

What is diabetes?

Diabetes is a metabolic disease in which you have too much sugar in your blood (hyperglycemia). It is a lifelong disease that can lead to serious health problems. When you eat, food is broken down into a sugar called glucose. A hormone called insulin is needed to move sugar from the blood into the cells where it is used for energy.

When you have diabetes type 1 your body is not making any insulin. When you have diabetes type 2, your body is not making enough insulin. The glucose stays in your blood when there is no insulin or not enough insulin.

There is no cure for diabetes, but it can be controlled by balancing the food you eat with exercise and medicine. If you have diabetes type 1, you must take insulin.

How to check blood glucose levels?

To check (monitor) your blood sugar you will use a glucose meter. You will turn the meter on and put a glucose strip into the meter following the directions in the owner's booklet. You will prick your finger to obtain a drop of blood using a lancet. You will apply a drop of blood to the glucose strip. The meter will display your blood sugar on its screen. Your hospital doctor will send prescriptions to your pharmacy for the meter, the glucose strips and lancets if you do not already have these supplies at home. Most meters store 90 days or more of your blood sugar results with the date and time that you checked your blood sugar. It is still a good idea to write your blood sugar results down. Always take your meter or your blood sugar log with you to follow up appointments with your doctor.



How often you check your blood sugar depends on whether you are taking insulin or other types of medicines. You may need to check your blood sugar once a day in the morning before breakfast. Your doctor may ask you to check before each meal and at bedtime. How often you

need to check will be included in your discharge paperwork.

What are the usual blood sugar goals?

The American Diabetes Association blood sugar goals are:

Fasting and before meals	Between 80 –130 mg/dl
Two hours after meals	Less than 180 mg/dl
Hemoglobin A1c (3-month average of blood sugar)	Less than 7% (guided by your doctor's recommendations)

High Blood Sugar—Hyperglycemia

High blood sugar may occur within hours or develop over several days. You may have one or more of the following symptoms:

- High blood sugars levels (more than 180 mg/dl)
- Extreme thirst
- Fatigue / sleepiness
- Urinating often /waking to urinate during the night
- Grouchiness
- Pain in the abdomen (belly) with or without vomiting

Causes of high blood sugar

- Too much food or eating the wrong type of food
- Not enough diabetes medicine or insulin
- Not enough exercise (Do not exercise if your blood sugar is more than 240 mg/dl.)
- Illness or infection
- Stress

What to do to prevent hyperglycemia

- Always take your diabetes medications unless your doctor has told you not to
- Test your blood sugar more often if it is getting high (every 4 hours)



- Test your urine for ketones if you have diabetes type 1. Call your doctor if moderate to large amounts of ketones are present.
- If your blood sugar is more than 240 mg/dl, drink 8 ounces of sugar-free, carbohydrate free, caffeine-free liquid every 1-2 hours.
- Review your sick day plan-Call your doctor if you are vomiting and unable to eat or drink liquids. Remember to call your doctor if your blood sugar stays above the goals you set with your doctor for 24 hours.

Low Blood Sugar-Hypoglycemia

Low blood sugar (hypoglycemia) is a blood sugar less than 70 mg/dl and usually happens quickly and may require that someone helps you get treatment. Symptoms may include:



- Sweating
- Shaking or feeling jittery
- Fast and /or pounding heart beat
- Hunger
- Irritability / confusion
- Light headedness, dizziness or fainting

Steps for treating a blood sugar less than 70 mg/dl (The Rule of 15s)

