

# Type 2 Diabetes: A Guide for Families

## What is type 2 diabetes and how frequent is it?

Diabetes is diagnosed when a high level of sugar is detected in the blood. It is estimated that more than 25 million people in the United States have diabetes. This is 1 in every 12 people. About 30% of these people do not know that they have diabetes. Although there are other types of diabetes, including type 1 diabetes and gestational diabetes, type 2 diabetes is the most common form. It is less common in children but is occurring more and more frequently, typically in overweight children as young as age 10 and in teenagers.

## What causes diabetes?

When food is digested, it is converted to a sugar called glucose, which is an important source of fuel. Glucose is processed by a hormone called insulin, which is made in an organ located in the belly called the pancreas. Insulin is required to get glucose from the bloodstream into the muscle, fat, and liver cells, where it is converted to energy for the body. Diabetes can occur if the body is unable to make insulin (type 1 diabetes) or if the body continues to make insulin but is unable to respond to the insulin (type 2 diabetes). As type 2 diabetes develops, the muscle, fat, and liver cells do not respond to insulin normally. This phenomenon is called insulin resistance and leads to abnormally high levels of insulin. Over time, the pancreas tires out and stops making enough insulin to keep the blood sugar normal, and diabetes develops.

## Symptoms of type 2 diabetes:

- Increased thirst
- Increased urination
- Weight loss occurring without dieting
- Fatigue
- Blurry vision
- Frequent infections
- Sores/cuts that are slow to heal
- Tingling/numbness in hands or feet

## How is type 2 diabetes diagnosed?

The diagnosis is made when a person has an elevated blood sugar level at any time with symptoms of diabetes, or if two of the following test results occur:

- Fasting blood sugar equal or greater than 126 mg/dL
- A blood glucose level equal or greater than 200 mg/dl during a test called an oral glucose tolerance test

Diabetes can also be diagnosed by a test that reflects what the average blood sugar has been in the blood over the prior 3 months. This test is called hemoglobin A1c (HbA1c), and a result that is equal to or greater than 6.5% is suggestive of diabetes.

Before the development of full-blown type 2 diabetes, children can have a phase of prediabetes that is called impaired glucose tolerance (if the blood sugar after eating is between 140 and 199 mg/dL) or another form of prediabetes called impaired fasting glucose (if the fasting blood sugar is between 100 and 126).

Some people with high blood sugars do not have symptoms of diabetes, therefore, the American Diabetes Association recommends that children at high risk should be screened for diabetes when puberty starts or by age 10 years and then every 3 years. These include overweight children who also have any two of the following:

- First- or second-degree relative (mother, father, sister, brother, aunt, uncle, or grandparent) with type 2 diabetes
- Belong to one of the following groups:
  - American Indian
  - African-American
  - Hispanic
  - Asian/Pacific Islander
- Signs of insulin resistance or conditions associated with insulin resistance
- Acanthosis nigricans (darkening and thickening of the skin, usually on the back of the neck)
- High blood pressure
- Abnormal lipid levels in the blood (high cholesterol or triglycerides or low “good” cholesterol-HDL cholesterol)
- Polycystic ovary syndrome in girls

## How is type 2 diabetes treated?

- Increased exercise
- Healthy diet
- Metformin
- Insulin
- Other medications that might be used but have not been approved for use in children yet

Metformin helps the liver, fat, and muscle cells respond to insulin better and lower your blood sugar. If the blood sugar is very high or your doctor cannot get it in an acceptable range, your doctor may start injections with insulin.

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