



*Self-Care Skills  
for people with Diabetes*

# Balancing Life with Diabetes



**VA**



U.S. Department of Veterans Affairs  
Veterans Health Administration

## Introduction

This handbook is designed to help you and your family start on your way to better health with diabetes.

Living with diabetes is a journey. You decide what you want to do and when you are going to do it.

Read this handbook and then choose what you want to do next.

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## What is Diabetes?

Our bodies use blood glucose (often called blood sugar) for energy. Most of the glucose we need comes from the food we eat. Once the food is digested, sugar is absorbed into the blood stream. Insulin, a hormone made by the pancreas, is needed to move the sugar from our bloodstream into our cells. Without insulin, the sugar stays in your blood and the cells don't get the energy they need.

When you don't have diabetes, your body releases the right amount of insulin at the right times so sugar is used as fuel or is stored away for later use. This keeps the amount of sugar in your blood at a steady, healthy level. Prediabetes is a condition where your blood sugar levels are above normal and you are at risk for developing diabetes.

When you have diabetes, your body either doesn't make enough insulin, the insulin it makes isn't used very well, or both. This can cause your blood glucose to become too high. So, although diabetes is often thought of as a 'sugar problem' it is really an 'insulin problem.'

When you have diabetes:

- Your body has trouble using sugar.
  - ✧ Your pancreas might not release enough insulin when you need it.
  - ✧ Your body may resist the insulin made by your pancreas (known as insulin resistance).
- Sugar builds up in your blood when it is not balanced with insulin levels. Some sugar may 'spill' into your urine, making it smell sweet.
- Your cells don't get the sugar they need to work. You may have symptoms of high blood sugar (also called hyperglycemia).
  - ✧ Your body may also form ketones. High levels of ketones in the blood can make you very sick. Learn more about sick day management on page 45.

Take your diabetes seriously. You may have heard people say that they have "a touch of diabetes" or that their sugar is "a little high." These words suggest that diabetes is not a serious disease. That is not correct. Diabetes is serious, but you can learn to manage it. It's not always easy, but it's worth the effort.

## What Kind of Diabetes Do I Have?

There are three main kinds of diabetes.

- Type 1 diabetes is usually diagnosed in children or young adults, but you can get it at any age. In type 1, your body treats the cells that make insulin like invaders and destroys them. This can happen over a few weeks, months, or years. We don't know why this happens. When enough of these cells are gone, your pancreas makes little or no insulin and blood glucose becomes dangerously high. Treatment for type 1 diabetes always includes taking insulin.
- Type 2 diabetes is the most common form of diabetes. You can develop type 2 diabetes at any age, even during childhood. In type 2, your body does not use insulin properly. This is called insulin resistance. At first, the pancreas produces extra insulin to make up for it, but over time your pancreas is not able to keep up with your body's needs and it makes less and less insulin. Options for treating type 2 include weight management, healthy food, and regular exercise to reduce insulin resistance. Other treatments may include oral medications (pills) and insulin.
- Gestational diabetes is a form of diabetes that pregnant women may get at the end of their pregnancy. Most of the time, it goes away after the baby is born. But even if it goes away, these women have a greater chance of developing diabetes later in life. Gestational diabetes is caused by the hormones of pregnancy or a shortage of insulin.





## How Did I Get Diabetes?

You may never know why you got diabetes. You may be at higher risk because of smoking, sleep apnea, or past food choices. You may have been exposed to chemicals or certain medications that made getting diabetes more likely.

You might have chronic stress or illness that increases your blood sugar. You might have a disease of the pancreas, where insulin is made.

### Risk Factors for Type 2 Diabetes

- ☐ I am older than 45.
- ☐ I have a family history of type 2 diabetes.
- ☐ I am overweight.
- ☐ I exercise less than three times per week.
- ☐ I am a woman who had gestational diabetes.
- ☐ I have high blood pressure or high triglycerides.
- ☐ I have low HDL ('good') cholesterol.
- ☐ I belong to one of the following racial or ethnic groups: African American, Hispanic/Latino, American Indian, Asian American, Pacific Islander.

Diabetes is not just about what you eat. There are a lot of things that doctors don't understand about what causes diabetes. No matter how you got it, you can treat it and control it.

## **Why Do I Need to Manage my Diabetes?**

You will be less tired, have sharper vision, and a happier mindset. You will heal faster and have fewer skin or bladder infections. It might surprise you to know how much your high blood sugar has been affecting you.

People don't die from diabetes – they die from complications of diabetes. However, research has shown that by taking care of your diabetes, you can prevent or delay serious health problems.

## **What Will I Need to Do?**

The two goals of diabetes management are to make sure you feel well day-to-day and to prevent or delay long-term health problems. The best way to reach those goals is by:

- Planning your meals – choosing what, how much, and when to eat.
- Being physically active
- Taking medications as instructed if your doctor prescribes them.

There are a lot of things that you can do to live better with diabetes. No one is perfect at everything all the time and most people cannot change a lot of their life habits at the same time. We suggest you pick one thing to work on first.

These are six areas where you can focus to make big differences in your diabetes and they are outlined in the sections of this booklet:

- ➞ Blood sugar
- ➞ Being Active
- ➞ Healthy Eating
- ➞ Medications
- ➞ Living Well with Diabetes
- ➞ Sick Day Management



# Blood Sugar



Your blood sugar goes up and down all the time, changing every minute of the day. Your blood sugar levels can be positively or negatively affected by the foods you eat or the amount of exercise you do. Fortunately, there is a blood test that shows you and your provider what your average sugar has been.

## Hemoglobin A1C

Your health care team orders a Hemoglobin A1C test (also called A1C) one to four times per year. This test shows your average blood sugar for the previous three months and may be referred to as your estimated average glucose, or eAG. The A1C result provides a bigger picture of how your diabetes treatment is working. The A1C also indicates your level of risk for diabetes complications. Ask your health care team or diabetes educator about your A1C.

A result of 7% or less usually means that your diabetes treatment is working well and your blood sugar is under control.

If your A1C is over 8%, your blood sugar may be too high.

As your A1C score increases, so does your level of risk for complications.




If your A1C is:	Your average blood sugar over the previous 3 months is:
6	126
7	154
8	183
9	212
10	240
11	269
12	298
13	326
14	348
15	355
16	412
17	441

## Goals for Daily Blood Sugar Patterns

Target blood sugar goals are individualized and should reflect your plan of care. You need to check your blood sugar when you need information to make decisions about your self-management.

Ask your health care team for help in picking what the best blood sugar goal range is for you. For most people, general recommendations are for 'safe' blood sugars that correlate with an A1C of 7.0% or less.

**These are the daily blood sugar ranges for A1C that is less than 7%**

	People <u>Without</u> Diabetes	People WITH Diabetes
	Goal (mg/dl)	Goal (mg/dl)
 <b>Fasting</b> Nothing to eat for at least 6 hours <b>and Before Meals</b> Pre-prandial	70 to 100	80 to 130
<b>After Meals</b> Post-prandial 2 to 3 hours after eating a meal	Less than 140	Less than 180 And no more than 50 points higher than the pre-meal reading 
<b>Before Bedtime</b>	80 to 120	110 to 150
<b>HbA1C</b>	Less than 6%	 Less than 7%

*ADA Guidelines*

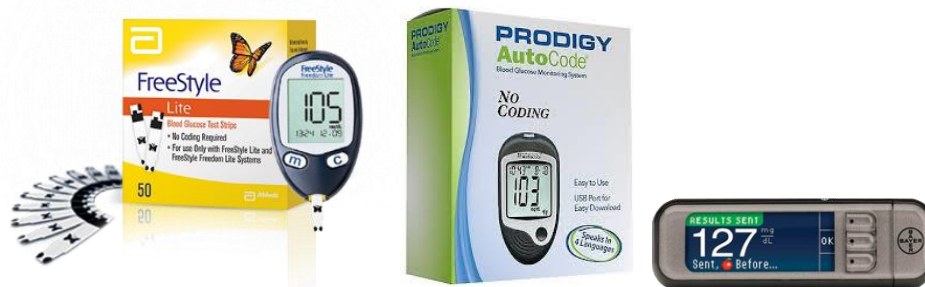
Sometimes, no matter how hard you try your blood sugar will not always be in your target range. There are bumps in the road, temptations you can't resist, and illnesses for which you cannot plan. Blood sugar that is too high or too low can make you very sick so it is important to know what to do if this happens.

## Tools for Checking Your Blood Sugar

You will be taught how to use your glucometer (meter) to test your blood sugar level to find out how much sugar is in your blood – this is called self-monitoring. Your provider will recommend which type of meter you should use.

Traditional ‘fingerstick’ meters tell you your blood sugar level at a specific moment in time. Continuous glucose monitoring (CGM) devices use a tiny sensor that is inserted below your skin (for about a week at a time) and it transmits data to a wireless receiver that displays your current blood sugar level and graphs of your recent blood sugar patterns.