1. Make sure you are safe. for example, if you are driving pull over.
2. If you are too shaky to check your blood sugar or you are afraid you are going to pass out, eat or drink one of the following right away: 4 ounces of any kind of fruit juice or regular soft drink, 8 ounces of skim milk, 4 glucose tablets, or 2 tablespoons of raisins. These foods and drinks contain 15 grams of carbohydrate.
3. If you can safely check your blood sugar, check your blood sugar. If it is less than 70 mg/dl, eat or drink: 4 ounces of any kind of fruit juice or regular soft drink, 8 ounces of skim milk, 4 glucose tablets, or 2 tablespoons of raisins.
4. Wait 15 minutes after eating or drinking the 15 grams of carb and then recheck your blood sugar
5. If your blood sugar less than 70 mg/dl, repeat the 15 grams of carb, wait 15 minutes and recheck your blood sugar.
6. If your blood sugar does not improve after 2 rounds, call for help and continue eating or drinking 15 grams of carb and rechecking every 15 minutes.
7. When your blood sugar is 70 mg/dl or more and you feel okay, you may resume your day.
8. If your next meal is 2 hours or more away, have a small snack that contains some carbs and protein such as ½ of a peanut butter or meat sandwich, 3 peanut butter and cracker sandwiches or 3 cheese and crackers sandwiches.
9. If you are unconscious, someone should call 911 immediately. You should not be given anything by mouth if you are unconscious. If you have glucagon nasal powder or a glucagon injection or pen, someone should administer it if you are unconscious.

Be sure to tell you doctor about any time you had low blood sugar (hypoglycemia) right away so that he can adjust your medicine.

You should buy and wear a bracelet or necklace that says you have diabetes in case you ever need help in an emergency.

Glucose tablets can be bought in drug stores in the

diabetes aisle without a prescription.

When you should call your doctor or go to the emergency room

Go to the emergency room if you have a low blood sugar that causes you to faint or pass out.

Call the doctor who prescribes your medicine for diabetes if your blood sugar is less than 70 mg/dl when you check it first thing in the morning or if you wake during the night and your blood sugar is less than 70 mg/dl. or your blood sugar is less than 70 mg/dl several times in a week.

Call the doctor if your blood sugar is more than 180 mg/dl consistently before meals.

Call the doctor if your blood sugar is gradually increasing for several days or if your blood sugar is suddenly higher than is usual.

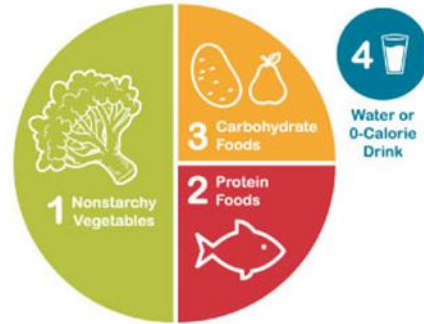
Go to the emergency room if you have any combination of the following symptoms: high blood sugar, extreme thirst, frequent urination, nausea and vomiting, and abdominal pain.

Healthy Food Choices

The types and amount of foods you eat can have a very big effect on your blood sugar. Starches, fiber and sugar are types of carbohydrates (carbs). Carbs have the largest effect on blood sugar levels. The portion size of carbs should be limited, but not eliminated. Carbs provide your body with energy it needs for physical activity and healthy organ function-you need carbs! Eating too many carbs can cause high blood sugar; not eating enough carbs can cause low blood sugar. The easiest place to start is using the Plate Method by filling:

- 1/2 of your plate with non-starchy vegetables (carrots, spinach , broccoli).
- 1/4 of your plate with protein (chicken, turkey, fish, seafood, eggs, cheese)
- 1/4 of your plate with carb containing foods (grains, cereals, beans, fruit, starchy vegetables, milk , yogurt).

It is important to eat 3 meals every day and space meals and snacks evenly through the day. Your blood sugar will not go as high or as low when you keep regular mealtimes.



Not ready to change your plate? Simply reducing the amount of food you eat as well as avoiding sugar sweetened drinks like soda, juice, and tea and coffee with sugar can help lower your blood sugar. Try replacing some processed foods with vegetables and whole grains.

