

# DIABETES MELLITUS TYPE 2

## Definition

Type 2 diabetes, once known as adult-onset or non-insulin-dependent diabetes, is a chronic condition that affects the way your body metabolizes sugar (glucose), your body's important source of fuel.

With type 2 diabetes, your body either resists the effects of insulin — a hormone that regulates the movement of sugar into your cells — or doesn't produce enough insulin to maintain a normal glucose level.

More common in adults, type 2 diabetes increasingly affects children as childhood obesity increases. There's no cure for type 2 diabetes, but you may be able to manage the condition by eating well, exercising and maintaining a healthy weight. If diet and exercise aren't enough to manage your blood sugar well, you also may need diabetes medications or insulin therapy.

## Symptoms

Type 2 diabetes symptoms often develop slowly. In fact, you can have type 2 diabetes for years and not know it. Look for:

- **Increased thirst and frequent urination:** Excess sugar building up in your bloodstream causes fluid to be pulled from the tissues. This may leave you thirsty. As a result, you may drink — and urinate — more than usual.
- **Increased hunger:** Without enough insulin to move sugar into your cells, your muscles and organs become depleted of energy. This triggers intense hunger.
- **Weight loss:** Despite eating more than usual to relieve hunger, you may lose weight. Without the ability to metabolize glucose, the body uses alternative fuels stored in muscle and fat. Calories are lost as excess glucose is released in the urine.
- **Fatigue:** If your cells are deprived of sugar, you may become tired and irritable.
- **Blurred vision:** If your blood sugar is too high, fluid may be pulled from the lenses of your eyes. This may affect your ability to focus.
- **Slow-healing sores or frequent infections:** Type 2 diabetes affects your ability to heal and resist infections.
- **Areas of darkened skin:** Some people with type 2 diabetes have patches of dark, velvety skin in the folds and creases of their bodies — usually in the armpits and neck. This condition, called acanthosis nigricans, may be a sign of insulin resistance.

### When to see a doctor

See your doctor if you notice any type 2 diabetes symptoms.

## Causes

Type 2 diabetes develops when the body becomes resistant to insulin or when the pancreas stops producing enough insulin. Exactly why this happens is unknown, although genetics and environmental factors, such as excess weight and inactivity, seem to be contributing factors.

### How insulin works

Insulin is a hormone that comes from the gland situated behind and below the stomach (pancreas).

- The pancreas secretes insulin into the bloodstream.
- The insulin circulates, enabling sugar to enter your cells.
- Insulin lowers the amount of sugar in your bloodstream.
- As your blood sugar level drops, so does the secretion of insulin from your pancreas.

### The role of glucose

Glucose — a sugar — is a main source of energy for the cells that make up muscles and other tissues.

- Glucose comes from two major sources: food and your liver.
- Sugar is absorbed into the bloodstream, where it enters cells with the help of insulin.
- Your liver stores glucose as glycogen.
- When your insulin levels are low, such as when you haven't eaten in a while, the liver converts stored glycogen into glucose to keep your glucose level within a normal range.

In type 2 diabetes, this process doesn't work well. Instead of moving into your cells, sugar builds up in your bloodstream. As blood sugar levels increase, the insulin-producing beta cells in the pancreas produce more insulin, but eventually these cells become impaired and can't make enough insulin to meet the body's demands.

In the much less common type 1 diabetes, the immune system destroys the beta cells, leaving the body with little to no insulin.

## Risk factors

Researchers don't fully understand why some people develop type 2 diabetes and others don't. It's clear, however, that certain factors increase the risk, including:

- **Weight:** Being overweight is a primary risk factor for type 2 diabetes. The more fatty tissue you have, the more resistant your cells become to insulin. However, you don't have to be overweight to develop type 2 diabetes.