Each meter comes with a detailed instruction book. If you are having any problems with your meter or need help, you can call the toll-free customer service number that is located on the meter or contact your primary care team or diabetes educator for assistance with other replacement options.



## How to Check Your Blood Sugar

Follow these steps for use of your ‘fingerstick’ meter:

1. Wash your hands with soap and water. Make sure fingers are clean and dry.
2. Place a test strip in your meter.
3. Get your lancing device ready to use with a new lancet.
4. To reduce pain, use the lancing device to prick the sides or pads of your fingertips, not the actual *finger-tip*. Rotate test sites between all fingers of both hands. If you have a tough time getting blood, place your hand under warm water for several seconds, ‘milk’ the finger after pricking it, or let your arm hang down for about 30 seconds.
5. Apply the blood to your test strip.
6. Your meter will display your blood sugar reading.

Make sure your meter is programmed and coded properly (if appropriate). Store your test strips at room temperature, in their vial, and don’t use them after their expiration date.

## When to Check Your Blood Sugar

Your body's response to diabetes is unique. Things that change *your* blood sugar may not make a difference to other people with diabetes. Self-monitoring your blood sugar helps you understand how foods, physical activity, and medicine affect your sugar levels. Your healthcare provider can help you determine how often you should routinely check your blood sugar.

Always check whenever you are feeling different or have a sudden change in how you are feeling. Monitoring is the only way to verify if your blood sugar level is too high or too low.

Here are other times when you may want to check your blood sugar:

- Fasting blood sugars to see your baseline for the day. You should do this on most days.
- Before and after a meal to find out how your body reacts to different foods and serving sizes. Generally, you should do this 2 hours after your first bite of food. Remember that foods affect blood sugar differently in each person.
- Before, during, and after new activities and exercise. Some diabetes medicines can cause low blood sugars with exercise, but this should not stop you from exercising. Instead, plan for possible symptoms of low blood sugar if they occur.
- At set times of the day to make sure your medicine is working or to determine the effectiveness of changes that have been made to your medication regimen. If you are on insulin, you will need to check more often.
- When you are sick.
- Before driving a vehicle or using heavy equipment.
- Before every meal if you have been told to take Sliding Scale Insulin doses, so you know how much your insulin dose should be.

## High Blood Sugar

High blood sugar is also called hyperglycemia. This occurs when the level of glucose in your blood is higher than it should be and there is an imbalance between things that raise your blood sugar and the things that lower your blood sugar.

For most people, sugar levels that stay higher than 140 mg/dL (before meals) are too high. Your blood sugar can go over 200 mg/dL for a brief time, but if it stays higher than that for days to months then serious problems can develop. If your blood sugar has been very high, it may take at least 3-4 days to return to normal.

High blood sugar can happen because of too much food or carbohydrates, sugary drinks, or not enough activity. Your blood sugar can also be affected by taking the wrong medicine or wrong dose, emotional stress, and illness or infection. Hyperglycemia may develop over several days. You may have a medical emergency if very high blood sugar is not treated.



## Symptoms of High Blood Sugar

Common symptoms include:

- Extra thirst & dry mouth
- Blurry vision
- Going to the bathroom more often than usual
- Headache
- Feeling tired &/or moody

More extreme symptoms include:

- Confusion
- Abdominal pain
- Extreme fatigue (lethargy)

## How Do I Treat High Blood Sugar?

Think about what could have caused your sugar to go up. Look closely at how you feel and what you have been doing. If you think you know of something, write it down on your blood sugar log.

- Drink plenty of water or sugar-free fluids to prevent dehydration.
- Take your diabetes medicine as prescribed. Do not stop taking your diabetes medicine without talking to your provider first.
- Increase activity as tolerated. In general, it is acceptable to exercise when your blood sugar is less than 250mg/dL. Walking or light aerobic activity may be permitted when blood sugar is higher than 250mg/dL (if OK with your provider).
- Test your blood sugar every 4 hours until readings return to goal range or are less than 200mg/dL.

- If you have Type 1 diabetes, check urine for ketones every 4 hours until your blood sugar is less than 250mg/dL, or as directed by your team. If ketone test results are moderate or high, contact your provider.

## Low Blood Sugar

Low blood sugar is also called hypoglycemia. Symptoms can start at different numbers or be induced by rapidly falling blood sugar. Sensitivity ranges for low blood sugar symptoms vary from person to person and for people with diabetes, this range can shift over time depending on how well controlled your diabetes is.

For most people, blood sugar that is lower than 70 mg/dL can cause symptoms to occur. Low blood sugars are dangerous and need a quick response. You could lose consciousness if you do not respond to early signs of hypoglycemia.

Common causes of hypoglycemia are not eating enough, being more active than normal, or taking a dose of insulin or other diabetes medicine that is too high. Causes can also include drinking alcohol on an empty stomach, sun exposure, high elevation, or humidity.

## Symptoms of Low Blood Sugar

Common symptoms include:

- Shaking or trembling
- Sweating
- Rapid or pounding heartbeat
- Anxiety
- Tiredness
- Dizziness
- Hunger
- Irritability
- Weakness
- Blurred vision
- Headache

Moderate symptoms include:

- Difficulty moving
- Confusion
- Slurred speech

Severe symptoms include:

- Combativeness
- Fainting
- Unconsciousness & Coma
- Seizure





## How Do I Treat Low Blood Sugar?

When you are having symptoms of low blood sugar, it is a good idea to check your blood sugar if you can, but waiting to treat low blood sugar is not safe. You may be in danger of passing out. If you get confused, pass out, or have a seizure, you need emergency help. Don't try to drive yourself to get help.

If you are not able to check your blood sugar, then go ahead and treat the symptoms if they occur. Follow the 15-15 Rule: Check-Treat-Repeat.

### **Check your blood sugar.**

**Treat low blood sugar** by eating or drinking 15 grams of fast-acting carbohydrate. Options for this include:

- 1 tablespoon of sugar or honey
- ½ cup (4 oz.) of juice
- 2 tablespoons of raisins
- 3 to 4 glucose tablets
- 1 tube of glucose gel (your health care provider can prescribe this for you)
- 6 to 7 lifesaver candies

**Repeat treatment** if your blood sugar reading is still less than 70 mg/dL when you recheck it 15 minutes later, or if you are still experiencing symptoms. Do not overtreat hypoglycemia by eating too many carbohydrates. Once you feel better, eat a small snack if your next regular meal is more than 60 minutes away.

If you are unable to swallow anything safely or if you are unconscious, your caregiver should not try to put anything in your mouth. They should give you an injection from a Glucagon injection kit or call 9-1-1 for help. Paramedics may give you a shot of glucagon to raise your blood sugar immediately. Talk to your provider if you need a glucagon injection kit at home.

Always carry a source of fast acting carbohydrate. Wear a diabetes alert bracelet or necklace and carry a card in your wallet or purse. For repeated episodes of low blood sugars, contact your health care team.

## Record Keeping

Blood sugar values by themselves may reveal when you are in and out of your goal range, but they don't tell you why. There is always a context or story behind each reading. When you record your blood sugars and look at them together, you may notice a pattern and uncover reasons for out-of-range readings.

Logging behaviors and circumstances associated with sugar levels can be helpful to understand why you may deviate from your usual patterns. If a pattern is identified, it can help you and your team to see what needs to be changed to improve your care.

You can keep track of blood sugars in these ways:

- Record the numbers in a log or on a calendar
- Bring your meter to your clinic visits. Your provider can review your results with you.
- A variety of software programs and smart-phone apps can be used for a more modern approach.

Review the blood sugar values at each phase of the day separately: pre-breakfast, post-breakfast, pre-lunch, etc. If you notice that multiple values are out of your target range, review potential solutions with your healthcare providers.

Blood sugar logs can help you and your provider to:

- Know if your current treatment plan is effective
- Make informed decisions about how to adjust medication types and doses
- Learn how different foods and activities affect your blood sugar
- Let you see successes and find new areas to improve

A blood sugar log is provided on page 53. There are enough spaces in the log to record multiple blood sugar values each day, depending on the time of day that you are checking your blood sugars.

Recommendations for how often people should routinely monitor blood sugar varies from person to person. Frequency of monitoring depends on how well controlled your diabetes is, how stable your daily blood sugar patterns are, and how often you are willing to check your blood sugar. Talk to your provider about how often you should monitor your blood sugar.



## Being Active



Exercise is any physical activity that you add to your daily routine. Engaging in regular activity improves blood sugar by helping your insulin to work better. Modest weight loss of 5-10% from your initial body weight has been shown to produce lower fasting blood sugars, A1C levels, and can slow complications of diabetes. Exercise is good for your heart and lungs, lowers your blood pressure and cholesterol, and it gives you more energy. Everyone can be more active.

All activity that moves your muscles can lower your blood sugar. Walking, bowling, swimming, dancing, yoga, riding a bicycle, doing household chores and yardwork are all good ways to increase your daily level of activity. You can also add activity as you run errands, such as walking around the store when shopping, or parking your car farther away from building entrances.