Glucose Lowering Medicines

Diabetes medications work in different ways to lower your blood sugar. Your doctor will prescribe the glucose lowering medications that give you the most benefit. It is important to take diabetes medications as prescribed by your doctor. If a diabetes medication causes a side effect such as nausea, diarrhea, or constipation, call your doctor. The doctor may be able to reduce the dose or prescribe a different medication.

Glucophage (Metformin) is often the first medication prescribed to someone who is newly diagnosed as having diabetes. Metformin works by reducing the amount of sugar that your liver makes. Metformin should be taken with food to reduce the risk for nausea and diarrhea.

Sulfonylureas which include **glipizide, glimepiride and glyburide** work by increasing the amount of insulin your pancreas makes. These medications can cause low blood sugar if not taken as prescribed or if meals are skipped.

Thiazolidinediones are a type of diabetes medication that lowers blood sugar by making cells that need glucose for energy more sensitive to insulin. The most common of these medications is **pioglitazone (Actos)**. Actos can cause swelling and is not used if you have a history of heart failure. Actos does not cause low blood sugar.

DDP-4 inhibitors are a class of drugs that include **sitagliptin (Januvia), linagliptin (Tradjenta) and others**. These medicines work by indirectly increasing

insulin secretion. The most common side effect is flu like symptoms. These medicines do not cause low blood sugar.

SGLT-2 Inhibitors are newer diabetes medicines which lower blood sugar by increasing the amount of sugar lost in your urine. These medicines include **canagliflozin (Invokana), dapagliflozin (Farxiga), and empagliflozin (Jardiance)**. These medicines have the extra benefit of reducing some heart problems and slowing the progression of diabetic kidney disease. The most common side effects are increased risk of urinary tract infections and yeast infections.

GLPI receptor agonists are also newer medicines. Most of these medications are given as a daily or weekly shot. These medicines include **liraglutide (Victoza), dulaglutide (Trulicity) and semaglutide (Ozempic)**. They work by signaling your body to produce more insulin when you eat. They do not cause low blood sugar. They also help reduce heart disease and stroke. The most common side effects are nausea and constipation.

Insulin injections replace insulin your body is no longer making. People with type 1 diabetes must take insulin to live because their bodies do not make any insulin. Some people with type 2 diabetes must take insulin because their body is making very little insulin.

Insulin can cause a low blood sugar if the dose is too high, the amount of insulin does not match the amount of carbohydrate eaten, or after hard exercise.

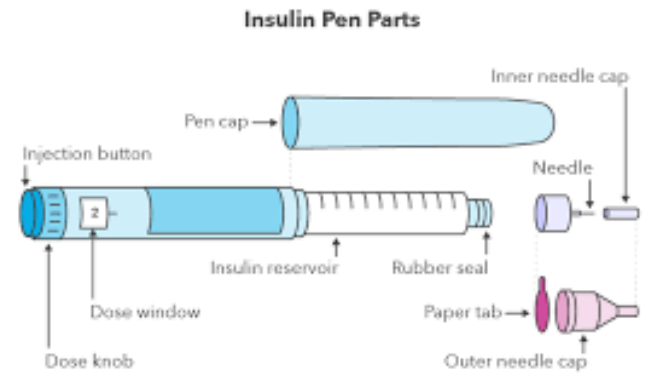
Insulin may be injected once a day or several times a day. Insulin may be taken with other diabetes medications.

Insulin is usually prescribed so that it comes in an insulin pen.

Read the package insert that comes with your medicine.

How to Give Yourself an Insulin Shot using an Insulin Pen

- Wash your hands
- Read the label on the insulin pen to be sure you are taking the right insulin at the right time
- Remove the cap from the insulin pen.

