



### DIABETES FREQUENTLY ASKED QUESTIONS

#### 1. What is diabetes?

Diabetes is a disease in which the body is unable to produce or unable to properly use and store glucose (a form of sugar). Glucose backs up in the bloodstream, causing a person's blood glucose to rise too high. Both genetics and environmental factors have been identified as factors for type 1 diabetes.<sup>1</sup>

Over time, having too much glucose in your blood can cause serious problems. It can damage your eyes, kidneys, and nerves. Diabetes can also cause heart disease, stroke, and even the need to remove a limb due to blockage from damaged blood vessels. Pregnant women can also get diabetes, which is often referred to as gestational diabetes.<sup>2</sup>

Diabetes can lead to serious health complications and premature death; however, people with diabetes can take steps to control the disease and lower the risk of complications. Diabetes is the sixth leading cause of death in the U.S. behind heart disease, cancer, stroke, chronic lower respiratory diseases, and accidents (unintentional injuries).<sup>3</sup>

#### 3. What is "pre-diabetes"?

"Pre-diabetes" occurs when blood glucose levels are higher than normal, but are not high enough to be diagnosed as diabetes. Approximately 57 million people in the U.S. have pre-diabetes. Recent research has suggested that long-term damage to the heart and circulatory system may begin to occur during pre-diabetes. If a patient does not take steps to manage blood glucose levels, type 2 diabetes can develop.<sup>4</sup>

Pre-diabetes is a serious medical condition that can be treated. When patients with pre-diabetes make changes to their diet and increase their level of physical activity, the development of type 2 diabetes can be prevented. They may even be able to return their blood glucose levels to a normal range.<sup>5</sup>

#### 3. What are the different types of diabetes?

**Type 1 Diabetes:** With Type 1 diabetes, the pancreas does not make insulin. Insulin is a hormone that aids in glucose absorption to give cells them energy. Without insulin, too much glucose stays in your blood.<sup>6</sup>

Type 1 diabetes was previously called insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes. Type 1 diabetes develops when the body's immune system destroys pancreatic beta cells, the only cells in the

<sup>1</sup> American Diabetes Association, "All About Diabetes," <http://www.diabetes.org/about-diabetes.jsp>

<sup>2</sup> National Institute of Health, Medline Plus, "Diabetes," <http://www.nlm.nih.gov/medlineplus/diabetes.html>

<sup>3</sup> Centers for Disease Control and Prevention; "Deaths and Mortality;" <http://www.cdc.gov/nchs/FASTATS/deaths.htm>

<sup>4</sup> American Diabetes Association, "Pre-Diabetes," <http://www.diabetes.org/pre-diabetes.jsp>

<sup>5</sup> Ibid

<sup>6</sup> National Institute of Health, Medline Plus, "Diabetes Type 1," <http://www.nlm.nih.gov/medlineplus/diabetestype1.html>

body that make the hormone insulin that regulates blood glucose. To survive, people with type 1 diabetes must have insulin delivered by injection or a pump.<sup>7</sup>

This form of diabetes usually strikes children and young adults, although the disease can occur at any age. In adults, type 1 diabetes accounts for five to 10 percent of all diagnosed cases of diabetes. Risk factors for type 1 diabetes may be autoimmune, genetic, or environmental. There is no known way to prevent type 1 diabetes.<sup>8</sup>

**Type 2 diabetes:** Type 2 diabetes was previously called non–insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes. In adults, type 2 diabetes accounts for about 90 percent to 95 percent of all diagnosed cases of diabetes. It usually begins as insulin resistance, a disorder in which the cells do not use insulin properly.<sup>9</sup>

**Gestational Diabetes:** Gestational diabetes is a form of glucose intolerance diagnosed during pregnancy that requires treatment to normalize maternal blood glucose levels to avoid complications in the infant. Immediately after pregnancy, five to 10 percent of women with gestational diabetes are found to have diabetes, usually type 2. Women who have had gestational diabetes have a 40 to 60 percent chance of developing diabetes in the next five to 10 years.<sup>10</sup>

#### 4. Who is at risk for developing diabetes?

There are 23.6 million children and adults in the U.S. who have diabetes. While an estimated 17.9 million have been diagnosed, the American Diabetes Association estimates that 5.7 million people are unaware that they have the disease.<sup>11</sup> Type 1 diabetes is typically diagnosed in children and young adults and is more common among Caucasians than African-Americans, Asians, Hispanics, and Native-Americans.

