Definition: **type 2 diabetes** from *Merriam-Webster's Collegiate(R) Dictionary*

(1982): a common form of diabetes mellitus that develops esp. in adults and most often in obese individuals and that is characterized by hyperglycemia resulting from impaired insulin utilization coupled with the body's inability to compensate with increased insulin production—called also non-insulin-dependent diabetes, non-insulin-dependent diabetes mellitus, type 2 diabetes mellitus

**Summary Article: Type 2 Diabetes**

From *Health Reference Series: Diabetes Sourcebook*

Type 2 diabetes is a chronic (lifelong) disease marked by high levels of sugar (glucose) in the blood. Type 2 diabetes is the most common form of diabetes.

**Causes**

Diabetes is caused by a problem in the way your body makes or uses insulin. Insulin is needed to move blood sugar (glucose) into cells, where it is stored and later used for energy.

When you have type 2 diabetes, the body does not respond correctly to insulin. This is called insulin resistance. Insulin resistance means that fat, liver, and muscle cells do not respond normally to insulin. As a result blood sugar does not get into cells to be stored for energy.

When sugar cannot enter cells, abnormally high levels of sugar build up in the blood. This is called hyperglycemia. High levels of blood sugar often trigger the pancreas to produce more and more insulin, but it is not enough to keep up with the body's demand.

People who are overweight are more likely to have insulin resistance, because fat interferes with the body's ability to use insulin.

Type 2 diabetes usually occurs gradually. Most people with the disease are overweight at the time of diagnosis. However, type 2 diabetes can also develop in those who are thin, especially the elderly.

Family history and genetics play a large role in type 2 diabetes. Low activity level, poor diet, and excess body weight (especially around the waist) significantly increase your risk for type 2 diabetes.

Other risk factors include:

- age greater than forty-five years;
- high-density lipoprotein (HDL) cholesterol of less than 35 mg/dL or triglyceride level of greater than 250 mg/dL;
- high blood pressure;
- history of gestational diabetes;
- polycystic ovarian syndrome;

https://search.credoreference.com/content/topic/diabetes_mellitus_type_2
previously identified impaired glucose tolerance by your doctor;

- race/ethnicity (African Americans, Hispanic Americans, and Native Americans all have high rates of diabetes).

**Symptoms**

Often, people with type 2 diabetes have no symptoms at all. If you do have symptoms, they may include:

- blurred vision;
- erectile dysfunction;
- fatigue;
- frequent or slow-healing infections;
- increased appetite;
- increased thirst;
- increased urination.

**Exams and Tests**

Type 2 diabetes is diagnosed with the following blood tests:

- **Fasting blood glucose level:** Diabetes is diagnosed if higher than 126 mg/dL on two occasions.

- **Hemoglobin A1c test:** This test has been used in the past to help patients monitor how well they are controlling their blood glucose levels. In 2010, the American Diabetes Association recommended that the test be used as another option for diagnosing diabetes and identifying pre-diabetes. Levels indicate:
  - Normal: Less than 5.7 percent;
  - Pre-diabetes: Between 5.7 and 6.4 percent;
  - Diabetes: 6.5 percent or higher.

- **Oral glucose tolerance test:** Diabetes is diagnosed if glucose level is higher than 200 mg/dL after two hours.

- **Random (non-fasting) blood glucose level:** Diabetes is suspected if higher than 200 mg/dL and accompanied by the classic symptoms of increased thirst, urination, and fatigue (this test must be confirmed with a fasting blood glucose test).

You should see your healthcare provider every three months. At these visits, you can expect your healthcare provider to:

- check your blood pressure;
- check the skin and bones on your feet and legs;
- check the sensation in your feet;
• examine the back part of the eye with a special lighted instrument called an ophthalmoscope.

The following tests will help you and your doctor monitor your diabetes and prevent complications:

• Have your blood pressure checked at least every year (blood pressure goals should be 130/80 mm/Hg or lower).

• Have your glycosylated hemoglobin (HbA1c) checked every six months if your diabetes is well controlled; otherwise every three months.

• Have your cholesterol and triglyceride levels checked yearly (aim for low-density lipoprotein [LDL] levels below 70–100 mg/dL).

• Get yearly tests to make sure your kidneys are working well (microalbuminuria and serum creatinine).

• Visit your ophthalmologist at least once a year, or more often if you have signs of diabetic retinopathy.

• See the dentist every six months for a thorough dental cleaning and exam. Make sure your dentist and hygienist know that you have diabetes.

**Treatment**

The immediate goal of treatment is to lower high blood glucose levels. The long-term goals of treatment are to prevent diabetes-related complications.

The primary treatment for type 2 diabetes is exercise and diet.

**Learn These Skills**

You should learn basic diabetes management skills. They will help prevent complications and the need for medical care. These skills include:

• how to test and record your blood glucose;

• what to eat and when;

• how to take medications, if needed;

• how to recognize and treat low and high blood sugar;

• how to handle sick days;

• where to buy diabetes supplies and how to store them.

It may take several months to learn the basic skills. Always continue to educate yourself about the disease and its complications. Learn how to control and live with diabetes. Over time, stay current on new research and treatments.

