

“Diabetes”

The Medicine Cabinet Series



Diabetes is widely recognized as one of the leading causes of death and disability in Arkansas. The prevalence of diabetes in Arkansas has been at or above the national average for the past 10 years. There was a 35 percent increase in the prevalence of diabetes from 1993 to 2002. Diabetes is the 6th leading cause of death in Arkansas and the 4th leading cause of death among African Americans. Diabetes, however, is likely to be underreported as the underlying cause of death on death certificates. About 65 percent of deaths among those with diabetes are attributed to heart disease and stroke.

Diabetes is associated with long-term complications that affect almost every part of the body. The disease often leads to blindness, heart and blood vessel disease, stroke, kidney failure, amputations, and nerve damage. Uncontrolled diabetes can complicate pregnancy; and birth defects are more common in babies born to diabetic women.

Diabetes is a disorder of metabolism (the way our bodies use digested food for growth and energy.) Most of the food we eat is broken down into glucose, which is the form of sugar in the blood. Glucose is the main source of fuel for the body.

After digestion, glucose passes into the bloodstream, where it is used by cells for growth and energy. For glucose to get into cells, insulin must be present. Insulin is a hormone produced by the pancreas, a large gland behind the stomach.

When we eat, the pancreas automatically produces the right amount of insulin to move glucose from blood into our cells. In people with diabetes, however, the pancreas either produces little or no insulin, or the cells do not respond appropriately to the insulin that is produced. Glucose builds up in the blood, overflows into the urine, and passes out of the body. Thus, the body loses its main source of fuel even though the blood contains large amounts of glucose.

The Three Main Types of Diabetes

Type 1

Type 1 diabetes is an autoimmune disease. An autoimmune disease results when the body's system for fighting infection (the immune system) turns against a part of the body. In diabetes, the immune system attacks the insulin-producing beta cells in the pancreas and destroys them. The pancreas then produces little or no insulin. A person who has type 1 diabetes must take insulin daily to live.

At present, scientists do not know exactly what causes the body's immune system to attack the beta cells, but they believe that autoimmune, genetic and environmental factors, and possibly viruses are involved. Type 1 diabetes accounts for about 5 to 10 percent of diagnosed diabetes in the United States. It develops most often in children and young adults, but can appear at any age.

Symptoms of type 1 diabetes usually develop over a short period, although beta cell destruction can begin years earlier. Symptoms include increased thirst and urination, constant hunger, weight loss, blurred vision, and extreme fatigue. If not diagnosed and treated with insulin, a person with type 1 diabetes can lapse into a life-threatening diabetic coma, also known as diabetic ketoacidosis.

The most common form of diabetes is **type 2 diabetes**. About 90 to 95 percent of people with diabetes have type 2. This form of diabetes is associated with older age, obesity, family history of diabetes, previous history of gestational diabetes, physical inactivity and ethnicity. About 80 percent of people with type 2 diabetes are overweight.

Type 2

Type 2 diabetes is increasingly being diagnosed in children and adolescents. However, nationally representative data on prevalence of type 2 diabetes in youth are not available.

When type 2 diabetes is diagnosed, the pancreas is usually producing enough insulin, but for unknown reasons, the body cannot use the insulin effectively, a condition called insulin resistance. After several years, insulin production decreases. The result is the same as for type 1 diabetes—glucose builds up in the blood and the body cannot make efficient use of its main source of fuel.

The symptoms of type 2 diabetes develop gradually. Their onset is not as sudden as in type 1 diabetes. Symptoms may include fatigue or nausea, frequent urination, unusual thirst, weight loss, blurred vision, frequent infections and slow healing of wounds or sores. Some people have no symptoms.

Gestational Diabetes

Gestational diabetes develops only during pregnancy. Like type 2 diabetes, it occurs more often in African Americans, American Indians, Hispanic Americans, and among women with a family history of diabetes. Women who have had gestational diabetes have a 20 to 50 percent chance of developing type 2 diabetes within 5 to 10 years.

What are the tests for diagnosing diabetes?

The fasting plasma glucose test is the preferred test for diagnosing type 1 or type 2 diabetes. It is most reliable when done in the morning. However, a diagnosis of diabetes can be made after positive results on any one of three tests, with confirmation from a second positive test on a different day:

- A random (taken any time of day) plasma glucose value of 200 mg/dL or more, along with the presence of diabetes symptoms.
- A plasma glucose value of 126 mg/dL or more after a person has fasted for 8 hours.

- An oral glucose tolerance test (OGTT) plasma glucose value of 200 mg/dL or more in a blood sample taken 2 hours after a person has consumed a drink containing 75 grams of glucose dissolved in water. This test, taken in a laboratory or the doctor's office, measures plasma glucose at timed intervals over a 3-hour period.

Gestational diabetes is diagnosed based on plasma glucose values measured during the OGTT. Glucose levels are normally lower during pregnancy, so the threshold values for diagnosis of diabetes in pregnancy are lower. If a woman has two plasma glucose values meeting or exceeding any of the following numbers, she has gestational diabetes: a fasting plasma glucose level of 95 mg/dL, a 1-hour level of 180 mg/dL, a 2-hour level of 155 mg/dL, or a 3-hour level of 140 mg/dL.

Taken from the National Diabetes Information Clearinghouse: <http://diabetes.niddk.nih.gov/>

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