

Type 2 Diabetes (Non-insulin Dependent Diabetes Mellitus; Adult-onset Diabetes Mellitus)

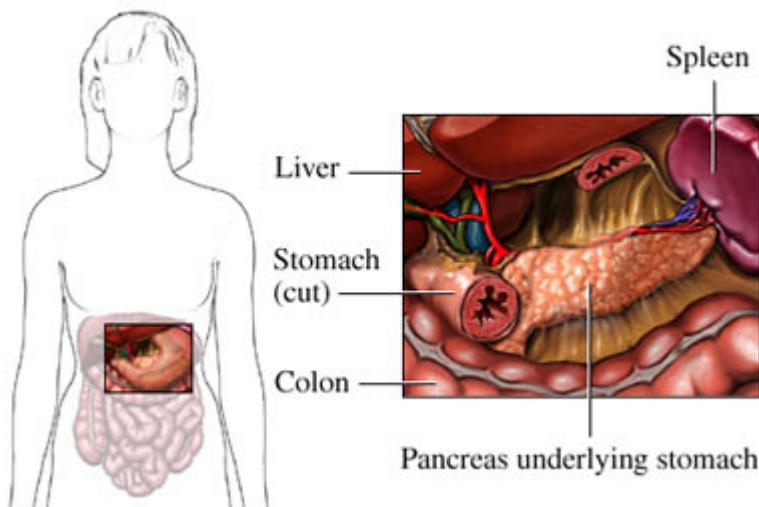
by Debra Wood, RN

Definition

Type 2 diabetes is a disorder in which the body is resistant to high levels of insulin. Insulin is a hormone produced by the pancreas that helps the body convert food into energy. Without insulin, glucose (sugar) from the food you eat cannot enter cells. This causes glucose to build up in the blood. Meanwhile, your body tissues are starved for energy. However, in type 2 diabetes, there is plenty of insulin but the cells are resistant to its action.

Long-term, high blood sugar levels can damage the kidneys, eyes, nerves, and other tissues.

The Pancreas



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Causes

Two conditions contribute to type 2 diabetes:

- Insulin resistance related to excess body fat (in this case, the body is unable to effectively use the insulin it produces)
- Failure of the body to make an adequate amount of insulin

Risk Factors

A risk factor is something that increases your chance of getting a disease or condition.

- Age: 40 or older
- Obesity or being overweight (especially excess weight in the upper body and abdomen)
- Lack of physical activity
- Family members with type 2 diabetes
- History of gestational diabetes
- History of impaired glucose tolerance
- Race: African American, Hispanic, Native American, Asian American, or Pacific Islander
- Endocrine disorders (Cushing's syndrome, hyperthyroidism, acromegaly, polycystic ovary syndrome, pheochromocytoma , glucagonoma)
- Medications (pentamidine, nicotinic acid, glucocorticoids, thiazide)
- Genetic factors

Symptoms

Type 2 diabetes may not produce symptoms for years.

Symptoms in type 2 diabetes may be due to either high blood sugar or diabetic complications. These symptoms may include the following:

- Weight loss
- Increased urination
- Extreme thirst
- Hunger
- Fatigue
- Blurry vision
- Irritability
- Frequent or recurring infections
- Poor wound healing
- Angina
- Painful leg cramps when walking
- Numbness or tingling in the hands or feet
- In women: frequent vaginal yeast infections
- Problems with gums
- Itching
- Impotence

Diagnosis

The doctor will ask about your symptoms and medical/family history, and perform a physical exam.

Diagnosis is based on the results of blood tests and other criteria, including:

- Symptoms of diabetes and a random blood test revealing a blood sugar level greater than or equal to 200 milligrams per deciliter of blood (mg/dl)
- Blood sugar tests after you have not eaten for eight or more hours that reveal blood sugar levels greater than or equal to 126 mg/dl on two different days
- A glucose tolerance test measuring blood sugar two hours after you consume glucose with a measurement greater than or equal to 200 mg/dl

Treatment

Diabetes treatment aims to maintain blood sugar at levels as close to normal as possible. Regular medical care is essential for preventing or delaying complications.

Diet

- Follow a balanced meal plan, eating consistent and moderate amounts of food at regular times.
- Do not skip meals.
- Eat plenty of fruits, vegetables, and fiber.
- Eat limited amounts of fat.
- Eat moderate amounts of protein and low-fat dairy products.
- Carefully limit foods containing sugar, which may be included as part of a balanced diet plan.
- Eat a bedtime snack with protein and a starchy food.
- Keep a record of your food intake to help a dietitian or doctor advise you based on your nutritional needs.

Weight Loss

If you are overweight, talk to your doctor about a reasonable weight goal and a safe diet program.

Exercise

Physical activity helps the body use blood sugar. It will also help you reach and maintain a healthy weight, and lower the levels of fat in your blood. Follow your doctor's recommendations for activity levels and restrictions. In a recent review of 14 clinical trials, exercise was found to improve blood sugar control in 377 patients with type 2 diabetes.*

Blood Sugar Testing

Checking blood sugar levels during the day helps you track the amount of glucose in your blood. Testing is easy with a blood glucose monitor. Keep a record of the results to show the doctor. Your treatment plan may change based on your test results.

Oral Medication

Medications taken by mouth may be used to lower blood sugar. These may include:

- Drugs that prompt the pancreas' beta cells to make more insulin (for example, sulfonyureas (glyburide, tolazamide))
- "Insulin sensitizers," a class of drugs that help the body better use insulin (for example, rosiglitazone and pioglitazone)
- "Starch blockers," a class of drugs that helps decrease the absorption of glucose into the bloodstream (through the intestine), resulting in better blood sugar control (a blunted increase) after a meal (for example, acarbose and miglitol)
- Drugs that help reduce the production of glucose by the liver (for example, metformin)

Insulin

Insulin by injection or inhalation supplement the insulin produced by the body. Insulin therapy is needed when blood sugar levels are not kept low enough with diet, exercise, and medication.

Prevention

Regular physical activity and maintaining a healthy weight can reduce your chance of developing type 2 diabetes. In a recent randomized trial of 523 patients ages 40-65 who were overweight (body mass index > 25) and had impaired glucose tolerance (prediabetes), lifestyle changes (with considerable support) reduced the incidence of diabetes for up to seven years. Lifestyle changes included weight loss, reduced intake of total and saturated fat, increased intake of dietary fiber, and increased physical activity.*

Although lifestyle changes appear to be more effective than medications in individuals with glucose intolerance, ask your doctor if taking a drugs such as metformin or rosiglitazone may help reduce your risk of developing type 2 diabetes.

RESOURCES:

American Diabetes Association
<http://www.diabetes.org>

Canadian Diabetes Association
<http://www.diabetes.ca>