

What is Type 1 Diabetes? (a simplified explanation)



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Type 1 diabetes often develops in children, adolescents, and young adults, so it's sometimes called "juvenile diabetes."

A healthy pancreas produces insulin, a hormone that the body uses to change glucose in the blood into energy. Glucose in the blood comes from the food and drink a person consumes. A person with type 1 diabetes doesn't produce any insulin. Without insulin, the glucose builds up in the blood, causing high blood sugar, or hyperglycemia. Blood sugar levels that are too high and untreated for long periods of time can lead to ketoacidosis, a very serious condition. Very high blood sugars for an extended period of time can eventually lead to coma and death.

In people without diabetes, the pancreas maintains a "perfect balance" between food intake and insulin. When a person eats, the pancreas puts out the exact amount of insulin needed to turn the glucose into energy. If the person eats a lot, the pancreas puts out a lot of insulin. If the person eats just a little, the pancreas puts out just a little insulin.

Since people with type 1 diabetes can't produce their own insulin, they must put insulin into the blood stream through injections or an insulin pump. If people with type 1 diabetes inject too much insulin (or eat too little) they may have a hypoglycemic reaction. Hypoglycemia (low blood sugar) is the most common problem in children with diabetes. It can be very serious and requires immediate action.

People with type 1 diabetes often struggle to determine how much insulin to inject. In a simple and perfect world, this question would have an easy answer (e.g. always eat a certain amount of food and inject a certain amount of insulin). However, in reality there is *no way* to know how much insulin to inject with 100% accuracy. Many factors influence how much insulin people need to get to the desired "perfect balance" of glucose and insulin. These factors include foods with different absorption rates as well as the effects of stress, illness, and exercise. Also, as children grow, their insulin needs change. Since determining how much insulin the body needs to "balance" the amount of glucose is really a *best guess*, sometimes the guess is inaccurate and high or low blood sugar results.

High blood sugar levels over a number of years can cause serious damage to the body's organ systems. This damage may cause complications affecting the heart, nerves, kidneys, eyes, and other parts of the body. A number of studies, however, have proven that careful monitoring and control of blood sugar levels greatly reduces the threat of these complications. Researchers are also making progress at developing new treatments and technologies to help people with diabetes stay healthy. It's important to remember that people with diabetes can lead active and productive lives, just like anyone else.

Diabetes is not contagious. You cannot catch diabetes from someone who has it. Researchers continue to study how and why diabetes occurs in certain children and families. Although diabetes cannot be cured, it can be controlled.