

WHAT YOU NEED TO KNOW ABOUT DIABETES

Diabetes Mellitus, commonly referred to as “diabetes,” means “sweet urine.” Diabetes Mellitus means “to flow, honey” in Greek.

Diabetes affects the body's ability to produce or respond to insulin. Insulin is a hormone that allows blood glucose (blood sugar) to enter the cells of the body and be used for energy.

Diabetes results from defects in insulin secretion, insulin action, or both. In diabetes, too much glucose stays in the blood. Elevated levels of blood glucose (hyperglycemia) lead to spillage of glucose into the urine.

As a result of elevated levels of blood glucose, two problems occur: body cells become starved for energy and over time, the high glucose levels can damage the nerves, eyes, kidneys, heart, and blood vessels.

Diabetes is not an infectious disease, like a cold or flu. You can't “catch” it from someone else, and no one can catch it from you. Diabetes is a lifelong disease.

Men with diabetes often have erectile dysfunction which can begin before the diagnosis of diabetes is made. It is recommended that men with unexplained erectile dysfunction be screened for diabetes with a fasting blood glucose test.

What is high blood sugar?

- Normal blood sugar: 65-140
- High blood sugar: 250-350
- Very high blood sugar: over 350

What happens when blood sugar falls too low?

When blood sugar falls too low, the body will begin a process to increase blood sugar. This process is listed below.

1. The pancreas releases a hormone called glycogen; the muscles and liver convert their stored glycogen back into glucose.
2. When the stored glycogen is used up, the liver, kidneys, and small intestines can break down protein into glucose.

Symptoms of Diabetes

Symptoms of Diabetes include:

- excessive thirst
- excessive urination
- thrush
- extreme hunger
- unusual weight loss
- extreme fatigue
- irritability
- nausea
- vomiting
- sweet smelling breath

Types of Diabetes

There are four main types of Diabetes.

- Insulin-Dependent Diabetes Mellitus (IDDM)
- Non Insulin-Dependent Diabetes Mellitus (NIDDM)
- Gestational Diabetes

- Secondary Diabetes

Secondary Diabetes Mellitus refers to elevated blood sugar levels that develop as the result of another medical condition. Secondary Diabetes Mellitus also develops when the pancreatic tissue responsible for the production of insulin is absent because it is destroyed by disease, such as chronic pancreatitis, trauma, or surgical removal of the pancreas. Diabetes can also result from other hormonal disturbances, such as excessive growth hormone production (acromegaly) and Cushing's Syndrome.

Cure for Diabetes

A cure for Diabetes has not been found yet. However, it can be controlled. Ways to control diabetes are: maintaining blood glucose levels, blood fat levels, and weight. Blood glucose levels can be maintained by following a diet designed by your doctor, exercising, and eating at regular intervals.

Treatment Options for Diabetes

Some of the most common treatment options are: oral medicines (Diabetes pills), dietary changes, exercise, insulin, and Islet Cell Transplantation. The oral medicines may have negative side effects. The side effects of the oral medicines include: nausea, diarrhea, metallic taste in mouth, low blood glucose, skin rash or itching, and weight gain.

Rare side effects of oral medicines are liver failure, respiratory infection, headache, and pain.

How is Diabetes Mellitus diagnosed?

Diabetes can be diagnosed by performing a fasting plasma glucose test. The test is as follows: after the person has fasted overnight (at least eight hours), a sample of blood is drawn and sent to the laboratory for analysis.

Normal fasting plasma glucose levels are less than 110 milligrams per deciliter (mg/dl). Fasting plasma glucose levels of more than 126 mg/dl on two or more tests on different days indicate diabetes.

How does exercise help control Diabetes?

