



A GUIDE TO

# Diabetes



# WELCOME

Learning you have diabetes can be overwhelming. We hope you find the information in this guide helpful as you learn how to live with diabetes and how to care for yourself. Please let your care team know if you have any questions or concerns. We want to help make your diabetes journey as smooth as possible and are always here to help!

You should know and understand these points to help you safely manage your diabetes. Ask a member of your care team to help you fill in the black spaces.

- I have: \_\_\_\_Type 1 \_\_\_\_Type 2 diabetes.
- I should check and record my blood sugar \_\_\_\_\_times a day, at the following times: \_\_\_\_\_ and as needed.
- The target range for my blood sugar is\_\_\_\_\_.
- I need to watch for symptoms of high and low blood sugar and know when and how to treat each one.
- My current A1c is \_\_\_\_\_, and my A1c goal is\_\_\_\_\_.
- I need to know when to call for help.
- I need to understand and take my diabetes medicine as ordered:
  - > By Mouth: \_\_\_\_\_  
\_\_\_\_\_
  - > By Injection: \_\_\_\_\_  
\_\_\_\_\_
- I need to understand and follow my diet/food plan.

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# Diabetes Basics

## What is Diabetes?

Diabetes is a condition in which you have too much glucose (a type of sugar) in your blood. When you eat or drink carbohydrates (carbs), the body changes those carbs into glucose to use for energy in the cells throughout your body. Glucose can also be made in the liver.

Your blood sugar rises after you eat. Normally, the increase in your blood sugar causes the pancreas to release a hormone called insulin. Insulin allows the sugar in your blood to enter the cells in the body. Your body gets the energy it needs, and your blood sugar returns to normal levels. When you have diabetes, the sugar in your blood is not able to be taken up by your cells for one of several reasons. Your body does not get the energy it needs, and your blood sugar remains high, which is called hyperglycemia.

The most common types of diabetes are:

- **Type 1 Diabetes (used to be called juvenile diabetes):** This can develop at any age but occurs most frequently in children and adolescents. Your body makes very little, or no insulin, which means that you must take regular insulin injections to absorb sugar for energy and to keep your blood sugar levels as normal as possible (see “Diabetes Medicines” on page 12 for more information).
- **Type 2 Diabetes (also called adult onset or non-insulin dependent diabetes):** This is the most common type of diabetes, and it is more common in adults. At first, your body makes enough insulin, but your cells are not able to absorb the sugar well from your blood. This is called insulin resistance. You do not get enough energy and your blood sugar rises. Some people can control their blood sugars with diet and exercise; however, over time, your pancreas may produce less and less insulin, called insulin deficiency. You may need oral medicines (taken by mouth) and/or insulin injections to keep your blood sugar levels normal (see “Diabetes Medicines” on page 12 for more information).
- **Gestational Diabetes:** This type of diabetes develops during pregnancy. It is not due to a lack of insulin, but because of certain hormones produced during pregnancy that can make insulin less effective, called insulin resistance. It often goes away after the baby is born. About half of all women who have gestational diabetes develop type 2 diabetes later in life.

## Testing Your Blood Sugar

You will likely be asked to check your blood sugar on a regular basis. Everyone is different and you may be asked to check it once or twice a day, sometimes less, while others may be asked to take it several times a day. Be sure to ask your diabetes health care provider how often you should check yours.

### Testing Your Blood Sugar at Home

Your diabetes health care provider will prescribe, or give you, the following supplies that you will need to test your blood sugar at home:

- Blood glucose meter
- Test strips
- Lancets
- Lancet device

Testing instructions are different for each meter, so follow the instructions for yours. Here are general steps to follow when testing:

- Wash your hands with warm, soapy water. Dry them well with a clean towel. You may also use an alcohol wipe to clean the finger you are going to prick, but make sure your hands are dry before testing.
- Remove a test strip from the bottle and put the lid back on right away to keep moisture away from the other strips. Put the strip into your meter.
- Insert a clean lancet (small needle) into the lancet device (medical device that pushes the needle into the skin).
- Prick the **side** of your fingertip with the lancet. **Do not** prick the tip of your finger. Some blood sugar meters use lancet devices that take the blood sample from other sites, such as the palm of the hand or the forearm, but the finger is usually the most accurate place to test.
- Put a drop of blood on the correct spot on the test strip.
- Apply pressure to your finger with a clean cotton ball to stop any bleeding.
- To read (get) your results, continue to follow the directions that came with your meter.
- Write down the results and the time that you tested your blood. Some meters will store the results for you. Check the instructions that came with your meter if you are unsure.

Scan the QR code to watch a video on how to test your blood sugar.



### Tips on Preventing Sore Fingers

Frequent blood sugar testing can lead to sore fingertips, but below are tips that may help.

- Always prick the **side** of the fingertip, not the tip. It will be less painful, and you will get enough blood to get a good sample.
- If you have trouble getting enough blood, run your hand under warm water or hang your hand down below your waist, and count to 5. Then, gently press starting close to the hand and moving outward to the end of the finger.
- Use a different finger each time you test your blood sugar. Set a pattern for which finger you prick so that you will not use certain fingers more than others. If a finger gets sore, do not use it for testing for a few days.
- Try a different glucose meter. Some blood sugar meters only need a very small amount of blood.
- Try a different lancet or lancing device. Some lancet devices can be set to prick the skin deeply or lightly depending on the thickness of the skin and where on the body you are getting blood from.
- Do not reuse lancets. Lancets get dull and can cause pain. A used lancet can also carry bacteria that could cause an infection.

## Continuous Glucose Monitors (CGMs)

Some people with diabetes use a continuous glucose monitor (CGM) which is a device you attach to your body. CGM's automatically track sugar levels throughout the day and night. You are able to quickly see your current glucose level at anytime. They can alert you when your blood sugar is getting too low or too high, even if you are not aware of it. This allows you to get treatment before your blood sugar level becomes dangerous. You can also review how your glucose changes over a few hours or days to see trends. Seeing glucose levels in real time can help you make a more informed decision on how to balance your food, physical activity, and medicines throughout your day.

Your diabetes health care provider may recommend using a CGM to help you stay in your target blood sugar range.

