

Living with Diabetes....

What you need to know

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GRACE VISITING NURSES

The American Diabetic Association reports there are 23.6 million people in the US affected by diabetes.

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Grace Visiting Nurses is committed to excellence. We value guidance, communication, motivation, creativity, quality care, understanding, loyalty, accountability, initiative, trust, and teamwork.

Our services offered include:

- ✚ Physical, Occupational, and Speech Therapy
- ✚ Pediatric Nursing
- ✚ Telemonitoring
- ✚ Wound Care/Wound Vac
- ✚ Anodyne Therapy
- ✚ Ventilators/Trach Care
- ✚ Central Line Care
- ✚ PICC Line Care
- ✚ IV/TPN Therapy
- ✚ IVIG/Respigam

check blood sugars and how to fit diabetes into your everyday life.

Web Sites

American Diabetes Association.

www.diabetes.org

myOptumHealth

www.myoptumhealth.com/portal/DiseasesandConditions

Diabetes America.

www.diabetesamerica.com/diabetestest

About.com

<http://diabetes.about.com/od/symptomsdiagnosis/p/Symptoms.htm>



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What is Diabetes?

Diabetes is a disorder that affects the body's way of using food for energy. The normal process of digesting food into energy starts with the food being broken down into simple sugar, called glucose. The glucose then travels into the blood stream to be circulated to the body's cells for energy. In order for the cells to accept the glucose it has to have a hormone produced by the pancreas, called insulin. The insulin is the key that opens the door of the cell and allows the glucose to become energy. A healthy pancreas adjusts the amount of insulin according to the level of glucose in the blood. If a step in this process does not work properly then the levels of glucose becomes too high for the body to tolerate and then causes symptoms of the disorder called diabetes mellitus.

Causes of High Blood Sugar

There are two main causes of high blood sugar:

- The pancreas may not be able to produce insulin or enough insulin for the cells to absorb the glucose.
- The cells may not be able to absorb the glucose even with available insulin.

Types of Diabetes

There are several different types of diabetes: Pre- Diabetes, Type I, Type II, and Gestational Diabetes.

If someone has blood drawn at the doctor's office and the blood glucose shows to be high but not high enough to be considered diabetes, it is called pre-diabetes. This means the cells in the body are becoming resistant to insulin and not absorbing the glucose for energy. It also can be that the pancreas is not producing enough insulin to meet the needs of the body. This is usually a warning sign that diabetes could develop. In most cases you can prevent the onset of Type II diabetes by exercising and losing weight with a properly balanced diet.

Type I diabetes, once known as juvenile diabetes, occurs when the pancreas is unable to produce the amount of insulin needed for the cells to absorb the glucose. When this occurs the person would have to inject insulin into the body to make up for the lack of insulin. This means the body will always have to have extra insulin to replace the lack of insulin. This disorder is generally diagnosed during childhood or adolescence.

Type II diabetes, formerly known as adult-onset diabetes, is the most common form of diabetes. This disorder occurs when the cells no longer react to the insulin. Remember that insulin is the key that unlocks the door to the cell and allows the sugar/food to make energy for the cell to work. This is the most common and well known type of diabetes.

Gestational diabetes is a diagnosis that affects pregnant women in the middle of their pregnancy and will more than likely end at delivery. When women are pregnant their need for insulin is increased and the increased need for insulin may not be met. This disease affects about 4% of all pregnant women in the United States each year. It is unknown exactly what causes diabetes to affect pregnant women but it is speculated that hormones that are produced to support the baby's development

problems associated with diabetes. This is part of the complications with the blood vessels and the heart. It also leads to nerve problems and the inability to feel the feet and hands, called neuropathy. Diabetics also have trouble healing wounds and are at high risk of infections. Vision problems such as blurriness to blindness are also known complications. Please seek medical attention from a physician if you suffer with any of these conditions.

Who Can Help Me?

Diabetics do not have to feel alone. There are so many people who care and are willing to educate and help you manage your disease and live a good, healthy life.

A Primary Care Physician, who has the benefit of a wealth of knowledge and who is familiar with you and your medical record, can be a great resource. There are specialists, called *endocrinologist* or *diabetologist*, who care for patients with diabetes and can help with a plan of care.

One of the first steps, for a newly diagnosed diabetic, is to sit down with a *dietician* to learn of a meal plan that is designed to maintain low blood sugars and is all around healthy.