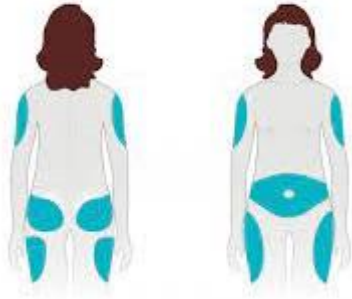


- Look at your insulin to make sure it is clear and there are no particles in it. Do not use cloudy insulin or insulin with particles floating in it (exception: NPH insulin is supposed to be cloudy).
- Clean the end of the insulin pen where the pen needle attaches with an alcohol pad.
- Always use a new needle for each injection.
- Remove the paper wrapper from the pen needle and twist the needle onto the insulin pen to the right.



- Remove the clear cover from the needle and keep it. Remove the small inner cover and throw it away.
- To remove the air from the needle, dial the dose to 2 and inject the insulin into the air by pushing the plunger button on the end of the pen.
- The dose window should read zero after injecting insulin into the air.
- Now dial the dose to the correct amount.
- Push the needle straight into the skin of the belly or use one of the injection sites pictured below. Do not push the button on the top of the pen until the needle is under the skin.

Insulin injection sites



- Push the button on the top of the pen and hold it down while counting to 10.
- Then pull the needle straight out.
- Check the dose window to make sure it says zero.
- Replace the clear needle cover. Twist the needle to the left and put it in a sturdy plastic container (for example an empty detergent bottle).
- Inject insulin into a different spot each time to protect your skin.
- Never share your insulin pen with another person.

Disposal of Needles, Syringes and Lancets



Do not throw needles, syringes or lancets directly into the garbage. You can buy a sharps container or you can use a hard plastic container with a twist on cap such as a juice bottle or a liquid detergent bottle. Drop your needles, lancets and syringes into the container. When the container is 3/4 full, tape the lid to the container, print "sharps" on all side of the container and place in the trash.

Sick Day Plan



Illness or injury can make taking care of your diabetes more difficult. When you are sick your body is in a state of stress and makes stress hormones. These hormones help your body fight the illness or injury, but they also cause your blood sugar to increase. Your blood sugar can increase when you are sick even if you are unable to eat or drink. Untreated high blood sugar can lead to diabetic ketoacidosis (DKA) or hyperosmolar hyperglycemic syndrome (HHS). DKA and HHS are health emergencies and require treatment in the hospital. These problems can be avoided by having a sick day plan which you should make with your doctor.

What can make controlling my blood sugar harder?

Just about any type of illness can make controlling your blood sugar more difficult including:

- Colds
- Stomach bugs that cause vomiting and diarrhea
- Ear, sinuses, throat, teeth, or bladder infections
- Pneumonia
- Infected sores including those on the feet

Sick Day Tips

- If you have chest pain, difficulty breathing or abdominal pain you should go to the emergency room**
- Always take your long-acting insulin even if you are not eating unless your doctor tells you not to.
- Usually you will need more insulin when you are sick. Your doctor will decide how much insulin you will need to take while sick or if you should continue your diabetes

pills.

If you are taking a type of diabetic pill called an **insulin secretagogue or sulfonylurea such as glyburide, glipizide, glimepiride, repaglinide or nateglinide** and are unable to keep food down-call your doctor to decide if you should take it.

Check your blood sugar every 2 to 4 hours.

People with Type I diabetes should check their urine for ketones if their blood sugar is more than 240 mg/dl or they have been vomiting or having diarrhea.

Drink at least 8 ounces of carb-free, caffeine-free fluid every hour. Caffeine increases urination and can lead to further dehydration when you are already vomiting or have diarrhea.

Eat 45 grams of carbohydrates (3 carbohydrate servings) every three to four hours. Even if your blood sugar is high, it is important to continue to take in carbohydrates.

If you are vomiting, eat foods that are easy on the stomach such as toast, crackers, broth and soups or fluids that have calories such as fruit juice, regular caffeine free-soda, gelatin and popsicles.

Discuss with your doctor any other instructions that are specific to your condition.

When should I call the doctor?

You have been sick for 24 hours or more.

Your temperature is 101.5 degrees or more.

You have been throwing up or had diarrhea for more than six hours.