Your brain can't form habits around actions you don't do, so make sure your goals are things you enjoy doing. You should take small steps now to create long-term changes in your lifestyle. Set active goals, such as going to a yoga class twice per week. Hang out with people to who have the habits you want. Stay positive and learn from missteps, rather than letting them get you off track.

## How Much Should I Do?

Try to exercise almost every day. If you haven't been very active lately, start slowly. Pick an activity that you enjoy doing and set realistic goals on your personal calendar to exercise at your own pace.

Increase your daily level of activity by at least 30 minutes per day to improve blood sugar control. The extra activity can be divided into 10-minute sessions throughout your day. You can gradually add more time and activities as your tolerance level improves.

## Move Toward Weight Loss

Structured exercise programs lead to greater reductions in A1C than general physical activity. Talk to your provider about assistance from an exercise physiologist so you can develop an individualized exercise plan.

Members of the MOVE! Program benefit from support that they give each other for successful weight loss efforts. Sustainable weight loss is not an overnight quick fix, it involves changing your lifestyle. The key is to make small daily changes and be patient with the process.

**Calories Burned in 10 minutes**

<u>Light Activity</u>	Male	Female
Cleaning, sweeping	26-38	21-30
Tai Chi	35-50	28-40

Moderate Activity

Bicycling (at <10 mph)	46-66	28-40
Step Aerobics	64-91	51-73
Mowing the Lawn	64-91	51-73
Raking Leaves	44-63	35-50
Walking (at 4 mph)	58-83	46-66
Bowling	44-63	35-50
Golf (walking & pulling clubs)	61-88	49-70
Slow Lap-Swimming	63-90	54-72
Elliptical Machine	126-180	100-144
Rowing Machine	98-140	78-112

Intense Activity

Jogging (9 min/mile)	149-213	119-170
Basketball	75-108	60-86

\* for Men 175-250 lbs. & Women 140-200 lbs.

**6 Tips to Lose Weight**

- ✓ Calorie reduction is the mainstay for weight loss. Reduce calorie intake by at least 500-750 kcal per day.
- ✓ Increase daily level of activity by at least 60 minutes per day.
- ✓ All adults should have **moderate** aerobic activity for at least 150 minutes per week and resistance exercise twice per week.
- ✓ Avoid long periods of inactivity during the day. Move more often, at least every 90 minutes throughout the day.
- ✓ Keep a record of your food intake & daily activity. It's easy to overestimate your intake.
- ✓ Set realistic goals for planned weight loss & allow yourself 6 months to reach that target.

**Your goal is at least 150 minutes of exercise per week**

## Action Steps for Exercise

- See your healthcare team before starting an exercise program. Before you begin exercising, talk to your doctor about the right exercise for you. You should not lift weights if you have a diabetes-related eye condition or high blood pressure. You may need to have your heart or feet checked to be sure you have no special restrictions; if so, then your provider can help you find alternative exercises that are safe for you.
- Be careful and listen to your body! Warm up before heavy exercise. If something hurts, then slow down or stop the activity until you feel better.
- Wear comfortable clothes and appropriate shoes and socks. Check your feet before and after exercising.
- Check your blood sugar. Do this before, during, and after exercising until you know what your blood sugar will do. If your blood sugar is less than 110 mg/dL before exercising, then eat a snack first.
- Carry a fast-acting carb. Glucose tablets or candy that does not contain chocolate, caramel, cream or nuts. This is particularly important if you are taking insulin or another medicine that increases your insulin production.
- Don't exercise on an empty stomach. To prevent low blood sugar levels, exercise 1 to 3 hours after a regular meal. In general, it is acceptable to exercise when fasting blood sugar levels are between 100 to 250 mg/dL.
- Drink plenty of water. Aim for 8 glasses of water every day, unless your doctor has told you to limit your fluid intake.
- Wear or carry a diabetes identification item. You can get a medical-alert bracelet or necklace from your health care team. Carry a diabetes care card in your wallet. If your blood sugar gets so low that you cannot speak, the emergency medical technicians will know to give you some sugar right away. Carry a cell phone too.

## When to Avoid Exercise

- Avoid intense activity when your fasting blood sugar is over 250 mg/dL. Walking or light aerobic activities may be permitted when fasting glucose is outside the range of 100-250 mg/dL (if OK by your provider).
- Do NOT exercise when you know that ketones are in your urine, when your blood sugar is below 70 mg/dL, or if you are having symptoms of low blood sugar.
- Do NOT exercise right before you go to sleep because this could cause low blood sugar during the night (also called nighttime hypoglycemia).

## Exercise Snacks

Eating a snack before you exercise is called 'carb loading.' Usually 15 to 20 grams of carbs work best but it depends on the intensity and duration of activity. Generally, the body requires 30-50 grams of carb replacement for each hour of high-intensity activity that lasts more than 60 minutes.

Blood sugar can continue to drop 3-4 hours after moderate and intense levels of activity.

If you have low blood sugar after you exercise, you may need to eat an additional 15-gram carb snack when you have finished exercising. If you use insulin, then you may need a snack at the time that insulin levels peak.

Remember to include these carb and calorie numbers in your daily count whenever snacks are eaten.

One snack  
should  
contain  
15-20 grams  
of Carbs

### Exercise Snacks

- 1 package peanut butter crackers (1.4 oz.)
- 1 piece of fresh fruit (4 oz.)
- 1 small box of raisins
- 2 cups raw vegetables with 2 tablespoons of hummus
- ½ peanut butter sandwich
- ¼ cup nut & raisin 'trail' mix
- 2 fig newton squares
- 1 cup of plain Greek yogurt with ¼ cup of fresh fruit
- 1 granola bar or low sugar breakfast bar

## Healthy Eating

Eating healthy foods helps you manage your blood sugar and keep your readings in a safe range. The more you know about food, the easier it will be to make decisions about what, how much, and when to eat. This is not a 'diet.' The goal is to develop healthy habits that you can stick to.

You don't have to stop eating the foods you like to manage your diabetes. A healthy food plan includes a variety of foods. Fruits, vegetables, whole grains, low fat dairy, fish, lean meats, poultry and healthy fats are all needed in certain amounts so your body gets the vitamins and minerals it needs so you feel satisfied. When your body doesn't get what it needs, you feel hungry.

Your body takes energy from three basic nutrients found in the foods you eat: proteins, fats, and carbohydrates. Your body needs these to remain healthy, but the nutrient that has the greatest effect on blood sugar are carbohydrates.

## Recognizing Carbohydrates

Controlling carb intake throughout your day is the first step to improve your blood sugar. The carbs you eat are broken down into sugar (glucose) to give your body energy. Carbs are the primary source of energy used by muscles and glucose is the carb that causes the pancreas to release more insulin. Most carbs are digested within 2 hours after eating, so that is when your blood sugar is likely to be most affected by the food you've eaten.

All carbs are not alike in the degree to which they raise your blood sugar. Carbs come in three forms:

- Sugar. Sugary foods taste sweet. Beverages like regular soda, sports drinks, teas, and coffee all count as carbs when they are sweetened with sugar. A quick way to reduce carbs in your diet is to limit or eliminate sugar-sweetened beverages and 'concentrated sweets.'
- Starch. These foods don't taste as sweet but they turn into glucose as your body digests them.
- Fiber. Foods high in fiber are also known as complex carbs. The fiber content in foods can help offset the effect of carbohydrates. They can be very filling and can prevent large spikes in your blood sugar. Fiber is part of plant foods that cannot be digested. Fiber is found in most fruits, vegetables, and grains.

## Carb Controlled Intake

One carb exchange (also known as a carb choice) is equal to 15 grams of carbohydrate. This means that each of your carb choices with meals and snacks should contain 15 grams of carbohydrate, and serving sizes will vary depending on

the type of food you're choosing. Most people need 3-4 exchanges (45-60 grams) with each meal and 1-2 exchanges (15-30 grams) per snack. Plan meals and snacks so that the carbohydrates you are eating are spaced throughout the day and are eaten in consistent amounts.

## Carb & Calorie Counter

You can use food-carb lists like this one to help you plan meals and snacks.