Exercise is very important to maintaining a healthy life and managing diabetes. Combining diet, exercise, and medicine (when prescribed by your doctor) will help control your weight and blood sugar level. Exercise is good for you because:

1. It lowers blood sugar by speeding the transport of glucose in the cells. (Known as invisible insulin.)
2. It helps promote weight loss and maintenance of ideal body weight.
3. It decreases cardiovascular risk by making the heart pump more efficiently.
4. It improves circulation.
5. It reduces demands on the pancreas.
6. It improves muscular tone.
7. It reduces stress.

Controlling Diabetes is very important and should be supervised by a medical doctor. When Diabetes is controlled, it will help prevent serious complications such as: infections, kidney damage, eye damage, nerve damage, damage to feet, and heart disease.

Diabetes and your Doctor

You should inform your doctor if you have experienced any symptoms of eye, nerve, kidney, or cardiovascular problems such as: blurred vision, numbness or tingling in your feet, persistent hand, feet, face, or leg swelling, cramping or pain in the legs, chest pain, shortness of breath, numbness or weakness on one side of your body, or unusual weight gain.

It is important that you tell your doctor if you are experiencing these symptoms because they might be symptoms of other serious conditions.

Complications of Diabetes

Common complications of Diabetes are:

- heart disease

- stroke
- Diabetic retinopathy
- kidney disease
- sciatica

Type I or Insulin-Dependent Diabetes Mellitus (IDDM)

IDDM (also called Juvenile-Onset Diabetes) occurs when the pancreas makes little or no insulin. Insulin is a hormone manufactured and secreted by the pancreas. Insulin is essential for the cells of your body to metabolize glucose properly and function normally. Without insulin to move glucose into cells, blood sugar levels become dangerously high, a condition known as hyperglycemia. Since the body cannot utilize the sugar, the sugar spills over into the urine and is lost. One of the tests for Diabetes is the sugar level in urine. Type I Diabetes usually occurs in people younger than 30 years. However, it can occur at any age.

Type I Diabetes is caused by damage to the pancreas, an organ near the stomach that contains *beta cells*, which produce insulin. Many things can destroy beta cells, but in most people with insulin-dependent Diabetes, a glitch in the immune system causes it to attack the beta cells. Without insulin-producing beta cells, glucose builds up in the blood. Type I Diabetes accounts for only 5 percent to 10 percent of all cases of Diabetes. Although Insulin-Dependent Diabetes is much less common, it is more severe.

There are at least 18 different genes that influence susceptibility to Type I Diabetes.

Type I Diabetes has been called different names. Some of its other names are: Juvenile Onset Diabetes Mellitus, Ketosis-Prone Diabetes Mellitus and Immune-Mediated Diabetes. It usually begins in childhood or adolescence, but is a lifelong disease and there is no cure.

Type I Diabetes is an autoimmune disease that affects 0.3% of the world's population. It is caused by auto-aggressive T cells that infiltrate the pancreas and eventually destroy the insulin-producing B-islet cells. This results in an increase in glucose levels, which are normally kept in check by insulin.

Autoimmune Diabetes usually usually effects young people, who are then dependent on an artificial source of insulin for life. The identity of the self proteins in the pancreatic islets that target the cells for autoimmune destruction has long been debated.

About 1 million Americans have Type I Diabetes.

Insulin-Dependent Diabetes is controlled by:

- lowering the blood glucose level by daily injections of insulin
- balanced diet

Risk Factors for Developing Type I Diabetes

- race/ethnicity (Type I Diabetes is more prevalent in people of Caucasian decent)
- if the father or mother have Type I Diabetes

Type II or Non-Insulin Dependent Diabetes Mellitus (NIDDM)

NIDDM (also called Maturity-Onset Diabetes) usually occurs in people over 30 years. Often “runs in the family.” The onset of NIDDM can be related to lifestyle (overweight, inactivity, certain drugs, excess alcohol). Obesity is a major risk factor for this type of Diabetes and unfortunately, increasingly more Americans (including children) are too sedentary and too fat. About 90% of individuals who have Diabetes suffer from Type II Diabetes.

