



## Body Mass Index and Waist Circumference



Body mass index (BMI) is a number that relates a person's weight to their height. Calculated roughly by dividing the person's weight by the square of their height, it is a simple quantity that defines ranges of underweight, healthy weight, overweight, and obese. It applies to men, women, and children over the age of 2. Since the 1980s it has been a standard derived measure for research in fields from medicine to sociology.

- BMI is not a perfect measure of healthy weight-for-height.
- It does not capture body composition or body fat.
- Differences in muscular build, bone structure, and age allow for a wide range of body fat among people with identical BMIs.
- Although it fails as a precise measure of fatness and leanness, it is a simple, helpful indicator for most adults.
  - In fact, exercising and healthy eating increase leanness.
  - In that setting, BMI's inability to detect body fat becomes less and less important.
- Moreover, BMI's wide ranges for "normal" allow one to relax about adding a pound or two at Thanksgiving.
- The normal BMI range for your height might span 20 or more pounds.
- On the flip side, the wide range makes it hard to decide on an ideal weight.
- A healthy weight target specific for your build is something you will want to discuss with your doctor.

## BMI for Adults

Use this [BMI Calculator](#) on the Centers for Disease Control and Prevention website to calculate your BMI.

You can also calculate BMI by using this formula:

**Formula for BMI** = (Weight in Pounds X 703) ÷ (Height in inches X Height in inches)

Determine the range of your BMI:

- **Underweight:** BMI below 18.5
- **Healthy weight:** BMI 18.5-24.9
- **Overweight:** BMI 25-29.9
- **Obese:** BMI 30 and above

## BMI for Children

Use this [BMI Calculator](#) on the Center for Disease Control and Prevention website to calculate your child's BMI.

For children and teens, BMI is calculated using the same equation. However it is interpreted differently. The number is plotted on a growth chart to obtain a percentile-ranking for sex and age.

The percentile indicates the relative position of the child's BMI among similar children:

- **Underweight:** Less than the 5<sup>th</sup> percentile
- **Healthy weight:** 5<sup>th</sup> percentile to less than the 85<sup>th</sup> percentile
- **Overweight:** 85<sup>th</sup> to less than the 95<sup>th</sup> percentile
- **Obese:** Equal to or greater than the 95<sup>th</sup> percentile

BMI is used as a screening tool to identify possible weight problems for children. The CDC and the American Academy of Pediatrics (AAP) recommend the use of BMI to screen for overweight and obesity in children beginning at two years old.

BMI is not a diagnostic tool by itself. Other assessments have to be considered when a child has a high BMI for his or her age and gender. To determine if excess fat is a problem, a healthcare provider needs to perform further assessments. Those might include measuring lean body mass, evaluating diet, exercise, daily habits, and family history, and screening in other appropriate ways.

## Waist Circumference

Fat around internal abdominal organs (visceral fat) is highly related to metabolic disease. Waist circumference is an easy way to determine and describe how much visceral fat is inside the abdomen. So waist circumference is a good measure of the risk for metabolic syndrome and related chronic diseases.

Follow these steps to accurately measure waist circumference:

- Use a non-stretch measuring tape.
- Stand straight, with a relaxed posture, with arms at the sides and feet positioned close together. Do not suck in your stomach.
- Bare the abdomen, and measure at the belly button. Measurements at that level correlate best with metabolic syndrome.
- Keep the tape measure tight but not constricting.
- Keep it parallel to the floor.
- Take the measurements at the end of the breathing cycle.
- Measure 3 times and calculate the average of the 2 closest measurements. Record to the nearest 1/16th of an inch.

Women with waist circumferences more than 35 inches and men with waist circumferences more than 40 inches are at increased health risk.

## Classification of Overweight and Obesity by BMI and Waist Circumference with Associated Disease Risks

	BMI (kg/m <sup>2</sup> )	Obesity Class	Waist Circumference Men 102 cm (40 in) or less Women 88 cm (35 in) or less	Waist Circumference Men greater than 102 cm (40 in) Women greater than 88 cm (35 in)
<b>Underweight</b>	<b>&lt;18.5</b>	-	-	-
<b>Normal</b>	<b>18.5-24.9</b>	-	-	-
<b>Overweight</b>	<b>25-29.9</b>	-	<b>Increased</b>	<b>High</b>
<b>Obesity</b>	<b>30-34.9</b>	<b>I</b>	<b>High</b>	<b>Very High</b>
<b>Morbid Obesity</b>	<b>35-39.9</b>	<b>II</b>	<b>Very High</b>	<b>Very High</b>

	BMI (kg/m <sup>2</sup> )	Obesity Class	Waist Circumference Men 102 cm (40 in) or less	Waist Circumference Men greater than 102 cm (40 in)
<b>Extreme Obesity</b>	<b>40+</b>	<b>III</b>	<b>Extremely High</b>	<b>Extremely High</b>

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