- **Fat distribution:** If your body stores fat primarily in your abdomen, your risk of type 2 diabetes is greater than if your body stores fat elsewhere, such as your hips and thighs.
  - **Inactivity:** The less active you are, the greater your risk of type 2 diabetes. Physical activity helps you control your weight, uses up glucose as energy and makes your cells more sensitive to insulin.
  - **Family history:** The risk of type 2 diabetes increases if your parent or sibling has type 2 diabetes.
  - **Race:** Although it's unclear why, people of certain races — are more likely to develop type 2 diabetes than whites are. The highest prevalence of diabetes is among the Indian population in South Africa (11-13%) as this group has a strong genetic predisposition for diabetes. This is followed by 8-10% in the colored community, 5-8% among blacks and 4% among whites.
  - **Age:** The risk of type 2 diabetes increases as you get older, especially after age 45. That's probably because people tend to exercise less, lose muscle mass and gain weight as they age. But type 2 diabetes is also increasing dramatically among children, adolescents and younger adults.
  - **Prediabetes:** Prediabetes is a condition in which your blood sugar level is higher than normal, but not high enough to be classified as diabetes. Left untreated, prediabetes can progress to type 2 diabetes.
  - **Gestational diabetes:** If you developed gestational diabetes when you were pregnant, your risk of developing type 2 diabetes increases. If you gave birth to a baby weighing more than 9 pounds (4 kilograms), you're also at risk of type 2 diabetes.
  - **Polycystic ovary syndrome:** For women, having polycystic ovary syndrome — a common condition characterized by irregular menstrual periods, excess hair growth and obesity — increases the risk of diabetes.
- limbs. Damage to the nerves that control digestion can cause problems with nausea, vomiting, diarrhea or constipation. For men, erectile dysfunction may be an issue.
- **Kidney damage (nephropathy):** The kidneys contain millions of tiny blood vessel clusters that filter waste from your blood. Diabetes can damage this delicate filtering system. Severe damage can lead to kidney failure or irreversible end-stage kidney disease, which often eventually requires dialysis or a kidney transplant.
  - **Eye damage:** Diabetes can damage the blood vessels of the retina (diabetic retinopathy), potentially leading to blindness. Diabetes also increases the risk of other serious vision conditions, such as cataracts and glaucoma.
  - **Foot damage:** Nerve damage in the feet or poor blood flow to the feet increases the risk of various foot complications. Left untreated, cuts and blisters can become serious infections, which may heal poorly. Severe damage might require toe, foot or leg amputation.
  - **Hearing impairment:** Hearing problems are more common in people with diabetes.
  - **Skin conditions:** Diabetes may leave you more susceptible to skin problems, including bacterial and fungal infections.
  - **Alzheimer's disease:** Type 2 diabetes may increase the risk of Alzheimer's disease. The poorer your blood sugar control, the greater the risk appears to be. The exact connection between these two conditions remains unclear.

## Complications

Type 2 diabetes can be easy to ignore, especially in the early stages when you're feeling fine. But diabetes affects many major organs, including your heart, blood vessels, nerves, eyes and kidneys. Controlling your blood sugar levels can help prevent these complications.

Although long-term complications of diabetes develop gradually, they can eventually be disabling or even life-threatening. Some of the potential complications of diabetes include:

- **Heart and blood vessel disease:** Diabetes dramatically increases the risk of various cardiovascular problems, including coronary artery disease with chest pain (angina), heart attack, stroke, narrowing of arteries (atherosclerosis) and high blood pressure.
- **Nerve damage (neuropathy):** Excess sugar can injure the walls of the tiny blood vessels (capillaries) that nourish your nerves, especially in the legs. This can cause tingling, numbness, burning or pain that usually begins at the tips of the toes or fingers and gradually spreads upward. Poorly controlled blood sugar can eventually cause you to lose all sense of feeling in the affected

## Lifestyle and home remedies

Careful management of type 2 diabetes can reduce your risk of serious — even life-threatening — complications. Consider these tips:

- **Commit to managing your diabetes:** Learn all you can about type 2 diabetes. Make healthy eating and physical activity part of your daily routine. Establish a relationship with a diabetes educator, and ask your diabetes treatment team for help when you need it.
- **Identify yourself:** Wear a tag or bracelet that says you have diabetes.
- **Schedule a yearly physical exam and regular eye exams:** Your regular diabetes checkups aren't meant to replace regular physicals or routine eye exams. During the physical, your doctor will look for any diabetes-related complications, as well as screen for other medical problems. Your eye care specialist will check for signs of retinal damage, cataracts and glaucoma.
- **Keep your immunizations up to date:** High blood sugar can weaken your immune system. Get a flu shot every year, and your doctor will likely recommend the pneumonia vaccine, as well. The Centers for Disease Control and Prevention (CDC) also recommends hepatitis B vaccination if you haven't previously been vaccinated against hepatitis B and you're an adult age 19 to 59 with type 1 or type 2 diabetes. The CDC advises vaccination as soon as possible after diagnosis with type 1 or type 2

diabetes. If you are age 60 or older, have diabetes and haven't previously received the vaccine, talk to your doctor about whether it's right for you.