## What Should My Blood Sugar Be?

Guidelines for Blood Sugar and A1C Levels	
<ul style="list-style-type: none"> <li>• Most adults with type 1 or type 2 diabetes, who are not pregnant</li> <li>• Children of any age with type 2 diabetes</li> </ul>	<ul style="list-style-type: none"> <li>• Blood Glucose Before Meals: 80 to 130 mg/dL</li> <li>• Blood Glucose 1 to 2 Hours After Meals: Lower than 180 mg/dL</li> <li>• A1c: Lower than 7%</li> </ul>
<ul style="list-style-type: none"> <li>• Children younger than 18 with type 1 diabetes</li> </ul>	<ul style="list-style-type: none"> <li>• Blood Glucose Before Meals: 90 to 130 mg/dL</li> <li>• Blood Glucose at Bedtime and Overnight: 90 to 150 mg/dL</li> <li>• A1c: Lower than 7.5%</li> </ul>
<ul style="list-style-type: none"> <li>• Women with type 1 or type 2 diabetes who are planning to become pregnant:</li> </ul>	<ul style="list-style-type: none"> <li>• Blood Glucose Before Meals: 80 to 130 mg/dL</li> <li>• Blood Glucose 1 to 2 Hours After Meals: Lower than 180 mg/dL</li> <li>• A1c: Lower than 6.5%</li> </ul>
<ul style="list-style-type: none"> <li>• Women with type 1 or type 2 diabetes who ARE pregnant:</li> </ul>	<ul style="list-style-type: none"> <li>• Blood Glucose at Fasting (Waking) and Before Meals: 70 to 95 mg/dL</li> <li>• Blood Glucose After Meals: 1 hour: 110 to 140 mg/dL OR 2 hours: 100 to 120 mg/dL</li> <li>• A1c: Lower than 6% if possible; below 7% if risk of hypoglycemia (low blood sugar) is high</li> </ul>
<ul style="list-style-type: none"> <li>• Women who have gestational diabetes (diabetes diagnosed for the first-time during pregnancy):</li> </ul>	<ul style="list-style-type: none"> <li>• Blood Glucose at Fasting (Waking): Lower than 95 mg/dL</li> <li>• Blood Glucose After Meals: 1 hour: Lower than 140 mg/dL OR 2 hours: Lower than 120 mg/dL</li> </ul>

## Hemoglobin A1C

Hemoglobin A1c is a blood test that estimates your average glucose (blood sugar) level over the previous 2 to 3 months. This test may be used to diagnose diabetes, and for those who have diabetes, to see if their blood sugar levels have been staying in their target range. The table to the right shows A1c percentages with their estimated average glucose numbers.

A1C	Estimated Average Glucose mg/dL (milligrams per deciliter)
6%	126
7%	154
8%	183
9%	212
10%	240
11%	269
12%	298

## Hypoglycemia (Low Blood Sugar)

Low blood sugar is called hypoglycemia. Low blood sugar levels can happen if you:

- Take certain medicines for diabetes, especially insulin
- Miss a meal
- Drink alcohol
- Exercise more than usual
- Start a new medicine
- Are having other non-diabetes illnesses

If you take insulin or other certain medicines, you need to be able to recognize the signs of hypoglycemia and know how to treat it. If hypoglycemia is not caught early enough and properly treated, it can be dangerous.

### Level 1: Mild Hypoglycemia

Symptoms of mild hypoglycemia usually start when your blood sugar has dropped below 70 milligrams per deciliter (mg/dL). Symptoms can include:

- Sweating (particularly on your back and on your neck at the hairline)
- Nervousness, shakiness, and weakness
- Extreme hunger and slight nausea
- Dizziness and headache
- Blurred vision
- Fast heartbeat and feeling anxious

*continued>*

## Level 2: Moderate Hypoglycemia

Symptoms of moderate hypoglycemia usually start when your blood sugar continues to drop below 54 mg/dL. Symptoms can include:

- Not being able to concentrate
- Confusion or irritability
- Slurred speech
- Unsteadiness when standing or walking
- Muscle twitching
- Personality changes

## Level 3: Severe Hypoglycemia

Severe hypoglycemia usually happens when your blood sugar continues to drop below 20 mg/dL. This is an emergency that would require help from another person. Symptoms can include:

- Seizure
- Loss of consciousness
- Stroke

**Severe hypoglycemia can also result in death if left untreated. If you have any of these symptoms, seek medical care right away.**

## Hypoglycemia at Night

This is when your blood sugar drops while you are sleeping. You, your partner, or other family members may notice:

- Restlessness
- Making unusual noises
- Accidentally rolling out of bed
- Sleepwalking
- Nightmares
- Sweating
- Waking up with a headache in the morning

Be sure to check your blood sugar, treat the lows, and let your diabetes health care provider know when and what your blood sugar levels are when you have nighttime hypoglycemia.



## Treating Hypoglycemia

If you have any symptoms of hypoglycemia, be sure to check your blood sugar level. If it is low (typically below 70 mg/dL), follow the **Rule of 15** to get your blood sugar level back in your target range.

### The Rule of 15:

- Eat or drink a source of quick-sugar that contains about 15 grams of carbohydrates (see table below for examples).
- Check your blood sugar again in 15 minutes. If your levels are still not in your target range, typically above 70 mg/dL, repeat this process.
- Keep doing this until you reach your target range, then you can go back to your regular testing schedule.
- If it is going to be more than 30 minutes until your next meal, have a small snack, such as half a sandwich or peanut butter crackers to keep your blood sugar steady.

Note: Liquids raise blood sugar faster than solid foods.

### Hypoglycemia in Children

Children usually do not need as many grams of carbohydrates as adults do. Check with their diabetes health care provider to see how many grams of carbohydrates they need if their blood sugar is low.

### Hypoglycemia and Exercise

When you have low blood sugar, you should decrease or stop your physical activity until you get back into your target range and it is stable. If you must stay active, eat or drink something that contains **30 grams of carbohydrates**, and then check your blood sugar again in 15 minutes. If your level is still not in your target range, repeat this process. Keep doing this until you reach your target range. Then, you can go back to your regular testing schedule.

