TEST

Body mass index

Body mass index compares your weight with your height to screen for weight-related health risk.

WHAT IT MEASURES
Weight relative to height using kilograms per square metre

SAMPLE
None; height and weight measurements

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually a few minutes

RESULTS IN
Immediately; no laboratory processing needed

USED FOR
Screening and monitoring weight-related health risk

MAIN LIMITATION
Does not directly measure body fat or its distribution

Overview

Body mass index, or BMI, is a number calculated from your height and weight. It is commonly used to screen for weight categories that may be linked with health risks.

The calculation is:

BMI = weight in kilograms ÷ height in metres squared

BMI is a screening test, not a direct measurement of body fat, and it cannot diagnose a health condition by itself. Your result should be considered alongside factors such as your age, body build, medical history, waist size and other test results.

For children and teenagers, BMI is interpreted using age- and sex-specific growth charts. Adult categories should not be applied to young people.

Why the test is ordered

BMI may be measured during a routine health appointment to identify weight changes and whether further assessment may be useful.

The test may be used to:

BMI is only one part of an assessment. A result outside the usual range does not explain why your weight has changed or show that you have a particular condition.

- Screen for possible weight-related health risks
- Follow weight changes over time
- Support nutrition, activity or weight-management discussions
- Help plan some procedures or treatments
- Interpret findings such as blood pressure or blood sugar results

Who should have the test

BMI is often included in routine adult healthcare. It may also be checked when medicines, illness or changes in mobility could affect weight.

For children aged 2 years and older, BMI can be plotted on a growth chart. The pattern over time is more informative than a single result. Children younger than 2 are usually assessed using measurements such as weight for length.

Standard BMI categories are not normally used during pregnancy because they do not account for expected pregnancy-related weight changes.

BMI can also be misleading in people with substantial muscle mass, fluid retention, an amputation or conditions that make height difficult to measure accurately. Other assessments may be more helpful in these situations.

How to prepare

You do not need to fast. You can eat, drink and take your usual medicines unless you have separate instructions for another test at the same appointment.

For a consistent measurement:

Tell the person measuring you if standing safely is difficult. Seated, wheelchair or hoist scales may be available. An alternative method may be needed if you cannot stand straight for a height measurement.

- Wear light clothing
- Remove shoes, heavy outer clothing and items from your pockets
- Use the same scale when tracking changes at home
- Measure at a similar time of day under similar conditions

What happens during the test

You will usually remove your shoes. Your weight is measured on a scale, and your height is measured while you stand upright against a height-measuring device. The measurements are entered into a BMI calculator or electronic health record, and the result is available immediately.

At home, place the scale on a hard, level surface. Carpet or an uneven floor can affect the result. Measure height without shoes, with your head level and your back as straight as is comfortable.

Understanding your results

For most adults, commonly used BMI categories are:

These categories describe statistical groups. They do not prove that your body fat is too high or low or diagnose the cause of your weight.

Some guidance uses lower thresholds when assessing people from certain ethnic backgrounds, including some Asian, Black African, African-Caribbean and Middle Eastern populations. This is because weight-related conditions may develop at a lower BMI in some groups.

For children and teenagers, BMI is converted to a percentile comparing them with young people of the same age and sex. Adult categories are not used.

BMI has no laboratory reference range. Although the calculation is fixed, interpretation varies with age, pregnancy status, ethnicity, medicines, body build and clinical circumstances.

- Below 18.5: underweight range
- 18.5 to 24.9: healthy weight range
- 25.0 to 29.9: overweight range
- 30.0 or above: obesity range

What affects the results

Small measurement differences can change BMI, particularly near a category boundary. Shoes, heavy clothing, full pockets, an inaccurate scale or an incorrect height measurement may make the result misleading.

Weight naturally varies during the day because of food, drinks, bowel and bladder contents, and fluid changes. Strenuous exercise may temporarily lower weight through sweating, while drinking a large amount may temporarily raise it. These changes do not usually represent rapid changes in body fat.

Fluid retention from kidney, heart or liver conditions can increase weight without increasing body fat. Dialysis and medicines that affect fluid balance can also change weight. Other medicines may alter appetite or body weight over time.

Pregnancy, amputation, swelling, abdominal fluid or large tumours can make standard interpretation inappropriate. Age and sex do not change the formula, but changes in muscle, bone and fat distribution affect what the result means.

Accuracy and limitations

BMI is calculated accurately when height and weight are measured correctly, but weight is not the same as body fat.

A muscular person may have a BMI in the overweight range despite not having excess body fat. Conversely, someone may have a BMI in the healthy range while carrying more abdominal fat or having relatively little muscle.

BMI also does not show where fat is stored. Waist measurement may provide useful information about abdominal fat. Blood pressure, blood sugar, cholesterol and medical history can give a fuller picture of health risk.

If the exact amounts of muscle, fat and bone are important, a body-composition test such as a dual-energy X-ray absorptiometry scan may be more suitable. These tests are not usually needed for routine screening.

Risks and complications

Measuring height and weight is painless and has no direct medical risk. If you have balance or mobility difficulties, ask for support or an accessible scale to reduce the risk of falling.

Being weighed can feel uncomfortable, particularly if you have experienced weight stigma or an eating disorder. You can ask not to be told the number or request an explanation of why weighing is needed.

What happens next

Your BMI is usually reviewed alongside your health history, weight pattern and other measurements. No further action may be needed if the result fits your circumstances and your weight is stable.

If the result is unexpected, the measurement may be repeated. Your healthcare professional may discuss nutrition, physical activity, medicines, waist size, blood pressure or relevant blood tests.

A gradual change can usually be discussed at a routine appointment. Arrange medical advice if you have unexplained weight loss, persistent weight gain, new swelling or a change that does not fit your eating and activity patterns.

BMI itself is never an emergency. Seek urgent medical help if sudden weight gain or swelling occurs with severe breathing difficulty, chest pain, confusion or fainting, as these symptoms may indicate an unrelated urgent condition.

Common questions

Can I drink coffee before a BMI measurement?

Yes. Fasting is not required. A large drink may briefly increase your scale weight but will not usually make a meaningful difference.

Does the time of day matter?

It can affect your exact weight. For monitoring, measure under similar conditions each time, such as in the morning after using the toilet.

Can I exercise beforehand?

Yes, but strenuous exercise may temporarily lower weight through sweating. When tracking small changes, measure before exercise or after replacing lost fluid.

Should I take my shoes off?

Yes, if it is safe. Shoes add weight and can affect your measured height.

Is BMI accurate if I lift weights?

It may overestimate body fat if you have substantial muscle mass. Waist measurement, other health markers or body-composition assessment may be more informative.

Can I calculate BMI during pregnancy?

A pre-pregnancy BMI may help guide maternity care, but standard adult categories are not designed to interpret expected weight changes during pregnancy.

Sources

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