



What You Need To  
Know About Diabetes  
**AN INTRODUCTION**



*If you have recently learned that you or someone in your family has diabetes, you are probably worried. But diabetes is a manageable condition. In fact, most people can live as full a life as they did before developing diabetes.*

## **What is Diabetes?**

Diabetes is a disease that affects the way the body uses food. It causes blood glucose levels (blood sugar) to be too high.

Normally, during digestion, the body changes sugars, starches, and other foods into a form of sugar called glucose. Then the blood carries this glucose to cells throughout the body. There, with the help of insulin (a hormone), glucose is changed into quick energy for the cells to use or store for future needs. (Insulin is made in the beta cells of the pancreas, a small organ behind the stomach.) This process of turning food into energy is crucial, because the body depends on food for every action, from pumping blood and thinking to running and jumping.

In diabetes, something goes wrong with the normal process of turning food into energy. Food is changed into glucose readily enough, but there is a problem with insulin. In one type of diabetes, the pancreas cannot make insulin. In

another type, the body makes *some* insulin, but has trouble *using* the insulin. When insulin is absent or ineffective, the glucose in the bloodstream cannot be used by the cells to make energy. Instead, glucose collects in the blood, eventually leading to the high glucose levels that are the hallmark of untreated diabetes.



## **Types of Diabetes**

The two main types of diabetes are type 1 and type 2.

**Type 1 diabetes** used to be called juvenile-onset diabetes because it occurs most often in children and young adults.

But the name was changed

after doctors realized it could occur at any age. In this form of diabetes, the pancreas stops making insulin or makes only a tiny amount. Insulin is necessary to life, so the hormone must be injected every day.

**Type 2 diabetes** used to be called adult-onset diabetes because it occurs most often in adults. In type 2 diabetes, the pancreas produces some insulin but it is not used very well.

**Gestational diabetes** is high blood glucose that first occurs during pregnancy. It usually disappears after the birth of the baby, although most women will develop diabetes (usually type 2) during their lifetime.

There are other kinds of diabetes, but these are less common.

**Pre-Diabetes** means that your blood sugar falls between "normal" and "diabetic" levels. People with pre-diabetes have an increased risk of developing type 2 diabetes and heart problems.

## A Widespread Disease

About 20 million Americans have diabetes. Unfortunately, over 6 million people have type 2 diabetes and do not *know* it. Another 54 million people have pre-diabetes. The people most at risk for type 2 diabetes are over 45, overweight, sedentary, and have a family history of diabetes. Anyone with these characteristics should see a doctor every three years to be tested for diabetes.

## The Warning Signs

The following symptoms are typical. However, some people with type 2 diabetes have symptoms so mild that they go unnoticed.

### Type 1

(symptoms usually occur suddenly)

- frequent urination
- excessive thirst
- extreme hunger
- dramatic weight loss
- irritability
- weakness and fatigue
- nausea and vomiting

### Type 2

(symptoms usually occur gradually)

- any of the type 1 symptoms
- recurring or hard-to-heal skin, gum, or bladder infections
- drowsiness
- blurred vision
- tingling or numbness in hands or feet
- itching

## Causes: A Mystery

The causes of diabetes are still a mystery. But researchers believe that the tendency for diabetes is present at birth.

In type 1 diabetes, any one of several different viral infections and a process called autoimmunity are believed to trigger diabetes. In the autoimmune process, the body's defense system attacks its own cells, the insulin-producing beta cells in the

pancreas. Although viruses may help to cause some cases of type 1 diabetes, diabetes is *not* "caught" from someone else.

In people prone to type 2 diabetes, being overweight can cause diabetes, because excess fat prevents insulin from working properly.

## Prevention and Treatment



So far, type 1 diabetes cannot be prevented, although researchers are working on many promising approaches. Research shows that type 2 diabetes can often be prevented with moderate weight loss and walking 30 minutes, five days a week.

The major goal of treatment is to manage blood sugar levels, which means keeping them in the normal range. Research shows that this control can help prevent or delay long-term diabetic complications.

**Type 1 diabetes** is treated with insulin shots, regular exercise, and a balanced meal plan. Your meal plan will be tailored to your individual needs. You will generally have to eat meals and snacks at set times each day to balance insulin, which is also given at fixed times. Insulin lowers blood sugar, and food raises it. To control diabetes, you need to balance these effects.

