



Diabetes

What You Need To Know



Permafold® Topics

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Reviewed and Approved by the Senior Medical Advisory Board



This Permafold® is not meant to take the place of expert medical care or treatment. Follow your doctor's or health care provider's advice.

1. What Is Diabetes?

Diabetes is often called "having too much sugar." It is too much sugar (glucose) in the blood and not enough in the body's cells. Glucose needs to get into the cells to be used for energy. Insulin is the hormone needed for glucose to get from the blood into the cells. Disease is a disease. It results when no insulin is made, not enough insulin is made, or the body does not use insulin well.

One test used to diagnose diabetes is a fasting blood glucose test.

Fasting Blood Glucose Test

99 mg/dL and below	Normal
100 to 125 mg/dL	Pre-diabetes (impaired fasting glucose)
126 mg/dL and above	Diabetes*

*Confirmed by repeating the test on a different day.

Follow your doctor's advice for screening tests for diabetes. Diabetes can be a very serious disease that can threaten life. If it is not controlled, it can lead to heart disease, stroke, kidney damage, blindness, etc.

2. Types

Type 1

With this type, the pancreas gland makes no insulin or very small amounts. Often, the pancreas has fewer cells that make insulin. This type most often occurs in children and young adults. It can happen at any age, though.

Type 2

With this type, the pancreas does not make enough insulin or the body does not use insulin the right way. Often, this occurs in persons who are over age 40, are overweight, and/or who don't exercise. Modest weight loss and moderate physical activity can delay or help prevent type 2 diabetes.

Pre-diabetes

With this type, blood glucose levels are higher than normal, but not high enough to be diagnosed with diabetes. Many people with pre-diabetes develop type 2 diabetes within 10 years. Modest weight loss and moderate physical activity can delay or prevent type 2 diabetes.

Gestational

This type occurs during pregnancy. It usually ends when the pregnancy ends. It does, though, increase the risk for the mother to get diabetes in the future. The mother will need follow-up blood sugar checks.

3. Signs & Symptoms

According to the American Diabetes Association, some signs and symptoms of diabetes are:

- Passing urine often
- Extreme thirst
- Extreme hunger
- Unusual weight loss
- Being very cranky
- Blurry vision

If you have one or more of these signs and symptoms, see your doctor. In type 1 diabetes, symptoms tend to come on quickly. In type 2, symptoms tend to come on more slowly. You can even have diabetes without any symptoms.

A screening test can detect diabetes early. Early treatment may reduce other health problems related to diabetes. (See topic 7.)

Diabetes has no cure, but it can be controlled. Goals are to keep blood sugar levels between 70 and 130 mg/dL before meals; and less than 180 mg/dL two hours after starting a meal.



4. Risk Factors



For Type 2 Diabetes

- Your mother, father, brother, and/or sister has or had diabetes.
- You are overweight.
- You are age 45 or older.
- You are female with a past history of gestational diabetes and/or you had at least one baby who weighed more than 9 pounds.
- You come from ethnic groups that are more prone to diabetes: African Americans, Latinos, Native Americans, Asian Americans, and Pacific Islanders.

For Type 1 Diabetes

- You have a family history of type 1 diabetes.
- You had a virus that has injured the pancreas gland or a problem that has destroyed cells in the pancreas gland that make insulin.

5. Medical Care

A. Your Health Care Team

- **You** – You are the most important member to care for your diabetes. (See topic 6.)
- **Your Primary Care Doctor** – Your primary care doctor usually heads up your health care team. He or she may consult or have you see an endocrinologist. This doctor has special training in diabetes and other disorders of internal glands.
- **Nurse Educator or Certified Diabetes Educator (CDE)** – This health care provider is trained and certified to teach you how to manage your diabetes on a day-to-day basis.
- **Registered Dietitian** – This person is trained and certified to show you what to eat.
- **Podiatrist** – This doctor gives foot care and treats foot problems.
- **Eye Doctor** – This is an ophthalmologist (medical doctor) or optometrist who can check for changes in the blood vessels in your eyes and do retinal screening exams. An ophthalmologist also treats eye diseases and injuries and performs eye surgery.
- **Exercise Physiologist** – This is a person trained to plan an exercise program that meets your needs.
- **Dentist** – This doctor gives regular dental care and diagnoses and treats gum disease. Your health care plan may or may not cover dental care.
- **Mental Health Care Provider** – This is a person trained to help you to cope with a chronic disease. This can be a psychologist, social worker, etc.

