



# Your Journey to Diabetes Wellness

A Diabetes Education Manual

TriHeal





Dear Patient,

Thank you for choosing TriHealth for your diabetes care. We strive to provide excellence in prevention, identification, and management of diabetes across the TriHealth system.

Our team works together to ensure that every patient with diabetes is provided state-of-the-art care. Everyone – from our doctors, nurses, and diabetes educators to our testing centers and medical offices – works hard to do everything we can to help you return to and maintain good health.

This book is a tool packed with information you need to help manage your diabetes. Your nurses and diabetes educators will work with you to get the most out of this book, and then we encourage you to use it at home as an ongoing reference.

We wish you the best in your journey as we work together to help you live a healthier life.

Sincerely,

The doctors and staff of the TriHealth Diabetes Team



## What is prediabetes?

Prediabetes is a serious health problem that increases the risk of having type 2 diabetes, heart problems and stroke. Prediabetes means that your blood sugar is high but not so high that it is diabetes. A blood sugar checked first thing in the morning before you have eaten is called a fasting blood sugar. A normal fasting blood sugar is less than 100.

A fasting blood sugar between 100 and 125 is considered prediabetes, or the doctor may say you have impaired fasting glucose. You may have a test called an oral glucose tolerance test. For this test, you drink a sweet liquid and have blood drawn to check your blood sugar two hours after drinking the liquid. If your two-hour blood sugar level is between 140 and 199, you have prediabetes or impaired glucose tolerance.

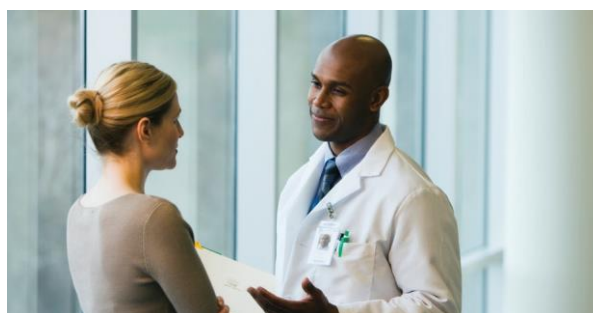
A lab value called a hemoglobin A1C is considered normal if it is less than 5.7%. An A1C between 5.7% and 6.4% is considered prediabetes. An A1C of 6.5% or higher is considered diabetes.

The Centers for Disease Control and Prevention (CDC) estimates that one in every three adults has prediabetes. That is 97.6 million people!

Most people living with prediabetes do not know they have it.

Without lifestyle changes to improve health, 15% to 30% of people with prediabetes will develop type 2 diabetes within five years.

Losing 5% to 7% (10 to 20 pounds) of body weight and regular exercise can help prevent or delay type 2 diabetes by up to 58% in people with prediabetes. Getting at least 30 minutes of moderate exercise, such as brisk walking, five days a week is important for overall health.



### Risk factors for prediabetes and type 2 diabetes:

- Over 45 years of age
- Overweight
- Have a parent or sibling with diabetes
- Race: African-American, Hispanic/Latino, Indian-American, Asian-American or Pacific Islander
- Gestational diabetes or gave birth to a baby weighing 9 pounds or more
- Physically active fewer than three times a week
- Polycystic ovarian syndrome (PCOS)
- Smoking

It is important to screen early for prediabetes and type 2 diabetes because early treatment can prevent serious problems that diabetes can cause, such heart disease, blindness, nerve damage or kidney damage.

## What is diabetes?

Diabetes is a condition in which you have too much sugar in your blood (hyperglycemia). It is a lifelong illness that can lead to serious health problems. With proper care of your diabetes, you can greatly reduce the risk of these health problems, which include damage to your heart, blood vessels, kidneys, nerves, and eyes.

Normally, insulin moves sugar from food into the cells, which the cells use for energy. The lack of insulin or the lack of normal response to insulin causes excess sugar to build up in the blood and the cells are unable to use the sugar for energy. You may be able to manage your blood sugar with diet and exercise. As diabetes progresses, some people may need to add oral medications

or injectable non-insulin medications to manage their blood sugar, and some people may need to use insulin injections.

**Type 1** diabetes is usually diagnosed in children and young adults and used to be called juvenile diabetes. Only 5% of people with diabetes have type 1. The body breaks down sugars and starches you eat into a simple sugar called glucose, which it uses for energy. Insulin is a hormone produced in the pancreas that the body needs to move glucose from the bloodstream into the cells of the body. In type 1 diabetes, the body does not produce insulin. With the help of insulin injections and other treatments, even young children can learn to manage their condition and live long, healthy lives.

**Type 2** diabetes is often linked to being overweight and inactive; but there are other contributing factors linked to a type 2 diabetes diagnosis that are individual to the person. Overall, the amount of insulin produced by your pancreas has already decreased by 80% at the time you are diagnosed. In addition, your body still makes some insulin, but your cells have become resistant to the insulin (insulin resistance).



## What is gestational diabetes?

Pregnant women who did not have diabetes before they became pregnant, but who have high blood sugars during pregnancy, have gestational diabetes. Gestational diabetes is like

type 2 diabetes- the pancreas does not make enough insulin and/or the cells are less responsive to the insulin (insulin resistance) and high blood sugar develops. High sugar levels can cause problems for the unborn baby. About 2% to 5% of pregnant women develop gestational diabetes. Testing for gestational diabetes is done between 24 and 28 weeks of pregnancy. Women with gestational diabetes have a 3 to 7 times higher risk of developing type 2 diabetes within 5 to 10 years of delivery. Your baby also has a greater risk of developing type 2 diabetes as an adult.

### Risk factors for Gestational Diabetes

You have a higher risk of gestational diabetes if you have a family history of diabetes and/or one or more of the following risk factors:

- Obesity (body mass index (BMI) greater than 30)
- Prior pregnancy with gestational diabetes
- Pregnancy at an older age (27 years or older)
- Previous baby weighed more than 9 lbs.
- History of polycystic ovary syndrome (PCOS)

Pregnant women with gestational diabetes can have a healthy pregnancy by keeping blood sugar levels within a target range during pregnancy. Poorly managed blood sugar increases the risks to you, your unborn baby, your labor and delivery, and your newborn baby. The good news is that 70-85% of women with gestational diabetes can manage it with lifestyle changes alone. When medication is needed, insulin is preferred, because it does not cross the placenta.

Current guidelines from the American Diabetes Association recommend that women with gestational diabetes have blood sugar testing done 4 to 12 weeks after the baby is born and every 1 to 3 years after depending on risk factors.

All women with a history of gestational diabetes should exercise, eat a healthy balanced diet and work toward an ideal body weight to prevent type 2 diabetes.



Symptoms of high blood sugar  
(hyperglycemia)

- Increased thirst
- Increased urination
- Increased urination during the night
- Weight loss (may be rapid)
- Frequent infections
- Tiredness
- Weakness
- Vision changes, such as blurred vision
- Fruity smell to your breath
- Stomach pain



Diagnosis

Diabetes is diagnosed when blood sugar levels are too high. Your blood sugar level may be checked by one or more of the following blood tests:

- A fasting blood glucose test: You will not be allowed to eat for at least eight hours before a blood sample is taken.
- A random blood glucose test: Your blood glucose is checked at any time of the day, no matter when you last ate.
- A hemoglobin A1C blood glucose test: Provides information about blood glucose management over the previous three months.

- An oral glucose tolerance test (OGTT): A test commonly used during pregnancy. Your blood glucose is measured at least 1 to 3 hours after you have last eaten or after you drink a glucose containing beverage. Because the hormones that cause insulin resistance are highest at about 24 to 28 weeks of a pregnancy, an OGTT is usually done during that time. If you are at risk for gestational diabetes, your doctor may test you for gestational diabetes earlier than 24 weeks of pregnancy.

Hemoglobin A1C	6	7	8	9	10	11	12	13	14	15
Average Blood Sugar	126	154	183	212	240	269	298	326	355	384

5.7%–6.4% = Prediabetes, Greater than 6.5% = Diabetes

The American Diabetes Association recommends an A1C of less than 7% for most people with diabetes.

## Checking blood sugar at home

Checking your blood sugar (blood glucose) is important. Blood sugar changes throughout the day depending on your diet, activity, and medications.

- Write your blood sugar results in a diary.
- Take the diary with you to your regular medical appointments.
- Your care team will review and discuss your results with you.
- Your doctor may adjust your medicine if you are experiencing blood sugar that are too high, or too low blood.
- The diary will also help you see how your meals, activity and medications work together to manage your blood sugar.
- Managing your blood sugar can delay or prevent diabetes complications, such as heart attack, stroke, or blindness.

### How do I check my blood sugar?

You will use a blood glucose meter to check your blood sugar several times a day. A meter is a small device that tests a tiny drop of blood and then displays your blood sugar level at that moment. A lancet device is used to prick the skin to get the drop of blood. Blood sugar results are used to make decisions about food, physical activity, and medications.

Areas other than the finger may be used, such as the fleshy part of the hand, the forearm, the outer thigh, the calf, or the stomach. Experts recommend using the side of the fingertip to get the most accurate result. There are times that other sites should not be used because the result may be less accurate. These include:

- If your blood sugar is likely to be low.
- If you have trouble knowing your blood sugar is low (hypoglycemia unawareness).
- If it's less than two hours after starting a meal or if you have been physically active.

Talk with your doctor or pharmacist to see what meters and supplies are covered by your insurance. If you do not have insurance, storebrand meters and supplies usually cost less.

### Continuous Glucose Monitoring (CGM)

A continuous glucose monitor consists of:

- Sensor – placed under the skin and held in place with an adhesive patch.
- Transmitter – sits on top of the sensor and wirelessly sends glucose readings to a receiver.
- Receiver (or compatible smart device) – displays the data.

The CGM captures blood sugar readings every 5 minute in the interstitial fluid (the clear fluid that fills all the empty space in the body), so the CGM readings will fluctuate more than fingerstick blood sugar readings, especially when the blood sugar is moving up or down quickly.

The purpose of a CGM is to assess your blood sugar patterns or trends so it can give us an idea of what may happen in the next 5-10 minutes, but it does not completely take the place of finger stick blood sugar monitoring. In situations where blood sugars are too high or too low it is recommended to use check fingerstick blood sugar readings that will tell you exactly what the blood sugar is at that moment to make safe and accurate treatment decisions.

### What are the blood sugar targets for people with diabetes?

The targets recommended by the American Diabetes Association are listed below.

- When you wake up and before meals: 80 to 130 mg/dL
- 2 hours after starting a meal: less than 180 mg/dL

Check with your doctor and health care team to make sure these goals are correct for you.



## When is the best time to check blood sugar and how often?

Most people check after fasting (first thing in the morning before they eat) and before meals. Your doctor may ask you to check your blood sugar after a meal (postprandial) when it may be higher. Usually, a postprandial blood sugar is checked 2 hours after eating.

Other times you may want to check are:

- When you have symptoms of high or low blood sugar
- When you are ill, especially if you are throwing up or dehydrated
- Before, during and after exercise
- Before you go to sleep

Some people need to check only once or twice a day but if you are using the results to decide how much insulin to take, you will need to check your blood sugar several times during the day. If you are changing your diet, activity, or medications, or if you are pregnant or ill, you may need to check more often. Your health care team can help you decide how often you should check.

## How do I know if my results are accurate?

- Read the instruction manual
- Follow your meter's instructions when doing your blood sugar check.
- Keep your meter clean.
- Check test strips to make sure they are not past their expiration date.
- Do not leave supplies in a hot car or direct sunlight or in the freezer.
- Make sure skin is clean and dry before checking.
- Make sure your blood sample is big enough.
- Check your meter with control solution as recommended by the manufacturer.

Your doctor will write prescriptions for your glucose meter and supplies. Insurance pays part of the cost of meters and supplies. Store brand meters and supplies may be less expensive if you do not have insurance.



Notes:





## Make exercise a permanent part of your life

Talk with your doctor before starting an exercise program. Exercise helps improve blood sugar and helps you lose weight or stay at a healthy weight. It also helps your heart stay healthy. For the person with diabetes, exercise is as important as diet and medication. You should get at least 30 minutes of physical activity that increases your heart rate 5 days a week.

It is important to design a lifelong home exercise routine. Walking is one of the easiest and most convenient options, but there may be others you enjoy.

Exercise should be continuous and rhythmical. It should be done at a comfortable pace. "No pain, no gain" does not apply. If you stick with a regular, consistent program, you can expect these rewards:

- Increased insulin sensitivity
- Lower blood sugar levels
- More energy and endurance (stamina) throughout the day
- Improved appearance
  - A slimmer, trimmer body
  - Better posture
- Weight loss (5-7% weight loss is recommended for most people needing to lose weight)
  - Less body fat
  - Increased muscle



- Lower heart rate and blood pressure
- Decreased appetite following exercise
- A stronger heart muscle and better blood flow: the more you use your heart muscle, the stronger it becomes
- Better sleep at night
- Stronger bones and a lower risk of osteoporosis
- Better resistance to illness
- Improved cholesterol levels
- Lower stress, anxiety, boredom, frustration, and depression

**The American Diabetes Association recommends two different types of exercise for managing diabetes: aerobic exercise and strength training.**

### Aerobic Exercise

This exercise is done by using your arms and/or legs in a continuous, rhythmic movement to increase your heart rate (pulse).

Aerobic activities include:

- Aerobics
- Running
- Dancing
- Ice Skating or Roller Skating
- Biking/stationary biking
- Hiking
- Swimming
- Jogging/walking

Moderate intensity means that you are working hard enough that you can talk, but not sing, during the activity.

Vigorous intensity means you cannot say more than a few words without pausing for a breath during the activity.

These types of exercise can make all the muscles in your body stronger. Pick an aerobic exercise that you enjoy and set realistic goals. This way, you will be more likely to keep doing it on a regular basis.

### Strength training

Strength training (also called resistance training) makes your body more sensitive to insulin and can lower blood sugar. The American Diabetes Association recommends doing strength-training exercises at least two to three times per week in addition to aerobic activity. Some people have higher blood sugars after doing strength training. It is a good idea to check your blood sugar before and after these exercises.

Below are examples of strength-training activities:

- Using weight machines or lifting free weights at the gym
- Using resistance bands
- Lifting light weights or objects, such as canned goods or water bottles at home
- Exercises that use your body weight to work your muscles, such as pushups, sit ups, squats, lunges, wall-sits and planks
- Strength-training classes
- Other activities, such as heavy gardening, also build and keep muscle

*Be aware that exercise can lower blood sugar quickly. Blood sugar should be monitored before and after all exercise routines.*

### Flexibility and Balance Training

Flexibility and balance training is recommended 2-3 times per week in older adults. This includes activities like yoga and tai chi to increase flexibility, muscular strength, and balance.

## Exercise in the presence of uncontrolled blood sugars

### High blood sugar

For people with type 1 diabetes who have ketones in the urine and/or blood, exercise can cause blood sugar and ketones to go up even more. Ketones are made when body fat is broken down for energy because glucose is not getting into the cells. Vigorous activity should be avoided when your blood sugar is high and there are ketones in your urine. Ketones are checked by dipping a ketone testing strip that changes color in your urine. You can exercise when your blood sugar is high if there are no ketones in your urine. (See section on sick-day plans.)



### Low blood sugar

For people taking insulin and/or medications such as glipizide or glyburide (insulin secretagogues), exercise can cause low blood sugar if the medication dose or carbohydrate intake is not changed.

For people on these medicines, extra carbohydrates should be eaten if pre-exercise blood sugar levels are 100 mg/dl or less.