Grains	Carbs (grams)	Calories
1 slice of whole wheat bread*	15	80
Bakery bagels	60-75	350
1 hamburger/hot dog bun	30	190
1 cup cooked oatmeal*	30	150
¾ cup bran flakes cereal*	24	100
Whole wheat English muffin*	25	140
6” tortilla	20	120
1 taco shell	6	50
1 (4 inch) pancake	10	45
½ cup quinoa*	23	120
1 cup cooked pasta	37	180
½ cup cooked brown rice	22	110
½ cup low fat granola*	49	230
Starchy Vegetables	Carbs (grams)	Calories
½ cup peas*	13	70
1 ear of corn (8” long)	23	94
1 cup winter squash*	20	80
Small baked potato (with skin) *	25	105
½ cup mashed potatoes	20	120
1 medium sweet potato (5” long, skin on) *	23	100
1 kid size French fries	15	110
Non-Starchy Vegetables	Carbs (grams)	Calories
½ cup cooked or 1 cup raw Each are less than 5 grams of carbs & 25 calories		
Cucumbers	Tomatoes	
Romain lettuce	Baby carrots*	
Pea pods	Bell peppers	
mushrooms	Eggplant*	
Onions	Jicama*	

Beans & Nuts	Carbs (grams)	Calories
½ cup kidney beans*	20	110
1 cup black bean soup*	22	130
½ cup baked beans*	20	140
½ cup cooked lentils*	18	110
¼ cup almonds*	5	170
1 Tbsp. peanut butter	4	95
Fruit	Carbs (grams)	Calories
1 cup berries*	20	80
Small apple or pear	20	60
1/2 cup (4 oz.) orange juice	15	56
1 cup cantaloupe	15	60
17 small grapes	17	60
1 large kiwi*	15	70
1 cup mango cubes*	28	100
8 oz. fruit smoothie	27	109
Milk & Dairy	Carbs (grams)	Calories
1 cup skim or 1% milk	12	100
1 cup soymilk	6	110
6 oz. light yogurt	15	100
5.3 oz. nonfat Greek yogurt	7	90
2 Tbsp. sour cream	1	50
Protein	Carbs (grams)	Calories
3 oz. chicken breast	0	120
½ cup low fat tuna salad	3	150
4 oz. grilled salmon	0	190
4 oz. lean hamburger	0	200
1 large egg	0	75
½ cup cottage cheese	5	100

\* Food has 3 or more grams of fiber per serving



## What Does the Food Label Tell Me?

Read nutrition labels. Keep an eye on the labels, not the food claims. Labels tell you how many carbs are in one serving of that food. Focus on the total carbohydrates per serving. This equals the amount of starch, sugar, and fiber that are contained in that product.

Food labels can be found on most food packages. This picture shows an example of a food label and explains how this information can help you make healthy food choices.

### Serving Size

- The nutrition values listed on the label are based on one serving size.
- Always check for the serving size when reading a label.

### Sodium

- Reducing sodium intake can lower blood pressure (BP) and risk for cardiovascular disease and stroke.

### Total Carbohydrates

- Includes total grams of starch, sugar and anything that will become sugar when it is digested.
- This food has 13 grams of carbohydrate per  $\frac{1}{2}$  cup serving.
- Each carb choice has 15 grams of carbohydrate.

### NUTRITION FACTS

Serving Size  $\frac{1}{2}$  cup (114g)

Servings Per Container: 4

#### Amount Per Serving

Calories 90      Calories From Fat 30

% Daily Value\*

Total Fat 3g      5%

Saturated Fat 0g      0%

Trans Fat 0g      \*\*

Cholesterol 0mg      0%

Sodium 300mg      13%

Total Carbohydrate 13g      4%

Dietary Fiber 3g      12%

Sugars 3g

Sugar alcohols 2g

Protein 3g

Vitamin A 80%      Vitamin C 2%

Calcium 4%      Iron 4%

\*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2400mg	2400mg
Total Carbohydrate		300g	375g
Fiber		25g	30g

Calories per gram:

Fat 9      Carbohydrate 4      Protein 4

\*\* Intake of trans fat should be as low as possible.

### Servings per Container

- There are 4 servings in this example.
- Products often contain more than 1 serving in a package.

### Fat

- Low-fat foods have 3g of fat or less for every 100 calories.
- Try to always choose foods that have 5 grams or less of total fat per serving.
- Choose low-fat foods and limit saturated fats and trans fat. Choose foods with 3 grams or less per serving for these types of fats.

### Fiber

- Choose foods with 3 grams or more of fiber.
- High fiber foods can help control blood glucose.
- Whole grains and vegetables contain fiber (aim for 30 - 35 grams daily).

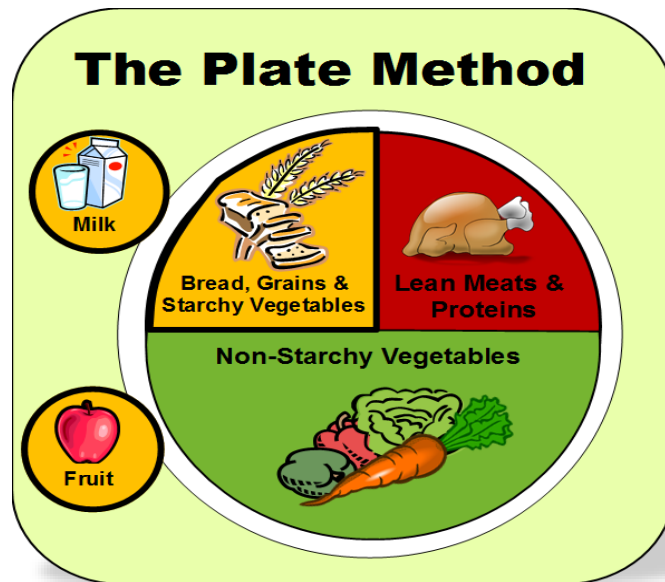
### Sugar Alcohol

- Sugar alcohols are reduced-calorie sweeteners that have fewer carbohydrates.
- They can still raise your glucose and may have undesired side-effects (bloating, diarrhea).

## Portion Control

The second step to improve blood sugar control is to change *how much* you eat.

One of the easiest ways to work on portion control is to follow the plate method. Here's how: fill  $\frac{1}{2}$  of a 9-inch plate with vegetables,  $\frac{1}{4}$  of the plate with lean meats and proteins such as beans, chicken, or turkey. The remaining  $\frac{1}{4}$  of the plate can be filled with foods that are higher in carbohydrates.



Avoid portion pitfalls!

- Make a list of 10 or more activities. Distract yourself with activities that you can do when 'boredom munchies' strike. Drink water instead. Take a 5-minute walk. Keep your hands busy with knitting, cleaning, texting, or online games. Call a friend, meditate, or play with a pet.
- Use smaller plates, bowls, and glassware. Use a measuring cup when fixing your plate until you can recognize what a standard serving looks like.
- Dish up your plate in the kitchen. When you keep serving dishes on the table, you are tempted to take seconds.
- Fill half your plate with colorful vegetables.
- Wait 15-minutes before second helpings or more food after each meal.
- Put your fork down between bites. Chew food to applesauce consistency before swallowing it. Focus on taste and smell.
- Choose 'thin' options for pizza crust, bagels, and buns when possible. Thinner buns allow you to enjoy the flavor of the meat and toppings.
- Use muffin tins to make mini-meatloaves, casseroles, and desserts.
- Ask your server to box up  $\frac{1}{2}$  of your meal ahead of time.



## Meal Planning

Meal planning is the third step to help control blood sugars. Maintaining a consistent schedule for *when* you eat helps keep your blood sugar steady all day. Planning your meals and snacks in advance will help you make better food choices, and snacks are intended to keep you from getting too hungry and overeating at the next meal-time.

Meal planning works better when you are following a routine. One of the easiest ways to plan meals is to fix food at home. When you cook at home, you have control over what you add to your food. Use a meal planning program online or write out a menu for the week. Stick to that menu. A sample 5-day menu is provided on page 26. You can use that as a guide.

Start each day with something to eat for breakfast, to be eaten within 2 hours of waking. Try to eat meals and snacks at the same time each day. Eat the same amount of carbs at meals every day. This makes it easier to adjust your diabetes medicine or insulin to match your food intake. Remember that liquids can contain carbs.

- ✓ **Request sauces on the side.** This helps control portions & reduce calories, fat, and carbs.
- ✓ **Out of sight.** Split entrees & desserts, order half portions, or ask that ½ of your meal be packed in a to-go box before you eat.
- ✓ **Choose items steamed, grilled, baked, or broiled.** These have less fat & fewer calories.
- ✓ **Calorie-free drinks.** Choose water with lemon, unsweet tea, coffee, or diet sodas instead of juice & regular soda. Buy a reusable water bottle, thermos, or ice pack.
- ✓ **Slow down.** Take small bites and chew slowly. Take 20 minutes to eat and stop when you feel full.
- ✓ **Start with small changes.** Try ordering the smallest size of fries or take the top slice of bread off for an open-faced sandwich.
- ✓ **Eat skins on washed produce.** Produce that have color contain antioxidants.
- ✓ **Ask questions.** There is nothing wrong with asking the server how your food will be cooked or what the serving size might be.
- ✓ **Report dietary restrictions.** You can request your food order to be prepared with no added butter or salt

### Supermarket Smarts

- ✓ Fill your cart with colorful fruits and vegetables
- ✓ Shop the outer edges of stores first
- ✓ Look for light yogurt with 'live, active cultures'
- ✓ Shop with a grocery list
- ✓ Choose foods that have a shorter list of ingredients
- ✓ Skip frozen or boxed meals that contain more than 600mg of sodium
- ✓ Buy olive oil or canola oil

Avoid fasting more than 4 to 5 hours during the day. This can cause the liver to release stores of extra sugar into your bloodstream, resulting in spikes in your blood sugar levels – so you shouldn't skip meals. When you go without food for too long, your body may also break down fat cells for energy instead of using sugar. This process produces ketones, which can lead to serious illness. Learn more about ketones on page 47.