- Take care of your teeth: Diabetes may leave you prone to more-serious gum infections. Brush your teeth at least twice a day, floss your teeth once a day, and schedule regular dental exams. Consult your dentist right away if your gums bleed or look red or swollen.
- Pay attention to your feet: Wash your feet daily in lukewarm water. Dry them gently, especially between the toes, and moisturize with lotion. Check your feet every day for blisters, cuts, sores, redness and swelling. Consult your doctor if you have a sore or other foot problem that isn't healing.
- Keep your blood pressure and cholesterol under control: Eating healthy foods and exercising regularly can go a long way toward controlling high blood pressure and cholesterol. Medication may be needed, too.
- If you smoke or use other types of tobacco, ask your doctor to help you quit: Smoking increases your risk of various diabetes complications. Talk to your doctor about ways to stop smoking or to stop using other types of tobacco.
- If you drink alcohol, do so responsibly: Alcohol, as well as drink mixers, can cause either high or low blood sugar, depending on how much you drink and if you eat at the same time. If you choose to drink, do so in moderation and always with a meal.

## Alternative medicine

Numerous alternative medicine substances have been shown to improve insulin sensitivity in some studies, while other studies fail to find any benefit for blood sugar control or in lowering A1C levels. Because of the conflicting findings, no alternative therapies are recommended to help with blood sugar management.

If you decide to try an alternative therapy, don't stop taking the medications that your doctor has prescribed. Be sure to discuss the use of any of these therapies with your doctor to make sure that they won't cause adverse reactions or interact with your medications.

No treatments — alternative or conventional — can cure diabetes. So, it's critical that people who are using insulin therapy for diabetes don't stop using insulin unless directed to do so by their physicians.

## Coping and support

Type 2 diabetes is a serious disease, and following your diabetes treatment plan takes round-the-clock commitment. But your efforts are worthwhile because following your treatment plan can reduce your risk of complications.

Talking to a counselor or therapist may help you cope with the lifestyle changes that come with a type 2 diabetes diagnosis. You may find encouragement and understanding in a type 2 diabetes support group. Although support groups aren't for everyone, they can be good sources of information. Group members often know about the latest treatments and tend to share their own experiences or helpful information, such as where to find carbohydrate counts for your favorite takeout restaurant.

If you're interested in a support group, your doctor may be able to recommend one in your area. Or you can visit the websites of Diabetes South Africa) or the Centre for Diabetes and Endocrinology (CDE) for support group information.

## Prevention

- Healthy lifestyle choices can help you prevent type 2 diabetes. Even if you have diabetes in your family, diet and exercise can help you prevent the disease. If you've already received a diagnosis of diabetes, you can use healthy lifestyle choices to help prevent complications. And if you have prediabetes, lifestyle changes can slow or halt the progression from prediabetes to diabetes.
- Eat healthy foods: Choose foods lower in fat and calories and higher in fiber. Focus on fruits, vegetables and whole grains.
- Get physical: Aim for 30 minutes of moderate physical activity a day. Take a brisk daily walk. Ride a bike. Swim laps. If you can't fit in a long workout, spread 10-minute or longer sessions throughout the day.
- Lose excess pounds: If you're overweight, losing 7 percent of your body weight can reduce the risk of diabetes. To keep your weight in a healthy range, focus on permanent changes to your eating and exercise habits. Motivate yourself by remembering the benefits of losing weight, such as a healthier heart, more energy and improved self-esteem.

Sometimes medication is an option as well. Metformin (Glucophage, Glumetza, others), an oral diabetes medication, may reduce the risk of type 2 diabetes — but healthy lifestyle choices remain essential.

*Source: The Mayo Clinic*

## Contact us

Please feel free to contact your Aon Healthcare Consultant if you have any concerns. You may also contact the **Aon Resolution Centre on 0860 835 272 or e-mail: [arc@aon.co.za](mailto:arc@aon.co.za)** for further information.

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