If your symptoms and/or blood sugar level is getting worse, seek medical care right away. If you take insulin, your diabetes health care provider may provide you with a glucagon emergency kit (see “Glucagon” on page 9 and 10 for more information). Be sure the people in your life, including family, friends, and coworkers, know how to give you this medicine in case of an emergency.

### Sources of Quick-Sugar

Quick-Sugar Source	Amount (15 grams of carbohydrates)
Glucose tablets	3 to 4 tablets
Raisins	2 tablespoons
Table sugar or honey	1 tablespoon
Regular (not diet) soda	½ to ¾ cup (4 to 6 ounces)
Fruit juice	½ to ¾ cup (4 to 6 ounces)
Milk (fat-free or low-fat)	1 cup (8 ounces)
Lifesavers® or similar hard candy	6 to 7 candies

## Hypoglycemia Unawareness

Hypoglycemia unawareness is when you have low blood sugar but do not know it because you do not have symptoms. Sometimes, people may feel confused or may become unconscious before anyone realizes they have low blood sugar. A person might have hypoglycemia unawareness if they:

- Do not experience physical symptoms of low blood sugar
- Have low blood sugar multiple times a week
- Have had diabetes for a long time

If you have hypoglycemia unawareness, test your blood sugar often, especially before doing things like driving. Keep quick-sugars with you (see table on page 8 for examples), and if you take insulin, carry a glucagon emergency kit with you (see “Glucagon” below). It is also a good idea to tell the people in your life, including friends, family, and coworkers, how to treat your low blood sugar in case of an emergency.

Young children with diabetes may not always recognize the symptoms. You should test your child’s blood sugar whenever you think their level may be low.

## Glucagon

**You may be prescribed Glucagon to treat severe hypoglycemia.** Glucagon is a hormone made by the pancreas that causes the liver to release stored sugar into the bloodstream. Glucagon is a prescription medicine that comes in the form of an injection or a nasal spray. It works the same way as the natural hormone does. Glucagon should **not** be used on people who have a tumor on their pancreas (insulinoma) or on their adrenal gland (pheochromocytoma). You will only need glucagon in an emergency. It is likely you will not be able to give it to yourself, so make sure the people in your life, including friends, family, and coworkers, know how to give it to you. They should follow the directions below.

**Be aware that glucagon will not help hypoglycemia caused by drinking alcohol.**

### Glucagon Injection

Glucagon can be injected into the buttock, upper arm, or thigh. It may come in a prefilled pen or may need to be mixed **right before it is used**. Follow these steps if an injection is needed:

1. Follow the instructions on the glucagon kit to mix the powder and liquid together (if they do not have a prefilled pen). Make sure you are mixing and giving the correct amount of glucagon, as recommended by the person’s diabetes health care provider.
2. Choose a clean site for the shot (on the buttock, upper arm, or thigh). If you have an alcohol swab, use it to clean the area.
3. Hold the syringe like a pencil close to the site, keeping your fingers off the plunger.
4. Quickly push the needle all the way into the site.
5. Push the plunger of the syringe all the way in so that the medicine goes into the tissue.
6. Remove the needle from the skin slowly at the same angle that you inserted it. If you used an alcohol swab, press it against the injection site.

Note: Glucagon can make the person nauseated, and they may vomit after getting the injection. It is important to turn the person's head to the side to prevent choking in case they throw up.

Scan this QR code to watch a short video on how to give a glucagon injection.



## Glucagon Nasal Spray

Glucagon nasal spray is put into the nose but does not need to be inhaled (breathed in). Follow these steps if glucagon nasal spray is needed:

1. Remove the glucagon from the container.
2. Place the tip of the bottle in the nostril.
3. Push the plunger firmly to deliver the dosage.

Note: Glucagon can make the person nauseated, and they may vomit after getting the nasal spray. It is important to turn the person's head to the side to prevent choking in case they throw up.

**After a glucagon injection or glucagon nasal spray has been given, immediately call 911. If emergency services have not arrived within 15 minutes, and the person is still unconscious, give them another dose.**

Be sure your blood sugar is checked after receiving glucagon. If you received glucagon, let your diabetes health care provider know. Talk with them about what may have caused your low blood sugar (see list of potential causes on page 6).

## Hyperglycemia (High Blood Sugar)

High blood sugar is called hyperglycemia.

High blood sugar levels can happen if you eat too much, miss a dose of medicine, get sick, or have surgery.

Symptoms of high blood sugar can include:

- Feeling very thirsty
- Urinating more often than usual
- Fatigue
- Blurred vision
- Lightheadedness

As your blood sugar gets higher you can experience:

- Flushed, hot, dry skin
- Restlessness, drowsiness, or difficulty waking up
- Feeling very sleepy and weak
- Rapid (fast), deep breathing

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- A fast heart rate and a weak pulse
- A strong, fruity breath odor
- Loss of appetite, belly pain, and/or throwing up

You need to be able to recognize the signs of hyperglycemia and know what to do. If hyperglycemia is not caught early enough and properly treated, it can be dangerous.

If you are experiencing any symptoms of hyperglycemia, be sure to check your blood sugar level. Your goal is to get your level back into your target range.

If your blood sugar level is too high (your diabetes health care provider will tell you what number is high for you), do the following:

- If you missed a dose of insulin or other diabetes medicine, you may be told to take it right away. Only take the amount of medicine you were prescribed (do not take more or less). Wait 30 minutes, then check your blood sugar level again.
- Give yourself extra insulin if your diabetes health care provider has prescribed it for high blood sugar. Wait 30 minutes, then check your blood sugar level again.
- High blood sugar causes dehydration. Drink extra liquids to replace the fluids lost through urine. Water and sugar-free drinks are best.
- Test for ketones if your diabetes health care provider told you to do so. Ketones are what your body makes if your cells do not get enough glucose (see below for more information).
  - > Not everyone needs to test for ketones. Your diabetes health care provider will tell you if you should test yourself for ketones when you experience certain symptoms. If your diabetes health care provider wants you to test yourself for ketones, you can do it by taking a blood or urine test at home. They will tell you which test to use and what to do based on your results.
  - > If the results show a moderate-to-large number of ketones, call your diabetes health care provider.

