

# Diabetes Tests & Diagnosis

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Your doctor can diagnose [diabetes](#), [prediabetes](#), and [gestational diabetes](#) using blood tests. The blood tests show if your [blood glucose level](#), also called blood sugar, is higher than the [range](#) that is healthy for you. Blood tests can also help identify the [type of diabetes](#) you have.

Don't try to diagnose yourself if you think you might have diabetes. Blood 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 type 2 diabetes](#) and need to be tested. Most pregnant women should also be tested for gestational diabetes. Testing helps doctors find diabetes sooner, so they can work with their patients to manage the disease and [prevent health problems](#).

If you have Medicare, it may [cover the cost of tests if you have certain risk factors](#)  for diabetes. If you have different insurance, ask your insurance company if it covers diabetes tests.



Blood tests help doctors diagnose diabetes and prediabetes.

## Type 1 diabetes

Doctors often diagnose **type 1 diabetes** in children and young adults when they have diabetes symptoms, such as feeling thirsty and having to urinate more often, or if they may have **diabetic ketoacidosis** [↗](#).

Symptoms in adults may be less specific.<sup>1</sup>

Type 1 diabetes can run in families. A study called **TrialNet** [↗](#) offers free testing to relatives of people with type 1 diabetes, even if the relatives don't have symptoms.

## Type 2 diabetes

Experts recommend routine testing for **type 2 diabetes** if you have certain **risk factors**. You may have a higher risk of developing type 2 diabetes if you are

- age 35 or older
- American Indian, Black or African American, Asian American, Hispanic/Latino, or Pacific Islander
- **overweight or have obesity** and have at least one other risk factor
- a woman who had gestational diabetes

Take the **American Diabetes Association Diabetes Risk Test** to see if you are at risk for type 2 diabetes.

Children can also develop type 2 diabetes. Experts recommend testing children and teens between the ages of 10 and 18 who are overweight or have obesity and have at least one more risk factor, such as a

low birth weight, a parent who had diabetes while pregnant, or another factor.<sup>1</sup>

Adults and children with normal diabetes test results should be retested every 3 years.<sup>1</sup>

If your blood glucose levels are higher than the target range, but not high enough to be diagnosed with diabetes, doctors will diagnose you with **prediabetes**. Having prediabetes is serious because it raises the chance of developing type 2 diabetes. But developing type 2 diabetes can be **prevented**. Adults and children diagnosed with prediabetes should be tested for type 2 diabetes every year.

## Testing for type 2 diabetes before and during pregnancy

All women who are planning to get pregnant should be tested for type 2 diabetes, especially if they have risk factors.

If you are already pregnant, you should be tested for type 2 diabetes at the first prenatal appointment, or in the first 15 weeks of pregnancy. If you have diabetes, you should receive **special care during your pregnancy** to avoid problems for you and the baby.

## Gestational diabetes

All pregnant women who do not have a previous diagnosis of diabetes should be tested for **gestational diabetes** between 24 and 28 weeks of pregnancy.<sup>1</sup>

If you have gestational diabetes, you should get tested after your baby is born to see if you have type 2 diabetes, usually within 12 weeks after delivery.

## What tests are used to diagnose diabetes?

Doctors use a variety of tests to diagnose diabetes and prediabetes. Your doctor may recommend different tests depending on whether you have symptoms or not, or whether you are pregnant.

### Fasting plasma glucose test

The fasting plasma glucose (FPG) test measures your blood glucose level at a single point in time. For the most reliable results, your doctor will give you the test in the morning after you have fasted 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 last 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. Before using the A1C test to diagnose diabetes, your doctor will consider factors, such as whether you are in your second or third trimester of pregnancy or whether you have certain types of **anemia** [NIH](#) or another problem with your blood.<sup>1</sup> The A1C test might not be accurate in those cases.

Certain types of [hemoglobin](#), called hemoglobin variants, can interfere with measuring A1C levels. Most A1C tests used in the United States are not affected by the most common variants. If your A1C test results and blood glucose levels do not match, your doctor should consider that the A1C test may not be a reliable test for you.

Your doctor will report your A1C test result as a percentage, such as an A1C of 7%. The higher the percentage is, the higher your average blood glucose levels are.

## Random plasma glucose test

Sometimes doctors use the random plasma glucose test to diagnose diabetes when you have symptoms of diabetes and they do not want to wait until you have fasted for 8 hours. You may have this blood test at any time.

## Glucose challenge test

If you are pregnant, your doctor might test you for gestational diabetes with the glucose challenge test. Another name for this test is the glucose screening test. In this test, a health care professional will take a sample of 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 level is too high—135 mg/dL to 140 mg/dL or higher—you may need to return for an oral glucose tolerance test while fasting.

## Oral glucose tolerance test

The oral glucose tolerance test (OGTT) helps doctors detect type 2 diabetes, prediabetes, and gestational diabetes. However, the OGTT is a more expensive test than the FPG test and the glucose challenge test, and it is not as easy to give.

Before the test, you will need to fast for at least 8 hours. A health care professional will take a blood sample to measure your glucose level after fasting. Next, you will drink a liquid that is high in sugar. Another blood sample is taken 2 hours later to check your blood glucose level. If your blood glucose level is high, you may have diabetes.

If you are pregnant, your blood will be drawn every hour for 2 to 3 hours. If your blood glucose levels are high two or more times during the OGTT, you may have gestational diabetes.

## What test results tell me if I have diabetes or prediabetes?

Each test to detect diabetes and prediabetes uses a different measurement. Usually, your doctor will use a second test to confirm you have diabetes.

The table below helps you understand what your test results mean if you are not pregnant.<sup>1</sup> If you are pregnant, some tests use different cutoffs. Ask your doctor what your test results mean.

## Test results for diagnosis of prediabetes and diabetes

Diagnosis	A1C	Fasting Plasma Glucose	Oral Glucose Tolerance Test*	Random Plasma Glucose Test‡
Normal	below 5.7%	99 mg/dL or below	139 mg/dL or below	N/A
Prediabetes	5.7% to 6.4%	100 to 125 mg/dL	140 to 199 mg/dL	N/A
Diabetes	6.5% or above	126 mg/dL or above	200 mg/dL or above	200 mg/dL or above

\* 2 hours after glucose intake  
‡ Used when there are symptoms  
Source: American Diabetes Association

# Which tests help my doctor know what kind of diabetes I have?

Even though the tests described above can confirm you have diabetes, they can’t identify what type you have—type 1, type 2, or a rare type of diabetes called monogenic diabetes. Treatment can depend on the type of diabetes you have, so knowing which type you have is important.

## Genetic testing

Genetic testing can diagnose most forms of [monogenic diabetes](#), which is caused by a change—or mutation—in a gene. Anyone can have monogenic diabetes, but it is more common in babies who develop diabetes before they are 6 months old, some teens, and some young adults.

## Autoantibodies

If you have diabetes, your doctor may look for certain autoantibodies to see if your diabetes is type 1. Autoantibodies are proteins in your [immune system](#) that mistakenly attack your healthy tissues and cells. A health care professional will take a sample of your blood for this test. If autoantibodies for diabetes are found in your blood, you may have type 1 diabetes.<sup>1</sup>

If you do not have diabetes but your parent or sibling has type 1 diabetes, your doctor might give you this test to see if you have a higher risk of developing type 1 diabetes. You may want to learn about diabetes symptoms and have follow-up testing as recommended by your doctor.<sup>1</sup>

## Reference

[1] American Diabetes Association Professional Practice Committee. Standards of medical care in diabetes—2022. *Diabetes Care*. 2022;45(suppl 1):1–16.7

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