

Diabetes Basics

What Is Diabetes?

Diabetes mellitus is a disease of the pancreas (an organ behind your stomach). Normally, the pancreas releases a hormone called insulin that helps your body store and use the sugar and fat from the food you eat.

Diabetes occurs:

- When the pancreas does not produce any insulin, or
- The pancreas produces very little insulin, or
- When the body does not respond appropriately to insulin, a condition called "insulin resistance."

Diabetes is a lifelong disease. Approximately 18.2 million Americans have the disease, that's 6.3% of the U.S. population. While a third are aware that they have it, another one third or 5.2 million are unaware that they have diabetes. An additional 20 million people have pre-diabetes. As yet, there is no cure. People with diabetes need to manage their disease to stay healthy.

The Role of Insulin in Diabetes

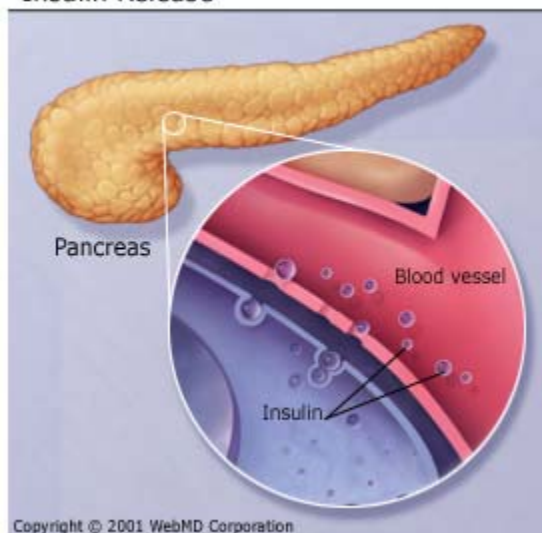
To understand why insulin is important, it helps to know more about how the body uses food for energy. Your body is made up of millions of cells. To make energy, these cells need food in a very simple form. When you eat or drink, much of your food is broken down into a simple sugar called "glucose." Then, glucose is transported through the bloodstream to the cells of your body where it can be used to provide some of the energy your body needs for daily activities.

The amount of glucose in your bloodstream is tightly regulated by a hormone called "insulin." Insulin is always being released in small amounts by the pancreas. When the amount of glucose in your blood rises to a certain level, your pancreas releases more insulin to push more glucose into the cells. This causes the glucose levels in your blood (blood glucose levels) to drop.

To keep your blood glucose levels from getting to low (hypoglycemia or low blood sugar), your body signals you to eat to increase glucose levels again and releases some glucose from the stores kept in the liver.

People with diabetes either don't make insulin or their body's cells no longer are able to recognize insulin, leading to high blood sugars. By definition, diabetes is having a blood glucose level of 126 milligrams per deciliter (mg/dL) or more after an overnight fast (not eating anything).

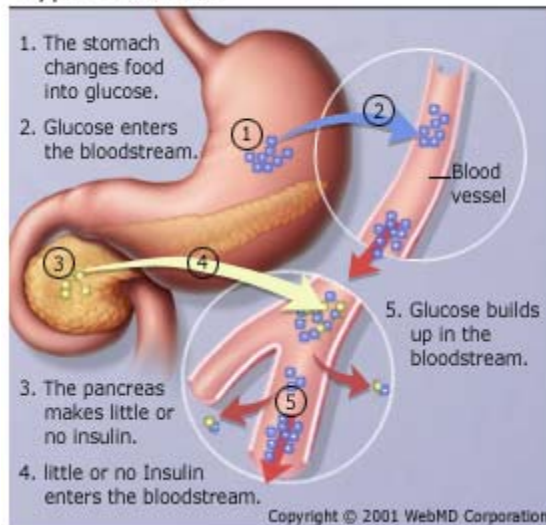
Insulin Release



What Are the Types of Diabetes?

Type 1 Diabetes Type 1 diabetes occurs because the insulin-producing cells of the pancreas (called beta cells) are destroyed by the immune system. People with type 1 diabetes produce no insulin and must use insulin injections to control their blood glucose.

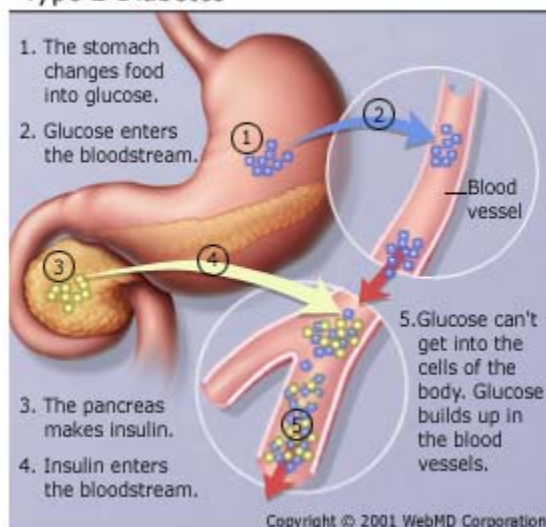
Type 1 Diabetes



The damage to the insulin-producing cells in type 1 diabetes occurs over a variable period of time. However, the symptoms of type 1 diabetes may occur over a period of days to weeks. Type 1 diabetes most commonly starts in people under the age of 20, but may occur at any age.

