

# Diabetes: Assessing your risk

## What is diabetes?

There are 2 types of diabetes. Type 1 diabetes occurs when the body does not make a hormone called insulin. Insulin helps the body use sugar (also called glucose) for energy. People with type 2 diabetes either do not have enough insulin or their cells ignore the insulin they have. Nearly 95% of people with diabetes have type 2.

## Am I at risk?

You are at higher risk for diabetes if it runs in your family, or if you are Native American, Hispanic American, African American or Pacific Islander. Gestational diabetes (diabetes you have during your pregnancy) or giving birth to a baby who weighs more than 9 pounds may also mean that you have a tendency to have diabetes.

If you have such a tendency, the following risk factors make you more likely to develop high blood sugar and diabetes:

- Obesity (being overweight)
- Older than 45
- Sedentary lifestyle (not exercising)
- Unhealthy diet

By addressing these risk factors you can delay or prevent the development of diabetes.

## What can I do to reduce my risk?

Talk to your doctor about your risk factors. Although you can't change all of them, you can make substantial changes to lower your risk of diabetes. The rest of this handout tells you about each risk factor and what you can do.

### Weight

Obesity is the single most important risk factor for type 2 diabetes. Between 80% and 90% of people with diabetes are overweight -- that means they weigh at least 20% more than the ideal body weight for their height and build. To figure out if you're overweight, check the chart at the end of this handout and talk to your doctor. A healthy, low-fat diet and regular exercise can help you lose weight gradually and keep it off.

### Age

The risk for type 2 diabetes increases with age. Half of all people diagnosed with diabetes are over 55. Although you can't change your age, you can work on other risk factors if you are over 45 years of age.

### Family history

Although you can't change your family history either, it is important

for you and your doctor to know what "runs in the family." Having 1 relative with diabetes doubles your chances of having it, and having 2 relatives with diabetes quadruples your chances. Tell your doctor if anyone in your family has diabetes.

### **Race/ethnic background**

Some ethnic groups have a higher risk of diabetes than others. You are at greater risk if you belong to one of these groups:

- Native American
- Hispanic American
- African American
- Pacific Islander

Compared with Caucasians, African Americans are twice as likely to have type 2 diabetes, Hispanic Americans are 2 1/2 to 3 times more likely and Native Americans are 5 times more likely.

### **Exercise**

Exercising and maintaining a healthy weight can reduce your risk of diabetes. Any amount of activity is better than none, but try to exercise 4 to 6 times a week for 30 to 60 minutes each time. If you haven't exercised for a while or you have health problems, talk with your doctor before starting an exercise program.

### **Diet**

A diet high in fat, calories and cholesterol increases your risk of diabetes. In addition, a poor diet can lead to obesity (another risk factor for diabetes) and other health problems. A healthy diet is high in fiber and low in fat. Also, remember to watch your portion size- how much you eat is just as important as what you eat.

### **Gestational diabetes**

Gestational diabetes is a kind of diabetes that happens only during pregnancy. It occurs in about 3% of pregnant women. Although gestational diabetes goes away after pregnancy, about 40% of women who had gestational diabetes are diagnosed with type 2 diabetes within 15 years.

Even if they don't have gestational diabetes, women who give birth to babies weighing 9 pounds or more are more likely to have type 2 diabetes later in life.

### **Multiple risk factor**

The risk of developing type 2 diabetes increases with the number of risk factors you have. If you have 2 or more risk factors, talk to your doctor about how to delay or prevent type 2 diabetes.

### **How can I learn more?**

For more information, talk to your family doctor. You can also learn more by calling the American Diabetes Association at 800-342-2383 or visiting their Web site at [www.diabetes.org](http://www.diabetes.org).

# Diabetes: How Do I Know If I Have It?

## What is diabetes?

Diabetes is a disease that occurs when your body doesn't make enough of a hormone called insulin, or if your body doesn't use insulin the right way. If left untreated, it may result in blindness, heart attacks, strokes, kidney failure and amputations. Only half of the people who have diabetes have been diagnosed, because in the early stages of diabetes there are few symptoms, or the symptoms may be the same as symptoms of other health conditions.

## What are the symptoms of diabetes?

Early symptoms of diabetes may include the following:

- Extreme thirst
- Extreme hunger
- Frequent urination
- Sores or bruises that heal slowly
- Dry, itchy skin
- Unexplained weight loss
- Blurry vision that changes from day to day
- Unusual tiredness or drowsiness
- Tingling or numbness in the hands or feet
- Frequent or recurring skin, gum, bladder or vaginal yeast infections

If you are regularly experiencing 1 or more of these symptoms, call your family doctor right away.

