

# Type 1 diabetes in children

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## Overview

Type 1 diabetes in children is a condition in which your child's body no longer produces an important hormone (insulin). Your child needs insulin to survive, so the missing insulin needs to be replaced with injections or with an insulin pump. Type 1 diabetes in children used to be known as juvenile diabetes or insulin-dependent diabetes.

The diagnosis of type 1 diabetes in children can be overwhelming, especially in the beginning. Suddenly you and your child — depending on your child's age — must learn how to give injections, count carbohydrates and monitor blood sugar.

There's no cure for type 1 diabetes in children, but it can be managed. Advances in blood sugar monitoring and insulin delivery have improved blood sugar management and quality of life for children with type 1 diabetes.

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# Symptoms

The signs and symptoms of type 1 diabetes in children usually develop quickly, and may include:

- Increased thirst
- Frequent urination, possibly bed-wetting in a toilet-trained child
- Extreme hunger
- Unintentional weight loss
- Fatigue
- Irritability or behavior changes
- Fruity-smelling breath

## When to see a doctor

See your child's health care provider if you notice any of the signs or symptoms of type 1 diabetes.

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## Causes

The exact cause of type 1 diabetes is unknown. But in most people with type 1 diabetes, the body's immune system — which normally fights harmful bacteria and viruses — mistakenly destroys insulin-producing (islet) cells in the pancreas. Genetics and environmental factors appear to play a role in this process.

Once the islet cells of the pancreas are destroyed, your child produces little or no insulin. Insulin performs the critical job of moving sugar (glucose) from the bloodstream to the body's cells for energy.

Sugar enters the bloodstream when food is digested. Without enough insulin, sugar builds up in your child's bloodstream. This can cause life-threatening complications if left untreated.

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## Risk factors

Type 1 diabetes most often occurs in children but can occur at any age. Risk factors for type 1 diabetes in children include:



- **Family history.** Anyone with a parent or siblings with type 1 diabetes has a slightly increased risk of developing the condition.
  - **Genetics.** Certain genes indicate an increased risk of type 1 diabetes.
  - **Race.** In the United States, type 1 diabetes is more common among white children of non-Hispanic descent than among children of other races.
  - **Certain viruses.** Exposure to various viruses may trigger the autoimmune destruction of the islet cells.
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## Complications

Type 1 diabetes can affect the major organs in your body. Keeping your blood sugar level close to normal most of the time can dramatically reduce the risk of many complications.

Complications can include:

- **Heart and blood vessel disease.** Diabetes increases your child's risk of developing conditions such as narrowed blood vessels, high blood pressure, heart disease and stroke later in life.
- **Nerve damage.** Excess sugar can injure the walls of the tiny blood vessels that nourish your child's nerves. This can cause tingling, numbness, burning or pain. Nerve damage usually happens gradually over a long period of time.
- **Kidney damage.** Diabetes can damage the numerous tiny blood vessel clusters in the kidneys that filter waste from your child's blood.
- **Eye damage.** Diabetes can damage the blood vessels of the eye's retina, which may lead to vision problems.
- **Osteoporosis.** Diabetes may decrease bone mineral density, increasing your child's risk of osteoporosis as an adult.

You can help your child prevent diabetes complications by:



- Working with your child to maintain good blood sugar control as much as possible
- Teaching your child the importance of eating a healthy diet and participating in regular physical activity
- Scheduling regular visits with your child's diabetes health care professional

Children with type 1 diabetes are at risk of other autoimmune disorders, such as thyroid disease and celiac disease. Your child's health care provider may recommend tests for these conditions.

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## Prevention

There's currently no sure way to prevent type 1 diabetes, but this is a very active area of research.

The antibodies associated with type 1 diabetes in children who have a high risk of the disorder can be detected months or even years before the first symptoms of type 1 diabetes appear. Researchers are working on:

- Preventing or delaying the start of type 1 diabetes in people who have a high risk of the disease.
- Preventing further destruction of the islet cells in people who are newly diagnosed.

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By Mayo Clinic Staff

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