300 lbs with 50 lbs of muscle, may have low muscle compared to others around 300 lbs, but compared to people who are 100 lbs, that 50 lbs of muscle mass is higher.
- In medical settings, it is recommended to use the parameter without the barbell.
- Preserving muscle mass as one ages must be the primary objective.



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SEGMENTAL SKELETAL MUSCLE MASS

What is the parameter and what are normal ranges?

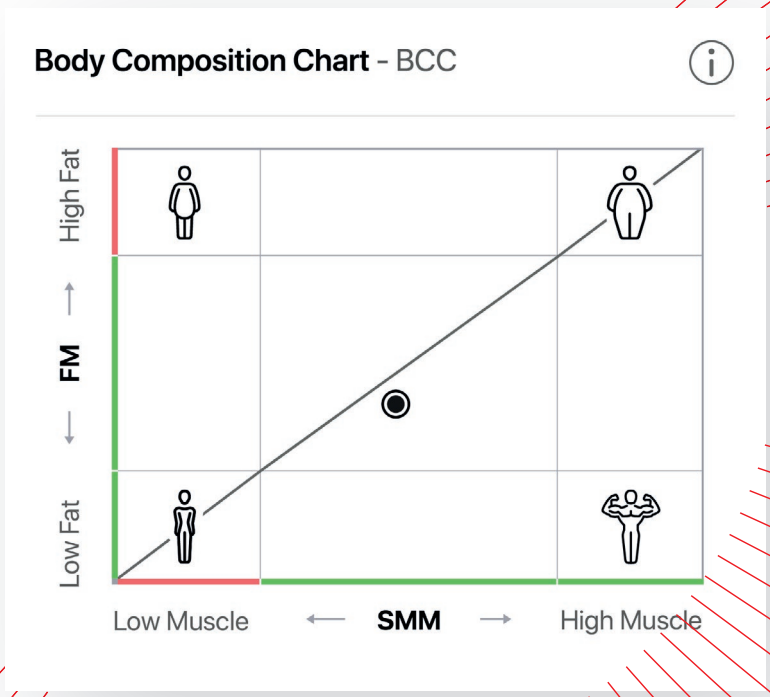
Segmental Skeletal Muscle Mass (SMM) shows the muscle mass in each limb (right arm, left arm, right leg, left leg) and torso, as well as total SMM in pounds (bottom left corner) which enables detection of muscular asymmetries, past or recent injuries (fractures and immobilization), and may indicate neuromuscular problems to investigate further.

Segmental SMM is represented in pounds and colors correspond to comparison to your reference group based on age, gender, ethnicity, and BMI. The marks under the bar indicate the pounds of muscle mass that correspond to 5%, 50%, and 95% of the reference group:

- Low muscle mass falls in the red zone and corresponds to <5% compared to your reference group
- Low/normal muscle mass falls in the green 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 Segmental SMM parameter with the barbell does not compare individuals to those in the same BMI category, so the reference group is larger and above average musculature comes apparent and is only appropriate for certain fitness settings.
- People at higher weights often show higher muscle mass when looking at the parameter with the barbell, because they are being compared to a group from all weights.
- Someone who weighs 300 lbs with 50 lbs of muscle, may have low muscle compared to others around 300 lbs, but compared to people who are 100 lbs, that 50 lbs of muscle mass is higher.
- In medical settings, it is recommended to use the parameter without the barbell.
- Consider handedness when reviewing (left-handed individuals have more muscles in left arm compared with the reference group which will be a majority right-handed).
- Exercise professionals may recommend training based on differences between upper and lower body muscle mass and strength.
- This parameter allows further breakdown of where someone is carrying their musculature.



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BODY COMPOSITION CHART

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, independent of BMI. Looking at the FM and SMM together can describe body composition as one of 4 generalized types and indicate how body composition is changing over time.

The values of Fat Mass and Skeletal Muscle Mass are individual values for age, ethnicity, and gender (but not BMI) of the reference population:

Muscle Mass (x axis)

- Low Muscle falls in red and represents below the 5th percentile
- Normal/high muscle mass is in green and represents above the 5th percentile

Fat Mass (x axis)

- High fat mass falls in red 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 a starting place and direction to strive for.
- The diagonal line represents a ratio where neither fat mass nor muscle mass is predominant.
- Beneficial weight loss (green arrow) where mainly fat mass is lost is seen by a move down and to the right.
- Unfavorable weight loss (red arrow) where mainly muscle mass is lost is seen by a move to the left.
- This graphic is also helpful for those who do not want to see numbers but want to get a sense of where their body composition is in regard to muscle and fat mass.