Pack lunch/snacks the night before. Stock healthy choices in your kitchen and pre-cut vegetables/fruit snacks and store them in zip-lock bags for quick and easy access.

Avoid foods that have been processed and refined. Generally, less processed foods and foods in their natural states are better for you. Choose foods that are lower in calories, saturated fat, sugar, and salt.

Learn to balance the time you take your diabetes medicine with the time of your meals. Medicines and insulins work better to lower your blood sugar if you take them at about the same time each day.

You can ask your health care provider to refer you to a dietitian or a certified diabetes educator for help with fitting the foods you like into your plan. You can also be scheduled with one of the outpatient classes that are available to help you with self-management.

## Healthier Choices

Choose These	<i>Not These</i>
Whole grain bread, rye bread, or 6" sub	Ciabatta, focaccia, bagels
Turkey breast, chicken breast, low fat tuna salad	Meatballs, steak, pastrami
Veggies & bean based soups	Cream or cheese based soups
Fruit, baked chips	Cookies, fried chips
Egg & English Muffin	Sausage biscuit
Apple slices, fruit cup, extra veggies	French fries, onion rings
Small yogurt cone	Milkshakes, sundaes
Green tea	Sweet tea
Small 'skinny' lattes	Large mochas, cappuccinos
Chicken or shrimp fajitas	Quesadilla, chimichanga, rellenos
Tortilla soup	Chips & nachos
Pizza loaded with veggies	Pepperoni or sausage pizza
Marinara, red sauce, or vinaigrettes	Alfredo, carbonara, or creamy dressings
Mustard, hummus, low-fat dressings	Cheese, bacon, aioli, mayo

## Dietary Sources of Sugar

What can you do if you are cutting back on carbohydrates but like food and drinks that taste sweet? There are a variety of low-calorie sweeteners to choose from. Healthier options include whole grain breads, lean white meats and tuna, fresh fruit or baked chips, English muffin breakfast sandwiches, frozen yogurt, pizza with veggies, and mustard, hummus, and low-fat dressings.

Be aware that plant and herb based sugars will affect your blood sugar and should be limited in your diet. Some of the plant and herb based sweeteners are also used as hidden ingredients in packaged and processed food items.

### Sugar Traps

**Canned Fruits.** Buy varieties packed in water or their own juice. Frozen fruit is a good option too.

**Dried Fruits.** Buy unsweetened varieties and stick to 2 tablespoons per serving.

**Salad Dressings.** Opt for savory choices like Italian instead of sweet ones and read food labels for added sugar.

**Energy & Granola Bars.** Check the Nutrition Facts label for serving size. Some bars are listed as two servings per one package.

**Barbecue Sauces.** Smoky & hot-flavor varieties are better choices. Check the Nutrition Facts label – sugar shouldn't be listed in the first few ingredients.

**Fruit Juice.** Look for labels that state 100% juice and limit serving size to 4-ounces to keep carbs reasonable.

**Flavored Yogurts.** Most fruit-filled yogurts have added sugar and syrups to make them extra sweet. Buy plain yogurt instead and add mix-ins at home.

**Energy drinks and fruit drinks.** Read labels for sugar content.

Seek out non-nutritive sweeteners when you want to add more sweetness to the foods you eat and drink. Some of these can also affect your blood sugar when eaten in large amounts. These sweeteners are often added to packaged and processed foods that are labeled 'sugar-free' or 'no sugar added.'

Stevia is a non-nutritive sweetener that is produced from natural sources. Stevia can be 100 to 300 times sweeter than sugar and contains no carbohydrates, no calories, and no artificial ingredients. However, only products containing 'stevia extract' or 'stevia rebaudiana' have been approved safe to use by the FDA. Stevia leaves and crude stevia extracts should be avoided.

Some sweeteners are listed on the next page.

## Plant & Herb Based Sugars

### **Table Sugar**

There are 5 grams of carbohydrates and 16 calories in each teaspoon.

### **Maple Syrup**

Has ½ the sweetness of table sugar.

Pure, quality maple syrup is a healthier choice than refined sugar and high fructose corn syrup.

### **Agave Nectar**

Is 1 ½ times sweeter than table sugar.

You should limit intake of this to less than 6 teaspoons per day.

### **Fructose**

Is 1 ½ times sweeter than table sugar.

This is fruit & vegetable sugar, sold in the form of syrups or sugar crystals.

### **Honey**

Has the same level of sweetness as table sugar.

This is high in fructose but has many health benefits when used in moderation.

### **Brown Rice Syrup**

Has ½ the sweetness of table sugar.

Can be used as a substitute for honey but is expensive.

You should limit intake of this to 50gm or less per day.

### **Turbinado Sugar**

Has same level of sweetness as table sugar.

Known as 'sugar in the raw.'

Made from sugar cane extract, it undergoes very little processing so it is considered a healthier choice than refined sugar.

## Non-nutritive Sweeteners

### **Sucralose**

Is 600 times sweeter than table sugar.

Brand names include Splenda. Usually available in yellow packets.

Contains 20% of the calories in table sugar.

### **Aspartame**

Is 200 times sweeter than table sugar.

Brand names include NutraSweet & Equal. Usually available in blue packets.

Contains 4 calories per gram.

### **Stevia**

Is about 200 times sweeter than table sugar so a little bit goes a long way.

Products include NuStevia (NuNaturals brand) & Better Stevia (NOW Foods brand).

## Sugar Alcohols

### **Xylitol**

Has the same level of sweetness as table sugar.

Brand names include Polysweet & Xylosweet.

This can have a slight laxative effect.

### **Erythritol & Stevia**

3 times sweeter than table sugar.

Brand names include Truvia.

This may be unsuitable for people with Irritable Bowel Syndrome (IBS).

## Goals for Daily Intake

**Fruit.** Eat 2 to 4 each day. Include apples and pears for a healthy dose of soluble fiber. These add texture, flavors and colors to your day's meals and snacks. Go to a farmer's market to see what looks good.

**Low-carb vegetables.** Eat 4 or more a day. All vegetables are low carb except for corn, potatoes, peas, and beans. Sneak them into recipes or on top of salads. You can use a food diary to see how many vegetables you eat, then if needed, try to add just one vegetable serving a day to your meal plan or try one new vegetable per week.

**Fiber-rich carbs.** Make  $\frac{1}{2}$  your grain intake from whole grain options. The Dietary Guidelines for Americans recommends 48 grams of whole grains a day and at least 25 grams of fiber daily. Look for the whole grain stamp on the food label or the word 'whole' at the top of ingredient lists.

**Lean protein.** Protein helps fill you up, builds muscles, helps your body heal, gives you energy and contains very few carbs, if any.

**Healthy fats.** Avoid harmful trans-fats and saturated fats that are found in fries, margarines, and doughnuts. Eat heart healthy fats like olive oil, nuts, and avocados. Try to eat fatty fish like salmon, tuna, and sardines twice per week for a useful source of omega-fatty acids.

## Weekly Menu & Food Logs

You can use food logs to assess the typical foods you eat for meals and snacks, and how the portion sizes and carb content of those foods are affecting your blood sugar. An example of a weekly menu is provided on the next page. Remember, calorie-free beverages can be an option with meals and snacks.

A five-day sample menu is provided on the next page.