**Self-Testing**

Self-testing refers to being able to check your blood sugar at home yourself. It is also called self-monitoring of blood glucose (SMBG). Regular self-testing of your blood sugar tells you and your healthcare provider how well your diet, exercise, and diabetes medications are working.

https://search.credoreference.com/content/topic/diabetes_mellitus_type_2
A device called a glucometer can provide an exact blood sugar reading. There are different types of devices. Usually, you prick your finger with a small needle called a lancet. This gives you a tiny drop of blood. You place the blood on a test strip and put the strip into the device. Results are available in thirty to forty-five seconds.

A healthcare provider or diabetes educator will help set up an at-home testing schedule for you. Your doctor will help you set your blood sugar goals:

- Most people with type 2 diabetes only need to check their blood sugar once or twice a day.
- If your blood sugar levels are under control, you may only need to check them a few times a week.
- Tests may be done when you wake up, before meals, and at bedtime.
- More frequent testing may be needed when you are sick or under stress.

The results of the test can be used to adjust meals, activity, or medications to keep your blood sugar levels in an appropriate range. Testing can identify high and low blood sugar levels before serious problems develop.

Keep a record for yourself and your healthcare provider. This will be a big help if you are having trouble managing your diabetes.

**Diet and Weight Control**

People with type 2 diabetes should eat at about the same times each day and try to be consistent with the types of food they choose. This helps to prevent blood sugar from becoming extremely high or low. Meal planning includes choosing healthy foods, eating the right amount of food, and eating meals at the right time. You should work closely with your doctor, nurse, and registered dietitian to learn how much fat, protein, and carbohydrates you need in your diet. Your meal plans should fit your daily lifestyle and habits, and should try to include foods that you like.

Managing your weight and eating a well-balanced diet are important. Some people with type 2 diabetes can stop taking medications after losing weight (although they still have diabetes).

Bariatric (weight loss) surgery may be considered for very overweight patients who are not well managed with diet and medications.

**Regular Physical Activity**

Regular exercise is important for everyone, but especially if you have diabetes. Regular aerobic exercise lowers your blood sugar level without medication and helps burn excess calories and fat so you can manage your weight.

Exercise can help your overall health by improving blood flow and blood pressure. It decreases insulin resistance even without weight loss. Exercise also increases the body's energy level, lowers tension, and improves your ability to handle stress.

Consider the following when starting an exercise routine:

- Always check with your healthcare provider before starting an exercise program.
- Ask your healthcare provider whether you have the right footwear.

[https://search.credoreference.com/content/topic/diabetes_mellitus_type_2](https://search.credoreference.com/content/topic/diabetes_mellitus_type_2)
Choose an enjoyable physical activity that is appropriate for your current fitness level.

Exercise every day, and at the same time of day, if possible.

Monitor blood glucose levels at home before and after exercise.

Carry food that contains a fast-acting carbohydrate in case blood glucose levels get too low during or after exercise.

Wear a diabetes identification bracelet and carry a cell phone in case of emergency.

Drink extra fluids that do not contain sugar before, during, and after exercise.

You may need to modify your diet or medication if you exercise longer or more intensely, to keep blood glucose levels in the correct range.

**Medications to Treat Diabetes**

If diet and exercise do not help maintain normal or near-normal blood glucose levels, your doctor may prescribe medication. Since these drugs help lower your blood sugar levels in different ways, your doctor may have you take more than one. These drugs may also be given along with insulin, if needed.

Some of the most common types of medication are listed below. They are taken by mouth or injection:

- **Alpha-glucosidase inhibitors** (such as acarbose) decrease the absorption of carbohydrates from the digestive tract to lower aftermeal glucose levels.

- **Biguanides** (metformin) tell the liver to produce less glucose and help muscle and fat cells and the liver absorb more glucose from the bloodstream. This lowers blood sugar levels.

- **Injectable medications** (including exenatide, mitiglinide, pramlintide, sitagliptin, and saxagliptin) can lower blood sugar.

- **Meglitinides** (including repaglinide and nateglinide) trigger the pancreas to make more insulin in response to the level of glucose in the blood.

- **Sulfonylureas** (like glimepiride, glyburide, and tolazamide) trigger the pancreas to make more insulin. They are taken by mouth.

- **Thiazolidinediones** (such as rosiglitazone and pioglitazone) help muscle and fat cells and the liver absorb more blood sugar when insulin is present. Rosiglitazone may increase the risk of heart problems. Talk to your doctor.

If you continue to have poor blood glucose control despite lifestyle changes and taking medicines by mouth, your doctor will prescribe insulin. Insulin may also be prescribed if you have had a bad reaction to other medicines. Insulin must be injected under the skin using a syringe or insulin pen device. It cannot be taken by mouth.

Insulin preparations differ in how fast they start to work and how long they work. Your healthcare provider will determine the appropriate type of insulin to use and will tell you what time of day to use it.

More than one type may be mixed together in an injection to achieve the best blood glucose control. Usually injections are needed one to four times a day. Your doctor or diabetes educator will show you how to give yourself an injection.

