

PATIENT EDUCATION



The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

Diabetes and Women

More than 30 million Americans have diabetes (also called **diabetes mellitus**). In this condition, high levels of **glucose** are present in the blood. Health problems can arise if blood glucose levels are not controlled. Almost one third of people with diabetes do not even know they have it. Knowing whether you have risk factors, following recommended guidelines for screening tests, and recognizing the warning signs may help you avoid the serious **complications** of this disease.

This pamphlet explains

- *how diabetes develops*
- *types of diabetes*
- *risk factors, symptoms, and tests*
- *treatment and prevention*
- *special concerns for women preparing for pregnancy*

Understanding Diabetes

Normally, your body changes most of the food you eat into glucose. Glucose is the body's fuel. **Insulin** is a **hormone** that helps carry glucose to the body's **cells** where it can be used to power all of the body's activities. In diabetes, the body does not make enough insulin or the body's cells do not respond to insulin as they should. Glucose cannot enter the body's cells. Instead, it stays in the blood. As a result, the amount of glucose in the bloodstream can become too high. Over time, high glucose levels in the blood can cause serious health problems.

Types of Diabetes

There are three types of diabetes: 1) type 1 diabetes, 2) type 2 diabetes, and 3) **gestational diabetes**.

Type 1 Diabetes

This type of diabetes accounts for fewer than 10 percent of all cases of diabetes. It develops most often in children and young adults. People with type 1 diabetes make little or no insulin on their own. They need to take insulin to survive. Type 1 diabetes is thought to be an **autoimmune disorder** in which the body attacks insulin-producing cells.

Type 2 Diabetes

People with type 2 diabetes produce some insulin, but the body's cells are resistant to its effects. This condition is called insulin resistance. More insulin is produced to keep glucose levels normal. Eventually, the body cannot make enough insulin to keep glucose levels normal. Type 2 diabetes accounts for as many as 95 percent of all cases of diabetes.

Some people with type 2 diabetes may not need to take medications. They may be able to control their glucose levels with diet and exercise. Others need to take oral medications or insulin to control their diabetes.

Gestational Diabetes

Gestational diabetes is diabetes that is first recognized during pregnancy. If gestational diabetes is not diagnosed and managed, it can cause a number of serious problems in the baby, such as a higher than normal birth weight, and is associated with several pregnancy complications, including **high blood pressure** and **preeclampsia**. It also increases a woman's risk of developing diabetes later in life. It may be possible to prevent diabetes from developing with lifestyle changes and medications.

Risk Factors

Diabetes can develop at any age. Type 1 diabetes usually occurs in children, teenagers, or young adults. Type 2 diabetes can occur in all age groups, including children or teenagers. However, the risk of type 2 diabetes increases with age.

Few risk factors are known for type 1 diabetes. It appears to be partly inherited (passed down from parents to children). Type 2 diabetes is linked to certain lifestyle factors and family history.

Risk Factors for Type 2 Diabetes

- Being overweight
- Not being physically active
- Having a parent, sister, or brother with diabetes
- History of gestational diabetes or a baby weighing more than 9 pounds at birth
- Having prediabetes
- Having high blood pressure, reduced "good" **cholesterol**, or high levels of **triglycerides**
- History of **cardiovascular disease**
- **Polycystic ovary syndrome (PCOS)**
- Have other conditions associated with insulin resistance

Insulin resistance increases a person's risk of developing type 2 diabetes, especially if there is a strong family history of diabetes and the person is overweight. Insulin resistance may eventually lead to a condition called **prediabetes**, in which blood glucose levels are increased but are not yet high enough to be diagnosed as diabetes (see Box "Risk Factors for Type 2 Diabetes").

Some people with insulin resistance or diabetes have a condition called **metabolic syndrome**. Metabolic syndrome is a combination of factors that increase a person's risk of type 2 diabetes and cardiovascular disease. Metabolic syndrome is diagnosed when a person has at least three of the following signs:

- Elevated blood pressure (130/85 mm Hg or higher)
- Higher than normal blood glucose level (fasting glucose level of 100 mg/dL or higher)
- Waist measurement of 35 inches or greater (for women)
- Lower than normal levels of "good" cholesterol (high-density lipoprotein, or HDL, level of less than 50 mg/dL)
- High levels of triglycerides in the blood (150 mg/dL or higher)

Who is Most Often Affected By Type 2 Diabetes

Anyone can develop type 2 diabetes, but some people are affected more often than others. This includes people of African, Asian, Hispanic, Native American, and Pacific Islander descent.