## 5-Day Sample Menu

Breakfast	Lunch	Supper	Snack
<ul style="list-style-type: none"> <li>• 2 scrambled eggs with salsa</li> <li>• 2 slices whole grain toast</li> <li>• ½ cup low sodium tomato juice</li> <li>• 15 grapes</li> <li>• 2 tsp. sugar free jam</li> </ul>	<ul style="list-style-type: none"> <li>• 2 slices whole grain bread</li> <li>• 3 oz. tuna canned in water</li> <li>• 2 slices of tomato, 1 leaf of lettuce &amp; 2 slices of raw onion</li> <li>• 1 tbsp. reduced-fat mayonnaise</li> <li>• 1 peach or apple</li> <li>• 1 cup 1% or non-fat milk</li> </ul>	<ul style="list-style-type: none"> <li>• 3 oz. sliced roast beef</li> <li>• 1 cup roasted potatoes</li> <li>• 1 cup cooked carrots &amp; green beans</li> <li>• 1 cup fresh fruit</li> <li>• 1 tbsp. light margarine</li> </ul>	<ul style="list-style-type: none"> <li>• 6 whole grain crackers</li> <li>• 1 cup celery spears</li> <li>• 1 tbsp. natural peanut butter</li> </ul>
<ul style="list-style-type: none"> <li>• ½ cup old fashioned oats</li> <li>• 1 slice whole grain toast</li> <li>• 1 tbsp. light margarine</li> <li>• 1 small banana</li> <li>• 1 cup 1% or non-fat milk</li> </ul>	<ul style="list-style-type: none"> <li>• chef salad (2 cups assorted vegetables with 3 oz. sliced low sodium ham and turkey)</li> <li>• 2 tbsp. low-fat ranch dressing</li> <li>• 6 whole grain crackers</li> <li>• 1 cup cantaloupe cubes</li> <li>• 1 cup 1% or non-fat milk</li> </ul>	<ul style="list-style-type: none"> <li>• 3-4 oz. grilled salmon</li> <li>• 1 cup brown rice</li> <li>• 1 cup green beans sautéed with 1 tbsp. olive oil</li> <li>• 1 cup fruit salad</li> </ul>	<ul style="list-style-type: none"> <li>• ½ cup low fat Greek yogurt</li> <li>• ½ cup canned pineapples in natural juices</li> </ul>
<ul style="list-style-type: none"> <li>• 1 cup shredded wheat</li> <li>• 1 medium apple, sliced</li> <li>• 1 tbsp. natural peanut butter</li> <li>• 1 cup 1% or non-fat milk</li> </ul>	<ul style="list-style-type: none"> <li>• 3 oz. grilled chicken breast</li> <li>• 1 cup mashed potatoes</li> <li>• 1 cup cooked spinach</li> <li>• 1 tbsp. light margarine or olive oil</li> <li>• 1 cup unsweetened applesauce</li> <li>• 1 cup 1% or non-fat milk</li> </ul>	<ul style="list-style-type: none"> <li>• 1, 4-inch square lasagna (1 cup whole grain lasagna noodles with 1 cup spaghetti meat sauce)</li> <li>• 1 cup Brussels sprouts</li> <li>• 1 cup 1% or non-fat milk</li> </ul>	<ul style="list-style-type: none"> <li>• 1 apple, sliced</li> <li>• 1 oz cheddar cheese</li> </ul>
<ul style="list-style-type: none"> <li>• 2 frozen whole grain waffles</li> <li>• 2 slices Canadian bacon</li> <li>• 2 tbsp. light margarine</li> <li>• 1 tbsps. sugar-free syrup</li> <li>• 1 cup fresh strawberries</li> </ul>	<ul style="list-style-type: none"> <li>• 1 cup low sodium vegetable soup</li> <li>• 2 slices pumpernickel bread</li> <li>• 2 slices Swiss cheese</li> <li>• 2 Tbs light margarine</li> <li>• 1 cup cubed watermelon</li> <li>• 1 cup 1% or non-fat milk</li> </ul>	<ul style="list-style-type: none"> <li>• 3 oz. baked turkey breast</li> <li>• ¾ cup stuffing</li> <li>• ½ cup asparagus spears</li> <li>• 1 cup salad greens</li> <li>• 2 tbsp. vinaigrette dressing</li> <li>• 1 cup 1% or non-fat milk</li> </ul>	<ul style="list-style-type: none"> <li>• 1 cup cauliflower florets, raw</li> <li>• 2 tbsp. low-fat vegetable dip</li> </ul>
<ul style="list-style-type: none"> <li>• 1 whole grain English Muffin</li> <li>• 1 tbsp. natural peanut butter</li> <li>• 1 cup lite Greek yogurt</li> <li>• 1 cup fresh fruit</li> </ul>	<ul style="list-style-type: none"> <li>• 3 oz. lean hamburger</li> <li>• Whole wheat bun</li> <li>• 1 slice cheddar cheese</li> <li>• 2 slices of tomato &amp; 1 leaf of lettuce</li> <li>• 1 Tbs ketchup/mustard</li> <li>• 1 fresh orange</li> </ul>	<ul style="list-style-type: none"> <li>• 3 oz. broiled pork chop</li> <li>• ½ baked sweet potato</li> <li>• 1 cup sliced cooked beets</li> <li>• 1 cup salad w/ vinaigrette dressing</li> <li>• 1 apple</li> <li>• 1 cup 1% or non-fat milk</li> </ul>	<ul style="list-style-type: none"> <li>• 3 cups air-popped popcorn</li> <li>• 1 tbsp. light margarine (for popcorn)</li> <li>• 1 small orange</li> </ul>

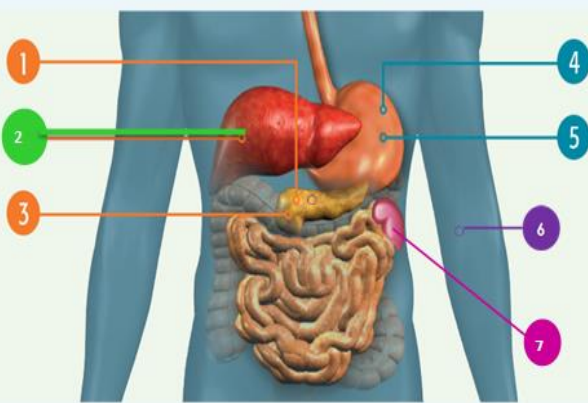


# Medications

Medicines are a tool to help you reach your blood sugar goals if you are unable to control your blood sugar with meal planning and physical activity alone. At some point, your health care provider may prescribe pills, injections, or both, to help you keep your blood sugar well controlled.

Each person with diabetes will have different medical needs. Each person is different in the way they react to food and medicine. The important thing is to know that your choices will determine how your diabetes is managed.

## Oral Medications (Pills)

<p><b>1 Class: Sulfonylureas</b></p> <p><b>Generic Names:</b> Glyburide, Glipizide, Glimepiride</p> <p><b>How it controls glucose:</b> Triggers pancreas to make more insulin</p> <p><b>Side effects:</b> Low blood sugar, weight gain</p> <p><b>Time to take:</b> ½ hour before meals</p>	<p><b>4 Class: DPP-4 Inhibitors</b></p> <p><b>Generic Name:</b> Saxagliptin, Sitagliptin</p> <p><b>How it controls glucose:</b> Slows stomach emptying &amp; triggers the pancreas to make more insulin</p> <p><b>Side effects:</b> Joint pain, swelling, Low blood sugar</p> <p><b>Time to take:</b> Once per day, at the same time each day</p>	
<p><b>2 Class: Biguanides</b></p> <p><b>Generic Name:</b> Metformin</p> <p><b>How it controls glucose:</b> Lowers how much sugar is made by your liver &amp; makes muscle cells more responsive to your body's insulin so it works better</p> <p><b>Side effects:</b> Stomach cramps, diarrhea, nausea</p> <p><b>Time to take:</b> With meals</p>		<p><b>5 Class: Alpha-glucosidase Inhibitors</b></p> <p><b>Generic Name:</b> Acarbose, Miglitol</p> <p><b>How it controls glucose:</b> Slows the digestion of some sugars in the stomach &amp; lowers the absorption of sugars in the intestine so after meal peaks are not as high</p> <p><b>Side effects:</b> Gas, diarrhea, nausea, stomach pain</p> <p><b>Time to take:</b> With meals</p>
<p><b>3 Class: Meglitinides</b></p> <p><b>Generic Name:</b> Repaglinide, Nateglinide</p> <p><b>How it controls glucose:</b> Triggers the pancreas to release more insulin</p> <p><b>Side effects:</b> Low blood sugar</p> <p><b>Time to take:</b> With meals</p>	<p><b>7 Class: SGLT2 Inhibitors</b></p> <p><b>Generic Name:</b> Empagliflozin</p> <p><b>How it controls glucose:</b> Eliminates extra sugar through your urine</p> <p><b>Side effects:</b> Low blood pressure &amp; urinary tract infections</p> <p><b>Time to take:</b> In the morning</p>	<p><b>6 Class: Thiazolidinediones (TZDs)</b></p> <p><b>Generic Name:</b> Pioglitazone, Rosiglitazone</p> <p><b>How it controls glucose:</b> Makes muscle cells more responsive to your body's insulin so it works better</p> <p><b>Side effects:</b> Liver damage, low blood pressure, &amp; swelling of legs, ankles, and feet</p> <p><b>Time to take:</b> With meals</p>

## Non-Insulin Injectable Medications

Insulin is not the only type of injectable medication that is available for treatment of diabetes. There are **two classes** of non-insulin injectable medications. Both deliver doses using a pen delivery system.

1. **GLP-1 receptor agonists** (exenatide, liraglutide, albiglutide)

How it works: Decreases the sugar your liver makes and prompts the pancreas to make more insulin

Side Effects: nausea, vomiting, injection site reactions, weight loss

2. **Amylinomimetic** (pramlintide)

How it works: decreases the amount of sugar released from the liver after meals are eaten



## Insulin

Insulin is a hormone made by the pancreas. Insulin keeps blood sugar levels on target by moving glucose from the blood into your body's cells. You may need insulin if your pancreas does not make enough for you or if you develop insulin resistance.

There are several types of insulin and schedules for injections. All insulins in the U.S. are human insulin (chemically identical to natural insulin release by your pancreas). Insulin cannot be taken as a pill because it would be destroyed by the acids in your stomach. Insulin can be given as an injection using a syringe, a pen-like device, or an insulin pump.



## Insulin Myths

Many people have mistaken beliefs about insulin.