Type 2 Diabetes Unlike people with type 1 diabetes, people with type 2 diabetes produce insulin. However, the insulin their pancreas secretes is either not enough or the body is unable to recognize the insulin and use it properly. When there isn't enough insulin or the insulin is not used as it should be, glucose can't get into the body's cells.

Type 2 Diabetes



Type 2 diabetes is the most common form of diabetes mellitus, affecting almost 16 million Americans.

While over 91% of these cases can be prevented, it remains for adults the leading cause of related complications such as blindness, non-traumatic amputations and chronic kidney failure requiring dialysis. Type 2 diabetes usually starts in people over age 40 that are overweight, but can occur in people who are not overweight. Sometimes referred to as "adult-onset diabetes," type 2 diabetes has started to appear in children because of the rise in obesity in young people.

Some people can manage their type 2 diabetes by controlling their weight, watching their diet, and exercising regularly. Others may also need to take a pill that helps their body use insulin better, or take insulin injections.

Often, doctors are able to detect the likelihood of type 2 diabetes before the condition actually occurs. Commonly referred to as pre-diabetes, this condition occurs when a person's blood glucose levels are higher than normal, but not high enough for a diagnosis of type 2 diabetes. It is estimated that 16 million Americans have pre-diabetes.

Gestational Diabetes

Gestational diabetes is triggered by pregnancy. The condition occurs in 4-7% of all pregnancies. Hormone changes during pregnancy can affect insulin's ability to work properly.

Pregnant women who have an increased risk of developing gestational diabetes are those who are over 25 years old, are above their normal body weight before pregnancy, have a family history of diabetes or are Hispanic, black, Native American, or Asian.

Screening for gestational diabetes is important and is performed during pregnancy. Left untreated, gestational diabetes increases the risk of complications to both the mother and her unborn child.

Usually, blood glucose levels return to normal within six weeks of childbirth. However, women who have had gestational diabetes have an increased risk of developing type 2 diabetes later in life.

What Are the Symptoms of Diabetes?

The symptoms of type 1 diabetes often occur suddenly and can be severe. They include:

- Increased thirst
- Increased hunger (especially after eating)
- Dry mouth
- Frequent urination
- Unexplained weight loss (even though you are eating and feel hungry)
- Fatigue (weak, tired feeling)
- Blurred vision
- Labored, heavy breathing (Kussmaul respirations)
- Loss of consciousness (rare)

The symptoms of type 2 diabetes may be the same as those listed above. Most often, there are no symptoms or a very gradual development of the above symptoms. Other symptoms may include:

- Slow-healing sores or cuts
- Itching of the skin (usually in the vaginal or groin area)
- Yeast infections
- Recent weight gain
- Numbness or tingling of the hands and feet
- Low blood glucose levels

- Impotence or erectile dysfunction

How Is Diabetes Managed?

At the present time, diabetes can't be cured, but it can be treated and controlled. The goals of managing diabetes are to:

- Keep your blood glucose levels as near to normal as possible by balancing food intake with medication and activity.
- Maintain your blood cholesterol and triglyceride (lipid) levels as near their normal ranges as possible by decreasing the total amount of fat to 30% or less of your total daily calories and by reducing saturated fat and cholesterol.
- Control your blood pressure. Your blood pressure should not go over 130/80.
- Slow or possibly prevent the development of diabetes-related health problems.

You hold the key to managing your diabetes by:

- Planning what you eat and following a balanced meal plan
- Exercising regularly
- Taking medicine, if prescribed, and closely following the guidelines on how and when to take it
- Monitoring your blood glucose and blood pressure levels at home
- Keeping your appointments with your healthcare providers and having laboratory tests as ordered by your doctor

What you do at home every day affects your blood glucose more than what your doctor can do every few months during your checkups.

Learn about the doctors who treat diabetes.

Are you at risk for diabetes?

View the full table of contents for the diabetes guide.

Reviewed by Certified Diabetes Educators in the Department of Patient Education and Health Information and by physicians in the Department of Endocrinology at The Cleveland Clinic.

Edited by Brunilda Nazario, MD, Nov. 2003.

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