There are moderate to large amounts of ketones in your urine.

Your blood sugar is more than 240 mg/dl or less than 70 mg/dl for 2 checks in a row.

You have symptoms of infection such as pain with urination or wounds with drainage.

You are dehydrated.

You have any question or are unsure what you should do.

Discuss what you should do when you are sick with the doctor who prescribes your diabetes medicine to individualize your sick day plan..

Diabetes Checklist- Know Your Numbers

Diabetes affects many aspects of your health. Long term, uncontrolled high blood sugar can lead to health problems for people with type 1 and type 2 diabetes. These problems include:

Damage to nerves (neuropathy) which can cause numbness or discomfort in your hands or feet or may affect organs like your stomach

Damage to blood vessels in the eyes (retinopathy), which may lead to blindness

Damage to blood vessels in the kidneys, which may lead to kidney failure

Blockages in blood vessels, which can cause heart disease or stroke

Blockages in the blood vessels in the legs, which can lead to slow healing wounds on the legs and feet and even to amputation.

In addition to controlling your blood sugar, regular follow up with your doctor will be important in maintaining overall wellness. Regular monitoring of the items below will help keep you on track.

A1C: at least 2-4 times per year

Goal A1C: 6-8% for most people

My A1C: _____

Blood pressure: check with every doctor's visit

Goal Blood Pressure: 140/90 mm Hg

My Blood Pressure: _____

Cholesterol: check at least once every year

Goal HDL (good) cholesterol: Men greater than 40mg/dL, Women greater than 50mg/dL.

Goal LDL (bad) cholesterol: goal based on risk for heart disease -discuss with your doctor

Goal triglycerides: less than 150 mg/dL.

My HDL: _____

My LDL: _____

My triglycerides: _____

Dilated and complete eye exam: every year. Call your eye care specialist with any changes in vision.

Date of your next complete eye exam:

Complete foot exam: every year. Let your doctor know if you have problems such as loss of feeling or tingling, changes in shape, or sores on your feet. Take your socks and shoes off during every office visit.

Date of next complete foot exam:

At home check your feet every day. Inspect for cuts, blisters, cracks, swelling, and dry skin. Wear shoes and socks that fit well. Do not go barefoot or wear sandals.

Kidneys: every year. Have your urine and blood tested to monitor kidney function.

Date of next kidney exam: _____

Dental Exam at least every year. Let your dentist know if you have bad breathe or bad taste; red, sore, swollen, tender or bleeding gums; receding gums; loose teeth or teeth that have moved; pain while chewing or sensitive teeth; longer appearing teeth, or change in bite; change in fit of dentures; or history of mouth or gum abscess.

Date of next dental exam: _____

Brush teeth twice daily with a soft bristle toothbrush and fluoride toothpaste. Floss daily.

Quit Smoking: Decide on a quit date and reward yourself for small victories. For free help, call 1-800-QUIT-NOW or visit www.smokefree.gov

My quit date: _____

It is recommended that you wear a medical ID brace-let and/or carry an ID card indicating that you have diabetes.

Keep your doctor's phone number handy by keeping it in your phone or writing it down.

Contact information for family doctor and/or endocrinologist and diabetes educator

Name: _____ Phone : _____

Name: _____ Phone: _____

Name: _____ Phone: _____

MY NOTES:

SCAN THE QR CODE BELOW TO THE DIABETES PAGE ON TRIHEALTH.COM TO PRINT A COPY OF THE DOCUMENTS FOR TIPS ON HOW TO MANAGE DIABETES AND GESTATIONAL DIABETES.

WHILE ON THE DIABETES PAGE ON TRIHEALTH.COM, IN THE BOX WITH THE YELLOW BORDER ON THE RIGHT OF THE PAGE, CLICK THE BLUE BUTTONS TO DOWNLOAD A COPY OF OUR NOTES ON HOW TO MANAGE DIABETES AND GESTATIONAL DIABETES.