- Being on insulin does not mean you have failed to properly manage your diabetes. Type 2 diabetes is a progressive disease and as time goes on your pancreas may not be able to keep up with the amount of insulin your body needs to function.
- Insulin injections are not painful like other injections can be. The syringe needles are very small and thin, and generally hurt less than the fingerstick used to check your blood sugar.
- Insulin does not mean your life will change. You can still be independent, able to travel, and eat out. Most people notice they feel better when blood sugar levels stay within their goal ranges.

## Types of Insulin

More than 20 types of insulin products are available in 6 basic forms. Common forms used at our VA facility are: Rapid acting, Fast acting, Intermediate acting, Long acting, and Pre-Mixed (fast and long acting insulins mixed together in a single vial). Each of these forms will have a different time of onset (when the insulin starts working), peak strength (when the insulin works the hardest), and duration (how long the insulin lasts in your body).

Choice of insulin should be individualized, based on a discussion between the patient and the provider. Factors to consider are lifestyle, preferences of the patient and provider, and how well controlled the patient's diabetes is.

- Long acting insulins (or basal doses) work for 12 to 24 hours, so these are usually injected 1 to 2 times per day. Long acting insulins mimic the body's normal insulin that is released by the pancreas in low level constant amounts throughout the day because your cells need sugar constantly.
- Faster acting insulins (or bolus doses) are injected as pre-prandial doses (often called before-meal doses) to mimic the body's normal releases of extra insulin whenever there are spikes in your blood sugar, such as after you've eaten a meal. Rapid acting insulin can also be prescribed as 'correction doses.' Sliding scale insulin regimens are an example of this.
- The pre-mixed insulin vials are filled with a premixed ratio of a longer acting insulin and a faster acting insulin. The premixed insulins are injected twice per day. There are also concentrated forms of insulin that provide higher insulin dose amounts with a smaller volume of insulin per injection.

## Commonly Prescribed

Basal Doses		Basal / Bolus Doses		Bolus Doses	
<b>Long Acting</b>	<b>Intermediate Acting</b>	<b>Pre-Mixed</b>	<b>Pre-Mixed</b>	<b>Fast Acting</b>	<b>Rapid Acting</b>
Glargine (Lantus)	Novolin N (NPH)	Novolin 70/30 (NPH + Regular)	Novolog 70/30 (Protamine Aspart + Aspart)	Novolin R (Regular)	Novolog (Aspart)
Onset is 2 hours	Onset is 2 hours	Onset is 30 minutes <u>AND</u> 2 hours	Onset is 15 minutes	Onset is 30 minutes	Onset is 15 minutes
NO peak effect	Peak strength is 4 to 12 hours	Peak strength is 2-4 hours <u>AND</u> 6-10 hours	Peak strength is 3 hours	Peak strength is 2 to 4 hours	Peak strength is 45 to 75 minutes
Lasts 24 hours	Lasts 18 to 24 hours	Lasts 10 to 18 hours	Lasts 10 to 18 hours	Lasts 5 to 8 hours	Lasts 2 to 4 hours
NOTE: Do NOT mix this with other insulins in a single syringe					
Daily Injections 1	Daily Injections 1 or 2	Daily Injections 2	Daily Injections 2	Daily Injections 2 or 3	Daily Injections 3 or 4

**Know the Onset, Peak, & Duration of Insulin To prevent Hypoglycemia!**

Onset, peak, and duration times are approximate for each person and are affected by a person's kidney function, metabolism and activity/exercise level, and the injection site that is chosen.

## Insulin Storage

Storage guidelines for your insulin can be found in the product package insert or can be obtained from your pharmacy. Unopened insulin vials and pens should be kept refrigerated (at a temperature of 36-46°F) to maintain the manufacturer's expiration date.

Extreme heat or cold temperatures can make insulin ineffective. Do not freeze. Keep insulin out of direct sunlight. Do not store insulin in your car. Do not use if your insulin has crystals or clumps floating in it. Aspart and Regular insulins should always appear clear and colorless.

Once insulin is opened, the contents of vials and pens may last up to 28 days after first use, but after this date any insulin remaining will not be guaranteed to be good anymore and should be thrown away in your sharps container. The 'after first use' expiration date will vary between types of insulin and the insulin may remain at room temperature (below 86°F) until this expiration date has been reached. Your health care provider or pharmacist can tell you the specific expiration periods for your insulin. Mark each vial or pen with the date that it expires, when you open them. A reminder app or calendar can be used to remind yourself when to throw it away.

## **Insulin Pumps**

An insulin pump is a medical device used to deliver insulin doses in a way that is known as continuous subcutaneous insulin infusion therapy. A rapid-acting insulin is housed inside the pump in a little cartridge called a 'reservoir.' Insulin travels into your body through a flexible tube that ends with a tiny needle called a 'cannula' inserted just under your skin. The needle is held in place by an 'infusion set' and a little adhesive patch that is stuck to your skin.

Doses are delivered (pumped) as small continuous doses (basal) between meals and while you are sleeping. Doses can be delivered as extra (bolus) doses to cover mealtime carbs that you plan to eat (also known as pre-prandial doses). Bolus doses can also be delivered as 'correction doses' at other times of the day when your blood sugar goes unexpectedly high.

Correction doses are based on an insulin correction factor (also known as an insulin sensitivity factor). An insulin correction factor is defined as how much one unit of rapid acting insulin is known to lower your blood sugar level over a 2 to 4-hour period, between meals. The insulin pump settings will be calculated by your Endocrinologist and set up in your pump by your Diabetes Team.

At the James A. Haley Veterans' Hospital & Clinics insulin pumps are restricted to people with Type 1 diabetes who are under the supervision of providers in the Endocrinology Service.

## **CGM Devices**

A Continuous Glucose Monitoring (CGM) device provides real-time information about your glucose levels throughout the day and night, using a small disposable sensor placed just under the skin. This device can be used by people with type 1 or type 2 diabetes and whether insulin doses are administered with injections or pump therapy.

Unlike 'fingerstick' meters, these devices do not measure glucose in the blood. Instead, it monitors concentrations of glucose in the fluid between cells (interstitial fluid) and provides readings every five minutes.

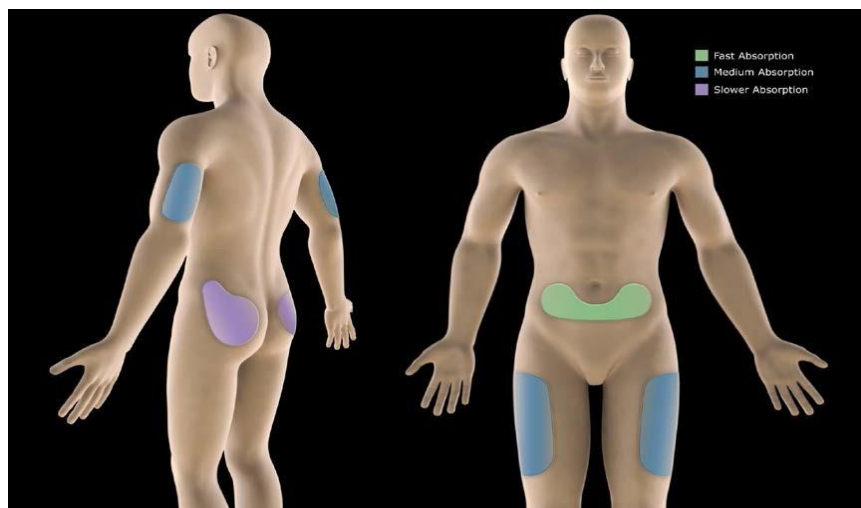
**Note: This device does not replace fingerstick monitoring.** Blood sugar levels will still need to be checked 2-3 times per day for CGM calibration.

## Where Do I Inject Insulin?

Insulin should be injected into the fat layer between the skin and the muscle. This is called a subcutaneous injection. You can inject your insulin doses in any of the body areas shown in the picture shown below.

You can do all your insulin injections within one area all the time, or you can rotate injections between these different areas. If you choose to rotate between body areas, then you should stay within one body area for at least 1 week before moving to a new area because each of these areas have their own rates of absorption for insulin.

The goal is to keep absorption rates as constant as possible so that your blood sugar remains steady and within your goal range. This is also why insulin is not injected into muscle. Every time your muscles contract with movement they can interfere with absorption of insulin if your doses have been injected into that muscle. This can result in blood sugar patterns that are unstable.



You should also rotate your injection sites within each of the body areas shown above, so that you are not repeatedly injecting doses in the exact same spot. This helps prevent scar tissue and callouses from forming under your skin. These can interfere with absorption of insulin. You can inject doses following a pattern within each region and space the injections about 1" apart (or the width of your fingernail).

## How to Use an Insulin Syringe



1 Roll insulin between your palms to mix

If insulin is milky-white color, gently roll insulin vial between palms for 10 seconds to mix.

Remove cap from vial to reveal the rubber stopper and wipe stopper with alcohol.



2 Measure air into the syringe

Pull air into the syringe by pulling the plunger back. The amount of air should be the same as your insulin dose.