People with this condition either don't produce enough insulin to control glucose levels or their cells simply do not respond to the insulin. If the pancreas produces some insulin, the production level is often not sufficient to lower the blood glucose level to normal. The main problem is that for some reason, insulin does not work properly after it reaches the body's cells. This is called “insulin resistance.”

Insulin resistance can happen of you are overweight. This can happen if you are overweight because fat “blocks” the insulin from moving the glucose into the body cells.

Non-Insulin Dependent Diabetes treatment centers mainly around diet and regular exercise. About 15 million Americans have Type II Diabetes.

Risk Factors for Developing Type II Diabetes

- age (over 45 years old)
- obesity (the number of people with Diabetes in an unhealthy weight range is double that found in the population without Diabetes)
- gave birth to a large baby (over 4.0 kg./9 lbs.)
- a previous diagnosis of impaired glucose tolerance

What are the most common symptoms of Diabetes Type II?

The most common symptoms of Diabetes Type II for adults are: excessive thirst, increased urination, fatigue, and blurred vision. Children may experience symptoms that differ from the ones listed above.

Medications for Type II Diabetes

There are medications available that can control glucose levels. However, many doctors prescribe lifestyle changes as the first course of action, including:

- **Diet**: It is important to limit your fat intake as well as cholesterol.
- **Weight Control**: For people with Type II Diabetes, minor weight loss can improve your blood glucose levels. Unfortunately, a side effect of the Type II Diabetes medications is weight gain.
- **Exercise**: Research has shown that regular moderate exercise, such as taking a brisk walk, improves insulin sensitivity.

Diabetes and Heart Disease

Diabetes increases the risk for hardening of the arteries, stroke, and peripheral vascular disease. This occurs because diabetes changes body chemistry. As a result, blood may clot too easily, blood vessels may narrow, and fat may build up in the blood vessels faster. Symptoms include poor circulation, frequent infections, itchy skin, legs that become shiny and lose their hair, calves that hurt during exercise (beyond the expected muscle ache caused by exertion). Men have an added symptom: trouble having an erection. High blood pressure and cholesterol levels signal that a person has a higher risk for heart or blood vessel damage.

How does Diabetes affect my feet?

About one in five people with Diabetes enters the hospital for foot problems.

Many people with Diabetes have mild to severe nerve damage. Nerve damage can cause diminished feeling in the feet. As a result, you may not feel cuts, scratches, and breaks in the skin on your feet. These wounds can lead to unnoticed infection.

Specific foot problems: calluses, ulcers, loss of feeling (neuropathy), poor circulation, amputation.

- **Calluses**: Calluses occur more often and build up faster on the feet of people with Diabetes. Calluses, if not trimmed, get very thick, break down, and turn into ulcers.
- **Foot Ulcers**: Ulcers occur most often over the ball of the foot or on the bottom of the big toe. Ulcers on the sides of the foot are usually due to poor fitting shoes. Neglecting an ulcer can result in infections, which in turn can lead to loss of a limb.
- **Neuropathy**: Diabetic nerve damage (neuropathy) also can lessen your ability to feel pain, heat, and cold. Loss of feeling may mean that you might not feel a foot injury.
- **Poor Circulation**: Poor circulation (blood flow) can make your feet less able to fight infection and heal.
- **Amputation**: If the above problems are not cared for, amputation of the foot or leg may result.

Tell Your Doctor

If you notice any of the following problems, talk with your doctor:

1. changes in the color of the skin on your feet
2. changes in skin temperature

3. pain in the legs, either at rest or while walking
4. swelling of the foot or ankle
5. open sores that are slow to heal
6. ingrown or fungus-infected toenails
7. corns or calluses that bleed within the skin
8. cracks in the skin, especially around the heel

How to Prevent Foot Problems

You can help prevent foot problems by keeping the skin on your feet healthy and intact, and taking immediate steps to care for any irritation that does occur.

