



## Diabetes

Janet M. Torpy; Cassio Lynm; Richard M. Glass

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# Diabetes

**D**iabetes is a common chronic medical condition that leads to increased blood sugar (glucose) levels. Severe complications can come from diabetes, including heart disease, **vascular** (blood vessel) disease and poor circulation, blindness, kidney failure, poor healing, stroke, and other **neurological** (nerve) diseases. Diabetes cannot be cured but can be successfully treated. Complications from diabetes can be prevented with careful blood sugar management and control of high blood pressure and high cholesterol levels when present. The April 15, 2009, issue of *JAMA* is a theme issue devoted to articles about diabetes.

## TYPES OF DIABETES

**Type 1 diabetes**, often referred to as “juvenile” diabetes or “insulin-dependent” diabetes, occurs when the body’s pancreas does not produce enough **insulin** (the hormone that processes glucose). Type 1 diabetes is usually diagnosed in childhood or adolescence and requires lifelong insulin treatment. **Type 2 diabetes**, also called “adult-onset” diabetes, is much more common. Type 2 diabetes is becoming more and more common in children and teenagers because of the increase in obesity in young people. Insulin resistance is a major issue in type 2 diabetes—the body produces insulin but is unable to process glucose appropriately. However, people with type 2 diabetes also have insulin deficiency, although not to the same degree as individuals who have type 1 diabetes.

## RISK FACTORS

- Overweight is the major and most controllable risk factor for type 2 diabetes. Reaching and then maintaining a healthy weight may be the only treatment needed for many persons who are at risk for type 2 diabetes.
- Persons with a family history of type 2 diabetes are more likely to develop diabetes.
- Getting plenty of exercise and avoiding excess sugar and processed foods while consuming a low-fat diet rich in vegetables and whole grains can reduce the risk of type 2 diabetes.

## SIGNS AND SYMPTOMS

Typical symptoms of diabetes include excessive thirst, fatigue, frequent illness or infections, poor circulation (including tingling or numbness in the feet or hands), wounds that do not heal, blurred vision, and unintentional weight loss. Many people with type 2 diabetes have no symptoms, and it is discovered after testing for other medical problems or through screening in persons at high risk of developing type 2 diabetes.

## TREATMENTS

- Insulin is always required to treat type 1 diabetes.
- Good nutrition, daily physical exercise, smoking cessation, and monitoring of blood sugar along with regular monitoring of **hemoglobin A<sub>1c</sub>** (a measure of long-term blood glucose control) are cornerstones of treatment for both type 1 and type 2 diabetes.
- In type 2 diabetes, oral medications should be prescribed if diet and exercise do not make improvements in blood sugar control after a few months. There are several types of medications used to treat type 2 diabetes; treatment is individualized based on each person’s medical needs.
- Insulin may be required to treat type 2 diabetes if diet, exercise, and oral medications do not improve blood glucose control. As in type 1 diabetes, this requires careful blood sugar monitoring to avoid **hypoglycemia** (extremely low blood sugar levels) and to optimize insulin dosing.

## FOR MORE INFORMATION

- National Diabetes Information Clearinghouse  
National Institute of Diabetes and Digestive and Kidney Diseases  
[www.niddk.nih.gov](http://www.niddk.nih.gov)
- American Diabetes Association  
[www.diabetes.org](http://www.diabetes.org)

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To find this and previous JAMA Patient Pages, go to the Patient Page link on JAMA’s Web site at [www.jama.com](http://www.jama.com). Many are available in English and Spanish. A Patient Page on weight and diabetes was published in the June 18, 2008, issue; one on pregnancy and diabetes was published in the June 4, 2008, issue; one on insulin was published in the January 10, 2007, issue; and one on diabetic foot ulcers was published in the January 12, 2005, issue.

Sources: National Institute of Diabetes and Digestive and Kidney Diseases; American Diabetes Association

Janet M. Torpy, MD, Writer

Cassio Lynn, MA, Illustrator

Richard M. Glass, MD, Editor

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