## Who is at risk for diabetes?

The early stages of diabetes have very few symptoms, so you may not know you have the disease. But damage may already be happening to your eyes, your kidneys and your cardiovascular system even before you notice symptoms. You are at risk for having diabetes if:

- You're older than 45 years of age
- You're overweight
- You don't exercise regularly
- Your parent, brother or sister has diabetes
- You gave birth to a baby that weighed more than 9 pounds or you had gestational diabetes while you were pregnant

- You're African American, Hispanic American/Latino, Native American, Asian American or Pacific Islander

If you have 1 or more of these risk factors, your doctor may want you to be tested for diabetes. You might also be tested at a younger age and more often if you have risk factors. Talk to your doctor about your risk of developing diabetes and about a plan for regular testing.

### **How will I be tested for diabetes?**

Testing (also called "screening") is usually done with a fasting blood test. You'll be tested in the morning, so you shouldn't eat anything after dinner the night before. A normal blood sugar test result is below 110 mg per dL. A test result higher than 125 mg per dL suggests diabetes. However, you should have 2 tests that are higher than 125 mg per dL, on 2 different days, before a diagnosis of diabetes is made. Test results from 110 mg per dL to 125 mg per dL suggest that you have a higher risk of diabetes.

### **Why is it important for diabetes to be diagnosed early?**

Many people have diabetes for about 5 years before they show symptoms. By that time, some people already have eye, kidney, gum or nerve damage caused by diabetes. There's no cure for diabetes, but there are ways for you to stay healthy and reduce the risk of complications. If you exercise, watch your diet, control your weight and take the medicine your doctor may prescribe, you can make a big difference in reducing or preventing the damage that diabetes can do. The earlier you know you have diabetes, the sooner you can make these important lifestyle changes.

### **Where can I get more information about diabetes?**

Your family doctor can tell you how often you should be screened for diabetes. He or she can give you advice about diet and exercise, and tell you if you have the disease.

For more information about diabetes, call the American Diabetes Association at 800-342-2383. They may be able to give you information about free screening programs in your area. You can also visit their Web site at [www.diabetes.org](http://www.diabetes.org).

## **Diabetes: What the Diagnosis Means**

If you just found out you have diabetes, you probably have a lot of questions and you may feel a little uncertain. It may help to know you're not alone. In the United States, nearly 16 million people have diabetes. Most of these people lead full, healthy lives. One of the best things you can do for yourself is to learn all you can about diabetes. This handout will tell you some of the basics about diabetes.

### **What is diabetes?**

Your body changes most of the food you eat into a form of sugar (also called glucose). Insulin, a hormone produced by the pancreas, allows this sugar to enter all the cells of your body and be used as energy. Diabetes is a disease that occurs when a person's body

doesn't make enough insulin or can't use insulin properly. When you have diabetes, the sugar builds up in your blood instead of moving into the cells. Some, but not all, of the excess sugar is carried out of your body (through urine), and the energy is wasted.

There are two types of diabetes. Type 1 occurs when the body doesn't produce any insulin. People with type 2 diabetes either don't produce enough insulin or their cells ignore the insulin. Nearly 95% of people with diabetes have type 2.

## **How can I help myself stay healthy if I have diabetes?**

Although diabetes can't be cured, you can live a long and healthy life. The single most important thing you can do is control your blood sugar level. You can do this by eating right, exercising, maintaining a healthy weight and, if needed, taking oral medicines or insulin.

**Eat a healthy diet.** Your recommended diet is very similar to that suggested for people without diabetes. Try to eat 3 times a day, at about the same time every day, and never skip a meal. Avoid snacking unless you're exercising, or taking medicine or insulin. Eat a variety of foods, including high-fiber foods such as whole grains, vegetables and fruits. Less than 30% of your daily calories should come from fat. Your family doctor and a registered dietitian can help you come up with a meal plan.

**Exercise.** Exercising will help your body use insulin and lower your blood sugar level. Try to exercise 4 to 6 times a week for 30 to 60 minutes each time, but remember that any amount is better than none. If you haven't exercised for a while or have other health problems, talk with your family doctor before starting an exercise program.

**Maintain a healthy weight.** Losing excess weight and maintaining a healthy body weight will help you in 2 ways. First, it helps insulin work better in your body. Second, it will lower your blood pressure and decrease your risk for cardiovascular disease.

**Take your medicine.** If your diabetes can't be controlled through diet, exercise and weight control, your doctor may recommend medicine or insulin. Oral medicines (taken by mouth) can make your body produce more insulin or help your body use the insulin it makes more efficiently. Some people need to add insulin to their bodies. They do this by injecting insulin under the skin with a needle. Always take medicines exactly as your doctor tells you to.

## **How do I check my blood sugar level?**

Your doctor may suggest that you check your blood sugar level (also called blood glucose level) at home. Checking your blood sugar level involves pricking your finger to get a small drop of blood that you put on a test strip. The test strip will change colors based on how much sugar is in your blood. You can read the results yourself or insert the strip into a machine called an electronic glucose meter.