Another great resource in the community is Grace Visiting Nurses. The nurses educate the patient and their families on the actual disease process and the best way to manage the disease for a superior quality of life. Grace Visiting Nurses teaches on meal planning, diabetes medicines physical activity, how to



the blood cells, under the microscope, they can see where glucose has stuck to the cells and measure the amount of glucose (sugar). This test can give a more accurate blood sugar level and how well it has been controlled over the last 3 months.



Complications Related to Diabetes

Keeping blood sugar levels at a normal range of 70 to 120 will help keep a diabetic from experiencing the long term complications. The complications are a result of too much



sugar or glucose and its effects on the body's organs. After many years uncontrolled levels of sugar in the body it can lead to serious problems with the eyes, heart, kidneys, nerves, gums and teeth. It is said "If you have diabetes, your risk of a heart attack is the same as someone who has already had a heart attack."

Most people know of the circulation

block the action of the mother's insulin and cause a buildup of glucose in the blood. Women who develop gestational diabetes have a 40-60% chance of developing type II diabetes in the next five to ten years.

Signs and Symptoms of Diabetes

When a body has too much sugar in the blood, it will react in specific ways. Some of the signs are as follows:

- Urinating frequently
- Abnormal thirst
- Abnormal hunger
- Loss of weight without trying
- Sores or wounds that heal slowly
- Dry itchy skin
- Numbness and tingling in the feet
- Blurry eye site
- Feelings of fatigue and tiredness

You may have one or more of these signs or you could suffer from no signs or symptoms before being diagnosed with diabetes. If you or someone you love suffers from these symptoms, have them seen by a physician as soon as possible.

How is Diabetes Diagnosed?

There are several different types of test that a physician will perform. They can be either without having anything to eat,

called fasting labs, or your blood could be tested at random without fasting.

A Fasting Plasma Glucose test is a blood test to measure the amount of sugar or glucose found in the blood in a person who has not had anything to eat or drink in the last eight hours.

Plasma Glucose Results (mg/dL)	Diagnosis
99 or below	Normal
100 to 125	Pre-diabetes or impaired fasting glucose
126 or above	Diabetes*

* Confirmed by repeating the test on a different day and/or performing other test

An Oral Glucose Tolerance Test or OGTT is a test that can show how the body tolerates a measured amount of sugar. The person would have a fasting blood sugar lab performed and then drink a sugar-packed beverage supplied by the lab or physician. After 2 hours the person would have another blood sample taken to measure how the body tolerated the sugar and how much is left in the blood. See the following chart for results:

Glucometers of all different shapes and sizes. They are designed to be easy to use and easy to carry. All that is required is a small prick of the skin, usually a finger, to produce a small drop of blood. The blood is then placed on a small strip that is inserted into the glucometer and within seconds you will know your results. By checking your own blood sugar and keeping a blood sugar log you can see what foods or activities increase or decrease the level of sugar in the blood. Ask your physician as to how often you should check your blood sugar.

There are two other tests that are used to monitor blood sugar as well.

- Urine Test
- A1C

Urine Ketone Testing

Type I diabetics are at risk of a complication called *Ketoacidosis*. This complication occurs when the blood sugar level is high and there is not enough or any insulin to lower the level. At this point the liver will produce a separate type of “fuel” called ketone bodies. This is because the cells are not receiving the energy they need from the blood. The ketone bodies build up in the kidneys, where the blood is filtered, and are flushed out of the body through urine. These urine ketone tests are available, on the shelf, at your local pharmacy. If the test is positive seek medical advice as soon as possible.

A1c Testing (Blood test performed in the physician’s office or Grace Nurses)

In order to get a glimpse of what level the blood sugar has been over a long period of time, physicians can use the A1C test. The blood cells have a life span of 90 days. When looking at

sodas that are packed full of sugar.

Activity should be a big part of the life style change as well. Always ask your physician which activities are safe for you. Activities such as walking, swimming, working in the garden, dancing and just cleaning the house are some suggestions. Not only are they good for your heart and lungs but they also give you more energy and help insulin work better to lower the blood sugar. Sometimes if a person loses weight it can cause the blood sugar to stay at a normal level without the need of medications.

Among adults in the United States with either Type I or II diabetes 14% use insulin only, 13% use both insulin and oral antidiabetics, 57% use oral antidiabetics only, and 16% do not use insulin or antidiabetics to maintain normal blood sugars only lifestyle changes.