Type 2 diabetes is associated with older age, obesity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, physical inactivity, and race/ethnicity. African-Americans, American-Indians, some Asian-Americans, Hispanic/Latino Americans, and Native Hawaiians or other Pacific Islanders are at particularly high risk for type 2 diabetes and its complications.<sup>12</sup>

Gestational diabetes can occur in any woman during pregnancy; however, some women are more at risk than others. Gestational diabetes occurs more frequently among African-Americans, Hispanic/Latino Americans, and American Indians. Other risk factors include obesity, a family history of diabetes, having previously given birth to a very large baby, a stillbirth, a child with a birth defect, or having too much amniotic fluid. Women who are older than 25 are at higher risk than younger women. About 135,000 women develop gestational diabetes every year.<sup>13</sup>

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<sup>7</sup> Center for Disease Control and Prevention, “National Diabetes Fact Sheet 2007,” [http://www.cdc.gov/diabetes/pubs/pdf/ndfs\\_2007.pdf](http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf)

<sup>8</sup> Ibid

<sup>9</sup> Center for Disease Control and Prevention, “National Diabetes Fact Sheet 2007,” [http://www.cdc.gov/diabetes/pubs/pdf/ndfs\\_2007.pdf](http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf)

<sup>10</sup> Ibid

<sup>11</sup> American Diabetes Association, “All About Diabetes,” <http://www.diabetes.org/about-diabetes.jsp>

<sup>12</sup> Center for Disease Control and Prevention, “National Diabetes Fact Sheet 2007,” [http://www.cdc.gov/diabetes/pubs/pdf/ndfs\\_2007.pdf](http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf)

<sup>13</sup> Life Clinic, Health Information Systems, “Diabetes Basics: Who’s at Risk?,” <http://www.lifeclinic.com/focus/Diabetes/risk.asp>

## 5. What are the symptoms of diabetes?

Symptoms of diabetes include: frequent urination, excessive thirst, unexplained weight loss, extreme hunger, sudden vision changes, tingling or numbness in hands or feet, fatigue, dry skin, sores that are slow to heal, and more infections than usual. Nausea, vomiting, or stomach pains may accompany some of these symptoms in the abrupt onset of type 1 diabetes.<sup>14</sup>

There are many different types of symptoms for people who suspect they have diabetes. People who think they could have diabetes should visit a doctor for a proper diagnosis and treatment. Diabetes is often undiagnosed because many of the symptoms seem harmless. Recent studies indicate that the early detection of symptoms and treatment can decrease the chance of developing the complications of diabetes.<sup>15</sup>

## 6. How is diabetes diagnosed?

There are three types of tests used to diagnose diabetes: the fasting plasma glucose (FPG), the oral glucose tolerance test (OGTT), and the random plasma glucose test (RPGT).

The FPG test measures blood glucose in a person who has not eaten anything for at least eight hours. This test is used to detect diabetes and pre-diabetes. The OGTT measures blood glucose after a person fasts at least eight hours and two hours after the person drinks a glucose-containing beverage. This test can also be used to diagnose diabetes and pre-diabetes. The random plasma glucose test measures blood glucose without regard to when the person being tested last ate. This test, along with an assessment of symptoms, is used to diagnose diabetes, but not pre-diabetes. This test is also often referred to as the casual plasma glucose test.<sup>16</sup> When a patient tests positive for diabetes, doctors often confirm the results with a second test.

