

diagnosing diabetes

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If you've recently learned that you have diabetes, you might wonder how your doctor arrived at this diagnosis. You may even question whether the diagnosis is correct—especially if you haven't had any symptoms. The truth is, the diagnosis CAN be clearly made, and ultimately depends on one thing: high blood glucose levels, as measured by blood tests.

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Symptoms

Sometimes—but not always—symptoms are the first clue that a person has diabetes. These common symptoms may be caused by high blood glucose levels, and may go away once blood glucose is controlled:

- **Fatigue.** It makes sense that untreated diabetes makes you feel tired and weak—your body is having trouble getting energy from glucose.
- **Intense thirst—and frequent urination.** When you have high blood glucose, your body loses more fluid than normal. To replenish these fluids, you drink more and more—and urinate more as well.
- **Unusual hunger.** Many people report that they're hungry all the time. That's because even though they may have plenty of glucose in their bloodstream, their cells are starving for energy. In response, their bodies prompt them to eat more.
- **Unexplained weight loss.** Some people find that they're losing weight, even though they may be eating and drinking more than usual. As glucose builds up in your blood, it spills into your urine. Glucose in your urine is a significant drain of calories.
- **Numbness or tingling in your hands and feet.** This is a result of nerve damage caused by high blood glucose. Unless the damage is severe, these sensations may slowly go away when your blood glucose returns to normal.
- **Blurred vision.** When your blood glucose is high for days in a row, the lens of your eye tends to swell. This makes it harder for the lens to focus—and harder for you to see clearly.
- **Frequent infections, or cuts and sores that are slow to heal.** High blood glucose can increase your risk for infections for two reasons:
 - The bacteria and fungi that cause infection thrive in a high-glucose environment. (And if you've got untreated diabetes, your whole body is probably a high-glucose environment.)
 - Your immune system—which is responsible for fighting infection—doesn't work as well when you have high blood glucose.



Got symptoms?

Did you notice any of these symptoms before you were diagnosed? Your answer may depend in part on the type of diabetes you have. For example, people with type 1 usually have clear symptoms that come on quickly. Type 2 usually develops more gradually, so someone with this type of diabetes may not notice any symptoms in the early stages. This can delay a diagnosis for many years.

Blood glucose tests

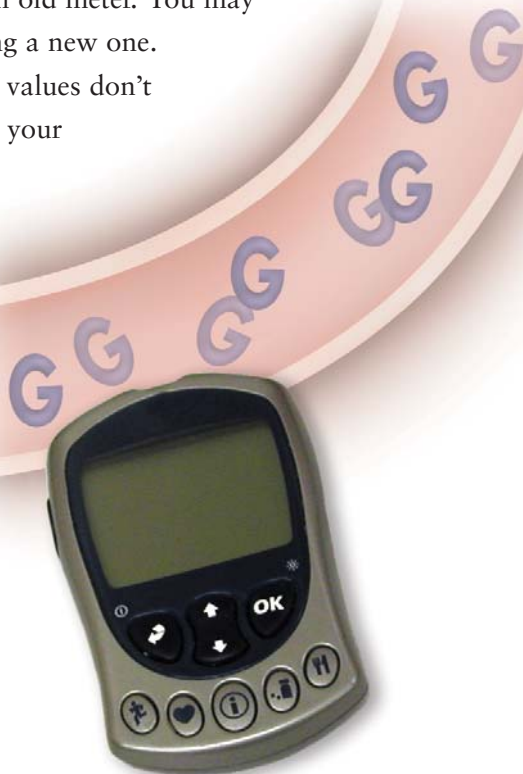
Although symptoms may suggest diabetes, only blood tests can make the diagnosis. Blood tests can determine your blood glucose levels, which must meet a certain level before you can be said to have diabetes.

Measurement terms

The term “blood glucose” generally refers to the amount of glucose in your blood. Most blood glucose tests actually measure the amount of glucose in the liquid part of your blood—called the blood **plasma**—rather than the amount of glucose in your whole blood. That’s why you’ll sometimes hear people refer to **plasma glucose (PG)**.

To diagnose and monitor diabetes, healthcare providers test your plasma glucose levels. In the United States, the units used to measure plasma or whole blood glucose are **milligrams per deciliter, or mg/dL**.

