

WHAT IS DIABETES

There are 4 general types of Diabetes

- 1) Diabetes Mellitus Type 1 (DM1)
- 2) Diabetes Mellitus Type 2 (DM2)
- 3) Gestational Diabetes
- 4) Other Diabetes Mellitus, usually caused by pancreatitis or cystic fibrosis

All have a problem getting glucose (sugar) from the blood stream into the cells. The body uses glucose as its fuel source, for energy, to build and repair cells, to function.

The glucose comes from the food you eat. The glucose needs something to move it into the cells, so the cells can use them for fuel. This is where insulin comes in. Insulin moves the glucose into the cells. Insulin is produced in the beta cells of the pancreas.

Diabetes Mellitus means sweet urine. If the glucose can't make it into the cells, it is excreted in the urine. You can have lots of glucose in your body and still be starving if you cannot get the glucose into the cells where it is needed.

Gestational Diabetes occurs in pregnant women who were not previously diagnosed as having Diabetes. Once the child is born, and the hormones start behaving themselves again, the woman no longer has diabetes. However, these women will usually develop diabetes.

Diabetes caused by pancreatitis and some medications will act like Type 1 if the pancreatic beta cells are completely destroyed.

Less than 10% of diabetics have Type 1. DM1 happens when there is something that causes the pancreatic beta cells to be destroyed. This can be something in the environment or a virus. Something as simple as drinking cow's milk as a child can be a trigger. The body sees part of the cow's milk as an invader, and fights against it. Then it notices that the beta cells look a lot like the cow's milk, so the immune system kills those cells also. Without beta cells there is no way to produce insulin. This is an autoimmune response. People usually get Type 1 DM as young children, and there is a strong hereditary component.

Type 2 DM accounts for 90-95% and usually occurs later in life, which is why it was previously known as adult onset DM. There is also a strong hereditary component, but sometimes the course of the disease can be short-circuited, if caught soon enough. There is an epidemic in this country of children getting DM2. The sedentary life-style and obesity of our youth is a national concern.

A person develops DM2 over a period of years. The process starts as the cells become resistant to insulin. The pancreas has to produce a lot more insulin just to get the basic glucose needs into the cells. The beta cells wear out after a while from over work and cannot keep up. Glucose builds up in the blood and the person starts having symptoms. These include increased urination, urinary tract infection, increased thirst, rings around lights at night, blurred or worsening vision, extreme hunger, extreme fatigue and irritability, fatigue or nausea, weight loss, slow healing of wounds or sores, frequent infections, tingling/numbness in the hands/feet, and recurring skin, gum, or bladder infections.

Research has discovered that there are substances produced by the fat cells around the waist that cause insulin resistance. The fat(adipose) tissue acts like another organ that is working against you. It perpetuates your disease by producing substances that actually cause you to become more obese and more resistant to insulin. This may be why surgery that causes significant weight loss has been so effective. The diabetic experts reports that of persons who have undergone weight reduction surgery **DM resolved in 78% of the gastric bypass group compared with 50% in the gastric banding group.** (AAACE Treatment Guidelines, 2011, p 15 on the web) Does this mean that you can get rid of your diabetes by losing weight? The answer is maybe. Some people who were diabetic, on medication, for many years no longer needed it after losing significant weight. However, not all people who are diabetic are obese. So this is not always the case. The fact is that the central obesity does put out substances that perpetuate and make your disease worse. Think of it as your enemy. Sometimes we can live with our enemies; we just have to make allowances.

But why should we care whether we have extra glucose in our

bloodstream and urine? The quick answer is the short-term and long-term complications of diabetes.

There are two main short term concerns: High blood sugar and Low blood sugar. High blood sugar can cause diabetic ketoacidosis and hyperosmolar hyperglycemic nonketotic syndrome. Both of these conditions happen quickly, and both can put you into the hospital. They are triggered when your blood sugar gets too high and you are having extra stress in your life, such as happens with an illness.

Low blood sugar only happens to people with diabetes who take certain medications. The brain needs glucose to function so when a person doesn't have enough glucose available s/he may become confused, disoriented, or become unconscious. Low blood sugar can be very dangerous so when medications are being adjusted the health care provider would rather your blood sugar be a little high than too low.

Long-Term Complications occur over months or years. Because DM1 develops rather quickly and DM2 develops over several years, persons with Type 2 DM are more likely to have complications when they are first diagnosed.

Many of these complications occur when the large glucose molecules cause damage to the tiny microvascular cells throughout the body. Many of these tiny cells are in the eyes, kidneys, and peripheral blood vessels, mostly in the feet. That is why blindness, kidney disease, and neuropathy of the feet are so common with diabetes. Dementia can also occur. However, these are the complications that can be prevented if the blood sugar can be maintained within a normal range.

Other long term complications are the macrovascular diseases. These include heart disease, stroke, and peripheral vascular disease. Seventy-five percent of diabetics die from cardiovascular events.

Diabetes is a complex disease that can usually be controlled with exercise, diet, and medication. Knowledge of the disease and its treatment are a key to better resolution.