Remember diabetes has been around a very long time. When insulin was first discovered, in the 1920's, people died from diabetes. Today with all of the many advances in medicine, the management of all of the types of diabetes has improved and people diagnosed with Type I diabetes can live a very normal and long life. There are many adjustments to be made and new skills to be learned with many different resources in the community to help you deal with the new life style.

How Do You Monitor Blood Sugar?

Self-monitoring the blood sugar is essential to maintaining normal levels and avoiding long-term complications. There are

2-Hour Plasma Glucose Results (mg/dL)	Diagnosis
139 and below	Normal
149-199	Pre-diabetes or impaired fasting glucose
200 and above	Diabetes*

* Confirmed by repeating the test on a different day and/or performing other test

A Random Plasma (Blood) Glucose Test or casual test is a random test that can be performed when ever needed. This test is beneficial due to the guidelines: if the blood sugar (BS) is greater than 200mg/dL there is significant chance of the diabetes disease.

How is Diabetes Treated?

The first step is self-educating. Remember Knowledge is Power! The goal should be to have a healthy outcome with a good quality of life. Look at your life, at your eating habits, how active you are and how much you know about self-monitoring your blood sugar. By taking an active role in managing your diabetes you are decreasing the risk of complications that can result from uncontrolled blood sugars.

The key to maintaining and treating diabetes is controlling your blood sugar. There is mainly one treatment for Type I, but several ways to treat Type II diabetes. Many people with Type II diabetes follow a healthy meal plan with exercise and weight loss. Others need oral medications along with a healthy life style and some may need a more aggressive plan such as oral anti-diabetics along with insulin.

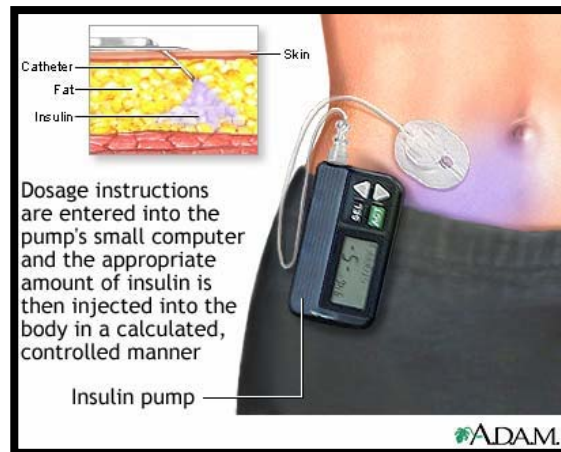
When looking at treatments there are three main groups: Insulin, Oral Antidiabetic Pills, and Lifestyle Changes.

Insulin

As stated before, insulin is a hormone produced by the pancreas. Insulin is the key that opens the door to the cell and allows the glucose to become food for energy. With Type I diabetes the pancreas has ceased to produce insulin for one reason or another.

These individuals have to receive insulin to survive. There are several different ways to receive insulin into the body:

- Injections or shots
- Insulin pump



(A small device that holds insulin and delivers it to the body through a small plastic tube with a needle, the needle is placed under the skin for several days at a time.)

Antidiabetic Pills (also known as Hypoglycemic pills)

When the body produces the insulin and the cells no longer react to it; it will result in high levels of sugar in the blood. The



need for antidiabetic medications is prescribed by a physician. They lower the level of sugar in the blood and help maintain normal blood sugars. A possible negative effect of the medication is lowering the blood sugar too much and causing hypoglycemia. Hypoglycemia is when the amount of sugar in the body is too low and causes

problems such as confusion, weakness, hunger, and irritability. These symptoms can happen very quickly. Watch for abnormal sweating or headache, because when the sugar level gets too low, it can cause a person to pass out or have a seizure.

Life Style Changes

Life style changes are the first line of defense in maintaining normal blood sugars. Changes are needed, such as meal planning, to reduce the amount of glucose taken into the body, exercising to losing weight and being active can help maintain normal blood sugars as well.



Meal planning is big part of the life style changes.

When first diagnosed, it is important to meet with a dietitian to help develop and plan healthy meals that you and your family like to eat. These meals should include a diet that is low in salt, low in fat, with very

little added sugar. Foods such as fruits and vegetables are preferable over candy and