## Ketones

Not having enough insulin can keep your body from using sugar for energy, even when your blood sugar is very high. Instead, your body must break down fats to get the fuel it needs. The fats are broken down into a type of acid which, if built up, can cause problems with organs. These acids are called ketones. When your ketone level gets high, your kidneys release them into your urine. Having large amounts of ketones can be a sign of diabetic ketoacidosis, a dangerous condition caused by a lack of insulin.

**If your symptoms and/or blood sugar level is getting worse or has not improved, seek medical care right away.**

Follow-up care is a key part of your treatment and safety. Be sure to schedule and go to all your appointments and call your diabetes health care provider if you are having any problems with high blood sugar. It is also good to know your test results and keep a list of the medicines you take.

## When to Call for Help

Call **911** anytime you think you may need emergency care. For example, call if:

- You have passed out (lost consciousness)
- You are confused or cannot think clearly
- Your blood sugar is very high or very low
- You received glucagon

Watch closely for changes in your health, and be sure to contact your diabetes health care provider if your blood sugar stays outside of the target range they have set for you.

## Diabetes Medicines

It is important for you to know and understand the medicines you are prescribed for diabetes.

### Medicines by Mouth: Pills, Non-Insulin

There are different types of pills, also called oral agents, that can be given for type 2 diabetes. Each type works in a different way to help you to control your blood sugar. Oral medicines can:

- Help your body make insulin to lower your blood sugar.
- Lower how much insulin your body needs.
- Slow how quickly your body digests (breaks down) sugars.
- Remove extra glucose through your urine.

Examples of pills given for diabetes include:

- Canagliflozin (Invokana®)
- Glimepiride (Amaryl®)
- Glipizide (Glucotrol®, Glucotrol XL®)
- Metformin (Glucophage®)
- Pioglitazone (Actos®)
- Sitagliptin (Januvia®)

*(This is not a full list.)*

### Medicines by Injection: Non-Insulin

These medicines are injected and are usually taken once a week. They:

- Help your pancreas make more insulin.
- Lower how much insulin your body needs.
- Slow the emptying of your stomach to prevent a quick rise in your blood sugar.

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Examples of injectable medicines for diabetes include:

- Exenatide (Byetta®)
- Dulaglutide (Trulicity®)
- Semaglutide (Ozempic®, Wegovy™) — also available in tablet form (Rybelsus®)
- Liraglutide (Saxenda®, Victoza®)
- Lixisenatide (Adlyxin®)
- Pramlintide (Symlinpen®)
- Tirzepatide (Mounjaro®)

*(This is not a full list)*

Ask your diabetes health care provider or pharmacist, or read the medicine insert to learn about your medicines, including their possible side effects. Many people do not have side effects or have minor side effects that may go away after a while, while others may have side effects that are bothersome or serious. Talk to your diabetes health care provider about any side effects you may have. They may be able to lower your dose or switch you to a different medicine.

## Insulin

Insulin is a hormone that works by lowering the amount of glucose (sugar) in the blood. People with type 1 diabetes, and some with type 2 diabetes, require insulin injections to help them to manage their blood sugar. It is important that you know how much insulin you need, as well as, when and how to take it.

There are different types of insulin, which include:

- Intermediate and long-acting insulins (also called basal insulin)
- Rapid, ultra-rapid, and short-acting insulins (also called mealtime or nutritional insulin)
- Correctional scale insulin; This is when a rapid, ultra-rapid, or short-acting insulin is used to treat high blood sugar

These insulins differ in:

- **Onset:** The length of time until the insulin reaches your bloodstream and begins to lower blood sugar
- **Peak:** The time when insulin is at its maximum effectiveness (is working at its best) to lower blood sugar
- **Duration:** The length of time insulin continues to lower your blood sugar (continues to work)

Your diabetes health care provider will prescribe the best insulin(s) for you based on several factors, which include:

- How active you are
- The food you eat
- How well you are able to manage your blood sugar levels
- Your age
- How long it takes your body to absorb insulin and how long it stays active (This is different for different people.)

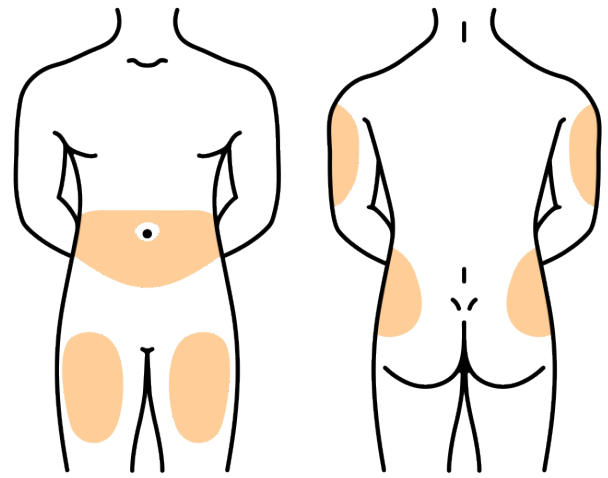
## Injecting Insulin

Insulin is injected into the layer of fat just below the skin. There are 4 main places on the body where insulin can be injected:

- Abdomen (belly)- Most insulins work best when injected into this area.
- Back of the upper arm
- Front, upper area to the outer side of the thigh
- Upper part of the buttocks

Each time you give an injection, move the injection site at least 1 inch away from the last injection site. Stay at least 2 inches away from the belly button. Never give the injection in your belly button.

Scan the QR code to watch a video on how to use an insulin pen.



Insulin Injection Sites



## Insulin Pump

Some people with diabetes, primarily with type 1 and some with type 2, choose to try an insulin pump instead of getting multiple injections per day. An insulin pump is usually smaller than a small cell phone. It gives you a steady hourly rate, or basal dose, of short- or rapid-acting insulin. When you eat, or when your blood sugar is high, you calculate the dose of insulin you need and deliver it through the pump. The pump delivers insulin through a thin plastic tube placed semi-permanently into the fatty layer under your skin, usually in the stomach area or back of the upper arm. Your doctor or health education specialist will show you how and where to place the tube. If you are interested in a pump, talk with your diabetes health care provider. *(Adapted from the CDC)*

Scan the QR code to help you decide whether an insulin pump is right for you.