Low blood sugar is less common in a person with diabetes who is not treated with insulin or insulin secretagogues, but preventive measures for low blood sugar is always recommended to have on hand before, during, or after exercise.



## Hints for a successful exercise program

- All adults with diabetes, especially those with type 2 diabetes, should avoid prolonged sitting. Get up to move every 30 minutes.
- Set short- and long-term goals and reward yourself when you meet them.
- Exercise with music or in front of the television.
- Wait 1 hour after eating before exercising.
- Pick an exercise you like that fits into your lifestyle.
- Exercise with a friend for both safety and motivation.
- Stop exercising and call 911 immediately if you have any of these symptoms during or after exercise:
  - Lightheadedness or dizziness
  - Rapid heartbeat
  - Chest discomfort
  - Jaw, arm, or upper back discomfort
  - Nausea
  - Unusual shortness of breath
  - Sudden weakness
  - Severe or unusual fatigue or sleepiness
  - Severe discomfort of any kind



Notes:





## Nutrition and diabetes guidelines

Healthy eating is the first step in taking care of your diabetes. You do not need special or diet foods. Food that is good for you is also good for the whole family. The type of food and the amount of food you eat every day will make a big difference in your blood sugar levels.

- Eat three meals each day. At each meal, add high fiber foods such as fruit, vegetables, whole grains, and beans. Also include protein such as chicken, lean beef or pork, cheese, fish, eggs, nuts, peanut butter, or soy products.
- Eat about the same amount of food at each meal around the same time each day. Cut back on your portion sizes and try to resist second helpings.
- Each meal should be eaten 4 to 5 hours apart. Do not skip meals. If you must go more than 5 hours between meals, eat a small snack.
- Be careful with how much carbohydrate you eat. Carbohydrate includes starchy foods (breads, rice, pasta, cereal, corn, peas, potatoes, beans), all fruits and juices, milk and yogurt, snack foods and sweets. Many of these are healthy foods. Just watch how much you eat at one time.
- Beverages can make a big difference in your blood sugars. Avoid fruit juice, regular soda, and sweet tea. Limit milk products. Drink water, diet beverages or other low sugar drinks instead.
- Sweets and desserts can be worked into your diabetes meal plan. For an individual meal plan, see a registered dietitian.
- Only drink alcohol (beer, wine, and liquor) in moderation, meaning 1 drink or less per day for women and 2 or less per day for men. A standard alcoholic beverage is 12 ounces of beer, 5 ounces of wine or 1.5 ounces of liquor. Drinking alcohol without food may cause low blood sugar (hypoglycemia).



- Use low-fat cooking methods such as baking, roasting, broiling, grilling, poaching, air-frying or lightly stir-frying instead of deep-frying.
- When dining out, choose grilled or baked food such as a baked potato instead of French fries. Take half of your meal home to help cut back on portion size.

## Carbohydrate

Carbohydrate foods can be digested into blood sugar. When you have diabetes, you must limit the amount of carbohydrate you eat because these are the foods that affect your blood sugar. A typical carbohydrate choice is approximately 15 grams.

### How much carbohydrate?

Finding the right amount of carbohydrate depends on many things, including how active you are and what, if any, medicines you take. Some people are active and can eat more carbohydrate. Others may need to have less carbohydrate to keep their blood sugar in control. Finding your balance is important so you can feel your best, do the things you enjoy and lower your risk of diabetes complications.

Most meals should contain 30 to 60 grams of carbohydrate.

You and your health care team will determine the right amount for you. Once you know how much carbohydrate to eat at a meal, choose your food and the portion size to match.

### Types of carbohydrate

#### Starch

Foods high in starch include:

- Green peas, corn, lima beans, and potatoes
- Dried beans, lentils, pinto beans, kidney beans, black-eyed peas, and split peas
- Grains such as oats, barley, and rice (Most grain products in the U.S. are made from wheat flour. These include pasta, bread, and crackers.)

The grain group can be broken down even further into whole grains or refined grains. Whole grains contain the entire grain and are more nutritious than refined grains.

#### Sugar

Sugar is another type of carbohydrate. Sugar is sometimes called a simple carbohydrate. There are two main types of sugar:

- Naturally occurring sugars such as those in milk or fruit
- Added sugars such as those added during processing such as fruit canned in syrup or sugar added to make a cake

On the nutrition facts label, the number of sugar grams includes both added and natural sugars. Added sugar adds no nutritional value.

#### Fiber

Fiber comes from plants. There is no fiber in animal products such as milk, cheese, eggs, meat, poultry, and fish. Fiber is the indigestible part of plant-based foods. Most dietary fiber passes through the intestines undigested.

Adults should eat 25 to 30 grams of fiber each day. Fiber contributes to digestive health, helps keep your bowels regular and helps make you feel full after eating.

High sources of fiber include:

- Beans and legumes: black beans, kidney beans, pinto beans, chickpeas (garbanzo beans), white beans and lentils
- Fruits and vegetables, especially those with edible skin such as apples and those with edible seeds such as berries
- Whole grains: whole-wheat pasta, whole-grain cereal with three grams of fiber or more per serving and whole-grain breads
- Nuts: peanuts, walnuts and almonds are all good sources of fiber and healthy fat (watch portion sizes because they also contain a lot of calories in a small amount)

Excellent sources of fiber contain 5 grams of fiber or more per serving.

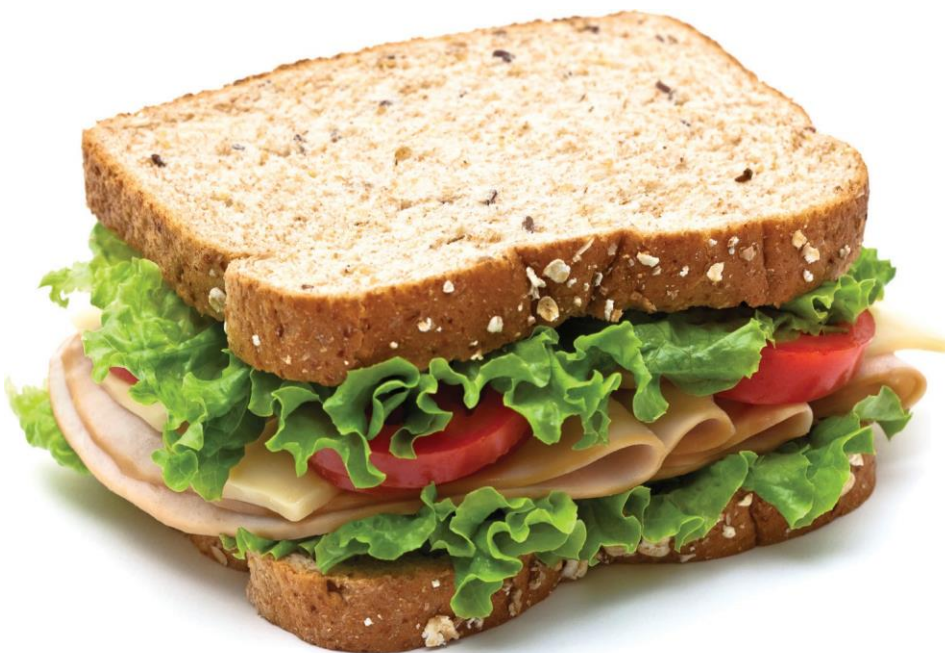


### How much carbohydrate is in these foods?

Reading food labels is a great way to know how much carbohydrate is in a food. For foods that do not have a label, you must estimate how much carbohydrate is in a serving. Keeping general serving sizes in mind will help you estimate how much carbohydrate you are eating. For example, there are about 15 grams of carbohydrate in:

- 1 small piece of fresh fruit (4 oz)
- 1/2 cup of canned or frozen fruit
- 1 slice of bread (1 oz) or 1 (6-inch) tortilla
- 1/2 cup of cooked oatmeal
- 1/3 cup of cooked pasta or rice
- 4 to 6 regular size crackers
- 1/2 of an English muffin or hamburger bun
- 1/2 cup of black beans, green peas, or corn
- 1/4 of a large baked potato (3 oz)
- 2/3 cup of plain fat-free yogurt or sweetened with sugar substitute
- 2 small cookies
- 2-inch square brownie or cake without frosting
- 1/2 cup of plain ice cream or sherbet
- 1 tablespoon of syrup, jam, jelly, sugar, or honey
- 2 tablespoons of light syrup
- 6 chicken nuggets
- 1/2 cup of casserole
- 1 cup of soup
- 1/3 serving of medium French fries

Information is from [diabetes.org](http://diabetes.org) (American Diabetes Association).





## Grocery shopping 101:

### Shopping smart to manage your diabetes

Food shopping when you have diabetes can be challenging, but it can also be an enjoyable experience when you have a plan. This guide will help you get organized before you go to the grocery store and help you stay on track with your food choices once you get there.

### Make a list

Deciding what healthy foods to buy and then making a shopping list will help you shop smarter and faster. If something is not on the list, don't buy it without carefully thinking about how the food might fit into your eating plan. Produce, fish or lean meats that look fresh and are the right price can be good last-minute purchases.

If possible, don't shop when you are hungry. It is easier to stick with your list and avoid buying less healthy foods that you don't really want or need.

### Take a healthy route through the store

Start your shopping along the outside walls of the store. This is where the fresh vegetables, fruit and other produce, meats, fish, deli and dairy products are located. Fill your cart with these foods first. They generally are healthier, higher in fiber and lower in sodium than the more processed foods in the center of the store.

### Vegetables



### Produce

All foods in the produce section are acceptable because they are generally lower in calories and they provide vitamins, minerals, fiber and antioxidants. Be aware that starchy vegetables, such as peas, corn, potatoes, and winter squash, as well as all fruits are carbohydrate sources and can affect your blood sugar. Try varying your diet with different color fruits and vegetables each day.



### Meats and fish

These protein-rich foods do not contain carbohydrate, but their saturated fat and calorie content can increase your risk for heart disease and obesity.

Eating smaller portions can limit saturated fat and calories and save money. Choosing fish and skinless poultry more often than beef or pork and choosing meat with little fat running through it can also cut down on saturated fat and calories.

### Deli options

Key words at the deli are low-sodium lean, reduced-fat, and natural. Both meats and cheeses can be found in these varieties.



### Dairy products

Dairy foods vary in fat and calorie content. Choose 1% or skim milk and low-fat or nonfat yogurt to decrease calories and fat. Choose

part-skim or lower-fat cheeses, such as string cheese, 2% milk cheeses, mozzarella, ricotta, and cottage cheese, to save 30 to 40 calories per ounce compared to regular cheese. Dairy foods also vary in carbohydrate content. Always check the nutrition facts label for the total grams of carbohydrate per serving.

### Nuts and oils

Heart-healthy fats, such as omega-3 fatty acids and monounsaturated fat, can be found in several types of nuts and oils. Omega-3 fatty acids are found in walnuts, canola oil, flaxseed, and the oil in fish such as salmon. Almonds and olive oil are good sources of monounsaturated fat. Watch your portion sizes—nuts and oils are high in calories.

### Bread

Look for the terms whole grain and 100% whole wheat—one of these should be the first ingredient listed. The terms 9-grain, 100%



stone-ground and wheat bread do NOT mean the bread was made with whole grains. Whole grains are packed with antioxidants, vitamins, minerals, and fiber. A serving of bread should have 2 to 4 grams of fiber and the same amount of sodium as calories, for example, 120 calories and 120 mg of sodium per slice.



#### **Grains: rice, pasta, oats, barley, and quinoa**

Whole grains are better for your health than processed grains because they have more vitamins, minerals, fiber and other nutrients. Whole grains such as oats and barley are high in soluble fiber, which can help lower cholesterol and reduce your risk of heart disease. A 1/2 cup serving of oats, grits, kasha, bulgur, and quinoa or a 1/3 cup serving of whole-wheat couscous, millet, whole-wheat pasta, or brown rice provides 15 grams of carbohydrate. The serving size is measured after cooking.

#### **Cereals: hot and cold**

Your healthiest choices are whole-grain, high-fiber cereals with no added sugar or salt. Cereals contain a lot of carbohydrate. Carefully measure portions using measuring cups and/or a kitchen scale for accurate results. The best cold cereals have 4 to 5 grams of fiber, less than 3 grams of total fat and less than 140 mg of sodium per serving. One of the best hot cereals is old-fashioned rolled oats. This whole-grain, unprocessed, high-fiber cereal can be cooked in most microwaves in fewer than 5 minutes. It's quick, convenient, and good for you.

#### **Canned goods**

Canned fruit and vegetables can be part of a healthy diet. Their nutritional content is like that of fresh and frozen foods. However, choose varieties that state no added salt and/or no added sugar on the label. Avoid canned foods in sauces or syrups.

#### **Frozen foods**

Healthy frozen foods include vegetables, fish, poultry, and unsweetened fruit. Avoid options with sauces, oils, or butters and those that are battered or breaded. Dinner kits with vegetables, a starch (such as potatoes, rice, or pasta) and a sauce can be modified. Use only 1/4 to 1/3 of the sauce and add more vegetables.

Frozen meals are often high in saturated fat, cholesterol, and sodium. Choose frozen meals carefully. "Healthier" or "diet" brands are usually a better fit for your eating plan.

Read the nutrition facts label and choose dinners with less than 700 mg of sodium per meal. People with diabetes should consume less than 2,300 mg of sodium per day. People with heart or kidney issues may be instructed to consume less.



#### **Checkout**

The variety of candy, snacks, and soft drinks available at the checkout aisle can challenge a successful shopping trip. If you do not have too many items in your cart, use the self-checkout lane. If you need to use the regular checkout lane, read a magazine as you wait. This will keep you busy until it's your turn to pay for your groceries.

#### **Wrapping it up**

Whether you are trying to manage your blood glucose or lose weight, eating a diet rich in fruit, vegetables, whole grains, lean proteins, and low-fat dairy products can help you achieve your goal. Remember to have a shopping list and buy only what is on the list. It all starts with the food you choose to place in your cart.

Read the nutrition facts label

The nutrition facts label is a good tool for shopping smart to manage your diabetes. Be aware of serving sizes as well as total carbohydrate grams. This information will aid in carbohydrate counting and keeping blood sugar in the target range. Choose food with lower amounts of saturated fat, trans fat, cholesterol, and sodium to make your diet healthier, lower your cholesterol level and reduce your risk of heart disease.

Nutrition Facts	
8 servings per container	
Serving size	2/3 cup (55g)
Amount per serving	
Calories	230
% Daily Value*	
Total Fat 8g	10%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	13%
Dietary Fiber 4g	14%
Total Sugars 12g	
Includes 10g Added Sugars	20%
Protein 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 235mg	6%
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

Serving size

The portion people typically eat or drink of the food. It is the amount referred to for all the nutrients, including calories, carbohydrate, fat, and protein listed on the label.

Servings per container

The number of servings in the whole package/container of food.

Calories

The amount of energy you get from the serving size listed on the label. If you are trying to lose weight, look for foods with fewer calories per serving.

Calories from fat

The number of calories that come from fat in the serving size listed on the label.

Total fat

Total amount of fat grams in the serving size listed on the label. This total includes saturated, unsaturated, and trans fats.

Saturated fat and trans fat

These are known as “bad” fats because they tend to increase the risk of heart disease. Strive for the least amount of saturated and trans fats you can get from the foods you eat. A healthy starting goal for most people is less than 20 grams of saturated fat per day and less than 2 grams of trans fat per day. Your doctor may give you a more specific goal.