Symptoms

The symptoms of type 1 and type 2 diabetes are similar (see Box "Symptoms of Diabetes"). In some cases, there are no symptoms with type 2 diabetes, or symptoms can be so mild that they are not noticed. If symptoms develop, it often is because blood glucose levels are very high.

Who Should Be Tested

You should be tested for diabetes every 3 years if you are age 45 or older. If you are younger than 45, are overweight, and have one or more additional risk factors listed in the box "Risk Factors for Type 2 Diabetes," you also should be tested. If you have prediabetes, you should be tested again in 1 to 2 years. Women who have had gestational diabetes should be tested with an oral glucose tolerance test 6 to 12 weeks after delivery. If results of this test are normal, re-testing for diabetes every 3 years is recommended.

Diagnosis

Blood glucose testing can detect a high level of glucose in the blood. If the blood test shows you have a high

Symptoms of Diabetes

Type 1

- Increased thirst or urination
- Constant hunger
- Weight loss without trying
- Blurred vision
- Extreme fatigue

Type 2

- Any symptoms of type 1 diabetes
- Sores that are slow to heal
- Dry, itchy skin
- Loss of feeling or tingling in feet
- Infections, such as a *yeast infection*, that keep coming back

level of glucose, it may mean you have prediabetes or diabetes. Four types of blood tests are used to diagnose diabetes:

1. Fasting plasma glucose test—This test is the easiest and most common way to check for diabetes and prediabetes. It is more accurate when it is done in the morning. Before the test, you must fast (not eat or drink anything but water) for at least 8 hours. One sample of blood is obtained.
2. Random, also called casual, plasma glucose test—You do not have to fast for this test. This test is used along with symptoms to diagnose diabetes. It is not used to diagnose prediabetes.
3. Oral glucose tolerance test—Before you have this test, you must fast for at least 8 hours. You will first have a fasting plasma glucose test and drink a liquid that contains glucose. Blood samples are taken to measure your blood glucose within the next 2 hours.
4. Hemoglobin A_{1C} test—You do not need to fast before this test. Test results reflect the blood glucose level over the past several months. For this reason, it is used to track how well a person with diabetes is managing blood glucose levels. It also can be used to diagnose prediabetes and diabetes.

Prevention

If you have prediabetes, metabolic syndrome, or other risk factors for diabetes, there are steps you can take to help prevent type 2 diabetes. Keeping your weight down through diet and exercise is a key part of preventing diabetes. The following measures can help reduce your risk of diabetes:

- Being overweight is a known risk factor for diabetes. Losing weight may decrease your risk. To lose weight, follow these guidelines:
 - Eat fewer fatty foods (especially those that contain saturated fats and trans fats) than you do now.
 - Eat smaller portions of foods that are high in fat and calories than you do now.
 - Reduce the number of calories you eat each day.
- Eat a well-balanced diet to help keep your cholesterol, blood pressure, and weight at a healthy level. The U.S. Department of Agriculture's website "ChooseMyPlate" (www.choosemyplate.gov) can help you plan a balanced diet.
- Try to exercise for at least 30 minutes 5 days per week. Aim for moderate-intensity physical activity, such as brisk walking, swimming, or biking. Before you start an exercise program, be sure to talk with your health care practitioner.

Living With Diabetes

If you have diabetes, your health care practitioner will design a treatment program. There are many ways to help reduce the risk of problems (see Box "Problems Caused by Diabetes"). You can stay healthy by doing the following:

- Maintain a healthy weight.
- Eat healthy, low-fat foods.
- Get regular exercise.

Problems Caused by Diabetes

If diabetes is not controlled, long-term, severe health problems may develop:

- *Kidney disease* that can lead to high blood pressure or kidney failure
- Eye problems that can lead to blindness
- Nerve damage and blood vessel damage in the feet that can cause pain, numbness, infection, and possibly the need to remove a toe, foot, or leg
- High cholesterol levels that can lead to *stroke* and heart disease
- Certain infections, such as *bladder* or kidney infections, vaginal infections, yeast infections, and skin infections
- Problems in pregnancy
- Thyroid problems

The best defense against these problems is keeping your blood glucose at a normal level through lifestyle changes and, if recommended, taking medications.