Most of today’s home glucose meters also measure plasma glucose. If yours doesn’t—and instead measures the amount of glucose in your whole blood—then it may be an old meter. You may want to check into getting a new one. Plasma and whole blood values don’t differ greatly, but having your home meter measure plasma glucose makes it easier for you and your healthcare team to compare home test results with your lab test results.



MYTH

“Some people have just a touch of diabetes—it depends how you look at it.”

TRUTH

A diabetes diagnosis isn’t a matter of opinion or degree. Using the standard criteria shown in the table on the next page, your healthcare provider can use the results of your blood glucose test to tell whether you have diabetes or pre-diabetes. If you have either, you need to take it seriously—and take action to control it.

WHAT ABOUT URINE TESTS?

Urine tests can’t diagnose diabetes—only blood tests can. High blood glucose can sometimes cause glucose to spill over into the urine, which a urine test will detect. But glucose in your urine isn’t enough to earn a diabetes diagnosis. For a sound diagnosis, you need to measure blood glucose levels directly, with a blood test.

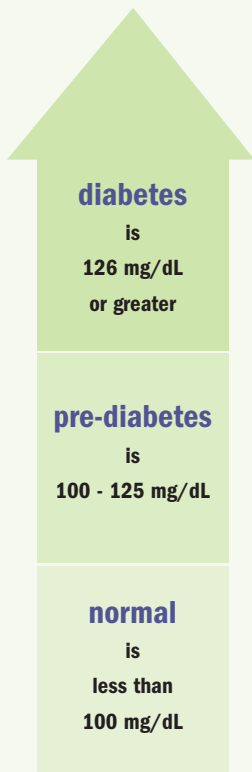
Types of tests—and what the results mean

The table below summarizes the two most common ways to diagnose diabetes (and pre-diabetes).

Test	Criteria for diagnosis	
	Diabetes	Pre-diabetes
<p>To diagnose and monitor diabetes, healthcare providers test plasma glucose levels. Levels are measured in milligrams per deciliter, or mg/dL.</p>	<p>For diagnosis, all results must be confirmed by a second test given on a different day.</p>	
<p>Fasting plasma glucose (FPG) test</p> <p>The American Diabetes Association (ADA) recommends this test for diagnosing diabetes.</p> <p>For the FPG test, you first need to fast (not eat or drink anything except water) for at least 8 hours. Then, a sample of your blood is drawn and analyzed at your healthcare provider's office.</p>	<p>126 mg/dL or greater</p>	<p>100 - 125 mg/dL</p>
<p>Random plasma glucose (RPG) test</p> <p><i>Also called a "casual" glucose test.</i></p> <p>This test can be performed any time during the day, whether or not you've eaten recently. But the RPG readings alone can't be used to diagnose diabetes or pre-diabetes—you need to have at least 2 symptoms of diabetes as well.</p>	<p>200 mg/dL or greater</p> <p>plus symptoms of diabetes (for example, extreme thirst or fatigue)</p>	<p>Pre-diabetes cannot be diagnosed with this method.</p>

DIAGNOSIS AT-A-GLANCE

The ADA recommends using a fasting plasma glucose (FPG) test to diagnose diabetes in non-pregnant adults.



FPG Results

Type 1 or type 2?

Part of diagnosing your diabetes is determining the type of diabetes you have. To do this, your doctor may look at several factors. These include the following:

- **Your symptoms.** Type 1 comes on suddenly, while the onset of type 2 is usually more gradual. The type of symptoms you have may also differ based on the type of diabetes you have.
- **Results from other blood tests.** In addition to blood glucose tests, your doctor may want to run tests for insulin, antibodies, ketones, C-peptide, and other substances in your blood.
- **Your age and risk factor profile.** Your doctor will consider your age, your body weight, and other factors to see if you fit a profile for type 1 or 2. But your doctor won't rely on this alone—plenty of people with diabetes don't have the expected age or risk factors.

What about family? The inheritance of diabetes

Researchers don't fully understand why some people develop diabetes and others don't. But it's clear that along with environmental factors, family history (genetics) plays a part. The table below shows your odds of developing diabetes based on your family history.