Unsaturated fat

These are known as “good” fats because they tend to be more heart-healthy. They include polyunsaturated and monounsaturated fats.

Cholesterol

Limit the amount of cholesterol from your food to 200 mg per day.

Sodium

Limit the amount of sodium from your food to 2,300 mg or less per day unless your doctor gives you other instructions.

### Total carbohydrate

Total amount of carbohydrate grams in the serving size listed on the label. This includes dietary fiber, sugar, and starch. Focus on total carbohydrate and keep added sugar to a minimum.

### Dietary fiber

Look for foods with at least 3 grams of fiber per serving. High-fiber, less-processed foods are better for you and can even help you reach your blood sugar and healthy weight goals.

### Sugar

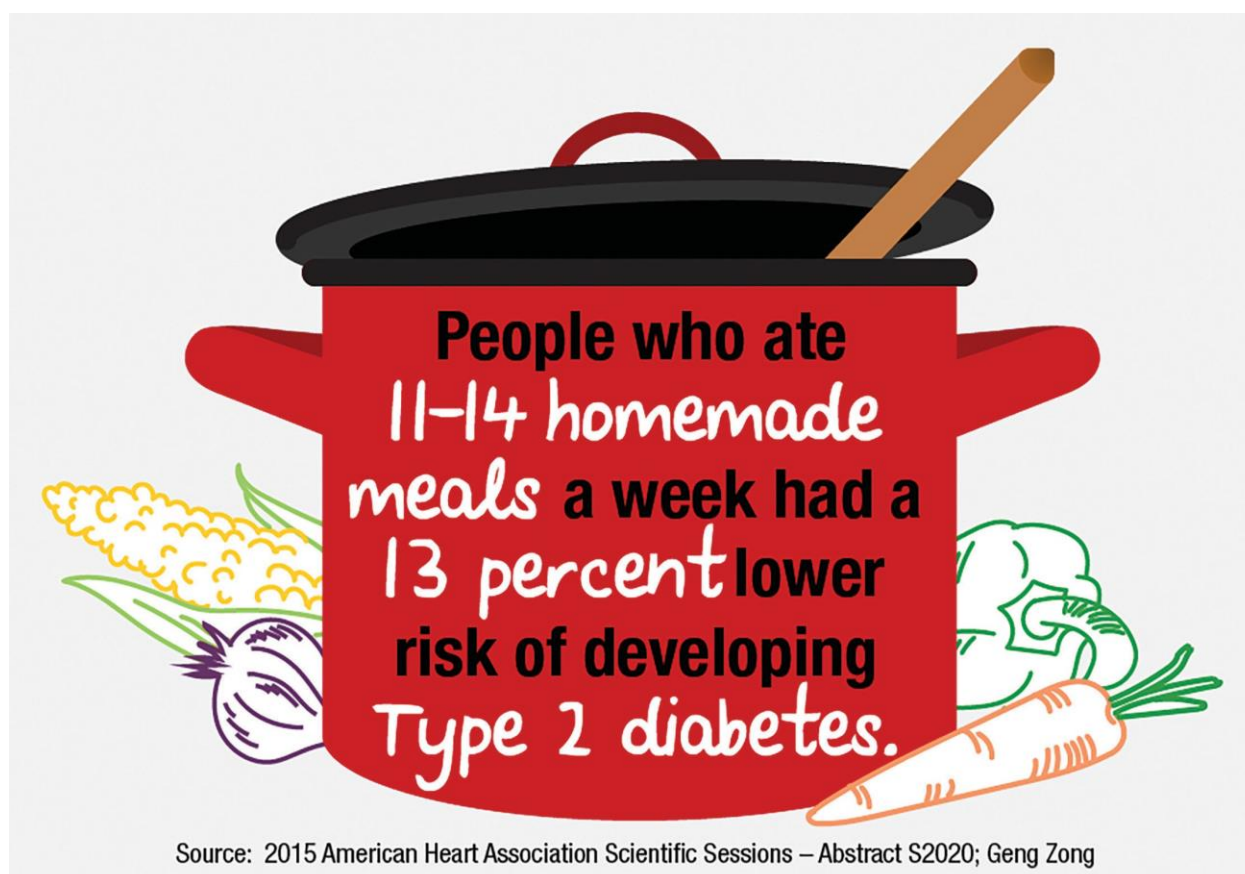
This includes both natural sugar (as in fruit and milk) and added sugar (such as table sugar). This is only a part of the total carbohydrate; it is more important to focus on total carbohydrate than on sugar.

### Protein

Be sure to eat the amount of protein your doctor recommends. Use lean protein sources, such as skinless poultry, fish, low-fat dairy products, and beans.

#### References

- 1 US Food and Drug Administration. Letter regarding sugar-free claim. <http://www.cfsan.fda.gov/~dms/lclmguid.html>.
- 2 American Heart Association. Choose Whole Grain, High Fiber Foods. <http://americanheart.org/presenter.jhtml?identifier=3040347>.



Low-calorie sweeteners

When you have diabetes, including sweets in your diet requires careful planning. However, it can be hard to just save sweets for special occasions. Foods and drinks that use artificial sweeteners are another option that may help curb your cravings for something sweet.

Low-calorie sweeteners are also called artificial sweeteners, sugar substitutes or non-nutritive sweeteners. They can be used to sweeten food and drinks for fewer calories and carbohydrate when they replace sugar.

The sweetening power of most low-calorie sweeteners is at least 100 times more intense than regular sugar, so only a small amount is needed when you use these sugar substitutes.

Also, except for aspartame, all the sweeteners listed cannot be broken down by the body. They pass through our systems without being digested so they provide no extra calories.

Understanding “sugar-free”

Still, many foods containing low-calorie sweeteners will provide some calories and carbohydrate from other ingredients. That means foods that carry claims such as “sugar-free,” “reduced sugar” or “no sugar added” are not necessarily carbohydrate-free or lower in carbohydrate than the original version of the food. A food that contains no more than 0.5 grams of sugar per serving may be labeled as “sugar-free.”

Always check the nutrition facts label for total grams of carbohydrate per serving. Sugar-free products may also have sugar alcohols in them, which are used in place of sugar to sweeten foods. Sugar alcohols are carbohydrate, but they are digested more gradually than regular sugar. Foods containing sugar alcohols may cause diarrhea or stomach cramps, especially if eaten in large portions.

Low calorie sweeteners should be used in moderation. In general, people are encouraged to replace sugar sweetened and artificially sweetened beverages with water.

The chart below lists the brand names seen in stores for low-calorie sweeteners:

For more information, visit the Food and Drug Administration website at [fda.gov](http://fda.gov).

Sweetener Name	Brand Names Found in Stores
Acesulfame potassium	Sunett Sweet One
Aspartame	Nutrasweet Equal
Neotame	N/A
Saccharin	Sweet’N Low Sweet Twin Sugar Twin
Sucralose	Splenda
Stevia/ rebaudioside	Sweet Leaf Sun Crystals Steviva Truvia PureVia



## Seven ways to size up your servings

Measure food portions so you know exactly how much food you are eating. When a food scale or measuring cups are not handy, you can still estimate your portion.

①

3 ounces of meat is about the size and thickness of playing cards or an audiotape cassette.



②

A medium apple or peach is about the size of a tennis ball.



③

1 ounce of cheese is about the size of 4 stacked dice.



④

1/2 cup of ice cream is about the size of a racquetball or tennis ball.



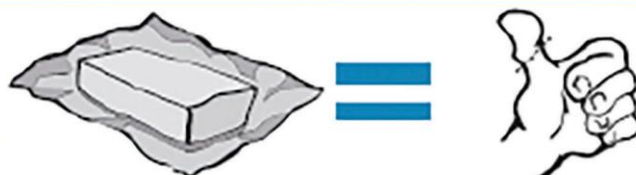
⑤

1 cup of mashed potatoes or broccoli is about the size of your fist.



⑥

1 teaspoon of butter or peanut butter is about the size of the tip of your thumb.



⑦

1 ounce of nuts or small candies equals one handful.





United States Department of Agriculture

**10  
tips**  
Nutrition  
Education Series



**MyPlate  
MyWins**

Based on the  
**Dietary  
Guidelines  
for Americans**

## Choose MyPlate

**Use MyPlate to build your healthy eating style and maintain it for a lifetime.** Choose foods and beverages from each MyPlate food group. Make sure your choices are limited in sodium, saturated fat, and added sugars. Start with small changes to make healthier choices you can enjoy.

**1 Find your healthy eating style**  
Creating a healthy style means regularly eating a variety of foods to get the nutrients and calories you need. MyPlate's tips help you create your own healthy eating solutions—"MyWins."

**2 Make half your plate fruits and vegetables**  
Eating colorful fruits and vegetables is important because they provide vitamins and minerals and most are low in calories.

**3 Focus on whole fruits**  
Choose whole fruits—fresh, frozen, dried, or canned in 100% juice. Enjoy fruit with meals, as snacks, or as a dessert.



**4 Vary your veggies**  
Try adding fresh, frozen, or canned vegetables to salads, sides, and main dishes. Choose a variety of colorful vegetables prepared in healthful ways: steamed, sautéed, roasted, or raw.



**5 Make half your grains whole grains**  
Look for whole grains listed first or second on the ingredients list—try oatmeal, popcorn, whole-grain bread, and brown rice. Limit grain-based desserts and snacks, such as cakes, cookies, and pastries.



**6 Move to low-fat or fat-free milk or yogurt**  
Choose low-fat or fat-free milk, yogurt, and soy beverages (soymilk) to cut back on saturated fat. Replace sour cream, cream, and regular cheese with low-fat yogurt, milk, and cheese.



**7 Vary your protein routine**  
Mix up your protein foods to include seafood, beans and peas, unsalted nuts and seeds, soy products, eggs, and lean meats and poultry. Try main dishes made with beans or seafood like tuna salad or bean chili.



**8 Drink and eat beverages and food with less sodium, saturated fat, and added sugars**  
Use the Nutrition Facts label and ingredients list to limit items high in sodium, saturated fat, and added sugars. Choose vegetable oils instead of butter, and oil-based sauces and dips instead of ones with butter, cream, or cheese.



**9 Drink water instead of sugary drinks**  
Water is calorie-free. Non-diet soda, energy or sports drinks, and other sugar-sweetened drinks contain a lot of calories from added sugars and have few nutrients.

**10 Everything you eat and drink matters**  
The right mix of foods can help you be healthier now and into the future. Turn small changes into your "MyPlate, MyWins."

## Sample Breakfast Menus



### 30 Grams Carbohydrate (2 Carb Choices)

1 Cup Cooked Oatmeal 4 oz Skim or 1% Milk 1 Tbsp. Walnuts	<b>½ of 4oz Bagel or 1 Mini Bagel</b> 1 Tbsp. Peanut Butter	6 oz Light Yogurt 4 oz Pear 1 Tbsp. Almonds	2 Slices Whole Grain Toast 1 Egg or ¼ Cup Egg Substitute
1 English Muffin 1 Tbsp. Peanut Butter 1 Tbsp. Low Sugar Jam	1 Cup Whole Grain Unsweetened Cereal 4 oz Skim or 1% Milk 1 Tbsp. Almonds	1 - 4-inch Waffle 1 Tbsp. Sugar-Free Syrup 1 Tbsp. Pecans <b>1 Cup Mixed Fruit</b>	1 English Muffin 1 Slice Cheese 1 Egg or ¼ Cup Egg Substitute 1 Slice Canadian Bacon

**Bold Print = carbohydrate foods**

### 45 Grams Carbohydrate (3 Carb Choices)

1 Cup Cooked Oatmeal 4 oz Skim or 1% Milk 2 Tbsp. Raisins 1 Tbsp. Walnuts	<b>½ of 4oz Bagel or 1 Mini Bagel</b> 1 Tbsp. Peanut Butter <b>½ (4oz) Banana</b>	6 oz Light Yogurt 4 oz Pear <b>½ English Muffin</b> 1 Tbsp. Peanut Butter	2 Slices Whole Grain Toast <b>1 Small (4oz) Apple</b> 1 Egg or ¼ Cup Egg Substitute
1 English Muffin 1 Tbsp. Peanut Butter 1 Tbsp. Low Sugar Jam <b>½ (4oz) Banana</b>	1 Cup Whole Grain Cereal 4 oz Skim or 1% Milk <b>¾ Cup Blueberries</b> 1 Tbsp. Almonds	1 - 4-inch Waffles 2 Tbsp. Sugar-Free Syrup 1 Tbsp. Pecans <b>1 Cup Mixed Fruit</b>	1 English Muffin 1 Slice Cheese 1 Egg or ¼ Cup Egg Substitute 1 Slice Canadian Bacon <b>1 Cup Cantaloupe</b>

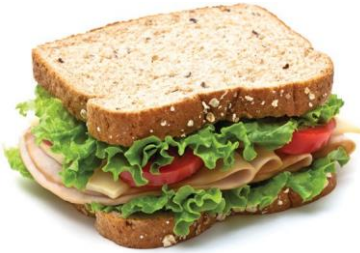
**Bold Print = carbohydrate foods**

60 Grams Carbohydrate (4 Carb Choices)

<b>1 ½ Cup Cooked Oatmeal</b> <b>4 oz Skim or 1% Milk</b> <b>2 Tbsp. Raisins</b> <b>1 Tbsp. Walnuts</b>	<b>1 – 4oz Bagel</b> <b>1 Tbsp. Peanut Butter</b> <b>½ (4oz) Banana</b>	<b>6oz Light Yogurt</b> <b>4 oz Pear</b> <b>1 English Muffin</b> <b>1 Tbsp. Peanut Butter</b>	<b>2 Slices Whole Grain Toast</b> <b>1 Small (4oz) Apple</b> <b>8oz Skim or 1% Milk</b> <b>1 Egg or ¼ Cup Egg Substitute</b>
<b>1 English Muffin</b> <b>2 Tbsp. Peanut Butter</b> <b>1 Tbsp. Low Sugar Jam</b> <b>1 (8oz) Banana</b>	<b>1 ½ Cup Whole Grain Cereal</b> <b>4 oz Skim or 1% Milk</b> <b>¾ Cup Blueberries</b> <b>1 Tbsp. Almonds</b>	<b>2 – 4-inch Waffles</b> <b>6 oz Flavored Greek Yogurt</b> <b>2 Tbsp. Sugar-Free Syrup</b> <b>2 Tbsp. Pecans</b> <b>1 Cup Raspberries</b>	<b>1 English Muffin</b> <b>1 Slice Cheese</b> <b>1 Egg or ¼ Cup Egg Substitute</b> <b>1 Slice Canadian Bacon</b> <b>1 Cup Cantaloupe</b> <b>6oz light Yogurt</b>

**Bold Print = carbohydrate foods**





## Sample Lunch Menus

### 30 grams of carbohydrate (2 carb choices)

<b>2 Slices Whole Grain Bread</b> 3oz Lean Turkey 1oz Cheese 1 Tbsp. Mustard Carrots/Celery Sticks	<b>1 Small (2oz) Whole Grain Roll</b> 3oz Chicken Breast Lettuce/Tomato 1 Tbsp. Mayonnaise Raw Peppers	<b>½ - 6-inch Whole Grain Pita</b> 1oz Cheese 3oz Lean Ham 1 Tbsp. Mustard Garden Salad 2 Tbsp. Light Dressing <b>1 Small (4oz) Apple</b>	<b>2/3 Cup Brown Rice</b> 1 Cup Grilled Vegetables 4oz Grilled Fish 2 tsp. Olive Oil Sugar-Free Gelatin
<b>1 - 6-inch Whole Grain Tortilla</b> <b>½ Cup Refried Beans</b> ¼ Cup Salsa Raw Vegetables	<b>2 Slices Reduced-Calorie Bread</b> 3oz Tuna in water Lettuce/Tomato 1 Tbsp. Mayonnaise Baby Carrots <b>6oz Light Yogurt</b>	<b>1 Hamburger Bun</b> 3oz Turkey Burger 1 Tbsp. Mayonnaise Garden Salad 1 Tbsp. Salad Dressing 1 Sugar-Free Popsicle	<b>1 Cup Chicken Noodle Soup</b> <b>20 Oyster Crackers</b> 2oz String Cheese Cucumber Sticks