## Sick-Day Plan

When you have diabetes, many other illnesses can make your blood sugar go up. For example, when you have the flu, your body releases hormones to fight the infection. These hormones raise your blood sugar and make it hard for insulin and other diabetes medicines to lower blood sugar. Your blood sugar can go up or down, depending on your illness and whether you are throwing up.

You should set up a “sick-day plan” with your diabetes health care provider now, so you know what to do if you become sick. If you get sick:

- Begin your “sick-day plan.”
- Call your diabetes health care provider.
- Explain how you are sick. Is it a cold? The flu? Are you throwing up? Do you have a fever?
- Have your most recent blood sugar levels ready to share with them.
- Have your list of medicines ready and ask them if you need to change the dosage of your pills and/or insulin.
- Eat food as you normally would (types and amounts) if you are able. If you cannot, drink extra liquids, such as water or broth, to prevent dehydration.

### If your blood sugar is lower than recommended:

- Replace carbohydrate foods with regular (not sugar-free) liquids every hour, such as 1/2 cup (4 ounces) 100% fruit juice, 3/4 cup ginger ale, or 1/2 cup regular gelatin.
- You may be able to eat foods that are gentle on the stomach, such as crackers, gelatin, and applesauce. Try to eat or drink 15 grams of carbohydrates every 3 to 4 hours. For example, 6 saltine crackers, 1 cup (8 ounces) of milk, or 1/2 cup (4 ounces) of orange juice each contain about 15 grams of carbohydrates.

### If your blood sugar is higher than recommended:

- Drink extra liquids that do not contain sugar, for example, water or sugar-free soda.
- Check your blood sugar at least every 3 to 4 hours. If it goes up fast, check it more often and throughout the night.
- If you take insulin, ask your diabetes health care provider if you should check your urine or blood for ketones when you are sick (refer back to page 11 for details). This is especially important if your blood sugar is high.
- **Do not** take over-the-counter medicines, such as pain relievers, decongestants, cough syrup, or herbal products or other natural medicines, without talking to your diabetes health care provider first.
- **Do not** drive. If you have a doctor’s appointment or need to go anywhere else, ask someone to drive you.

## Healthy Eating

Eating healthy helps you to keep your blood sugar level in your target range. For some people, eating healthy and exercising regularly is enough to keep their diabetes under control without medicines. If you do need medicine, eating healthy can help the medicine work better. Try these tips for healthy eating:

- Eat a well-balanced diet that includes whole grains, lean protein, and vegetables.
- Read the nutrition fact labels on food and drinks carefully (see the next page for more information).
- Limit saturated fats and avoid trans-fats.



- Limit foods that are high in calories and low in nutrition.
- Limit sweets.
- Talk to your diabetes health care provider about how much alcohol is safe for you. Whether or not you take insulin, or another type of medicine for diabetes, drinking alcohol may affect your blood sugar.

Scan the QR code to watch a short video on how to read a nutrition label.



## Carbohydrates

Carbohydrates (carbs) are important nutrients you get from food. They are a great source of energy for your body and help your brain and nervous system work well. When you have diabetes, it is important to keep track of (and if recommended, limit) how many carbohydrates you are eating at one time. If you eat too many carbs at once, your blood sugar will rise quickly. Carbohydrates are found in:

- Dairy products, such as milk and yogurt: Choose low-fat options when possible.
- Fresh or frozen fruit (even those without added sugars): Fruit juice should be limited.
- Grains, such as bread, rice, and pasta: Choose whole grain options when possible.
- Starchy vegetables, such as potatoes and corn.
- Sugar and sweets (limit these).

It is important to keep your blood sugar level steady and avoid high blood sugar after meals. To help you do this, spread your carbohydrates out throughout the day rather than eating a lot at once. Doing this will also keep you from getting too hungry.

## Meal Planning

Meal planning for diabetes includes eating the right amount of food at regular meal and snack times. To help you do this, try counting carbohydrate grams. To get started, follow the healthy plate format (on pages 17 and 18). The healthy plate format shows what your meal should look like and how much space each food should take up on your plate. It also helps to keep you from eating too many carbohydrates at once. A typical healthy plate for dinner will have:

- Bread, starches, or grain on 1/4 of the plate; Choose whole grain options when possible.
- Meat or another form of protein, like beans or eggs/egg whites, on 1/4 of the plate; Choose lean protein options when possible.
- Non-starchy vegetables on 1/2 of the plate
- One small piece of fruit or 1 cup of berries on the outside of the plate; Choose fresh fruit when possible.
- One cup of low-fat or fat-free milk or yogurt

Talk to your diabetes health care provider about meeting with a Registered Dietitian Nutritionist (RDN). They can provide you with custom meal planning tips based on your needs. Understanding how foods and your diet affect your blood sugar is very important. For help with meal planning, schedule an appointment with a UPMC Registered Dietitian Nutritionist at [UPMC.com/Services/Nutrition/Contact](https://www.upmc.com/services/nutrition/contact).

# EAT SMART: PICTURE YOUR PLATE

## Healthy Plate Format

If you have diabetes, the first step to eating smart is to control portion size. Look at your dinner plate and imagine 3 sections, as shown below. Starches and proteins go in the small sections, and the biggest section should be filled with non-starchy vegetables. Add fruit and low-fat dairy on the side. Now you have a balanced meal!



**MILK**  
Portion size: (8 oz.)  
Small glass (8 oz.)  
skim or 1% milk,  
6 oz. light yogurt)



**FRUIT**  
Portion size: Baseball  
(Small piece of fruit  
or 1/2 cup canned  
fruit or juice)

### STARCH

Portion size: Baseball  
(3 oz. potato, 1/3 cup  
rice, or 1 slice bread)



### PROTEIN

Portion size: Deck of cards  
(2 to 3 oz.)