[https://search.credoreference.com/content/topic/diabetes_mellitus_type_2](https://search.credoreference.com/content/topic/diabetes_mellitus_type_2)
Some people with type 2 diabetes find they no longer need medication if they lose weight and increase activity. When they reach their ideal weight, their own insulin and a careful diet can control their blood glucose levels.

It is not known whether hypoglycemia medications taken by mouth are safe for use in pregnancy. Women who have type 2 diabetes and take these medications may be switched to insulin during pregnancy and while breastfeeding.

**Medications to Prevent Complications**

Since those with diabetes have a much higher chance of developing heart disease, kidney disease, and other medical problems, they may need to take certain medicines to treat these problems or prevent them from happening.

An angiotensin-converting enzyme (ACE) inhibitor (or angiotensin receptor blocker, or ARB) is often recommended:

- as the first choice medicine for treating high blood pressure in persons with diabetes;
- for those who have signs of early kidney disease.

ACE inhibitors include captopril (Capoten®), enalapril (Vasotec®), quinapril (Accupril®), benazepril (Lotensin®), ramipril (Altace®), perindopril (Aceon®), and lisinopril (Prinivil®, Zestril®).

Statin drugs are usually the first choice to treat an abnormal cholesterol level. Aim for LDL cholesterol level less than 100 mg/dL (less than 70 mg/dL in high-risk patients).

Aspirin to prevent heart disease is most often recommended for persons with diabetes who:

- are forty or older;
- have a history of heart problems;
- have a family history of heart disease;
- have high blood pressure or high cholesterol;
- smoke.

**Foot Care**

People with diabetes are more likely to have foot problems. Diabetes can damage nerves, which means you may not feel an injury to the foot until a large sore or infection develops. Diabetes can also damage blood vessels.

In addition, diabetes affects the body’s immune system. This decreases the body's ability to fight infection. Small infections can quickly get worse and cause the death of skin and other tissues. Amputation may be needed.

To prevent injury to the feet, check and care for your feet every day.

**Outlook (Prognosis)**

The risk of long-term complications from diabetes can be reduced. If you control your blood glucose and blood pressure, you can reduce your risk of death, stroke, heart failure, and other complications.
Reduction of HbA1c by even 1 percent can decrease your risk for complications by 25 percent.

Possible Complications
After many years, diabetes can lead to serious problems with your eyes, kidneys, nerves, heart, blood vessels, and other areas in your body.

If you have diabetes, your risk of a heart attack is the same as someone who has already had a heart attack. Both women and men with diabetes are at risk. You may not even have the typical signs of a heart attack.

In general, complications include:

- cataracts;
- damage to blood vessels that supply the legs and feet (peripheral vascular disease);
- diabetic retinopathy (eye disease);
- foot sores or ulcers, which can result in amputation;
- glaucoma;
- high blood pressure;
- high cholesterol;
- kidney disease and kidney failure (diabetic nephropathy);
- macular edema;
- nerve damage, which causes pain and numbness in the feet, as well as a number of other problems with the stomach and intestines, heart, and other body organs;
- stroke;
- worsening of eyesight or even blindness.

Other complications include:

- erection problems;
- infections of the skin, female genital tract, and urinary tract.

When to Contact a Medical Professional
Call 911 immediately if you have:

- chest pain or pressure;
- fainting or unconsciousness;
- seizure;
- shortness of breath.

These symptoms can quickly get worse and become emergency conditions (such as convulsions or hypoglycemic coma).

https://search.credoreference.com/content/topic/diabetes_mellitus_type_2
Call your doctor also if you have:

- numbness, tingling, pain in your feet or legs;
- problems with your eyesight;
- sores or infections on your feet;
- symptoms of high blood sugar (being very thirsty, having blurry vision, having dry skin, feeling weak or tired, needing to urinate a lot);
- symptoms of low blood sugar (weak or tired, trembling, sweating, feeling irritable, unclear thinking, fast heartbeat, double or blurry vision, feeling uneasy).

**Prevention**

Diabetes screening is recommended for:

- overweight children who have other risk factors for diabetes, starting at age ten and repeating every two years;
- overweight adults (BMI greater than 25) who have other risk factors;
- adults over forty-five every three years.

You can help prevent type 2 diabetes by keeping a healthy body weight and an active lifestyle.

To prevent complications of diabetes, visit your healthcare provider or diabetes educator at least four times a year. Talk about any problems you are having.

Stay up-to-date with all your vaccinations and get a flu shot every year.

To prevent diabetes-related foot problems, you should:

- Check and care for your feet every day, especially if you already have known nerve or blood vessel damage or current foot problems.
- Get a foot exam by your healthcare provider at least twice a year and learn whether you have nerve damage.
- Improve control of your blood sugar.
- Make sure you are wearing the right kind of shoes.
- Stop smoking if you smoke.

**Alternative Names**

Non-insulin-dependent diabetes; Diabetes—type 2; Adult-onset diabetes


**References**


APA

Chicago

Harvard

MLA


© 2011 Omnigraphics, Inc.
APA

Chicago

Harvard

MLA