**Bold Print = carbohydrate foods**

### 45 grams of carbohydrate (3 carb choices)

<b>2 Slices Whole Grain Bread</b> 3oz Lean Turkey 1oz Cheese 1 Tbsp. Mustard Carrots/Celery Sticks <b>12 Cherries</b>	<b>1 Small (2oz) Whole Grain Roll</b> 3oz Chicken Breast Lettuce/Tomato 1 Tbsp. Mayonnaise Raw Peppers <b>1 Kiwi</b>	<b>1 - 6-inch Whole Grain Pita</b> 1oz Cheese 3oz Lean Ham 1 Tbsp. Mustard Garden Salad 2 Tbsp. Light Dressing <b>1 Small (4oz) Apple</b>	<b>2/3 Cup Brown Rice</b> 1 Cup Grilled Vegetables 4oz Grilled Fish 2 tsp. Olive Oil <b>1 ¼ Cups Strawberries</b> Sugar-Free Gelatin
<b>1 - 6-inch Whole Grain Tortilla</b> <b>½ Cup Refried Beans</b> ¼ Cup Salsa Raw Vegetables <b>1 Medium (6oz) Peach</b>	<b>2 Slices Whole Grain Bread</b> 3oz Tuna in Water Lettuce/Tomato 1 Tbsp. Mayonnaise Baby Carrots <b>6oz Light Yogurt</b>	<b>1 Hamburger Bun</b> 3oz Turkey Burger 1 Tbsp. Mayonnaise Garden Salad 1 Tbsp. Salad Dressing 1 Sugar-Free Popsicle <b>1 Small (6 ½ oz) Orange</b>	<b>1 Cup Chicken Noodle Soup</b> <b>20 Oyster Crackers</b> 2oz String Cheese Cucumber Sticks <b>½ Cup Sugar-Free Pudding</b>

**Bold Print = carbohydrate foods**

60 Grams Carbohydrate (4 Carb Choices)

<b>2 Slices Whole Grain Bread</b> 4oz Lean Turkey 1oz Cheese 1 Tbsp. Mustard Carrots/Celery Sticks <b>6oz Light Yogurt</b> <b>¾ Cup Blueberries</b>	<b>1 Small (2oz) Whole Grain Roll</b> 4oz Chicken Breast Lettuce/Tomato 1 Tbsp. Light Mayonnaise Raw Peppers <b>1/3 Cup Hummus</b> <b>2 Clementines</b>	<b>1 - 6-inch Whole Grain Pita</b> 1oz Cheese 3oz Lean Ham 1 Tbsp. Mustard Garden Salad 2 Tbsp. Light Dressing <b>15 Baked Potato Chips</b> <b>1 Small (4oz) Apple</b>	<b>1 Cup Brown Rice</b> 1 Cup Grilled Vegetables 4oz Grilled Fish 1 tsp. Olive Oil <b>17 Grapes</b> Sugar-Free Gelatin
<b>1 - 10-inch Whole Grain Tortilla</b> <b>½ Cup Refried Beans</b> 2oz Chicken Breast ¼ Cup Salsa Raw Vegetables	<b>2 Slices Whole Grain Bread</b> 4oz Tuna in Water Lettuce/Tomato 1 Tbsp. Mayonnaise Baby Carrots <b>6oz Light Yogurt</b> <b>1 ¼ Cups Watermelon</b>	<b>1 Hamburger Bun</b> 4oz Turkey Burger Lettuce/Tomato 1 Tbsp. Mayonnaise <b>1 Cup Oven-Baked Fries</b> <b>1 Small (6 ½ oz) Orange</b>	<b>1 Cup Chicken Noodle Soup</b> <b>2 Slices Whole Grain Toast</b> 2oz Cheese 1 Tbsp. Mustard Cucumber Sticks <b>3 Gingersnaps</b>

**Bold Print = carbohydrate foods**



## Sample Dinner Menus

### 30 grams of carbohydrate (2 carb choices)

<b>1 Small (6oz) Baked Potato</b> 1 cup broccoli Garden Salad 2 Tbsp. Light Vinaigrette 3oz Baked Chicken Breast	<b>1 Small (6oz) Sweet Potato</b> 1 Cup Green Beans 3-4oz Baked Pork Chop	<b>1 Cup Mashed Potatoes</b> 1 Cup Mixed Vegetables Garden Salad 2 Tbsp. Light Vinaigrette 3-4oz Steak	<b>1/3 Cup Rice</b> 1 Cup Cauliflower/carrots 4oz Broiled Salmon <b>1/2 Cup Sugar-Free Pudding</b> 1 Tbsp. Whipped Topping
<b>2 Slices Light Bread</b> 3oz Lean Ham 1oz Cheese Lettuce/Tomato 1 Tbsp. Mustard Garden Salad Tbsp. Reduced-Fat Dressing <b>1/2 Cup Light Ice Cream</b>	<b>2/3 Cup Rice</b> 1 Cup Non-Starchy Grilled Veg 3-4oz Tofu Sugar-Free Gelatin 1 Tbsp. Whipped Topping	<b>1/3 Cup Whole Grain Pasta</b> <b>1/2 Cup Low-Sugar Tomato Sauce</b> 3-4oz Ground Turkey 1 Tbsp. Parmesan Cheese 1 Cup Zucchini	<b>1 Hamburger Roll</b> 3-4 oz Hamburger 1oz Cheese Garden Salad 2 Tbsp. Light Vinaigrette

**Bold Print = carbohydrate foods**

### 45 grams of carbohydrate (3 carb choices)

<b>1 Small (6oz) Baked Potato</b> 1 cup broccoli Garden Salad 2 Tbsp. Light Vinaigrette 4oz Baked Chicken Breast <b>1 Cup Raspberries</b>	<b>1 Small (6oz) Sweet Potato</b> 1 Cup Green Beans 4oz Baked Pork Chop <b>1 Cup Cantaloupe</b>	<b>1 Cup Mashed Potatoes</b> <b>1/2 Cup Peas</b> 1 Cup Mixed Vegetables Garden Salad 2 Tbsp. Light Vinaigrette 3-4oz Steak	<b>2/3 Cup Rice</b> 1 Cup Cauliflower/carrots 5oz Broiled Salmon <b>1/2 Cup Sugar-Free Pudding</b> 1 Tbsp. Whipped Topping
<b>2 Slices Whole Grain Bread</b> 3oz Lean Ham 1oz Cheese Lettuce/Tomato 1 Tbsp. Mustard Garden Salad 2 Tbsp. Reduced-Fat Dressing <b>1/2 Cup Light Ice Cream</b>	<b>2/3 Cup Rice</b> <b>1/2 Cup Beans</b> 1 Cup Non-Starchy Grilled Vegetables 3-4oz Tofu Sugar-Free Gelatin 1 Tbsp. Whipped Topping	<b>2/3 Cup Whole Grain Pasta</b> <b>1/2 Cup Low-Sugar Tomato Sauce</b> 4oz Ground Turkey 1 Tbsp. Parmesan Cheese 1 Cup Spinach	<b>1 Hamburger Roll</b> 4 oz Hamburger 1oz Cheese Garden Salad 2 Tbsp. Light Vinaigrette

**Bold Print = carbohydrate foods**

60 Grams Carbohydrate (4 Carb Choices)

<b>1 Med (8oz) Baked Potato</b> 1 cup broccoli Garden Salad 2 Tbsp. Light Vinaigrette 5oz Baked Chicken Breast <b>1 Cup Raspberries</b>	<b>1 Med (8oz) Sweet Potato</b> 1 Cup Green Beans 5oz Baked Pork Chop <b>1 Cup Cantaloupe</b>	<b>1 Cup Mashed Potatoes</b> <b>1 Cup Peas</b> Garden Salad 2 Tbsp. Light Vinaigrette 5oz Lean Steak	<b>1 Cup Rice</b> 1 Cup Cauliflower/carrots 5oz Broiled Salmon <b>½ Cup Sugar-Free Pudding</b> 1 Tbsp. Whipped Topping
<b>2 Slices Whole Grain Bread</b> 4oz Lean Ham 1oz Cheese Lettuce/Tomato 1 Tbsp. Mustard Garden Salad 2 Tbsp. Reduced-Fat Dressing <b>1 Cup Light Ice Cream</b>	<b>2/3 Cup Rice</b> <b>½ Cup Beans</b> 1 Cup Grilled Non-Starchy Veg 5oz Tofu <b>¾ Cup Pineapple Chunks</b>	<b>1 Cup Whole Grain Pasta</b> <b>1 Cup Low-Sugar Tomato Sauce</b> 5oz Ground Turkey 1 Tbsp. Parmesan Cheese 1 Cup Spinach	<b>1 Hamburger Roll</b> 5oz Hamburger 1oz Cheese Garden Salad 2 Tbsp. Light Vinaigrette <b>1 Large (9-inch) ear of corn</b>

**Bold Print = carbohydrate foods**



## Family-friendly recipes to get you started

### Breakfast recipes

*(less than 35 grams of carbohydrates per serving)*

#### Bran Flake Muffins

*Makes 10 servings*

##### Ingredients

Nonstick cooking spray  
1 cup bran flakes cereal  
3/4 cup 1% milk  
1 egg  
1/4 cup margarine, melted  
1 cup flour  
2 1/2 tsp. baking powder  
1/2 tsp. salt  
1/4 cup sugar

##### Directions

1. Preheat oven to 400 degrees F. Coat 10 muffin cups with nonstick cooking spray.
2. Combine bran flakes and milk: let sit for 5 minutes until cereal is soft.
3. Stir in egg and margarine. Mix in flour, baking powder, salt, and sugar, stirring until combined.
4. Fill 10 muffin cups.
5. Bake for 30 minutes, until toothpick or knife inserted into center of muffin comes out clean.

##### Nutrition information per serving:

130 calories, 3 g protein, 19 g carbohydrate, 5 g fat, 1 g dietary fiber, 280 mg sodium

#### Apple-Cherry Cinnamon Oatmeal

*Makes 2 servings*

##### Ingredients

1 cup water  
1/4 cup apple-cherry juice  
2/3 cup old-fashioned oats  
1 tsp. ground cinnamon  
1 cup 1% low-fat milk

##### Directions

1. Combine water and apple-cherry juice in a small saucepan.
2. Bring to a boil over high heat; stir in oats and cinnamon.
3. Return to a boil, then reduce heat to low and cook until thick, about 2 minutes.
4. Spoon oatmeal into two bowls. Pour 1/2 cup milk over each serving.

##### Nutrition information per serving:

190 calories, 9 g protein, 35 g carbohydrate, 3 g fat, 4 g dietary fiber, 60 mg sodium



*Diabetes meal planning is a healthy dietary lifestyle anyone can benefit from.*

—Lindsey Neese and Elissa Pleshinger,  
Diabetes Advisory Team

Cinnamon Oatmeal Pancakes

Makes about 10 servings

Ingredients

- 1 1/4 cups flour
- 1 tsp. baking powder
- 1/2 tsp. salt
- 1 tbsp. cinnamon
- 1 egg
- 1 1/2 cups cooked oats
- 1/2 cup evaporated milk
- 1/4 cup water
- Nonstick cooking spray

Directions

1. Mix flour, baking powder, salt, and cinnamon in a large bowl.
2. In a separate bowl, combine egg, oats, milk, and water, and stir well.
3. Stir the oatmeal mixture into the flour mixture and stir until combined.
4. Heat a large skillet coated with nonstick cooking spray over medium heat.
5. Pour large spoonfuls of batter into the skillet. Cook until bubbles appear on the tops of the pancakes, about 2 to 3 minutes. Flip over and cook an additional 2 minutes, or until golden brown and cooked through.
6. Serve warm by themselves or top with canned or fresh fruit.

Nutrition information per serving:

120 calories, 4 g protein, 20 g carbohydrate, 2 g fat, 1 g dietary fiber, 190 mg sodium

From diabetes.org

Lunch and dinner recipes

(less than 40 grams of carbohydrates per serving)

Chicken and Vegetable Quesadillas

Makes 4 servings

Ingredients

- 1/4 cup nonfat sour cream
- 1/4 tsp. chili powder
- 4 medium whole-wheat tortillas
- 1/2 cup cooked chicken, cut in small pieces
- 1/2 cup chopped tomatoes
- 1/2 cup pinto beans, drained and rinsed
- 1/2 cup frozen or canned corn
- 1/2 cup reduced-fat cheddar cheese, shredded
- 1/4 cup sliced black olives
- Salsa, chopped lettuce and extra sour cream (optional)

Directions

1. In a small bowl, combine sour cream and chili powder; set aside.
2. Spread about 1 tablespoon seasoned sour cream on each tortilla. Place desired filling ingredients on half of each tortilla. Top with about 2 tablespoons of cheese.
3. Fold tortilla in half; place in a hot nonstick skillet.
4. Cook until tortilla starts to turn golden brown. Using spatula, carefully flip tortilla; cook until the other side is golden brown, and cheese is melted. Return to plate and cut in half to serve.
5. Serve immediately with salsa, chopped lettuce and extra sour cream, if desired.

Nutrition information per serving:

239 calories, 22 g protein, 33 g carbohydrate, 4 g fat, 4 g dietary fiber, 425 mg sodium

Lentil Chili, Cincinnati-Style

Makes 6 servings (1 cup per serving)

Ingredients

- 1 tbsp. olive oil
- 1 1/2 cups chopped onion, fresh or frozen
- 2 stalks celery, chopped
- 2 cloves garlic, minced
- 1/4 tsp. cinnamon
- 1/4 tsp. ground cloves
- 1 tsp. ground cumin
- 4 cups reduced sodium vegetable broth
- 1 cup lentils, washed
- 1 cup carrots, chopped
- 1/4 tsp. ground black pepper
- 1 can (14.5 ounce) diced tomatoes

Directions

1. In a large saucepan, heat oil for 1 to 2 minutes. Add onions and celery; sauté until onions are tender, about 5 minutes.
2. Reduce heat; add garlic, cinnamon, cloves, and cumin. Cook for 1 minute.
3. Add broth, lentils, carrots, and black pepper; bring to a boil. Reduce heat, cover, and simmer for 40 to 50 minutes or until lentils and carrots are soft.
4. Add tomatoes with juice; cook another 10 minutes until soup is hot throughout.
5. Adjust seasonings to taste.

