

Body Mass Index (BMI) in Children

You may hear the term body mass index or "BMI" during your child's checkups, or even at your own health visits. But what does it mean, and why is it important to your child's health? Read on for information about how BMI is calculated, what ranges pediatricians like to see in children, and why BMI—while important—can have limitations.

What is body mass index?

In simple terms, a person's body mass index or BMI, is a measure of weight in relation to height. This number helps doctors understand if a person's weight is in a category such as underweight, overweight or obese that may be putting their health at risk.

We know that children are constantly growing, and do so at different rates. Instead of just using the BMI number as is done with adults, we look at BMI percentiles. These measures look at a child's growth in relation to children of the same age and sex to figure out if they are within a healthy weight range.

How is a child's BMI calculated?

Your pediatrician will measure your child's height and weight with their shoes and heavy clothes off, and then calculate BMI with this formula:

Body Mass Index Formula	
Method	Example
• Multiply weight (in pounds) by 703	$184 \times 703 = (A) 129,352$
• Multiply height (in inches) by itself	$69 \times 69 = (B) 4,761$
• Divide (A) by (B)	$129,352 / 4,761 = 27.2$ (BMI Score)

This number is then compared to other U.S. Children of the same age and sex to determine the BMI percentile. For example, a BMI percentile of 65 means that the child's weight is greater than that of 65% of other children of the same age and sex. Pediatricians plot this number on a standardized growth chart for visual comparison, and to help track growth trends over time.

Ideally, children should fall in the target ranges between the 5th and 85th percentiles. Percentiles outside this range can put kids at higher risk for health problems.

Children below the 5th percentile could have a nutritional shortfall—either not taking in enough calories or burning up more calories than they are getting, or both. Likewise, children above the 85th percentile may have problems with how their bodies balance energy intake and output. This may be tied to a variety of factors: nutrition, the way their bodies handle calories or other body functions, a lack of physical activity or a combination of these. There are also medical conditions and medications that can cause kids to gain or lose weight more easily. Most children have multiple contributing factors to their body weight.

What are BMI percentile categories?

Underweight, healthy weight, overweight and obese are terms used to describe where your child's BMI is on the BMI curve. Keep in mind, these words do not describe your child.

If your child or teen is in a group at increased health risk, such as underweight, overweight or obese, your pediatrician may ask more questions about their medical history. They may also order lab studies and other tests to check for possible health complications.

What does your child's BMI percentile mean?

To find out which category a child is in, pediatricians use both the BMI number and the percentile.

BMI Percentile-ranges and Weight Status Categories	
BMI Percentile Range	Category
Less than 5 th percentile	Underweight
5 th to 84 th percentile	Healthy weight
85 th to 94 th percentile	Overweight
At or above 95 th percentile	Obese

The best way to know your child's BMI percentile is to have their pediatrician measure and discuss the results with you. Your pediatrician will talk with you about how you can develop and support healthy habits at home.

BMI is just one piece of the health puzzle

A child's BMI is a valuable screening tool. But it's only one piece of the puzzle to find out if a child is at a healthy weight. First, it is important to know that BMI is not a perfect measurement. For example, shorter children with a muscular build may have a high BMI but little body fat. Athletes may also have a high BMI due to higher muscle mass.

In general, though, BMI percentiles higher than 95% are a reliable sign that a child has excess body fat and is at risk for health complications.

Obesity and Health Risks

Obesity is a chronic disease that can put children at risk for health problems, both short-term and into the future. Scientists have found obesity to be a risk factor for severe illness with COVID-19 infection, for example. It can raise the risk for other chronic diseases such as diabetes, hypertension, chronic joint pain and sleep apnea, for example. It also increases risk for emotional stress such as bullying and low self-esteem.

We also know that children with obesity are more likely to have obesity later in life as adults. However, it is never too late to make healthy and positive changes for your family!

Every family should aim to incorporate a balanced and nutritious diet and daily exercise in a child's routine. Some children with obesity will need more than this. Your pediatrician can offer guidance and connect you with resources to help meet these goals. If your child falls outside of the 5th and 85th BMI percentiles, talk with your pediatrician about the best treatment options tailored to their individual needs

Remember

Preventing obesity is critical for children's overall health and well-being, now and as they grow and become adults. BMI is a useful tool that helps your pediatrician decide if more tests are needed. Talk with your pediatrician if you have any concerns about your child's weight.

Source: American Academy of Pediatrics Institute for Healthy Childhood Weight.

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