### VEGETABLE

Portion size: Half of a plate  
(1 1/2 cups cooked or 3 cups raw)



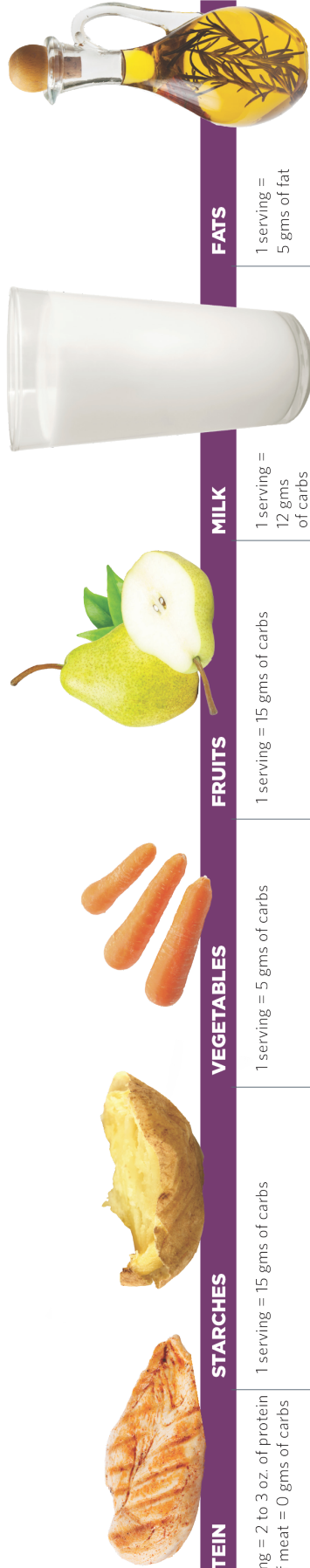
gms = grams  
carbs = carbohydrates  
oz. = ounces  
Tbsp. = tablespoon  
tsp. = teaspoon

## TIP

What does healthy eating really mean?

- Eating a variety of foods, including vegetables, whole grains, fruits, non-fat dairy foods, healthy fats, and lean meats or meat substitutes
- Not eating too much food
- Not eating too much of one type of food
- Spacing your meals evenly throughout the day
- Not skipping meals

Source: American Diabetes Association *Where do I Begin* brochure.



**PROTEIN**

1 serving = 2 to 3 oz. of protein  
1 oz. of meat = 0 gms of carbs

**Examples of Meat**

Choose **lean cuts** of:

- Beef
  - Chicken
  - Pork
  - Turkey
  - Fish (tuna, salmon, catfish)
  - Seafood (shrimp, oysters, clams, crab, mussels)
- Meat Substitutes**
- Low-fat cottage cheese 1/4 cup
  - Low-fat cheese 1 oz.
  - Egg/egg whites 1 egg
  - Peanut butter 1 Tbsp.

**STARCHES**

1 serving = 15 gms of carbs

**Examples of Starches**

- White or wheat bread 1 slice
- Tortilla (6 inch) 1
- Wrap (10 inch) 1/3
- Pita Pocket (6 inch) 1/2
- English muffin 1/2
- Pancake (4 inch) 1
- Unsweetened cereal 1/2 to 3/4 cup
- Rice, white or brown (cooked) 1/3 cup
- Pasta, cooked 1/3 cup
- 1/2 of a potato 3 oz.
- Peas or corn 1/2 cup
- Popcorn (no butter) 3 cups

**VEGETABLES**

1 serving = 5 gms of carbs

**1 Cup Raw or 1/2 Cup Cooked**

- Asparagus
- Beans (green, wax)
- Beets
- Broccoli
- Brussels sprouts
- Carrots
- Cauliflower
- Celery
- Cucumber
- Eggplant
- Greens (collard, kale, mustard)
- Mushrooms
- Salad greens
- Tomato (fresh or canned)
- Tomato/vegetable juice (1/2 cup)
- Yellow squash
- Zucchini

**FRUITS**

1 serving = 15 gms of carbs

- Apple, small 1 (4 oz.)
- Banana, 1/2 1 (4 oz.)
- Blueberries (unsweetened) 3/4 cup
- Grapes (small) 17 grapes
- Melon (cubed) 1 cup
- Orange, small 6 1/2 oz.
- Strawberries, whole 1 1/4 cup
- Canned fruit (unsweetened) 1/2 cup
- 100% fruit juice (apple, orange, grapefruit, pineapple, cranberry) 1/2 cup

**MILK**

1 serving = 12 gms of carbs

**Fat-Free and Low-Fat**

- Fat-free (skim) milk 1 cup (8 oz.)
- Milk (1% or 2%) 1 cup
- Soy milk, light or plain 1 cup
- Plain low-fat yogurt/unsweetened yogurt 6 oz.

**FATS**

1 serving = 5 gms of fat

**Examples of a Fat**

- Nuts (almonds, peanuts, walnuts) 1 Tbsp.
- Oil (vegetable, olive, canola) 1 tsp.
- Margarine/butter 1 tsp.
- Light mayonnaise 1 Tbsp.
- Salad dressing 1 Tbsp.
- Light salad dressing 2 Tbsp.

**gms = grams**  
**carbs = carbohydrates**  
**oz. = ounces**  
**Tbsp. = tablespoon**  
**tsp. = teaspoon**

**PORTION SIZES**  
1 oz. = 4 dice  
3 oz. = deck of cards  
1 cup = a fist  
1 tsp. = 1 thumb tip

## Exercising with Diabetes

Exercise is an important part of your diabetes management plan, as well as your overall health. Exercise can help you to:

- Lower your blood sugar
- Maintain or lose weight
- Cope with stress

### Exercise Tips

You should check with your primary care provider or diabetes health care provider before starting any new exercise program/routine. They will tell you what exercise programs are right for you. Here are some tips for exercising when you have diabetes:

- Try to exercise at the same time each day.
- You may need to eat a snack before and/or after exercising to prevent low blood sugar.
- The amount of food you should eat for a snack will be based on your blood sugar level at the time (see guidelines in the table on the next page).
- Drink plenty of fluids during long periods of exercise.
- Always have a source of carbohydrates and a diabetes identification bracelet/wallet card with you.
- Be aware of low blood sugar signs, such as feeling nervous, clammy, hungry and weak, or like you are about to pass out. Eat or drink a source of carbohydrates right away if you have any of these symptoms.

### Before Exercising

**It is important to test your blood sugar before exercising. Exercise can lower your blood sugar. You want to be sure it does not get too low.** The exercise table on the next page will tell you the type and the amount of food you should eat, if any, depending on your blood sugar level and type of exercise you plan to do. Review this chart with your diabetes health care provider before exercising for the first time.