Nutrition information per serving:

204 calories, 12 g protein, 35 g carbohydrate, 3 g fat, 8 g dietary fiber, 0 mg cholesterol, 427 mg sodium

From Nutrition Council

Rainbow Roll-Up

Makes 1 adult serving = 1 roll-up:

2 child-size servings = 1/2 roll-up

Ingredients

- 1 slice whole-wheat bread or 1 whole-wheat tortilla
- 2 tsp. reduced-fat mayonnaise or mustard
- 6–8 baby spinach leaves
- 2 tbsp. shredded carrots
- 2 tbsp. shredded red cabbage
- 1 thin slice deli turkey breast
- 2 tbsp. reduced-fat shredded cheddar cheese
- 1/2 hard-cooked egg, chopped or sliced

Directions

1. Place bread slice on plate and flatten with your hand. If using a tortilla, skip this step.
2. Spread mayonnaise or mustard on flattened bread or tortilla (if desired).
3. Arrange spinach leaves on bread or tortilla. Sprinkle shredded carrots and cabbage on top of spinach.
4. Place turkey slice on top of vegetables.
5. Put shredded cheese on next and spread as evenly as possible.
6. Add pieces of hard-cooked egg, if desired.
7. Roll bread or tortilla like a jelly roll, starting on one side and rolling as tightly as possible.
8. Cut roll-up in half or quarters to eat.

Nutrition information per serving:

196 calories, 15 g protein, 16 g carbohydrate, 8 g fat, 3 g dietary fiber, 583 mg sodium

### Skillet Pizza

*Makes 1 adult serving = 2 muffin halves:*

*2 child-size servings = 1 muffin half*

#### Ingredients

1 whole-wheat English muffin  
2 tbsp. pizza sauce  
1 oz. shredded mozzarella cheese

#### Suggested toppings

Chopped fresh mushrooms  
Sliced ripe olives  
Chopped broccoli florets  
Chopped green bell pepper  
Chopped zucchini  
Chopped onion  
Crushed pineapple, drained and pressed  
Turkey pepperoni

#### Directions

1. Split English muffin in half. Top each muffin half with pizza sauce.
2. Put on choice of toppings, sprinkle cheese evenly over each muffin half.
3. Place in a nonstick skillet over medium heat.
4. Cover skillet and cook until cheese is melted and crust is crisp, 5 to 7 minutes.
5. Serve right away.

#### Nutrition information per serving:

240 calories, 14 g protein, 32 g carbohydrate, 7 g fat, 4 g saturated fat, 5 g dietary fiber, 15 mg cholesterol, 741 mg sodium

From Nutrition Council

### Rainbow Veggie Salad

*Makes about 10 servings*

#### Ingredients

1 can (15 ounce) low sodium black beans, drained and rinsed  
1 can (15 ounce) low sodium red kidney beans, drained and rinsed  
3 carrots, scrubbed and sliced  
1 small yellow squash, washed and sliced  
1 small green squash (zucchini), washed and sliced  
 $\frac{1}{2}$  cup light Italian dressing  
 $\frac{1}{2}$  teaspoon black pepper

#### Directions

1. Mix all the beans and vegetables in a large bowl.
2. Pour dressing over the vegetables.
3. Sprinkle with pepper.
4. Stir gently, coating ingredients.
5. Cover and refrigerate at least 8 hours.

#### Nutrition information per serving:

100 calories, 7 g protein, 6 g carbohydrate, 5 g fat, 6 g dietary fiber, 190 mg sodium

From diabetes.org





# Healthy Snacks

- Check nutrition facts label for serving size and total carbohydrate
- Choose fresh, whole foods instead of processed foods 80-90% of the time
- Mix carbohydrate with protein and/or fat

Mix 1 serving of 15 grams of carbohydrate + 1 ounce of protein

15g Carbohydrate Options (pick one of these)	1 ounce Protein Options (7g of protein) (pick one of these)
5 Triscuit crackers 10 Wheat Thin crackers 1 (6-inch) whole wheat tortilla 10 whole grain tortilla scoops/chips 1 cup berries 1 small apple (tennis ball size) 1 slice whole wheat bread ½ whole wheat English muffin ½ cup pears or grapes (about 17 small ones) 3 cups popped popcorn 1 ounce potato chips (about 10 large ones)	¼ cup nuts ¼ cup cottage cheese ¼ cup tuna salad ¼ cup chicken salad ¼ cup egg salad 2 Tbsp peanut, almond, cashew butter 1 ounce cheese (1 slice/1 string cheese/6 cubes) ¼ cup dried edamame ¼ cup seeds
Greek yogurt containing 9-15g of carbohydrate and 12-15g of protein	

It is recommended to always include a protein food with your meals and snacks. Protein stabilizes your blood sugar by slowing down the digestion and absorption of carbohydrate.

## Snack Examples

- ½ peanut butter sandwich on whole wheat bread (1 slice wheat bread + 2 Tbsp peanut butter)
- 5 Triscuit crackers + 1 slice of cheese
- 7 whole wheat Ritz crackers + 2 Tbsp peanut butter (or any nut butter)
- ½ grilled cheese sandwich (1 slice whole wheat bread + 1 slice cheese)
- ½ ham and cheese sandwich (1 slice whole wheat bread + 1 slice cheese + 1 slice ham)
- 1 cup berries + ¼ cup cottage cheese
- ¼ cup chicken salad on 1 whole wheat tortilla
- 1 small apple (tennis ball size) + 2 Tbsp almond butter
- Greek yogurt containing 9-15g carbohydrate and 12-15g protein
- 1 hard-boiled egg + 10 Wheat Thin crackers
- ½ cup pears + ¼ cup almonds
- 1 mandarin orange (Clementine) + ¼ cup dried edamame
- ½ cup grapes + ¼ cup pumpkin seeds

## Low Carb Snack Ideas for about 5 grams of Carbohydrate

Non-Starchy Vegetable (pick one of these)	Protein/Fat (pick one of these)	Serving Ideas (examples)
<ul style="list-style-type: none"> <li>Sliced cucumbers or sliced radishes</li> </ul>	<ul style="list-style-type: none"> <li>Laughing Cow cheese wedge</li> <li>6 cheese cubes</li> <li>1 string cheese stick</li> <li>2 Tbsp hummus</li> </ul>	<ul style="list-style-type: none"> <li>Spread cheese wedge on sliced cucumbers or radishes</li> <li>Dip cucumbers or radishes in hummus</li> </ul>
<ul style="list-style-type: none"> <li>2 large (7-inch) celery stalks</li> </ul>	<ul style="list-style-type: none"> <li>2 Tbsp peanut/almond butter</li> </ul>	<ul style="list-style-type: none"> <li>Spread nut butter on celery sticks</li> </ul>
<ul style="list-style-type: none"> <li>Sliced radishes, bell peppers, celery</li> </ul>	<ul style="list-style-type: none"> <li><math>\frac{1}{4}</math> cup cottage cheese</li> </ul>	<ul style="list-style-type: none"> <li>Dip vegetables in cottage cheese</li> </ul>
<ul style="list-style-type: none"> <li>Broccoli, cauliflower, carrots, snap peas</li> </ul>	<ul style="list-style-type: none"> <li><math>\frac{1}{4}</math> cup raw nuts</li> <li>6 cheese cubes</li> <li>1 hard-boiled egg</li> </ul>	<ul style="list-style-type: none"> <li>Make a snack plate with vegetables, cheese, and nuts or egg</li> </ul>
<ul style="list-style-type: none"> <li>Lettuce leaves + tomato slices</li> </ul>	<ul style="list-style-type: none"> <li><math>\frac{1}{4}</math> avocado</li> <li>2 thin slices low sodium turkey</li> </ul>	<ul style="list-style-type: none"> <li>Layer thin tomato slices, turkey slices and avocado in lettuce leaves to make a wrap</li> </ul>
<ul style="list-style-type: none"> <li>2 cups mixed greens</li> </ul>	<ul style="list-style-type: none"> <li><math>\frac{1}{4}</math> cup chicken, tuna, or eggs salad</li> </ul>	<ul style="list-style-type: none"> <li>Put scoop of chicken/tuna/egg salad on top of mixed greens</li> </ul>

Notes:



# Taking diabetes medications

Medications may be needed to help you reach your blood sugar goals. You and your doctor should discuss your blood sugar goals based on your overall health, lifestyle, and personal preferences. All medications should be taken as ordered by your doctor. Call your doctor if you think your diabetes medication is not working well or you are having side effects.

Your doctor will adjust your medication based on your blood sugar trends and results. Your doctor or diabetes educator will help you decide how often to check your blood sugar. Always take your glucose meter or a record of your blood sugar results with you to your medical appointments.

You may need to take more than one medication. These can be pills, injectable medications, insulin, or a combination. You may take more than one type of insulin. Bring all your medications or a list of the medications you are taking with all the current doses to all medical appointments.

It is important to have a plan for sick days (see *section on sick-day plans*). Your blood sugar may become harder to manage if you get sick or have an infection. Your blood sugar may go too high or too low. You will need to check your blood sugar more often when you are sick. Your insulin dose may need to be changed while you are sick. If you take pills to manage your blood sugar, contact your doctor to find out whether you should continue to take your medications. It is important to continue to eat or drink carbohydrate while you are sick.

## Type 1 diabetes

People with type 1 diabetes must take insulin because their pancreas does not make insulin. They need to inject insulin to live. There are different types of insulin. Your doctor will help you decide which type of insulin will be best for you and your lifestyle. Remember to be flexible because your insulin type and dose may need to be changed over time.

Checking your blood sugar regularly is important for making decisions about your insulin dose. Your doctor or diabetes educator will tell you how often to check your blood sugar. Your insulin dose depends on your blood sugar trends or results, activity level and eating habits. Your doctor or diabetes educator can teach you how to adjust your insulin dose.

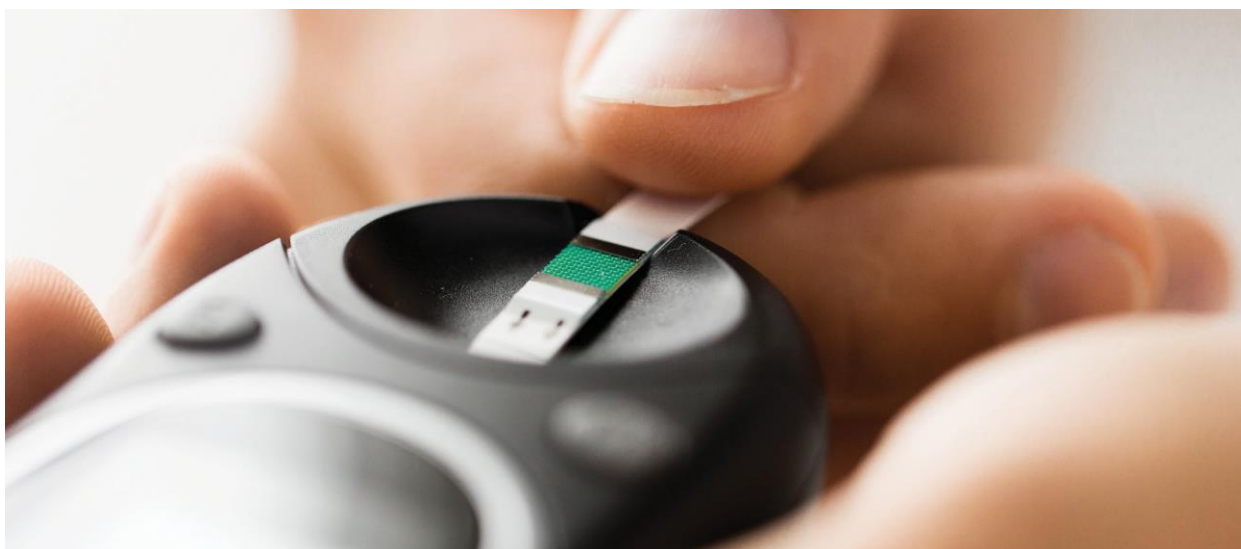
## Type 2 diabetes

In type 2 diabetes, the pancreas is not able to make enough insulin and/or the insulin does not work well to manage blood sugar. People with type 2 diabetes need to check their blood sugar. Your doctor or diabetes educator will tell you how often to do so.

Some people with type 2 diabetes can manage their blood sugar by balancing what they eat with how active they are, but many people need to take pills, injectable medications, and/or insulin. Diabetes medications work in different ways. They help your body make more insulin, help your cells respond to insulin more effectively, slow down your carbohydrate digestion, or help your kidneys remove sugar from your body.

You should take your medicine exactly as your doctor tells you. You should know when to take your medications, how much to take and how often you are supposed to take them.

Medications alone may not be enough to lower your blood sugar to meet your goal. Some people with type 2 diabetes may need to take insulin to lower their blood sugar even though they have worked hard at eating and exercising. You may need to take a combination of medications and insulin or just insulin.



### Insulin use

Insulin is injected under the skin, which is called a subcutaneous injection. Insulin cannot be given in pill form because the acid in the stomach destroys insulin. Insulin may be given continuously by an insulin pump (*see section on insulin pumps*).

### Different types of insulin

There are many types of insulin. Insulin is divided into types based on how it is made. There is human insulin and analog insulin. Human insulin is like the insulin produced by your pancreas. Analog insulins are slightly different than human insulin, which allows them to work faster or slower than human insulin. Human and analog insulins are divided into types based on how fast they begin to lower blood sugar (onset) and how long they continue to work in the body (duration).

### Human insulin

**Short-acting or regular insulin:** This type of insulin takes about 30 minutes to start working on lowering blood sugar and lasts five to eight hours. It is usually taken 30 minutes before meals.

**Intermediate-acting or NPH insulin:** This type of insulin takes 1 to 3 hours to start lowering blood sugar and lasts 12 to 16 hours. It is usually taken before breakfast and in the evening either before dinner or at bedtime.

**Premixed:** This type of human insulin is a combination of regular insulin and NPH insulin. It is taken twice daily, usually 30 minutes before breakfast and 30 minutes before dinner.

### Analog insulin

**Rapid-acting:** This type of analog insulin starts working in about 15 minutes. It is usually taken right before a meal is eaten. Fiasp is a faster acting insulin that is taken with the first bite of the meal.

Novolog, Humalog, Admelog, Apidra, Fiasp

**Long-acting:** This insulin works slowly over 24-42 hours in your body. It is used to manage your blood sugar between meals and while you sleep. It should be taken at the same time every day.

Glargine (Lantus, Basaglar, Semglee, Toujeo), Degludec (Tresiba)

**Premixed:** This is a combination of fast and intermediate acting insulin. It is taken twice daily, usually 15 minutes before breakfast and 15 minutes before dinner.



## Inhaled insulin

There is an insulin that is inhaled rather than injected called Afrezza (human insulin inhalation powder). It is a fast-acting insulin, generally used at mealtime to prevent increased blood sugar after eating. It can be used by people with type 1 and type 2 diabetes.

Inhaled insulin is not for people who have lung disease such as COPD, emphysema and asthma or people who smoke or recently stopped smoking. A lung volume test called FEV1, which measures the maximal amount of air you can forcefully exhale in one second, must be done prior to starting inhaled insulin and periodically while taking it. An inhaler is used to breathe in the insulin powder through your mouth.

Inhaled insulin comes in fixed doses so it cannot be adjusted as easily as injected insulin. Side effects of Afrezza are hypoglycemia, just like with other insulins, and cough. Inhaled insulin is covered by most insurances. It may be a good option for those who have a significant fear of needles, however, it does not replace long-acting insulin.