B. Medication

Diabetes pills. These are prescribed when diet and exercise are not enough to control blood sugar. Types include:

- Ones that delay or block the breakdown of starches and some sugars (e.g., acarbose).

- Ones that help your body release more insulin (e.g., glyburide and tolbutamide).
- Ones that lower blood sugar without helping your body make more insulin (e.g., metformin).

Insulin. There are different types based on how fast and over how many hours they work. People with type 1 diabetes need insulin. Some persons with type 2 diabetes need insulin. It can be given through:

- Insulin injections (shots)
- Insulin pump therapy

Other medicines, as needed, to control blood pressure, blood cholesterol levels, etc.

C. Exams & Tests

If you have diabetes, have exams and tests, as advised. In general, diabetics should have the following:

Exam or Test	When
Blood pressure	Every office visit
Blood test for total cholesterol, HDL, LDL, and triglycerides	Every year or as advised
Blood test for Glycated Hemoglobin *(A1C)	4 times a year with a change in drug therapy or poor blood sugar control. 2 times a year when blood sugar is controlled.
Dental checkup	2 times a year
Eye exam (includes dilating pupils)	Every year
Foot exam	Every year
Flu shot	Every year
Pneumonia vaccine	As advised by doctor
Urine test to check for protein	Every year
Weight	Every office visit

* A number for the average blood glucose value over the last 2 to 3 months. Normal range of A1C for people without diabetes is 4.0-6.0%. Your doctor will set your A1C goal (e.g., <7%, <6.5%). The closer the number is to this goal, the less likely you will develop serious problems.

6. Self-Care

Diet

Follow the diet prescribed by your health care provider. In general, you may be advised to:

- Lose weight if you are overweight.
- Eat meals at regular times.
- Follow a meal plan for breakfast, lunch, dinner, and snacks. You may be told to count carbohydrates. Books, booklets, and food labels list carbohydrate amounts.
- Have 20 to 35 or more grams of dietary fiber per day. Fiber is in bran, whole-grain breads and cereals, fresh fruits and vegetables, beans and peas, and seeds.
- Strictly limit saturated and trans fats. To do this, choose nonfat dairy products; very lean meats (and in small amounts); and limit all animal and “hydrogenated fats.”
- Limit alcohol. Follow your health care provider’s advice.

Skin Care

To reduce the risk of skin problems and infections:

- Keep your skin clean. Bathe or shower with warm water and a mild soap.
- Apply lotion to your skin to keep it moist.
- Protect your skin from damage.
 - Avoid cuts, scrapes, punctures, etc. If you get a skin injury, treat it right away. Keep it clean and cover the area with a clean, dry bandage. Call your provider if the injury does not start to heal in a day or two or if you notice signs of infection (redness, swelling, pus, throbbing, and pain).
 - Avoid sunburn. Use sunscreen, etc.
 - Wear gloves in cold weather and when you do work that may injure your hands.

Keep Track of Your Blood Glucose

- Test your blood sugar, as advised. Persons with type 1 diabetes may be told to test before each meal and at bedtime. Persons with type 2 diabetes may be told to test every other day or daily and at certain times.
- Keep a log of your blood sugar results. Note any reasons that could help explain why your blood sugar is higher or lower than usual. Share this log with your health care provider.

Exercise

Regular exercise helps control your weight and blood sugar. It also lowers your blood cholesterol, blood pressure, and risk of heart disease. Exercise may also reduce the amount of medicine you need to take for your diabetes and make you feel better.

- Follow your provider’s advice about the best times to exercise related to the diabetes medicine you take; when you eat, and your daily schedule(s). Change your pattern of exercise gradually, not suddenly. A change in exercise may require a change in medication.
- If told to, test your blood glucose before and after exercise.
- When you exercise, have with you a carbohydrate source (e.g., fruit juice, 6 or 7 hard candies, glucose gel or tablets, etc.).
- Find out if you should also carry a glucagon emergency kit. Your doctor needs to prescribe this. You and persons you exercise with should learn how to use this.



Foot Care

- Check your feet every day. Let your provider know of any problems (swelling, redness, other color changes, ingrown toenails, corns, etc.). Use a mirror to look at the bottom of your feet.
- Keep your feet clean.
- Wear shoes and slippers that fit your feet well. Don’t go barefoot, indoors or outdoors.
- Cut nails straight across and not too close to the skin. Have a foot doctor cut your toenails, if advised.

