



## TYPE 1 DIABETES

Type 1 diabetes, once known as juvenile diabetes or insulin-dependent diabetes, is a chronic condition in which the pancreas produces little or no insulin. Insulin is a hormone needed to allow sugar (glucose) to enter cells to produce energy.

Different factors, including genetics and some viruses, may contribute to type 1 diabetes. Although type 1 diabetes usually appears during childhood or adolescence, it can develop in adults.

Despite active research, type 1 diabetes has no cure. Treatment focuses on managing blood sugar levels with insulin, diet and lifestyle to prevent complications.

### SYMPTOMS

Type 1 diabetes signs and symptoms can appear relatively suddenly and may include:

- Increased thirst
- Frequent urination
- Bed-wetting in children who previously didn't wet the bed during the night
- Extreme hunger
- Unintended weight loss
- Irritability and other mood changes
- Fatigue and weakness
- Blurred vision

### PREVENTION

There's no known way to prevent type 1 diabetes. But researchers are working on preventing the disease or further destruction of the islet cells in people who are newly diagnosed.

### COMPLICATIONS

Over time, type 1 diabetes complications can affect major organs in your body, including heart, blood vessels, nerves, eyes and kidneys. Maintaining a normal blood sugar level can dramatically reduce the risk of many complications.

Eventually, diabetes complications may be disabling or even life-threatening.

- Heart and blood vessel disease. Diabetes dramatically increases your risk of various cardiovascular problems, including coronary artery disease with chest pain (angina), heart attack, stroke, narrowing of the 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 could cause you to eventually lose all sense of feeling in the affected limbs.

- Damage to the nerves that affect the gastrointestinal tract 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 requires dialysis or a kidney transplant.
- Eye damage. Diabetes can damage the blood vessels of the retina (diabetic retinopathy), potentially causing 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 that may ultimately require toe, foot or leg amputation.
- Skin and mouth conditions. Diabetes may leave you more susceptible to infections of the skin and mouth, including bacterial and fungal infections. Gum disease and dry mouth also are more likely.
- Pregnancy complications. High blood sugar levels can be dangerous for both the mother and the baby. The risk of miscarriage, stillbirth and birth defects increases when diabetes isn't well-controlled. For the mother, diabetes increases the risk of diabetic ketoacidosis, diabetic eye problems (retinopathy), pregnancy-induced high blood pressure and preeclampsia.

In type 1 diabetes, there's no insulin to let glucose into the cells, so sugar builds up in your bloodstream. This can cause life-threatening complications.

## RISK FACTORS

Some known risk factors for type 1 diabetes include:

- Family history. Anyone with a parent or sibling with type 1 diabetes has a slightly increased risk of developing the condition.
  - Genetics. The presence of certain genes indicates an increased risk of developing type 1
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diabetes.

- Geography. The incidence of type 1 diabetes tends to increase as you travel away from the equator.
- Age. Although type 1 diabetes can appear at any age, it appears at two noticeable peaks. The first peak occurs in children between 4 and 7 years old, and the second is in children between 10 and 14 years old.

## 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 glucose levels are low, such as when you haven't eaten in a while, the liver breaks down the stored glycogen into glucose to keep your glucose levels within a normal range.

## THE ROLE OF INSULIN

Once a significant number of islet cells are destroyed, you'll produce little or no insulin. Insulin is a hormone that comes from a gland situated behind and below the stomach (pancreas).

The pancreas secretes insulin into the bloodstream. Insulin circulates, allowing 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.

## WHEN TO SEE A DOCTOR

Consult your doctor if you notice any of the above signs and symptoms in you or your child.

## CAUSES

The exact cause of type 1 diabetes is unknown. Usually, the body's own immune system — which normally fights harmful bacteria and viruses — mistakenly destroys the insulin-producing (islet, or islets of Langerhans) cells in the pancreas. Other possible causes include:

Genetics Exposure to viruses and other environmental factors.