### Currently available insulins

Insulin Therapy Name	Administration	Onset, Peak	Duration	Considerations
<b>Fast Acting</b>				
<b>Lispro</b> Humalog (U100 & U200)  <b>Aspart</b> Novolog, Fiasp  <b>Glulisine</b> Apidra	Usually given 2-4 times per day  <b>To be given No more than 15 minutes before meal</b>	Onset 5 – 15 minutes  Peaks 30-90 minutes after injection	Less than 5 hours	Usually taken before eating  Can be used in insulin pumps
<b>Short Acting</b>				
<b>Regular</b> Humulin R Novolin R	Usually given 2 times per day No more than 30 minutes before meals	Onset 30-60 minutes  Peaks 2-3 hour after injection	5-8 hours	When mixing, draw up Regular insulin first
<b>Combination Effect</b>				
<b>Mix of NPH &amp; Humalog or Novolog</b> 70/30, 50/50, 75/25  <b>Mix of NPH &amp; Regular</b> 50/50, 70/30  <b>Mix of Degludec &amp; Aspart</b> Ryzodeg Mix 70/30	Usually given 2 times per day day   Usually given 1-2 times per day	5-15 minute onset Dual Peaks   30-60 minute onset Dual Peaks	10-16 hours   24 hours	Numbers in name give percentage of insulin (70% NPH, etc.)  Cloudy appearance  Give before meals
<b>Intermediate Acting</b>				
<b>NPH</b> Humulin N Novolin N	Usually given 1-2 times/day	2-4 hour onset 4-10 hour peak	10-16 hr	Cloudy appearance  When mixing, draw up Regular then NPH
<b>Long acting insulin</b>				
<b>Glargine</b> Lantus, Basaglar, Semglee, Toujeo (U300)  <b>Degludec</b> Tresiba (U100 & U200)	Given 1-2 times/day	Onset 2-4 hours No Peak   Onset ~1 hour No Peak	20-24 hours   Up to 42 hours	Monitor for low blood sugar at any time  <b>DO NOT mix with other insulin</b>
<b>Humulin R Unit-500</b>				
Concentrated insulin	Given 2-3 times per day  To be given no more than 30 minutes before meal	Onset 15 minutes Peak 6 hours	13-24 hours	For patients that need more than 200 units of insulin per day

### How to inject insulin

Insulin comes in vials (glass bottles) or in prefilled insulin pens. Insulin syringes are used to draw insulin from a vial. The syringe is a tube that has a needle on one end and a plunger on the other. The needle is pushed through the rubber stopper on the insulin bottle after cleaning the stopper with an alcohol swab. The plunger is pulled back to draw the right amount of insulin into the tube part of the syringe.

Insulin pens are prefilled with insulin. They look like writing pens with a cap. A needle, called a pen needle, is placed on the end of the pen before each insulin dose. Be sure to remove BOTH caps from the pen needle. The amount of insulin is chosen by turning a dial. Not all insulin types come in pens. Pens may be more expensive than insulin vials. There are other medications for diabetes that are also injected under the skin, which also come in pens, but they are not insulin (*Victoza*, *Bydureon*, *Ozempic*, *Trulicity*, *Mounjaro*).

You and your doctor will decide whether an insulin pen or vial and syringe are best for you. Always read the label on the insulin vial or insulin pen to be sure you have the correct type of insulin.

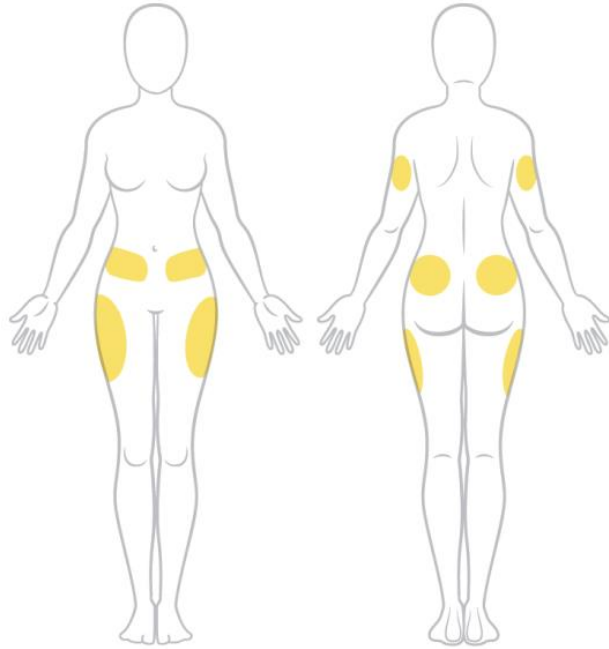
### Where to inject insulin

Insulin can be injected into your:

1. Abdomen (belly) except for a 2-inch circle around your belly button.
2. Outer side of thighs
3. Backs of upper arms
4. Lower back/upper buttocks

You will need to rotate where you inject your insulin to make sure your insulin absorbs and works well. Injecting insulin in the same spot every time can cause scars or hard lumps to form under the skin and the insulin will not absorb into this tissue.

Where you inject insulin can make a difference in how quickly the insulin is absorbed from under the skin into the blood. For example, injecting insulin into your thigh when you have been exercising your legs may cause the insulin to be absorbed more quickly.



### Side effects of insulin

**Hypoglycemia** (low blood sugar) is a side effect of insulin. Hypoglycemia is a blood sugar less than 70 mg/dl.

Hypoglycemia can occur when you missed a meal or did not eat enough carbohydrate, increased activity, or took too much insulin or too much of certain diabetes medications.

Signs and symptoms of hypoglycemia are shakiness, sweating, dizziness, unusual hunger, confusion, or changes in behavior, feeling weak or tired, headaches, or feeling nervous or upset. You may have several of these signs and symptoms. If the low blood sugar is not treated, you may pass out.

(see section on hypoglycemia for how to treat low blood sugar).

### Storing insulin and other diabetes Injectables

- Follow the instructions that come with the insulin or injectable product.
- Keep new, unopened boxes or pens in the refrigerator but not where they might freeze.
- Do not freeze insulin or other diabetes injectables. If accidentally frozen, throw the insulin or other injectable out because it is no longer usable.
- Insulin may be stored at room temperature after it has been used for the first time. Check the instructions to be sure.
- Keep insulin out of bright light or sunlight.
- Do not store insulin or other diabetes injectables in the car or other places that get hot.

- Do not use insulin or other diabetes injectables after the expiration date on the label.
- Once insulin and other diabetes injectables have been opened, it is good for a shorter length of time than the expiration date. Check the medication package insert to see when a vial or pen will expire after it is used for the first time.
- Do not use insulin that has changed colors or has flakes or clumps floating in it.
- Do not use your insulin if it is normally clear but has become cloudy.

### How to dispose of needles, syringes, and lancets

Needles, syringes with needles and lancets are called sharps. Loose sharps should not be thrown away in the trash. In Ohio, sharps should be placed in a hard, leak proof container. When the container is 2/3 full, tape the lid to the container and write "SHARPS" on all the sides of the container. The container may be placed in the trash.

You can also buy containers that are made to hold sharps. For more information about disposal of sharps, contact your local health department.

## Oral medications (pills) for type 2 diabetes

In recent years, eight new classes of medications for people with type 2 diabetes have been approved by the Food and Drug Administration (FDA). Most of these medications are pills and they work in different ways to lower blood sugar.

### Biguanides

*Reduces production and release of sugar from the liver*

**Metformin** (Glucophage, Glucophage XR, Glumetza, Fortamet): This medicine is given to lower blood sugar in type 2 diabetics. Metformin may help with weight problems because it helps the body respond to and use insulin better.

It can cause nausea or diarrhea in some people, but the nausea and diarrhea usually go away soon after starting the medicine. Taking metformin with food helps, so take it with meals. It is usually given two or three times daily.

Some people cannot take metformin because their kidneys do not work well or because they have heart failure. Taking metformin when you are in heart failure can cause a serious medical problem called lactic acidosis. Lactic acidosis is when lactic acid builds up in the blood faster than it can be removed. Lactic acid is produced when oxygen levels in the body are low.

### Insulin secretagogues

*Stimulates insulin release*

**Meglitinides:** Take these medications 1 to 30 minutes before meals to manage your blood sugar. **Repaglinide** (Prandin), **Nateglinide** (Starlix)

**Sulfonylureas:** These are taken 1 or 2 times daily, 30 minutes before meals. If you are allergic to sulfa, you usually cannot take a sulfonylurea. **Glipizide** (Glucotrol, Glucotrol XL), **Glyburide** (Diabeta, Micronase), **Glyburide micronized** (Glynase), **Glimepiride** (Amaryl)

Both meglitinides and sulfonylureas can cause low blood sugar if not balanced with carbohydrate intake and exercise. They may also cause weight gain.

### Thiazolidinediones (glitazones)

*Helps your body respond better to insulin*

Periodic liver blood tests are needed when taking these medications. They may cause or worsen heart failure. Notify your doctor if you gain weight or notice swelling in your legs, ankles, feet, arms, hands, or belly. They can be taken with or without food and may increase the risk of bladder cancer and bone fracture.

**Rosglitazone** (Avandia), **Pioglitazone** (Actos)

### Alpha-glucosidase inhibitors

*Work in your stomach and bowels to slow down the digestion of carbohydrate and absorption of blood sugar.*

They can cause abdominal pain, gas, and diarrhea. Take with the first bite of food at each meal. **Acarbose** (Precose), **Miglitol** (Glyset)

### SGLT-2 inhibitors

*Increases the amount of blood sugar leaving the body through the urine*

Taken once daily. These medicines may lower your blood pressure because they act as water pills (diuretics). If you are on a water pill already, the dose of your water pill may need to be reduced. Have your kidney function tested before starting this medication. These medicines may cause modest weight loss due to their diuretic effects. They can cause urinary tract infections or yeast infections and they have caused diabetic ketoacidosis even though blood sugar is 250 mg/dl and less. These medications have been shown to reduce major adverse cardiac events and slow the progression of kidney disease caused by diabetes. Must stop taking 3-4 days before planned surgeries.

**Canagliflozin** (Invokana), **Dapagliflozin** (Farxiga), **Empagliflozin** (Jardiance), **Ertugliflozin** (Steglatro)



### DPP-4 inhibitors

*Increases the release of insulin and decreases the release of blood sugar from the liver*

Taken once daily. Tell your doctor if you have abdominal pain (pain in your belly), nausea and/or vomiting. **Sitagliptin** (Januvia), **Saxagliptin** (Onglyza), **Linagliptin** (Tradjenta), **Alogliptin** (Nesina)

### Combinations

Sometimes two diabetes medications are combined into a single pill.

These combination medications work like both medicines in the pill and reduce the number of medications needed. They can be costly and may not be covered by insurance. If you are prescribed a combination pill, discuss how it works with your doctor or pharmacist.

## Non-insulin Injectable Medications

### Synthetic amylin

*Slows the movement of food from the stomach to the intestine and tells the liver to decrease blood sugar output*

Take right before a big meal. It is used with insulin for the treatment of type 1 and type 2 diabetes. **Pramlintide** (Symlin)

### Incretin mimetics (GLP-1)

*Causes your pancreas to release insulin at the correct time when blood sugar is rising so your body will use it better.*

Incretin is a natural hormone made in your digestive tract. Incretin mimetics act like (mimic) the incretins in your body that lower blood sugar after eating. They may cause nausea and vomiting, which usually resolves soon after the medication is started. Tell your doctor if you have abdominal pain (pain in your belly), nausea and/or vomiting. They can cause some modest to significant weight loss. These medicines are approved for treatment of type 2 diabetes and should be avoided if you have a personal or family history of pancreatitis or medullary thyroid cancer. Notify your doctor if you have hoarseness or a throat lump. These medications are stopped 1 week before planned surgeries. This group of drugs has been shown to reduce major adverse cardiac events.

**Exenatide** (Byetta): twice daily with meal

**Liraglutide** (Victoza): once daily

**Exenatide XR** (Bydureon), **Dulaglutide**

(Trulicity), **Semaglutide** (Ozempic),

**Tirzepatide** (Mounjaro): once weekly

## Insulin pumps

Insulin pumps are small, computerized devices that deliver insulin in two ways:

- In a steady, measured, or adjustable, continuous dose (the “basal” insulin)
- As a surge (“bolus”) dose, at your direction, around mealtime

Doses are delivered through a flexible plastic tube called a cannula. With the aid of a small needle, the cannula is inserted through the skin into the fatty tissue. The needle is removed, leaving the cannula taped in place.

The newest pumps work with a continuous glucose monitor (CGM). But insulin pumps are not an artificial pancreas because you still must enter the amount of carbohydrate before you eat into the pump so the pump can calculate a mealtime insulin dose. Many people prefer this continuous insulin delivery system over injections because they can achieve better blood sugar targets more consistently.

Ask your primary care provider if you are interested in an insulin pump. You may need to be seen by an endocrinologist—someone who specializes in diabetes. Check with your insurance carrier to see if insulin pumps are covered under your policy.

All insulin pumps have a toll-free number on the back in case you have questions or problems with your pump.

*Note: It is a good idea to carry extra insulin pump supplies with you, especially if you will be in the hospital.*



## Medication used to correct low blood sugar

### Glucagon

This medicine is available in a kit, in a pen, or as a nasal spray for a low blood sugar emergency. Symptoms of a low blood sugar emergency are unconsciousness (cannot wake the person), person is awake but unable to swallow safely, the person is having a seizure, or the person's blood sugar is still less than 70 even after eating or drinking food containing sugar. It is important to act quickly when someone with diabetes becomes unconscious or will not wake up.

Glucagon is injected into the muscle or sprayed into the nostril. A family member or friend should know where you keep your glucagon and how to give an injection into the muscle or use the nasal spray. Read the directions that come with the glucagon with your friend or family member. That way, they will be prepared if a low blood sugar emergency happens.

If a person with diabetes is unable to be woken up, turn them on their side. They may vomit when they wake up so turning them on their side will stop them from choking. Feed them as soon as they wake up if they can swallow safely.



Try small sips of fruit juice or a regular soft drink. Follow with a snack of a carbohydrate and a fat, such as peanut butter crackers. Call 911 even if the person wakes up.

Glucagon will not revive someone who is unconscious because of high blood sugar.

Check the expiration date on your glucagon and ask your doctor for a new prescription if your kit has expired.

*(See section on hypoglycemia.)*

## Medications that can affect your blood sugar

Some medications used for other conditions, such as high blood pressure, COPD or depression, can affect your blood sugar. Some over-the-counter medicines can affect your blood sugar and alcohol, caffeine and nicotine can also affect your blood sugar.

Following are lists of some of the medications that might cause your blood sugar to increase or decrease. Do not stop taking prescription medications or change the dose without talking to your doctor. Always let your doctor know what over-the-counter medications, vitamins and supplements you take.

## Substances or Medications that increase blood sugar

- Alcohol (acute use—social drinking)
- Antibiotics (Dapsone, Rifampin)
- Antidepressants (Zyprexa, risperdal, Clozaril, Seroquel, Abilify, Geodon, lithium)
- Beta-2 stimulators (Proventil, Alupent, Serevent, Foradil, Brethine, Theo-Dur)
- Caffeine
- Corticosteroids (Prednisone, Decadron, DepoMedrol)
- Dilantin (phenytoin)
- Nicotine (smoking and patches)
- Estrogens (Premarin, hormone replacement therapy)
- Heart and blood pressure medications (amiodarone, beta blockers, calcium channel blockers, catapres, diuretics)
- Oral contraceptives (birth control pills)
- Niacin or nicotinic acid
- Protease inhibitors (ritonavir, etc.— AIDS drugs)
- Thyroid hormones (Synthroid, Levothroid)

## Medicines that decrease blood sugar

- Alcohol (acute excess amounts)
- Antibiotics (Bactrim/Septra)
- Aspirin and other salicylates in larger doses
- Heart and blood pressure medications (ACE inhibitors, beta blockers, Norpace, Quinidine)
- Quinine
- Tylenol (acetaminophen—especially in larger doses)

## What to expect when you are having a medical procedure

If your procedure or surgery is elective or scheduled ahead of time, there are some things you can do to help manage your diabetes before, during and after the surgery.

