

Diabetes Tests & Diagnosis

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Your health care professional can diagnose diabetes, [prediabetes](#), and [gestational diabetes](#) through blood tests. The blood tests show if your [blood glucose](#), also called blood sugar, is too high.

Do not try to diagnose yourself if you think you might have diabetes. Testing equipment that you can buy over the counter, such as a [blood glucose meter](#), cannot diagnose diabetes.

Who should be tested for diabetes?


Anyone who has [symptoms of diabetes](#) should be tested for the disease. Some people will not have any symptoms but may have [risk factors for diabetes](#) and need to be tested. Testing allows health care professionals to find diabetes sooner and work with their patients to manage diabetes and prevent [complications](#).

Testing also allows health care professionals to find prediabetes. Making lifestyle changes to lose a modest amount of weight if you are overweight may help you delay or **prevent type 2 diabetes**.

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Blood tests help health care professionals diagnose diabetes and prediabetes.

Type 1 diabetes

Most often, testing for [type 1 diabetes](#) occurs in people with diabetes symptoms. Doctors usually diagnose type 1 diabetes in children and young adults. Because type 1 diabetes can run in families, a study called TrialNet offers free [testing to family members](#)  of people with the disease, even if they don't have symptoms.

Type 2 diabetes

Experts recommend routine testing for [type 2 diabetes](#) if you

- are age 45 or older
- are between the ages of 19 and 44, are [overweight](#) or [obese](#), and have one or more other diabetes risk factors
- are a woman who had gestational diabetes¹

Medicare covers the cost of diabetes tests for people with certain risk factors for diabetes. If you have Medicare, [find out if you qualify for coverage](#) . If you have different insurance,

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ask your insurance company if it covers diabetes tests.

Though type 2 diabetes most often develops in adults, children also can develop type 2 diabetes. Experts recommend testing children between the ages of 10 and 18 who are overweight or obese and have at least two other risk factors for developing diabetes.¹

- low birthweight
- a mother who had diabetes while pregnant with them
- any risk factor mentioned in [Risk Factors for Type 2 Diabetes](#)

Gestational diabetes

All pregnant women who do not have a prior diabetes diagnosis should be tested for [gestational diabetes](#). If you are pregnant, you will take a [glucose challenge test](#) between 24 and 28 weeks of pregnancy.¹

What tests are used to diagnose diabetes and prediabetes?

Health care professionals most often use the fasting plasma glucose (FPG) test or the A1C test to diagnose diabetes. In some cases, they may use a random plasma glucose (RPG) test.

Fasting plasma glucose (FPG) test

The FPG blood test measures your blood glucose level at a single point in time. For the most reliable results, it is best to have this test in the morning, after you fast for at least 8 hours. Fasting means having nothing to eat or drink except sips of water.

A1C test

The [A1C test](#) is a blood test that provides your average levels of blood glucose over the past 3 months. Other names for the A1C test are hemoglobin A1C, HbA1C, glycated hemoglobin, and glycosylated hemoglobin test. You can eat and drink before this test. When it comes to using the A1C to diagnose diabetes, your doctor will consider factors such as your age and whether you have [anemia](#) [NIH](#) or another problem with your blood.¹ The A1C test is not accurate in people with anemia.

If you're of [African, Mediterranean, or Southeast Asian descent](#), your A1C test results may be falsely high or low. Your health care professional may need to order a different type of A1C test.

Your health care professional will report your A1C test result as a percentage, such as an A1C of 7 percent. The higher the percentage, the higher your average blood glucose levels.

People with diabetes also use information from the A1C test to help [manage their diabetes](#).

Random plasma glucose (RPG) test

Sometimes health care professionals use the RPG test to diagnose diabetes when diabetes symptoms are present and they do not want to wait until you have fasted. You do not need to fast overnight for the RPG test. You may have this blood test at any time.

What tests are used to diagnose gestational diabetes?

Pregnant women may have the glucose challenge test, the oral glucose tolerance test, or both. These tests show how well your body handles glucose.

Glucose challenge test

If you are pregnant and a health care professional is checking you for gestational diabetes, you may first receive the glucose challenge test. Another name for this test is the glucose screening test. In this test, a health care professional will draw your blood 1 hour after you drink a sweet liquid containing glucose. You do not need to fast for this test. If your blood glucose is too high—135 to 140 or more—you may need to return for an oral glucose tolerance test while fasting.

Oral glucose tolerance test (OGTT)

The OGTT measures blood glucose after you fast for at least 8 hours. First, a health care professional will draw your blood. Then you will drink the liquid containing glucose. For diagnosing gestational diabetes, you will need your blood drawn every hour for 2 to 3 hours.

High blood glucose levels at any two or more blood test times during the OGTT—fasting, 1 hour, 2 hours, or 3 hours—mean you have gestational diabetes. Your health care team will

explain what your OGTT results mean.

Health care professionals also can use the OGTT to diagnose type 2 diabetes and prediabetes in people who are not pregnant. The OGTT helps health care professionals detect type 2 diabetes and prediabetes better than the FPG test. However, the OGTT is a more expensive test and is not as easy to give. To diagnose type 2 diabetes and prediabetes, a health care professional will need to draw your blood 1 hour after you drink the liquid containing glucose and again after 2 hours.

What test numbers tell me if I have diabetes or prediabetes?

Each test to detect diabetes and prediabetes uses a different measurement. Usually, the same test method needs to be repeated on a second day to diagnose diabetes. Your doctor may also use a second test method to confirm that you have diabetes.

The following table helps you understand what your test numbers mean if you are not pregnant.

Diagnosis	A1C (percent)	Fasting plasma glucose (FPG) ^a	Oral glucose tolerance test (OGTT) ^{ab}	Random plasma glucose test (RPG) ^a
Normal	below 5.7	99 or below	139 or below	
Prediabetes	5.7 to 6.4	100 to 125	140 to 199	
Diabetes	6.5 or above	126 or above	200 or above	200 or above

^aGlucose values are in milligrams per deciliter, or mg/dL.

^bAt 2 hours after drinking 75 grams of glucose. To diagnose gestational diabetes, health care professionals give more glucose to drink and use different numbers as cutoffs.

Source: Adapted from American Diabetes Association. Classification and diagnosis of diabetes. *Diabetes Care*. 2016;39(1):S14–S20, tables 2.1, 2.3.

Which tests help my health care professional know what kind of diabetes I have?

Even though the tests described here can confirm that you have diabetes, they can't identify what type you have. Sometimes health care professionals are unsure if diabetes is type 1 or type 2. A rare type of diabetes that can occur in babies, called [monogenic diabetes](#), can also be mistaken for type 1 diabetes. Treatment depends on the type of diabetes, so knowing which type you have is important.

To find out if your diabetes is type 1, your health care professional may look for certain autoantibodies. Autoantibodies are [antibodies](#) that mistakenly attack your healthy tissues and cells. The presence of one or more of several types of autoantibodies specific to diabetes is common in type 1 diabetes, but not in type 2 or monogenic diabetes. A health care professional will have to draw your blood for this test.

If you had diabetes while you were pregnant, you should get tested no later than 12 weeks after your baby is born to see if you have type 2 diabetes.

References

¹American Diabetes Association. Classification and diagnosis of diabetes. *Diabetes Care*. 2016;39(Suppl. 1):S13–S22.

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