Check your blood sugar level as often as your doctor suggests. You may need to check it more often at first, until you get the feel for how it changes and what makes it change.

## **What if my blood sugar gets too low?**

People with diabetes are at risk of hypoglycemia, also called low blood sugar. Hypoglycemia occurs when the amount of sugar in your blood drops. The signs of low blood sugar may include having a headache, sweating, and feeling weak or anxious. Talk

to your doctor about how to treat hypoglycemia. Typically, you can correct this problem by quickly eating some candy or drinking some regular (not diet) soda or fruit juice.

## **What health problems can diabetes cause?**

Diabetes can be a dangerous and life-threatening disease if you don't control your blood sugar level. Over time, high blood sugar levels can damage your eyes, blood vessels, nerves and kidneys. Here are some of the problems (also called complications) diabetes can cause:

**Blindness.** Diabetes can damage the small blood vessels in the retina. It is the leading cause of blindness in people ages 20 to 74.

**Heart disease.** People with diabetes are 2 to 4 times more likely to have heart disease and damage to the blood vessels in the heart. This increases their risk of heart attack and stroke.

**Nerve and blood vessel damage.** Damage to blood vessels in the legs can limit the supply of blood to the nerves in the legs and feet. This can make it difficult to feel injuries (such as foot sores). Damage to the blood vessels can also put you at risk for infections and sores that don't heal. In severe cases, parts of the foot or lower leg may have to be amputated (removed).

**Kidney disease.** Diabetes can damage the small blood vessels in the kidneys, which then can't filter out the body's waste. In some people, the kidneys stop working completely. These people require dialysis or a kidney transplant. Dialysis is a treatment that eliminates wastes in the blood.

The good news is that diabetic complications can often be prevented by taking care of yourself, following your doctor's orders and controlling your blood sugar level.

## **How can I learn more?**

Many resources are available for people with diabetes. For a list of some of these resources, call the American Diabetes Association at 800-342-2383, or visit their Web site at [www.diabetes.org](http://www.diabetes.org).

# **Diabetes: New Treatments**

## **What is type 2 diabetes?**

Diabetes is a disease that occurs when your body doesn't make enough of a hormone called insulin, or when your body can't use insulin the right way. Insulin helps balance the level of glucose (sugar) in your blood. The blood sugar level is too high in people with diabetes. Children usually get type 1 diabetes, which means their body doesn't make insulin at all. Adults usually get type 2 diabetes, which means their body makes insulin, but it doesn't make enough or they can't use it properly.

## **How is diabetes treated?**

The goal of diabetes treatment is to keep your blood sugar level as close to normal as possible. The first step is to have a healthy diet and to exercise. This may mean you'll

need to change your diet and exercise habits. You'll also have to watch your weight, or even lose weight, to keep your blood sugar level as normal as possible. Your doctor will talk to you about the kinds of food you should eat and how much exercise you'll need every week.

Sometimes diet and exercise alone can't keep your blood sugar levels normal. Then your doctor will talk to you about other treatments, such as medicine or insulin shots.

Many people with diabetes find it fairly easy to keep track of their own blood sugar level at home. Your doctor can use the results to see how your treatment is working.

## **Are there medicines I can take?**

Several kinds of medicine can help you control your blood sugar level. Some medicines are pills that you take by mouth (orally). Oral medicine doesn't work for everyone, though. Some people need to take insulin. If you need insulin, you'll have to give yourself a shot. Most people with type 2 diabetes start with an oral medicine. Your doctor will tell you which kind of medicine you should take and why.

## **What is combination therapy?**

Combination therapy uses 2 medicines to help you control your blood sugar level. It can also help with other health problems (such as having high blood pressure or high cholesterol levels, or being overweight). Each medicine works in a slightly different way. This therapy can combine 2 oral medicines, or 1 oral medicine plus insulin.

## **What medicines could my doctor prescribe?**

Six kinds of diabetes medicine are available in pill form: sulfonylureas, metformin, thiazolidinediones, alpha-glucosidase inhibitors, repaglinide and nateglinide. Each medicine has good points and bad points. Your doctor will decide which medicine is right for you.

### **Sulfonylureas**

Sulfonylureas (some brand names: Glucotrol, Micronase) are the most commonly prescribed diabetes medicines. They are inexpensive and have few side effects. These medicines help your body make insulin. They can be taken alone or with metformin, an alpha-glucosidase inhibitor, pioglitazone or insulin. If you're allergic to sulfa, you can't take a sulfonylurea.

### **Metformin**

Metformin (brand name: Glucophage) may be prescribed for people with diabetes who are overweight, because it may help with weight problems. It helps the body use insulin better. Metformin can cause problems like nausea or diarrhea in some people. It can be taken with a sulfonylurea.