- Take good care of yourself during the time before surgery. Eat healthy, exercise if permitted, stop smoking and drinking alcohol, or reduce the amount you smoke and drink. Take all medications as prescribed.
- Be sure the surgeon or doctor performing the surgery or procedure knows what type of diabetes you have and what medicine and/or insulins you take for diabetes.
- Be sure to bring an updated list of your medications to the appointment. Doses are important. If you use a sliding scale to determine your insulin dose, bring the written scale with you.
- Follow the instructions provided by your surgeon or the doctor prior to your procedure, especially when to stop eating and drinking.
- Follow the instructions provided by your surgeon or doctor performing your procedure about which diabetes medications to take the night before surgery and the morning of surgery.
- Diabetes medications are often not taken the morning of surgery or a procedure because they can cause low blood sugar if you do not eat. Insulin doses may be adjusted depending on what time of day the procedure is scheduled and how long you will not be allowed to eat.
- If the surgeon or doctor has not given you instructions about which diabetes medications to take, call the doctor who prescribes your diabetes medications for guidance. Do not wait until the day before surgery to call the doctor.
- People with type 1 diabetes should always take their long-acting insulin or keep their pump on.

- If you use an insulin pump, call your endocrinologist or the doctor who manages the pump. He/she will develop a plan for adjusting the settings in your pump in preparation for your procedure.
- Even if you are told to not take your diabetes medications or insulin, continue to check your blood sugar as prescribed and monitor for symptoms of low or high blood sugar.
- If you are going home the same day after the procedure or surgery, bring your diabetes medications and/or insulin with you to take afterwards.
- Metformin or Glucophage should not be taken for 48 hours after IV contrast is given. IV contrast is used during CT scans, MRIs, and angiograms.

### If you will be admitted to the hospital after the procedure or surgery:

- Your nurses will check your blood sugar frequently and your doctors will adjust your insulin based on your blood sugar.
- If you use an insulin pump, keep it on. If you are staying overnight in the hospital, bring extra infusion sets, reservoirs, insulin, and batteries or charging cord for the pump. If your pump needs to be stopped for any reason, make sure you are given insulin injections.
- If you are staying in the hospital, your diabetes will likely be treated with insulin while in the hospital, even if you use pills at home. Using insulin allows for more immediate management of your blood sugar.
- Many diabetes medications can cause low blood sugars if you are not eating like usual.
- If you use insulin at home, you may need to use more or less insulin than usual after surgery for a short time due to stress on the body and changes in diet.

## Treatment of diabetes in the hospital

While you are in the hospital, your doctor will likely order insulin injections to keep your blood sugar in the target range. It is important to have your blood sugar between 110 and 180. If your blood sugar is too high, you will not heal as well.

To make sure your blood sugar is well managed, your blood sugar will be checked before every meal and at bedtime.

Diabetes medications are usually stopped while you are in the hospital due to changes in your appetite and/or mealtimes due to tests and procedures.

Instead of medications, insulin is often used to manage blood sugar in the hospital. How much and type of insulin depends on your blood sugar, diet and how much diabetes medication you take at home.

## Meals

Please do not eat your meal until after your blood sugar is checked by the nursing staff.

Please do not let your family or friends eat food from your meal tray. Also, please let us know if you have eaten food that was brought to you by your family or friends. The nursing staff will need to know the amount of food you've eaten for your insulin dose.

## Low blood sugar

Let the nurse know if you feel shaky, dizzy, or sweaty. This can be a sign of low blood sugar. The nurse will check your blood sugar and give you juice or milk if it is less than 70. If you are not allowed to eat, you may be given dextrose (sugar solution) through your IV.

## When you go home

Your doctor will decide if you need insulin or other medications for your blood sugar when you go home and you may need to check your blood sugar at home. The nurse will teach you about your medications and/or insulin and how to check your blood sugar as well as make sure you have the right supplies before you are discharged.





## High blood sugar—hyperglycemia

High blood sugar may occur within hours, or it may develop over several days. You may have one or all the following symptoms if your blood sugar is more than 180 mg/dL:

- Extreme thirst
- Fatigue/sleepiness
- Increased urination
- Grouchiness
- Pain in stomach with or without nausea and vomiting

### Causes of high blood sugar

- Eating too much food or eating foods that don't work well for your blood sugar
- Not enough diabetes medication and/or insulin
- Illness or infection
- Not enough exercise (do not exercise if there are ketones in your urine)
- Stress

### What to do to prevent hyperglycemia

- Always take your diabetes medicine and/or insulin unless your doctor tells you not to.
- Check your blood sugar every four to six hours.
- If you take insulin, test your urine for ketones. Call your doctor if moderate to large amounts of ketones are present.
- If your blood sugar is greater than 240, drink 8 ounces of sugar-free liquid every 1 to 2 hours.
- Call your doctor if you are vomiting and unable to eat or drink. Remember to call your doctor if your blood sugar stays above the target you've been given for 24 hours.

## Low blood sugar—hypoglycemia

Low blood sugar (less than 70 mg/dL) usually occurs quickly and may require treatment assistance. Symptoms include:

- Sweating
- Shaking
- Fast and/or pounding heartbeat
- Hunger
- Irritability/confusion
- Loss of consciousness

### Causes of low blood sugar

- Too much insulin and/or diabetes medicine
- Not enough food or going too long between meals
- Too much exercise or extra physical activity

### Treating hyperglycemia

Try to check your blood sugar. If you are too shaky, eat or drink 15 grams of a fast-acting carbohydrate such as:

- 4 ounces of juice (orange, apple, cranberry or grape)
- 6 ounces (1/2 can) of a regular soda
- 8 ounces of skim milk
- 4 glucose tablets
- 8 SweeTarts® candies
- 2 tablespoons of raisins

Check blood sugar in 15 minutes. If your blood sugar is not back into your target range, repeat eating 15 grams of fast-acting carbohydrate and rechecking your blood sugar every 15 minutes until your blood sugar is 80 mg/dL or higher. If your next meal is more than 2 hours away, eat a snack such as half a sandwich or three peanut butter crackers after your blood sugar has improved. If you are unconscious, someone should call 911 immediately and administer glucagon to you. You should not be given anything by mouth if you are unconscious. Be sure to tell your doctor about all hypoglycemia events in case your medication and/or insulin needs adjusted.

## Sick day plan

Illness or injury can make managing your diabetes more difficult. When you are sick, your body is in a state of stress and produces 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 diabetes 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 illnesses can make managing my blood sugar harder?

Just about any type of illness can make managing your blood sugar difficult, including:

- Colds, flu and other viruses
- Stomach bugs that cause vomiting and diarrhea
- Infections of the ear, sinuses, throat, teeth, or bladder
- Pneumonia
- Infected sores including those on the feet

### Sick day tips

- Always take your long-acting insulin unless your doctor has advised you not to.
- You may need more insulin when you are sick. Your doctor will decide how much you will need or if you should continue your diabetes medications.
- If you are taking an insulin secretagogue medication such as glyburide, glipizide, glimepiride, repaglinide or nateglinide and are unable to keep food down, call your doctor to see if you should take it while sick.
- If you are taking a SGLT2 inhibitor such as canagliflozin (Invokana), dapagliflozin (Farxiga), empagliflozin (Jardiance) or ertugliflozin (Steglatro) call your doctor to see if you should take it while sick.
- Check your blood sugar every 2 to 4 hours.
- People with type 1 diabetes should check their urine for ketones if their blood sugar is greater than 240 mg/dL or if they have been vomiting or experiencing diarrhea.
- Create a Sick Day Plan with your doctor specific to you to be prepared for when you are sick.

### When should I call the doctor?

- You have been sick for 24 hours or more
- Your temperature is greater than 101.5 degrees
- You have been throwing up or experiencing diarrhea for more than 6 hours
- There are moderate to large amounts of ketones in your urine
- Your blood sugar is greater than 240 mg/dL for 2 checks in a row or less than 70 mg/dL.
- You have symptoms of infection such as pain with urination or wounds with drainage.
- You are dehydrated
- You have chest pain or abdominal pain
- You have difficulty breathing
- You have any questions or are unsure what you should do



## MEDICATION

- Continue to take insulin and oral glycemic medications as scheduled
- Over-the-counter medications taken during sick days should consult with diabetes care team



## GLUCOMETER

- Check blood sugar every 2-4 hours
- Record in a diabetes diary log
- Consult with diabetes care team if greater than 240 mg/dl for >6 hours



## CARBOHYDRATES

- Take 15 grams of carbs every hour until able to replace with normal food
- Consider 50 grams of carbs every 3-4 hours including: crackers, gelatin dessert, yogurt, soup



## KETONES

- Blood sugar over 240mg/dl or during sick days, check your urine for ketones
- Check ketones every 4 hours until readings are negative
- If ketones are present, consult with diabetes care team



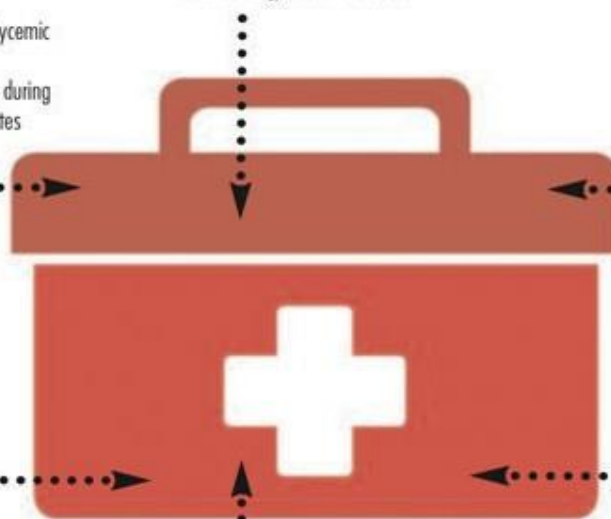
## HYDRATE

- Drink at least one glass of fluid every hour
- Avoid caffeine and high sugar drinks



## PHONE

- Consult diabetes care team:
  - Fever >101.5
  - Illness lasts more than 24 hours
  - Unable to hold fluids and food
  - Additional concerns regarding care





### What should I eat and drink while I am sick?

When you are sick, you may not be able to eat as you normally do because you are nauseated and vomiting or because you don't feel like eating. You might not have the energy to go shopping or prepare food. You will likely be less active than you normally are when you don't feel well.

- Drink at least 8 ounces of sugar-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 carbohydrate (3 carbohydrate servings) every 3 to 4 hours. Even if your blood sugar is high, it is important to continue taking in carbohydrate.
- If you are vomiting, eat foods that are easy on the stomach such as toast, crackers, broth, and soups. Include fluids that have calories such as fruit juice, regular caffeine free-soda, gelatin, and popsicles.

### What things do I need to have on hand to be prepared for a sick day?

- Foods that are easy to digest such as applesauce, crackers, gelatin and soup
- Liquids that provide calories such as juices, regular caffeine-free soda, reduced-sugar sports drinks, regular gelatin and popsicles
- Liquids that are calorie-free such as water, diet soda, sugar-free gelatin, and herbal teas
- Thermometer
- Diabetes medications and/or insulin
- Glucose meter, glucose strips and supplies for checking your blood sugar
- Ketone strips (especially if you have Type 1 diabetes)
- List of emergency telephone numbers. If you live alone, it is important that you let a friend know that you are sick.
- Over-the-counter medicines such as Tylenol (acetaminophen) for fever and pain, Lomotil (loperamide) for diarrhea, and sugar-free cough drops and syrups for cough and sore throat. You should discuss the use of over-the-counter medicines with your doctor before using them as some medications can increase your blood sugar.

### Should I exercise when I am sick?

You should not exercise when you are sick. Exercise during illness can increase your blood sugar and ketones.





Diabetes action plan

GREEN ZONE: All Clear

If you have any of the following:

- Most fasting blood sugars are less than 130 mg/dL
- Average blood sugars 2 hours after meals are less than 180 mg/dL
- No low blood sugars less than 70 mg/dL
- HbA1c is less than 7%

Then:

- Your blood sugars are in the target range
- Continue taking your diabetes medications and doing home blood sugar monitoring
- Follow healthy eating habits and activity goals
- See your doctor/diabetes educator every 3 to 6 months unless directed to be seen more often

YELLOW ZONE: Caution

If you have any of the following:

- Most fasting blood sugars are between 130 mg/dL and 180 mg/dL
- Average blood sugars 2 hours after meals are between 180 mg/dL and 240 mg/dL
- Low blood sugars 1 to 2 times a week are less than 70 mg/dL
- HbA1c is above 7%

Then:

- Improve your eating habits
- Increase your activity level
- You may need a medication adjustment
- If your blood sugars are not better in 1 week, call your doctor, diabetes educator or home health nurse

RED ZONE: Medical Alert

If you have any of the following:

- Most fasting blood sugars are greater than 180 mg/dL
- Average blood sugars 2 hours after meals are greater than 240 mg/dL
- Frequent low blood sugar
- Moderate to large amounts of ketones in the urine (type 1 only)
- Use of glucagon kit
- HbA1c is above 8%

Then:

- You need to be seen by your healthcare provider.
- **Call your doctor.**

Note: You may need to be seen by your doctor monthly for follow-up to get your blood sugar back into target.

Contact information for home care, family doctor or endocrinologist

Name:\_\_\_\_\_

Name:\_\_\_\_\_

Phone:\_\_\_\_\_

Phone:\_\_\_\_\_



## Problem-solving

Managing your blood sugar is hard work. People are busy and have a lot of responsibilities. Eating a healthy diet, exercising regularly, taking medication, and monitoring your blood sugar all take time and effort. Having a routine and being prepared for unexpected roadblocks can make managing your blood sugar easier.

The key to meeting the challenge of managing your blood sugar is to be prepared and learn from your mistakes. Keep a log of your blood sugar levels, your diet and your activity. Looking at a record of these three things can help you see what is working and what is not working. Forgive yourself for mistakes. Join a support group to learn from others who have faced the same problems.

**Problem:** *There are so many things I need to manage my blood sugar.*

### Solution:

- Keep your blood sugar meter and supplies, insulin and syringes, or insulin pens and needles in a safe place together.
- Store unopened insulin in the refrigerator.
- Buy or make a pouch or case to keep your supplies together when away from home.
- Keep all medications and needles away from children.

**Problem:** *Eating right is hard, especially when time is tight.*

### Solution:

- Plan meals and snacks ahead of time.
- Consider creating a menu for several days into the future.
- Make a grocery list with all the needed ingredients on it.
- Prepare several meals at a time and freeze to eat later.

- Pack leftovers for lunches at work to avoid missing a meal or grabbing whatever is available. Bring a snack to work in case your blood sugar goes low.

**Problem:** *Eating right when I am away from home is even harder.*

### Solution:

- Carry food with you so that you have healthy options, even if you are delayed on the road.
- Download an app on your phone to help you keep track of carbohydrate when eating at popular restaurants.

**Problem:** *What about eating on holidays and special occasions?*

### Solution:

- Decide ahead of time what one holiday treat you cannot skip and have a small portion.
- Bring a dish to the party that you can enjoy and share.
- Experiment with holiday recipes to reduce sugar and fat.
- If well-meaning family urges you to eat too much, politely explain that you are eating for your health.

**Problem:** *What about emergencies?*

### Solution:

- When the weather forecast is bad, make a trip to the store so that you have healthy food at home.
- Have some foods on hand that do not need to be in the refrigerator in case there is a power outage.
- Keep some hard candy or glucose tablets in your purse or pocket, in your glove compartment and next to your bed so if your blood sugar is low, a source of carbohydrate is handy.