### During Exercise

If you think your blood sugar may be becoming low while exercising, stop right away, and check it. If it is low, eat or drink a source of quick-sugar that contains about 15 grams of carbohydrates (refer to examples on page 8). Check your blood sugar again in 15 minutes and follow the guidelines in the exercise table on the next page.

### After Exercising











Check your blood sugar after you exercise. If it is low, you may have to eat another snack. If your next meal or snack is not scheduled within the next 30 minutes to 1 hour, and your blood sugar is less than 100 mg/dL, eat a source of protein that contains at least 15 grams of carbohydrates. Examples of protein sources with at least 15 grams of carbohydrates include:

- Small banana and 1 Tbsp. peanut butter
- 6 crackers and 1 ounce of cheese
- 1/2 cup Greek yogurt or cottage cheese with 1/2 cup berries
- 10 mini pretzels with 2 Tbsp. hummus

Type of Exercise	Examples of Exercise	If Your Blood Glucose Level Is:	Increase Food Intake By:
<b>Low Intensity: Less than 30 minutes</b>	Leisurely biking or walking	• Less than 100 mg/dL	• 15 grams of carbs (or 1 carb choice)
		• Greater than 100 mg/dL	• No snack needed
<b>Medium Intensity: 30 minutes to 1 hour</b>	Swimming, tennis, biking, jogging, low-impact aerobics	• Less than 100 mg/dL	• 30 grams of carbs and 7 grams of protein (2 carb choices and 1 protein choice)
		• 100 to 180 mg/dL	• 15 grams of carbs and 7 grams of protein (1 carb choice and 1 protein choice)
		• 180 to 250 mg/dL	• No snack needed
<b>High Intensity: 1 to 2 hours</b>	Hockey, football, basketball, running, high-impact aerobics, shoveling heavy snow	• Less than 100 mg/dL	• 45 grams of carbs and 7 grams of protein (3 carb choices and 1 protein choice)
		• 100 to 190 mg/dL	• 30 grams of carbs and 7 grams of protein (2 carb choices and 1 protein choice)
		• 180 to 250 mg/dL	• 15 grams of carbs (1 carb choice)

## Your Care Team

Your care team is made up of many professionals who help people with diabetes every day. Your care team may include the following:

	<p><b>Primary Care Provider (PCP):</b>          Doctor, nurse practitioner, or physician assistant that gives routine medical care (physical exams, lab tests, prescribes medicines).</p>
	<p><b>Endocrinologist (Diabetes Doctor):</b>          Doctor who specializes in diabetes care.</p>
	<p><b>Ophthalmologist or Optometrist (Eye Doctor):</b>          Doctor who diagnoses and treats eye diseases and disorders.</p>
	<p><b>Podiatrist (Foot Doctor):</b>          Doctor who is trained to treat feet and lower leg problems.</p>
	<p><b>Pharmacist:</b>          Professional who knows about medicines, what is in them, and how they interact (work) with each other.</p>
	<p><b>Dentist:</b>          Doctor who provides oral (mouth) care and is trained to take care of teeth and gums.</p>
	<p><b>Registered Nurse/Nurse Navigator (RN):</b>          Nurse working in your doctor's office who helps manage your health care needs.</p>
	<p><b>Registered Dietitian Nutritionist:</b>          Expert in nutrition. They know what foods/diet you need to follow to stay healthy. They will help you use what you eat and drink as tools for managing your blood sugar.</p>
	<p><b>Certified Diabetes Care and Education Specialist:</b>          Specialized health care provider who has experience working with people living with diabetes. They personalize your diabetes care and help you to manage it.</p>
	<p><b>Mental Health Professional:</b>          Professional who may be a psychiatrist, psychologist, or clinical social worker. They can help you deal with the day-to-day challenges of living with diabetes as well as more serious emotional issues you may be going through.</p>

## Ongoing Diabetes Care: Appointments, Tests, and Screenings

It is important to go to all your medical appointments and take care of yourself when you have diabetes. You can help make the most of your appointments if you bring your blood sugar log and/or meter (if it stores your blood sugar results for you), a list of medicines, vitamins, supplements, and herbal supplements you are taking, and any other test results with you.

Diabetes can damage many different parts of your body, but you may not have symptoms until the damage has become severe. Having tests done on a regular basis can help you to avoid many of the health problems caused by diabetes. Tests give you and your health care team a chance to find problems earlier, when they are easier to treat.

Test/Exam	Why You Need It	How Often
<b>A1C Blood Test</b>	This test shows your average blood sugar level over the past 2 to 3 months. It helps your diabetes health care provider see whether your blood sugar levels have been staying in your target range.	Every 3 to 6 months
<b>Blood Pressure Test</b>	This test measures the blood flow pressure in your arteries. Controlling blood pressure can help prevent damage to nerves and blood vessels.	Every 3 to 6 months
<b>Cholesterol Test</b>	It is common for people with diabetes to also have high cholesterol. Cholesterol is a fatty substance made by the liver. Too much cholesterol in the blood can build up inside the blood vessels and put you at a higher risk for heart attack and stroke.	When you are diagnosed with diabetes and as often as your diabetes health care provider recommends
<b>Albumin-Creatinine Ratio Test</b>	This test checks for kidney damage by looking for the protein albumin in your urine. Albumin is normally found in the blood. Kidney damage can let small amounts of albumin leak into the urine.	Once a year
<b>Blood Creatinine Test/ Estimated Glomerular Filtration Rate (eGFR)</b>	This test shows how well your kidneys are working. Creatinine is a waste product that muscles release into the blood. The estimated glomerular filtration rate (eGFR) shows how well the blood is being filtered by the kidneys.	Once a year
<b>Complete Foot Exam</b>	The doctor checks you for foot sores and to see if there is any loss of feeling in your feet.	Once a year
<b>Complete Eye Exam</b>	High blood sugar levels can damage the eyes. This exam is done by an eye doctor or eye surgeon and will show if there is damage to the back of your eyes (diabetic retinopathy).	Once a year - If you do not have any signs of diabetic retinopathy, your doctor may recommend the exam every 2 years.
<b>Thyroid-Stimulating Hormone (TSH) Blood Test</b>	This test checks for thyroid disease. Too little thyroid hormone can cause some medicines, like insulin, to stay in the body longer. This can cause low blood sugar. You may be tested if you have high cholesterol and/or are a woman over 50 years old.	When you are diagnosed with diabetes and as often as your diabetes health care provider recommends

## Diabetes Complications

Sometimes, complications from diabetes develop even when you do your best to manage your blood sugar. The most common serious complications from diabetes are coronary artery disease (CAD) and stroke, kidney failure, blindness, and foot disease. Your primary care doctor may be able to help you manage some of these complications, but if complications get worse, you may need to see a specialist.