Sick Care

- Rest as much as you can.
- Drink plenty of fluids.
- Follow sick-day plans worked out ahead of time with your health care provider for:
 - Self-testing of blood sugar and ketones
 - What to eat and drink
 - How to adjust insulin or oral pills

Other Self-Care Tips

- If told to, test your urine ketones as advised. These are harmful acids that build up in the blood and urine with very high blood sugar.
- Keep a journal of your blood glucose levels, your food intake, and the exercises you do. Show this to your provider.
- Buy and wear a “Medic Alert” tag.
- Learn the warning signs of too little or too much blood glucose. (See topic 8.)

7. Health Problems Related to Diabetes

When diabetes is left untreated or not treated well, you are at more risk for these health problems:

- Heart disease. Stroke.
- Poor circulation. Foot problems.
- Infections in general and slow healing of wounds and infections
- Yeast infections, especially in women
- Kidney and eye problems. This includes blindness.
- Gangrene. Sometimes this is so severe that the affected limb must be amputated.



8. Diabetic Emergencies

Hypoglycemia (Low Blood Sugar)

This can happen if you: Skip or don't finish meals or snacks or wait too long to eat; exercise more than usual; and/or take excess diabetes medicine or insulin.

Symptoms

- Shaky feeling. Weakness. Dizziness.
- Rapid pulse. Shallow breathing.
- Sweating. Cold, clammy skin.
- Sudden blurred or double vision
- Numbness or tingling around the mouth and lips
- Sudden mood changes. Confusion.
- Faintness. You may pass out.

What to Do

If you can, check your blood sugar. If it is lower than the level set by your health care provider, such as 70 mg/dL, have a sugar source. Examples are:

- 1/2 cup (4 ounces) fruit juice or regular (not diet) pop
- 5 or 6 regular (not sugar-free) hard candies
- 4 teaspoons of sugar or honey
- 6 to 10 gumdrops or jelly beans
- 3 glucose tablets (or the number your health care provider advises). Drug stores have these.
- 1 cup (8 ounces) of milk
- If you don't feel better after 15 minutes, take the same amount of sugar source again. If you still don't feel better, call your doctor.
- If a diabetic passes out, can't swallow, or can't be roused, get emergency care. Use a prescribed emergency glucagon kit to inject glucagon. If there is no glucagon, rub sugar or any type of sweet paste, such as cake frosting, inside the person's mouth. Call for emergency medical care. Do not give insulin, food, or liquids.

Hyperglycemia (High Blood Sugar)

This can happen if you: Eat too much; don't do your normal exercises; don't take your insulin or your diabetes pills or enough of them; and/or get sick.

Symptoms

- Extreme thirst
- Passing urine often
- Nausea
- Acting cranky
- Dry, itchy skin
- Feeling very sleepy
- Blurred vision

What to Do

- Check your blood sugar. Follow your doctor's advice for your blood sugar level. If it is over 240 mg/dL or if you are sick, you may be told to check your urine for ketones. Call your doctor right away if your urine shows moderate or large amounts of ketones.
- Follow your treatment plan more closely.

High Blood Sugar with Ketones in the Blood

This is a serious condition. It can result in a coma. It occurs in type 1 diabetics. It is called diabetic ketoacidosis (DKA).

Early Symptoms

- Intense thirst. Dry mouth.
- High blood glucose levels
- Passing urine often
- Positive urine ketone tests

Later Symptoms

- Tiredness. Dry, flushed skin.
- Nausea and/or vomiting
- "Fruity" breath odor
- Hard time breathing. Usually short, deep breaths.
- Lethargy. Can't be roused.

What to Do

- Call your doctor right away for advice.
- If you can't reach your doctor, get to a hospital emergency room right away.

High Blood Glucose without Ketones

This is called hyperglycemic hyperosmolar nonketotic syndrome (HHNS). It occurs most often in type 2 diabetics. It usually comes after another illness, such as the flu, that has caused dehydration. It can result in seizures, coma, and even death (if it is not treated).

Symptoms

- Dehydration. This may be the only symptom.

Symptoms That May Have Occurred for Days or Weeks Before

- Extreme thirst
- Very high blood glucose levels (over 600 mg/dL)
- High fever
- May have vision loss
- Sleepiness. Confusion.

What to Do

- Drink water
- Get to a hospital emergency room right away.

For More Information, Contact:

American Diabetes Association
800.DIABETES (342.2383) • www.diabetes.org

National Institute of Diabetes & Digestive & Kidney Diseases (NIDDK)
www2.niddk.nih.gov

Get Free Health Information, from:
www.HealthyLearn.com