**Problem:** *Finding time to exercise is hard.*

**Solution:**

- Pick activities that you enjoy so you will make time.
- Have both indoor and outdoor choices so bad weather doesn't prevent you from exercising.
- Find an exercise buddy. You can encourage each other on the days one of you doesn't feel like exercising.
- Exercise while watching a favorite show. Take a 10-minute walk on your lunch break.
- When traveling, use exercise apps or use the hotel pool or gym, or take walks.
- Exercise can be broken down into smaller time periods. Being active is better than sitting still.

**Problem:** *No matter what I do, my blood sugars are too high or too low or both.*

**Solution:**

- Keeping a log of your blood sugars, exercise and food will help you and your doctor figure out what may be the cause of high or low blood sugars.
- Ask for expert help. Take your log to appointments with your doctor and diabetes educator. They may be able to spot the reason your blood sugar has been out of the target range.

## Diabetes care checklist

### Vaccination recommendations

Vaccines are very important for people with type 1 or type 2 diabetes. People with diabetes are more likely to get the flu and other infections than people without diabetes. Diabetes can make the immune system less able to fight infections while the infection makes blood sugar management more difficult.

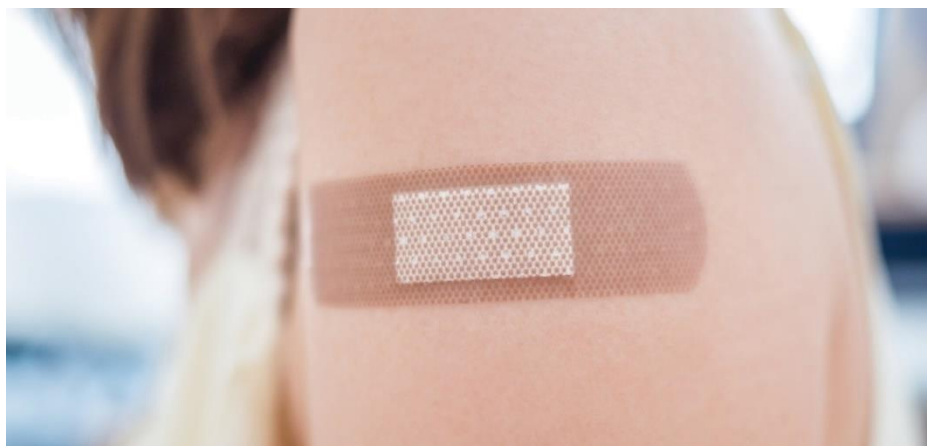
When people with diabetes get sick, they are at risk for pneumonia, bronchitis, sinus infections and ear infections. The good news is the immune system of a person with diabetes responds to vaccinations just as well as the immune system of a person without diabetes.

People with diabetes should take everyday precautions including avoiding sick contacts. Those with flu-like symptoms should stay home for 24 hours after the fever is gone (without the use of fever-reducing drugs). Covering nose and mouth when sneezing and coughing with a tissue; not touching eyes, nose, and mouth; washing hands often; and cleaning surfaces such as keyboards and phones between users are all recommended as everyday preventive actions.

People with diabetes should have a sick day plan and supplies on hand to implement the plan. *(See section on sick day plans.)*

### CDC vaccine recommendations for people with diabetes

- ☐ Flu vaccine every year
- ☐ Covid 19 vaccine
- ☐ Tdap vaccine to protect against tetanus, diphtheria and whooping cough
- ☐ Pneumococcal vaccine to protect against pneumonia and similar illnesses. People over age 65 may need a second dose.
- ☐ Hepatitis B vaccine series to protect against hepatitis B
- ☐ Zoster vaccine to protect against shingles if you are 60 years and older
- ☐ HPV vaccine to protect against human papillomavirus if you are a man or woman younger than 45
- ☐ MMR vaccine to protect against measles, mumps, and rubella if you were born in 1957 or after and have not received this vaccine or do not have immunity to these diseases. Your doctor may do a blood test to see if you have immunity.
- ☐ Varicella vaccine to protect against chickenpox if you were born in 1980 or after and have not received two doses of this vaccine or do not have immunity to this disease. Your doctor may do a blood test to see if you have immunity.



### 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 hands or feet or may affect organs such as your digestive tract
- 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 a heart attack or stroke
- Blockages in the blood vessels in the legs, which can lead to slow healing sores on the legs and feet that could result in amputation

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

- ☐ **Quit smoking:** decide on a quit date and reward yourself for small victories. For free help, call 1 800 QUIT NOW or visit [smokefree.gov](http://smokefree.gov).

My quit date: \_\_\_\_\_

- ☐ **A1C:** at least 2 to 4 times per year  
Goal A1C: 6% to 8% for most people

My A1C: \_\_\_\_\_

- ☐ **Kidney exam:** every year. Have your urine and blood tested to monitor kidneys

Date of next kidney exam: \_\_\_\_\_

- ☐ **Blood pressure:** check at every medical visit. Goal blood pressure: 130/80-140/90 mmHg depending on risk for heart disease

My blood pressure: \_\_\_\_\_

- ☐ **Cholesterol check:** at least once every year
- Goal HDL (good) cholesterol: men greater than 40 mg/dL, women greater than 50 mg/dL
  - Goal LDL (bad) cholesterol: based on your 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 next eye complete 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 shoes and socks off during every office visit.

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.

Date of next complete foot exam: \_\_\_\_\_

- ☐ **Dental exam:** at least yearly. Let your dentist know if you have bad breath 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, change in bite; change in fit of partial dentures; or history of mouth or gum abscesses.

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

Date of next dental exam: \_\_\_\_\_

*It is recommended that you wear a medical ID bracelet and/or carry an ID card indicating that you have diabetes.*

## Coping

People with diabetes are more likely to have depression than people without diabetes. This may be due to:

- The strain of managing diabetes daily
- Feeling alone and “different” from family and friends
- Feeling out of control if you are having trouble keeping your blood sugar in your target range.

Depression can make it hard to follow your diabetes care plan. If you are depressed, you may not have the energy to:

- Prepare and eat healthy meals
- Get regular exercise
- Take diabetes medications
- Check your blood sugar

Tell your health care team if you:

- Don’t have interest or find pleasure in your activities
- Avoid talking about your diabetes with family and friends
- Sleep most of the day or can’t sleep at night
- Struggle with finding motivation or making a plan to manage your diabetes
- Don’t see the benefit in taking care of yourself
- Feel like diabetes is controlling you
- Feel like you can’t take care of yourself

Diabetes is also linked to stress. Stress can increase your blood sugar making you more likely to overeat. The increased blood sugar levels themselves can increase stress.

Choose healthy ways to cope with depression and stress while living with diabetes such as:

- Physical activity
- Breathing exercises/relaxation
- Make small, reachable goals and celebrate when you achieve them
- Replace negative, defeating thoughts with positive, more realistic ones
- Ensure healthy sleep patterns
- Get help from your diabetes care team
- Go outside
- Help others/volunteer/make social contacts
- Consider joining a diabetes support group





## Smartphone apps for diabetes management

1. **Bant** – Log blood sugar readings and provide trend data for up to 90 days (iPhone)
2. **Blood Sugar Tracker** – Log blood sugar levels, set target blood sugar ranges, and view history and simple graphs to identify numbers that are out of range
3. **Diabetes Companion** – Complete nutrition facts for common foods, tons of recipes, videos, Q&A for common diabetes-related issues and blood sugar tracking tools (iPhone)
4. **Diabetes Log** – Track blood sugar readings, carbohydrate intake and insulin dosage by date (iPhone)
5. **Glucose Buddy** – Enter blood sugar results, carbohydrate intake, insulin dosage and activity (iPhone and Android)
6. **Carb Master Free** – Track carbohydrate intake plus calories, fat, sugar, protein, and fiber for the day (iPhone)
7. **Glucose Buddy Diabetes Tracker** – Track factors that influence blood sugar levels such as daily carb intake, glucose measures, medication, and food and water intake (iPhone)

## Free general nutrition information/ healthy living apps

1. **CalorieKing** – Calorie, fat and carbohydrate counts for 70,000+ foods with an up-to-date list that includes 260 fast-food chains and restaurants (iPhone and Android)
2. **GoMeals** – Large list of restaurant foods and grocery store items; has customized settings for counting daily calories, carbohydrate, fat, and other nutrients (iPhone and Android)
3. **MyFitnessPal** – Allows user to set a daily calorie goal and record daily food intake and exercise. Has a very large food database. Calculates calories burned by exercise (iPhone and Android)
4. **Lose It!** – Can be used as a weight-loss tool; helps with keeping track of food intake and exercise (iPhone and Android)
5. **ShopWell** – Can help you build a healthy grocery list, create a profile with health, nutrition, and weight goals, as well as scan barcodes of more than 60,000 foods (iPhone and Android)
6. **Cook'n** – Allows you to create, edit and view recipes. Helps organize, search, and email your favorite recipes and allows you to make a cookbook and do grocery lists and menus (iPhone and Android)

**YOUR BLOOD SUGAR LOG – WEEK OF** \_\_\_\_/\_\_\_\_/\_\_\_\_ to \_\_\_\_/\_\_\_\_/\_\_\_\_  
My target blood sugar ranges: \_\_\_\_ mg/dL to \_\_\_\_ mg/dL to \_\_\_\_ mg/dL

	BLOOD SUGAR AT BREAKFAST		FOOD/CARB	MEDICATION/ DOSE		BLOOD SUGAR AT LUNCH		FOOD/CARB	MEDICATION/ DOSE		BLOOD SUGAR AT DINNER		FOOD/CARB	MEDICATION/ DOSE		BLOOD SUGAR BEFORE BEDTIME	
	Pre-meal	Post-meal		Pre-meal	Post-meal	Pre-meal	Post-meal		Pre-meal	Post-meal	Pre-meal	Post-meal					
M																	
	COMMENTS																
T																	
	COMMENTS																
W																	
	COMMENTS																
TH																	
	COMMENTS																
F																	
	COMMENTS																
SA																	
	COMMENTS																
SU																	
	COMMENTS																



	BLOOD SUGAR AT BREAKFAST		FOOD/CARB	MEDICATION/ DOSE	BLOOD SUGAR AT LUNCH		FOOD/CARB	MEDICATION/ DOSE	BLOOD SUGAR AT DINNER		FOOD/CARB	MEDICATION/ DOSE	BLOOD SUGAR BEFORE BEDTIME
	Pre-meal	Post-meal			Pre-meal	Post-meal			Pre-meal	Post-meal			
<b>M</b>													
	COMMENTS												
<b>T</b>													
	COMMENTS												
<b>W</b>													
	COMMENTS												
<b>TH</b>													
	COMMENTS												
<b>F</b>													
	COMMENTS												
<b>SA</b>													
	COMMENTS												
<b>SU</b>													
	COMMENTS												

## Glossary

**Blood glucose or blood sugar** – The amount of sugar called glucose in the blood. Normal blood sugar is between 70 and 180 mg/dL.

**Carbohydrate** – Food group consisting of starchy and sugary foods, both naturally sweet foods, such as fruit, and foods to which sugar has been added. Starch and sugar are changed to glucose in the digestive tract. 15 grams of carbohydrate equals one carbohydrate serving.

**Cholesterol** – A waxy, fat-like substance used by the body to build cell walls. If too much is present, it can build up and block arteries.

**Continuous glucose monitors (CGM)**- a plastic sensor attached to your skin that continuously monitors your blood sugar (glucose) level every 5 minutes. A receiver or an app downloaded to smart device or is connected to the sensor to transmit the blood sugar data to you as well as alerts or alarms when blood sugar is too high or too low.

**Diabetes** – A chronic health condition that affects how your body turns food into energy.

**Diabetic ketoacidosis (DKA)** – A health emergency in which the body does not have enough insulin and cannot break down blood sugar. Without enough insulin, your body begins to break down fat as fuel. This process produces a buildup of acids in the bloodstream called ketones.

**Endocrinologist** – A doctor who specializes in diabetes and how hormones work in the body.

**Fasting blood sugar** – A blood sugar that is checked after you have not eaten for at least eight hours.

**Glucagon** – A hormone that quickly raises blood glucose levels.

**Glucose** – A simple sugar needed by the body for energy. Carbohydrate is digested into glucose.

**Glucose meter** – A machine that shows the amount of sugar in the blood using a small drop of blood on test strip read by the glucose meter.

**Glucose tablets**- A source of rapid acting carbohydrate used to increase blood sugar when it is too low. Each chewable tablet contains 4 grams of carbohydrate (check bottle). For a blood sugar of less than 70 mg/dL, chew up 4 tablets at a time. Can be bought in a grocery and drug stores without a prescription.

**Hemoglobin A1C** – A blood test that shows the average blood sugar level for the past 2 to 3 months.

**Hormone** – A chemical produced in the body that acts as a signal for another part of the body to produce a particular response.

**Hyperglycemia** – A condition in which there is too much glucose in the blood. Usually defined as a blood sugar level greater than 180 mg/dL.

**Hyperosmolar Hyperglycemic Syndrome (HHS)**  
A health emergency most often seen in older adults in which lack of insulin results in high blood sugar levels. HHS is usually brought on by something else, such as an illness or infection. If HHS continues, the loss of too much body fluid through frequent urinating, sweating, diarrhea, and/or vomiting may lead to seizures or coma.

**Hypoglycemia** – Blood sugar that is lower than the target range. Usually defined as a blood sugar less than 70 mg/dL.

**Hypoglycemia unawareness** – When a person with diabetes does not have symptoms of low blood sugar even though his blood sugar is less than 70 mg/dL.

**Impaired fasting glucose** – The condition in which a blood sugar obtained at least 8 hours after the last time you ate is high (100 to 126 mg/dL) but lower than the blood sugar level used to diagnose diabetes.

**Impaired glucose tolerance** – The condition in which a blood sugar obtained two hours after drinking a sweet liquid during an oral glucose tolerance test is high (140 to 199 mg/dL) but lower than the blood sugar level used to diagnose diabetes.

**Insulin** – A hormone produced by the pancreas that helps your body's cells use glucose.

**Insulin resistance** – Various cells in the body resist responding to insulin resulting in high blood sugar. It is one of the causes of high blood sugar in type 2 diabetes and gestational diabetes.

**Ketones** – Produced when the body burns fat for energy or fuel and when there is not enough insulin to help your body use blood sugar for energy. Without enough insulin, glucose builds up in the blood. Because the body is unable to use glucose for energy, it breaks down fat instead.

**Lactic acidosis** – A condition in which acid builds up in the blood stream because the tissues are not getting enough oxygen.

**Lancet** – A device that uses a tiny needle to poke the skin for a drop of blood.

**Oral glucose tolerance test** – A series of blood sugar checks taken before and after drinking a glucose containing liquid. This test is most often used to diagnose gestational diabetes.

**Pancreas** – An organ located behind the stomach that produces insulin and other hormones and digestive enzymes.

**Postprandial blood sugar** – A blood sugar measured after you eat.

**Preprandial blood sugar** – A blood sugar measured before you eat.

**Protein** – Food group consisting of meats, poultry, fish, eggs, and nuts.

**Random blood sugar** – A blood sugar that is checked regardless of when you last ate.

**Triglycerides** – Building blocks of fats.





*Thank you to all who helped develop this manual,  
especially the TriHealth diabetes resource nurses,  
endocrinologists, certified diabetes educators and  
Patient/Family Advisory Council.*

**TriHealth.com**

© 2017 TriHealth, Inc. All rights reserved.