

Diabetes & Your Health

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Today one in three American adults, more than 73 million people, has diabetes or is at serious risk of developing the disease. About 19.5 million people have been diagnosed with diabetes. The number of diagnosed individuals with diabetes cases has increased dramatically in the United States between 1988 and today.

Diabetes is much more common in African Americans and Mexican Americans than in Caucasians, and in those 65 and older. Rates are similar between men and women. The increase in diabetes in this country is most likely related to increasing rates of overweight and obesity. And it's an increase affecting more children than ever before. Unless American families change the way they eat and live, the U.S. Centers for Disease Control predicts one in three children born in 2000 will develop diabetes in their lifetimes.

Questions to Ask Your Health Care Professional

1. What should I do to find out if I have diabetes or am at risk for developing it?

If you have already been diagnosed with diabetes, ask these questions:

2. What are my "ABC" numbers, and how do I reach the desired numbers?
3. How often should I test my blood sugar?
4. What tests do I need to monitor the effects of diabetes on my eyes, kidneys, heart and nerves?
5. What lifestyle changes should I make to manage my diabetes? Should I see a dietitian? How should I take care of my feet?
6. Are there any new medications or combinations of medications to help me manage my diabetes?

Insulin and Glucose

Your body gets most of its energy from glucose, a simple sugar that comes from carbohydrates in your diet. To get this glucose into cells requires a hormone called insulin, produced in the pancreas by special cells called beta cells.

When you eat and your digestive system breaks down food into glucose, beta cells receive a signal to make insulin. This insulin travels to certain cells (primarily muscle cells) and binds with special proteins on the surface of cells called insulin receptors, unlocking the cell and allowing glucose in. The receptor is like a doorway, and insulin opens the door so glucose can enter.

Insulin resistance is a condition where, in essence, the door gets jammed, and you need extra insulin to overcome the resistance. For a while, the extra insulin can keep blood sugar levels normal. But eventually your body tires of making so much insulin, the door stays closed and glucose levels in your blood rise. This is the start of diabetes.

Types of Diabetes

The two most common types of diabetes are type 1 diabetes, and type 2 diabetes. Type 1 diabetes is an autoimmune disease that typically occurs in childhood or adolescence when the immune system attacks and destroys insulin-producing beta cells. People with type 1 diabetes must take insulin for the rest of their lives.

Type 2 diabetes is the most common

form of the disease. In this type, the pancreas usually produces some insulin but not enough to keep blood sugar levels normal. Without insulin, glucose can't move from your blood into cells. Thus, high levels of glucose build up in your bloodstream, even as your cells become starved for energy.

To counteract the increasing levels of blood sugar, your pancreas revs up insulin production, flooding your system with insulin. But, just like running an engine without a rest, the beta cells can wear out over time, and insulin levels fall below normal. When this happens, people with type 2 diabetes require insulin to survive.

Symptoms of Diabetes

Type 2 diabetes can develop very slowly, so slowly that many people are surprised to learn they have the disease. The classic symptoms include:

- Significant thirst
- Frequent urination (especially at night)
- Feeling tired or ill
- Blurred vision
- Frequent infections
- Slow wound healing

You should see your health care professional if you have any of these symptoms. Ask your health care professional about testing for diabetes or insulin resistance during checkups. If you are overweight, you and your children may have an increased risk.

If your initial test is normal, you should be retested every three years, more often depending on your risk factors and your health care professional's

recommendations. The two most common tests are the fasting plasma glucose (FPG), in which blood sugar levels are measured after you've fasted for a specified time; and the oral glucose tolerance test (OGTT), in which you drink a sugary liquid and then blood sugar levels are tested several times to see how well glucose moves into cells. The American Diabetes Association recommends you be tested with either one twice, at different times, to confirm a diagnosis.

Diagnosis

Type 2 diabetes is often preceded by a condition called "insulin resistance," also called prediabetes, although there are some instances of prediabetes in which there is no insulin resistance. Insulin resistance occurs when you don't have enough insulin receptors on

cells, or the insulin receptors don't work properly. The result? Glucose builds up in your bloodstream. Eventually, this can turn into type 2 diabetes.

You have prediabetes when your FPG level is between 100 mg/dL and 125 mg/dL, or your OGTT is between 140 mg/dL and 199 mg/dL; you're diagnosed with diabetes when your FPG is 126 mg/dL or higher and/or your OGTT is 200 mg/dL.

Treatment

The goal in managing type 2 diabetes is to maintain blood glucose control over time. This is evaluated through a test called the A1C, which provides a picture of your glucose levels over the past three months. The American Diabetes Association recommends you receive the test four times a year if you use insulin; twice a year if you don't. Someone without diabetes usually has a level between four and six percent; your goal is less than seven percent. Studies find that maintaining a low A1C can reduce the risk of complications related to diabetes.

If you can't manage your blood sugar through diet and exercise alone, you will need oral medications or insulin. The oral medications are designed to make your cells more receptive to insulin or to improve the ability of your pancreas to make insulin. The insulin replaces the hormone your body can't make.

You should also test your blood sugar throughout the day to ensure it remains within recommended levels.

Know Your ABCs

When you have diabetes, you have to be careful about your cholesterol and blood pressure levels, since you have the same risk of a heart attack in 10 years as someone who already has heart disease. American Diabetes Association guidelines call for a blood pressure less than 130/80 mm Hg. Any higher, and you may need medication.

Cholesterol levels for those without preexisting heart disease should be an LDL ("bad" cholesterol) below 100 mg/dL, triglycerides below 150 mg/dL and HDL ("good" cholesterol) above 40 mg/dL—above 50 mg/dL for women. You may need medication if your LDL or triglyceride levels are too high.

An easy way to remember the importance of these three numbers—your A1C, blood pressure and cholesterol—is with the American Diabetes Association's "ABC" program. "A" stands for the A1C (or hemoglobin A1C) test; "B" is for blood pressure; and "C" is for cholesterol.

Complications

The reason it's so important to maintain close-to-normal blood sugar levels is that over time high blood sugar and blood insulin levels (from insulin resistance) can lead to numerous complications including heart attacks, stroke, nerve damage, amputations, blindness and kidney disease. In fact, two-thirds of people with diabetes die from cardiovascular disease, typically at far younger ages than those without the disease.

Resources

American Diabetes Association
1-800-342-2383
www.diabetes.org

U.S. Centers for Disease Control and Prevention
1-800-232-4636
www.cdc.gov/diabetes

National Diabetes Information Clearinghouse
Division of the National Institute of Diabetes & Digestive & Kidney Diseases
1-800-860-8747
www.diabetes.niddk.nih.gov

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