- Get regular health care. You most likely will see a team of health care practitioners with different areas of expertise. Be sure to keep your appointments and follow instructions carefully.
- Keep your blood glucose level close to normal. If your glucose level is not controlled through weight loss, diet, exercise, or oral medication, insulin therapy may be needed. Insulin can be given by injection or pump.

Special Concerns for Women Preparing for Pregnancy

If you have type 1 or type 2 diabetes before you get pregnant, preparing for pregnancy can improve your health and that of your future child. Poorly controlled glucose levels are associated with an increased risk of certain problems, including **birth defects** and several pregnancy complications. Maintaining your glucose levels in the normal range before pregnancy and throughout pregnancy can decrease the risk of birth defects and complications.

Plan to see your health care practitioner before you get pregnant to discuss your care. If your glucose levels are high, you may be advised to wait until they are in the normal range for pregnancy before you get pregnant. Your health care practitioner may suggest changes in your care that will help decrease your glucose levels.

Finally...

If you are 45 or older or if you are younger and have risk factors for diabetes, get tested. You can decrease your risk by keeping your weight down, eating a healthy diet, exercising, and getting regular checkups with your health care practitioner. If you have diabetes, get care from a health care practitioner to keep it under control and help prevent long-term problems—especially if you are thinking of getting pregnant.

Glossary

Autoimmune Disorder: A condition in which the body attacks its own tissues.

Birth Defects: Physical problems that are present at birth.

Bladder: A hollow, muscular organ in which urine is stored.

Cardiovascular Disease: Disease of the heart and blood vessels.

Cells: The smallest units of a structure in the body. Cells are the building blocks for all parts of the body.

Cholesterol: A natural substance that is a building block for cells and hormones. This substance helps carry fat through the blood vessels for use or storage in other parts of the body.

Complications: Diseases or conditions that happen as a result of another disease or condition. An example is pneumonia that occurs as a result of the flu. A complication also can occur as a result of a condition, such as pregnancy. An example of a pregnancy complication is preterm labor.

Diabetes Mellitus: A condition in which the levels of sugar in the blood are too high.

Gestational Diabetes: Diabetes that starts during pregnancy.

Glucose: A sugar in the blood that is the body's main source of fuel.

High Blood Pressure: Blood pressure above the normal level. Also called hypertension.

Hormone: A substance made in the body that controls the function of cells or organs.

Insulin: A hormone that lowers the levels of glucose (sugar) in the blood.

Kidney Disease: A general term for any disease that affects how the kidneys function.

Metabolic Syndrome: A combination of problems that can lead to diabetes and heart disease. These problems include high blood pressure, waist size of 35 inches or more (in women), higher-than-normal blood sugar level, lower-than-normal levels of "good" cholesterol, and high levels of fats in the blood (triglycerides).

Polycystic Ovary Syndrome (PCOS): A condition that leads to a hormone imbalance that affects a woman's monthly menstrual periods, ovulation, ability to get pregnant, and metabolism.

Prediabetes: A condition in which blood sugar is high, but not high enough to be type 2 diabetes.

Preeclampsia: A disorder that can occur during pregnancy or after childbirth in which there is high blood pressure and other signs of organ injury. These signs include an abnormal amount of protein in the urine, a low number of platelets, abnormal kidney or liver function, pain over the upper abdomen, fluid in the lungs, or a severe headache or changes in vision.

Stroke: A sudden interruption of blood flow to all or part of the brain, caused by blockage or bursting of a blood vessel in the brain. A stroke often results in loss of consciousness and temporary or permanent paralysis.

Triglycerides: A form of body fat found in the blood and tissues. High levels can cause heart disease.

Yeast Infection: An infection caused by an overgrowth of a fungus. Symptoms may include itching, burning, and irritation of the vulva or vagina and a thick, white discharge.

This information is designed as an educational aid to patients and sets forth current information and opinions related to women's health. It is not intended as a statement of the standard of care, nor does it comprise all proper treatments or methods of care. It is not a substitute for a treating clinician's independent professional judgment. For ACOG's complete disclaimer, visit www.acog.org/WomensHealth-Disclaimer.

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