**Type 2 diabetes** is treated with an individualized meal plan and exercise. If you are overweight, you need to slim down. If diet and exercise alone do not lower your blood sugar, diabetes pills, insulin or both may be needed in addition to diet and exercise.

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[www.diabetes.org/membership](http://www.diabetes.org/membership)

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### **Checking: A Crucial Tool**

Two kinds of checks let you keep track of your diabetes. The blood sugar check tells you how high or low your sugar level is. The ketone check tells you when high blood sugar levels are causing your body to produce poisonous ketones.

Everyone with diabetes should check his or her blood sugar. The machine you use to check your blood sugar level is called a meter. You prick your finger with a lancet (a special needle) and the meter will measure how much sugar is in the drop of blood. Your health care provider will help you decide how often to check.

Checks that measure ketones in the urine or blood also are important. Ketones are acids that collect in the blood and urine when the body uses fat instead of glucose for energy. Ketones in the urine or blood are a sign that diabetes is not in control and that prompt attention is needed. Ask your health care provider when you should check for ketones.

Be sure to keep records of all of your results. Always write down the date, the time, your results, and the doses and times of drugs you are taking. You and your health care provider can use these records to adjust your treatment plan to suit you better.

Another important check, done every three to six months, is an A-1-C check. This measures your average blood sugar level over the past 2-3 months.

## Problems to Handle Promptly

**Hypoglycemia**, low blood sugar, is sometimes called an insulin reaction. It can occur suddenly in people who use insulin if too little food is eaten, if a meal is delayed, or if extra exercise is done. It is less common in people whose diabetes is treated with pills. Low blood sugar must be treated *quickly* with glucose tablets, regular soda, juice or food because, untreated, hypoglycemia can lead to unconsciousness.

The typical symptoms include feeling cold, clammy, nervous, shaky, weak, or very hungry. Some people become pale, get headaches, or act strangely. If a person becomes unconscious, glucagon, a hormone (available by prescription) that raises blood sugar, must be injected.

**Hyperglycemia**, or high blood sugar, occurs when too much food is eaten or not enough insulin is taken. Emotional stress or illness can also cause high blood sugar. Warning signs are large amounts of glucose in the urine and blood. You may urinate often, be very thirsty, and feel nauseated. Treat high blood sugar with the help of your health care provider.

**Ketoacidosis**, or diabetic coma, may accompany high blood sugar. It develops when insulin and blood sugar are so out of balance that ketones accumulate in the blood. High levels of ketones are poisonous. Fortunately, ketoacidosis, which develops over several hours or days, can usually be avoided if diabetes is brought under control at the first signs of high blood sugar or ketones in the urine or blood. (Call the doctor for instructions.) Other symptoms include dry mouth, great thirst, loss of appetite, excessive urination, dry and flushed skin, labored breathing, fruity-smelling breath, and possibly vomiting, abdominal pain, and unconsciousness. Ketoacidosis is most likely to occur in people with type 1 diabetes.

Anyone with diabetes should wear a medical I.D. necklace or bracelet stating the type of treatment they use, in case of emergencies.

## Long-Term Health Problems

Diabetic complications are usually caused by changes in the blood vessels and nerves. Unfortunately, they can include eye and kidney disease, heart attack, numbness or pain in the legs, foot infections leading to gangrene, and stroke. Fortunately, however, treatments continue to improve. Also, research shows that keeping blood sugar levels near normal can help to prevent complications. Excellent control is especially important for women with diabetes who want to become pregnant, because tight control before conception helps to prevent birth defects.

## Living with Diabetes

Diabetes is likely to cause changes in your life. You will be able to work these changes into your usual routines, but living with a chronic disease may cause anger and frustration at times. When you feel that way, you may find it helpful to talk about your feelings to a family member, friend, clergy member, or mental health professional.

Another place to turn for support—and information—is the American Diabetes Association. In addition to funding research, we offer an array of services and materials.

Call 1-800-DIABETES (342-2383) for general information on diabetes

Call 1-800-ADA-ORDER (232-6733) to order books or a catalog.

Call 1-800-806-7801 for subscription and membership questions.

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