### **Thiazolidinediones**

This class of medicines includes rosiglitazone (brand name: Avandia) and pioglitazone (brand name: Actos). An older medicine, troglitazone (brand name: Rezulin) is no longer being made because of the risk of liver problems. Rosiglitazone and pioglitazone appear less likely to cause liver problems, but people taking them need periodic liver tests. These medicines help your body respond better to insulin. Rosiglitazone and pioglitazone can be used alone or in combination with other diabetes medicines.

### **Alpha-glucosidase inhibitors**

Alpha-glucosidase inhibitors (brand names: Precose, Glyset) work in your stomach and bowels to slow down the absorption of sugar. If another medicine doesn't control your blood sugar, you might use this kind. This medicine can cause stomach or bowel problems, so it may not be a good choice if you have a history of stomach or bowel trouble. It can be taken alone or with a sulfonylurea.

### **Repaglinide**

Repaglinide (brand name: Prandin) is taken with meals to control your blood sugar. Your doctor can tell you how to adjust the dose according to the number of meals you eat. Repaglinide can be taken alone or with metformin.

### **Nateglinide**

Nateglinide (brand name: Starlix) is taken with meals to keep your blood sugar level from getting too high after you eat. Nateglinide can be taken alone or with metformin.

### **How can I learn more?**

For more information, talk to your family doctor. You can also learn more by contacting the American Diabetes Association at (800) 342-2383 or visiting their Web site at [www.diabetes.org](http://www.diabetes.org).

## **Diabetes: Preventing Diabetic Complications**

### **What are diabetic complications?**

Diabetic complications are health problems caused by diabetes. Diabetes causes your blood sugar level to be higher than normal. Over time, high blood sugar levels can damage the blood vessels and nerves in your body. This damage can cause problems in many areas of the body. The main areas where there may be problems are the nerves and blood vessels in the eyes, kidneys, legs and feet. This handout will tell you about some of the complications and how to help prevent them.

### **Nerve damage**

Nerve damage (also called diabetic neuropathy) most often affects the feet and legs, but it can also affect other parts of the body. Nerve damage makes it hard for your nerves to send messages to the brain and other parts of the body. It can mean you lose feeling in parts of your body or have a painful tingling feeling. If you have nerve damage, you may not be able to feel a blister or sore on your foot. The sore can become infected, and, in serious cases, the foot may have to be amputated (removed).

### **Warning signs of nerve damage**

Call your doctor if you have:

- Loss of feeling (numbness)
- Sharp pain or tingling feeling
- Weakness

- Burning feeling
- Failure to get an erection (in men)

### **Eye problems**

The retina is the part of the eye that's sensitive to light and helps you see. Diabetes can damage and weaken the small blood vessels in the retina. This damage is called diabetic retinopathy.

When the blood vessels are weak, they can leak fluid, which causes swelling in the eye. The swelling blurs your vision. If the retinopathy gets worse, your eye makes new blood vessels over the retina. But these blood vessels are fragile and break open easily, which causes bleeding into the eye. Scar tissue can form. This may make the retina break away from the back of the eye and lead to blindness.

Laser surgery can often be used to treat or slow down retinopathy, especially if it is found early.

### **Warning signs of eye problems**

Call your doctor if you have:

- Blurred vision for more than 2 days
- Sudden loss of vision in 1 or both eyes
- Black spots, cobwebs or flashing lights in your vision
- Redness in your eye
- Pain or pressure in your eye

### **Kidney damage**

Diabetes can also damage the blood vessels in the kidney (called diabetic nephropathy) so it can't filter out the body's waste. This is less common than the other complications. High blood pressure is associated with nephropathy. If you have diabetes and high blood pressure, it is important to keep them both under control as much as possible. Some people who have nephropathy need dialysis or kidney transplants. (Dialysis is a treatment that eliminates waste from the blood.)

Protein in the urine is usually the first sign of nephropathy. If your doctor notices early signs of this, he or she can put you on medicine that helps protect the kidney from damage.

### **What can I do to prevent or delay diabetic complications?**

Because no one can predict for sure who will have complications, your best bet to prevent problems is to keep your blood sugar level as close to normal as possible. Follow your doctor's instructions to control your blood sugar level. Here are some other tips:

- Eat a variety of healthy foods and avoid foods that are high in fat and sugar.
- Exercise regularly.
- Quit smoking.
- See your doctor regularly, even when you feel OK. Your doctor will check for early signs of complications.

- Call your doctor right away if you have any of the warning signs listed in this handout.
- See your doctor (or an ophthalmologist or optometrist) once a year for an examination of the retina.

### **How can I learn more?**

For more information, talk to your family doctor. You can also learn more by calling the American Diabetes Association at 800-342-2382 or visiting their Web site at [www.diabetes.org](http://www.diabetes.org).