Another way to prevent foot problems is to make sure your health care provider checks your feet at least once a year and provides you with a list and explanation of the dos and don'ts of foot care.

Diet and Exercise Delay Diabetes and Normalize Blood Glucose

Diet and exercise that achieved a 5-7% weight loss reduced Diabetes incidence by 58% in participants randomized to the study's lifestyle intervention group. Participants in this group exercised at moderate intensity, usually by walking an average of 30 minutes per day, five days a week, and lowered their intake of fat and calories.

About 16 million people in the United States have Diabetes. It is the main cause of kidney failure, limb amputations, and new onset blindness in adults, and a major cause of heart disease and stroke. Type II Diabetes accounts for up to 95% of all Diabetes cases. Most common in adults over age 40, Type II Diabetes affects 8% of the U.S. population age 20 and older. It is strongly associated with obesity (more than 80% of people with Type II Diabetes are overweight), inactivity, family history of Diabetes, and racial or ethnic background. The prevalence of Type II Diabetes has tripled in the last 30 years, due in part to the upsurge in obesity. People with a BMI of 30 or greater have a five-fold greater risk of diabetes than those with a normal BMI of 25 or less.

How Clients Check Blood Sugar Levels

Diabetes is one of the most prevailing diseases now a day. Population of Diabetic patients is increasing dramatically in last few years. So it is very important to keep a check on Diabetes. In this concern, you yourself play a big role in managing your Diabetes. First, you need to know how Diabetes affects your body.

To Check your blood sugar regularly tells you whether your lifestyle, your physical activity, meal plans, and medicines are doing a good job controlling your Diabetes. There are two easy methods to test your blood sugar level yourself. They take less than two minutes.

- finger-stick method
- noninvasive method

Finger-Stick Method

Most equipment for checking blood sugar levels involve pricking your finger with a tiny needle (lancet) to draw a drop of blood. Some draw the blood from your forearm. For reading your blood sugar level, you can use a blood glucose meter that will show the number on its screen.

There are many types of meters. Your doctor can help you choose one and show you how to use it. If you still have questions, check the instructions that came with your meter. There are many newer options also available in the market rather than a lancet for creating the tiny hole needed to draw the blood from the finger. One example is they test blood from other less sensitive parts of the body than the fingertips. These new devices draw blood in ways similar to the finger-stick method.

To check your Diabetes through finger stick method, follow these simple steps:

1. Wash your hands with warm water and dry them well with a clean towel. You can also use an alcohol wipe to clean the finger that you'll draw blood from. Hold your hand below your waist for a minute or so. This helps blood pool in the finger, making it easier to get enough blood for the test.
2. After preparing your lancet and glucose meter, have a clean test strip ready. Stick the side of your fingertip with the lancet. There are many kinds of lancets and meters. Some draw blood from your forearm.

3. Put a drop of blood on the test strip.
4. To get your results, follow the directions that came with your blood sugar meter. Some meters can give results in a few minutes.
5. Write down the results and the time you did the test. Your Doctor will use these records to see how well you're managing your blood sugar level.

Non-Invasive Method

Any other blood sugar testing tool does not draw blood. You wear it on your wrist like a watch and it takes the reading through your skin. It uses a slight electrical current to pull fluid through the skin and into the machine, where it measures the sugar level.

The watch can't replace your regular finger-stick test. But the watch lets you see trends in how your blood sugar changes over the course of the day. There are some guidelines to check your Diabetes with noninvasive method.

Some general guidelines for checking your blood sugar level are given as below:

- Wear the device for a three-hour warm-up before taking a reading. During this time, don't bathe or swim.
- Adjust the device by entering a blood sugar measurement that you've gotten by the finger-stick method every time you use the watch.
- The device will automatically take readings every 20 minutes for up to 12 hours. It can be programmed to sound as an alarm if your blood sugar reaches dangerously high or low levels.