## 7. What are some complications of diabetes?

Diabetes is a disease that can lead to serious complications, including: blindness, kidney damage, cardiovascular disease, and lower-limb amputations. Lower-limb amputations occur when high blood sugar damages blood vessels and leads to blockage. Blocked vessels in the legs can cause pain and can also impair circulation. With poor circulation, less than one percent of all diabetics eventually have lower limb amputations because of damage to the feet or lower legs.<sup>17</sup>

Heart disease accounts for approximately 65 percent of deaths of people with diabetes. Since high blood sugar causes damage in blood vessels, this damage in the heart can cause heart attacks.<sup>18</sup> In addition to heart disease, kidney disease is a serious complication diabetes patients can suffer from. When glucose accumulates in the blood to very high levels, the excess glucose can attach to proteins in the blood vessels and alter their normal structure and function. Kidney disease occurs when the blood vessels in the kidney begin to leak. When the vessels begin to leak, they allow protein from the blood to be excreted with urine. Eventually, some vessels collapse, and place more pressure on those that remain. Under this increased load, the remaining blood vessels are also damaged, and the kidney may fail.<sup>19</sup>

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<sup>14</sup> Ibid

<sup>15</sup> American Diabetes Association, "Diabetes Symptoms," <http://www.diabetes.org/diabetes-symptoms.jsp>

<sup>16</sup> National Diabetes Information Clearinghouse (NDIC), "Diagnosis of Diabetes,"

<http://diabetes.niddk.nih.gov/dm/pubs/diagnosis/#diagnosis>

<sup>17</sup> Genetic Health, "How Does Diabetes Affect My Body," [http://www.genetichealth.com/dbts\\_consequences\\_of\\_diabetes.shtml](http://www.genetichealth.com/dbts_consequences_of_diabetes.shtml)

<sup>18</sup> Ibid

<sup>19</sup> Ibid

## 8. How is diabetes treated and controlled?

Among adults with diagnosed diabetes (type 1 or type 2), 14 percent take insulin only, 13 percent take both insulin and oral medication, 57 percent take oral medication only, and 16 percent do not take either insulin or oral medication. Medications for each individual with diabetes will often change during the course of the disease. People with type 1 diabetes must have insulin delivered by injection or a pump.<sup>20</sup>

People with type 1 diabetes don't make insulin. For them, injecting insulin into the bloodstream is the only way to keep blood glucose levels down. People with type 2 diabetes tend to have two problems: they don't make quite enough insulin and the cells in their bodies don't seem to absorb glucose as efficiently as they should.<sup>21</sup>

Many patients diagnosed with type 2 diabetes can control their blood glucose by eating healthy, creating an exercise program, losing excess weight, and taking oral medication. Some people with type 2 diabetes may also need insulin to control their blood glucose. Oral medications for diabetes can only be used for patients with type 2 diabetes. These pills work best when used with meal planning and exercise. All diabetes pills sold today in the U.S. are members of five classes of drugs: sulfonylureas, meglitinides, biguanides, thiazolidinediones, and alpha-glucosidase inhibitors. These five classes of drugs work in different ways to lower blood glucose levels.<sup>22</sup>

## 9. Is there a “cure” for diabetes?

While there currently is no “cure” for diabetes, the U.S. Department of Health and Human Services (HHS) is actively pursuing different treatments to help prevent diabetes, improve the quality of care for people with diabetes, and eventually find a cure for the disease.

Under HHS, National Institutes of Health (NIH) and Centers for Disease Control and Prevention (CDC) are both involved in prevention activities. NIH is involved in research to cure both type 1 and type 2 diabetes, especially type 1. CDC focuses most of its programs on being sure that the proven science is put into daily practice for people with diabetes. Each of these approaches still has a lot of challenges, such as preventing immune rejection, finding an adequate number of insulin cells, keeping cells alive, and others. Progress is being made in all areas.<sup>23</sup>

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<sup>20</sup> Center for Disease Control and Prevention, “National Diabetes Fact Sheet 2007,”

[http://www.cdc.gov/diabetes/pubs/pdf/ndfs\\_2007.pdf](http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf)

<sup>21</sup> American Diabetes Association, “Other Diabetes Medications,” <http://www.diabetes.org/type-2-diabetes/oral-medications.jsp>

<sup>22</sup> American Diabetes Association, “Other Diabetes Medications,” <http://www.diabetes.org/type-2-diabetes/oral-medications.jsp>

<sup>23</sup> Ibid