### Avoiding Complications

The following tips can help you avoid diabetes complications.

- Make healthy food choices.
- Try to lose weight if you are overweight.
- Exercise regularly.
- Take the medicine(s) your provider prescribed for you.
- Go to regular checkup appointments with your doctors, including your diabetes health care provider. These appointments are important to help monitor your health.
- Test your blood sugar level as often as your diabetes health care provide tells you to. You have a better chance of keeping your blood sugar in your target range if you know what your levels are from day to day.
- Try to keep high blood pressure and high cholesterol under control. This can help to lower your risk of heart and large blood vessel disease.
- Stop smoking and using tobacco products if you currently do. This can help to lessen your risk of heart disease and stroke.

Making all these changes at once can be hard. It may be easier to start with 1 or 2 changes. For example, focus on checking your blood sugar regularly and being more active. Then, work on the other tasks as you are able.

It is normal to feel sad or angry when you are dealing with diabetes. Talking about your feelings can help. Ask your diabetes health care provider, or another member of your care team, to help you find resources that can help you to cope.

### Remember Your ABC's

Follow your **ABC's** to help prevent diabetes complications.



**A1C (Blood Sugar):**  
Level less than 7%



**Blood Pressure:**  
Level less than 120/80 mm Hg



**LDL Cholesterol:**  
Less than 100 mg/dL



## Pregnancy and Diabetes

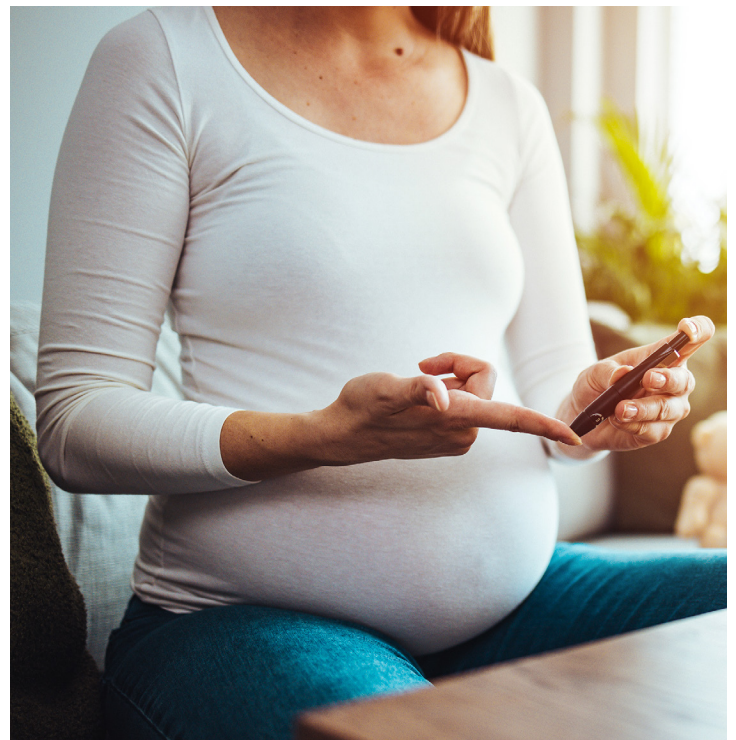
If you are pregnant, or planning to become pregnant, it is important to talk to your diabetes health care provider. They can adjust certain parts of your diabetes care (if needed). If you are not yet pregnant, they can provide you with steps to take before getting pregnant that will help you manage your diabetes. This will help to ensure that both you and your baby stay healthy.

It is very important to keep your blood sugar in your target range, especially early on in pregnancy. Women with diabetes have a higher risk for miscarriages and are at risk to have babies with birth defects. To help you manage your diabetes before and during pregnancy:

- Get your blood sugar in your target range if it is not already. Check with your diabetes health care provider to see what your target range should be.
- Check your blood sugar often so you know if you are in your target range.
- See your provider or a certified nurse-midwife for a checkup. Discuss the medicines, prenatal vitamins, and supplements (including herbal supplements) that you take. Talk with them about your diabetes history and any other concerns you may have.
- You may receive a referral for a Maternal Fetal Medicine (MFM) specialist visit before and/or during pregnancy to help follow high risk conditions, including blood sugar control.
- Take only the medicines your provider and/or midwife says you can. If you take certain medicines, such as blood pressure or cholesterol medicine, you may need to work with your provider to stop them or change to a pregnancy-safe option.
- Have your diabetes health care provider check for problems caused by diabetes, such as eye and kidney disease. When you are pregnant these problems can get worse.
- Eat a healthy, well-balanced diet.
- Exercise regularly. This will help you with the demands of pregnancy, childbirth, and recovery.

### You should avoid:

- Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen or aspirin, unless your provider says you can take them.
- Caffeine, alcohol, marijuana, and any other drugs that are not prescribed to you by your provider.
- Smoking and using tobacco products. Smoking and using tobacco products can harm your baby and increases the chances that you will have complications from diabetes. If you need help quitting, talk to your provider about smoking cessation programs and medicines that can help you quit permanently.



## Additional Resources

For more information and support, visit the following resource pages.

**American Diabetes Association®**

**Diabetes.org**

**American Heart Association®**

**KnowDiabetesByHeart.org**

**National Institute of Diabetes and Digestive and Kidney Diseases**

**NIDDK.nih.gov**

**U.S. Department of Agriculture**

**Nutrition.gov**

**UPMC Diabetes Centers**

**UPMC.com/Diabetes**

**UPMC Health Library**

**UPMC.com/HealthLibrary**

Click on “Diabetes”

**UPMC Nutritional Services**

**UPMC.com/Services/Nutrition**

## Notes

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