3 Push needle through the rubber stopper

Inject air into the vial. This will equalize pressure inside the vial and make it easier to pull insulin into the syringe.



4 Turn the bottle upside down

The needle tip should be fully covered (or submerged) by insulin. This ensures that only insulin is drawn back into the syringe, not air.



5 Pull the plunger down to measure your dose

Use the black tip of the plunger to line up with the markings on the syringe barrel.



6 Pull the needle out of the bottle

Double check the syringe markings to make sure you have measured an accurate dose amount.



7 Choose the injection site

Make sure your skin has been washed with soap and water, and is clean and dry.



8

A. Grip syringe securely.

B. Pinch up skin if needed.

C. Insert needle at a 90° angle.

D. Push plunger in a steady motion until insulin is gone. Pull the needle straight out of the skin.



Different needle lengths and gauges are available

After the injection, discard syringes in a sharps container.

Don't re-use syringes. Doing so can dull or bend the needle & increase risk of infection.



# How to Use an Insulin Pen



If insulin is milky-white color, gently roll pen between palms for 10 seconds to mix.  
Wipe pen tip with alcohol.



A. Tear paper tab from pen needle.  
B. Screw needle onto pen.  
C. Remove outer needle cover.  
D. Remove inner needle cover.



A. Turn the pen dial until you see a '1' or '2' in the dose window.  
B. Press the dose button, look for at least 2 drops of insulin.



Turn the dose knob to 'dial in' your dose amount.  
Double check the dose window to make sure you have the right amount.



Choose your injection site. Make sure your skin has been washed with soap and water, and is clean and dry.



A. Curl fingers around upper end of pen for secure hold.  
B. Pinch skin if needed.  
C. Push needle into skin.  
D. Press the button with thumb. Hold for 10 seconds.



After injection, remove needle from pen. Can recover needle with large cap & untwist it from the pen.  
Discard needles in a sharps container.

## Sharps Disposal

Never throw loose syringes, lancets, or insulin vials into the trash or recycling bin. Every state has different laws and regulations for proper sharps disposal. You can check with local health departments for how to discard used syringes and needles when traveling outside of Florida.

The state of Florida allows you to use empty plastic and metal containers as your sharps container so you don't need to buy a Medical Sharps container. You don't need to clip the needles before placing them in your sharps container.



Proper sharps disposal will:

- Protect others from injury and possible infection
- Prevent trash collectors from having accidental needle-stick injuries
- Prevent your used syringes from falling into the wrong hands
- Protect the environment

Once your container is full, it must be destroyed by fire and burning it to ashes. The VA will do this for you if you throw your sharps container away in designated sharps disposal bins – just make sure the cap on your sharps container is secure so needles won't fall out of your container. Each VA facility has a sharps disposal bin to collect individual sharps containers. Ask your healthcare providers where these bins are located.

## Make a Plan

You can ask to meet with a pharmacist or a nurse to help you with this.

- Keep a list of your medications, dose amounts, the reason they've been ordered for you, and when you've been told to take them.
- Tell your provider about all the over-the-counter medicines, vitamins, and dietary supplements that you take.
- Take medicines as prescribed. It is important to tell your health care provider if you experience any side effects that make you feel sick or uncomfortable. Never stop taking medication on your own.
- If you forget to take your pills, do not double up on those medicines unless your provider has told you to do so. You can contact your healthcare team

to ask what to do, but it is helpful if you check your blood sugar before you call.

- Ask your provider for a pill box to organize your daily doses.
- Use a system to remind yourself when to order refills so that you don't run out of medication. You can use the automated pharmacy line to order your next refills as soon as new supplies arrive in the mail. When you order early, the medicine won't be mailed until your next scheduled due date.

## Pharmacy Contact Information

The VA Pharmacy only fills prescriptions for medications ordered by providers in the James A. Haley Veterans Hospital & Clinics or VA authorized contract providers.

Your eligibility determines if you need to pay a copayment for medicines. You can contact the Eligibility Center to find out what your copay amount might be.



### **Tampa Pharmacy**

#### **By Phone:**

In Tampa: (813)972-2000, x6767  
Outside of Tampa: 1-888-716-7787, x6767  
Automated Refill System: (813)903-4885 or 1-888-281-5463

#### **By Mail:**

Tampa VA Pharmacy  
12210 Bruce B. Downs Blvd.  
Tampa, FL 33612

#### **By Mobile Device:**

Place requests through a personal My Health Vet account at [myhealth.va.gov](http://myhealth.va.gov)

### **New Port Richey Pharmacy**

**By Phone:** (727)869-4100, x4272

#### **By Mail:**

New Port Richey VA Pharmacy  
9912 Little Road  
New Port Richey, FL 34654



## Living Well with Diabetes

Having diabetes puts you at a higher risk for developing additional health problems. If you understand your risks for potential health issues, then you can take steps now to lower your chance of diabetes-related complications.

In general, for every 1% drop in A1C, you will also reduce the risk for microvascular complications (eye, kidney, and nerve diseases) by 40%. Small changes have significant impact on reducing risks. Maintaining good health when living with diabetes means paying attention to your entire body and your mind. Taking an active role in preventing or delaying complications of diabetes can help you live a full, happy life.



## Care of Your Heart

Damage to large blood vessels causes a reduction of blood flow to your arms, legs, feet, heart, and brain. This can lead to heart attack, stroke, and infections that do not heal. The most common complications of diabetes are heart disease, heart attack, and stroke. Heart and blood flow problems are made worse by high blood pressure, high cholesterol, and by smoking.

Blood pressure is the amount of force that is put on the walls of your blood vessels as blood is pumped through your body. The top number (systolic reading) measures the force placed against the walls of your blood vessels during each heartbeat. For every 10-point reduction in systolic blood pressure, there is a corresponding risk reduction for *any* of the diabetes complications by 12%. The bottom number (diastolic reading) measures the force that *remains* against blood vessel walls when they relax between heartbeats. Reducing the diastolic blood pressure from 90 mmHg to 80 mmHg in people with diabetes reduces the risk for major cardiovascular events by 50%.

Check your blood pressure. If your blood pressure is higher than 120/80 mmHg, talk to your health care team. Blood pressure should be checked at every health care visit.

Lifestyle modification is the cornerstone of treatment for high blood pressure, which is diagnosed as hypertension. Recommendations for treatment of high blood pressure include:

- Weight loss. If you need help to start, ask your provider or dietitian for a plan to lose weight and/or consideration for joining the MOVE! Weight Management Program.
- Reduced salt (sodium) intake. People with heart disease or high blood pressure should have less than  $\frac{3}{4}$  teaspoon (1500 mg) of salt per day.
- Limit alcohol intake. Men should have no more than 2 drinks per day and women should have no more than 1 drink per day.
- Cholesterol is a group of fats that travel in the blood. Your body needs *some* cholesterol to grow and function but too much of some types can be harmful. Levels of 'bad' cholesterol (LDL) and triglycerides that are too high increase your risk for stroke, heart attack, and other circulation problems. Levels of 'good' cholesterol (HDL) help remove excess levels of unhealthy cholesterol from your bloodstream. In general, the higher your HDL the better.

If you have diabetes and are age 40 or older, your provider may recommend a cholesterol-lowering medication in the statin category. If you are on medication to control your blood pressure or cholesterol, take it every day as prescribed and ask your provider about taking aspirin for your heart too.

Smoking damages the lining of your arteries which increases your risk for cardiovascular disease and stroke. Carbon monoxide in tobacco smoke reduces the oxygen in your blood, causing your heart to work harder to pump enough oxygenated blood throughout your body. Nicotine in cigarettes also makes your heartbeat faster and raises your blood pressure.

Quitting smoking is considered the single best step you can do to protect the health of your heart. VA services are available to help you quit and are listed on pages 49.

You should know the warning signs of stroke and heart attack. Call 9-1-1 right away if you think you are having a stroke or a heart attack. Acting fast can save your life.

- Signs of stroke include weakness on one side and trouble walking, seeing, or speaking.
- Signs of heart attack include feelings of pressure, squeezing, fullness, and pain in your chest or upper body. You may also have shortness of breath. Signs for women may differ from men. Women may have nausea and vomiting, feel tired all the time (sometimes for days), and have pain in the back, shoulders, or jaw.

## Care of Your Kidneys

Think of your kidneys like a coffee filter. Your kidneys filter your blood to remove waste products and help regulate your hormones, blood pressure, and blood chemistry. Damage to the small blood vessels in your kidneys can reduce the blood flow in your kidneys, causing kidney disease. Nephropathy is a general term that refers to damage caused to the kidneys by diabetes.

Chronic kidney disease (CKD) occurs when the kidneys are damaged for at least 3 months and no longer function effectively to filter your blood. At first, there may be no noticeable signs or symptoms of CKD but this condition tends to get worse over time (it is progressive). Diabetes and high blood pressure are the most common causes of CKD. Lowering your blood pressure can reduce the decline in kidney function that is caused by diabetic kidney disease by 30-70%.

You can prevent CKD or keep it from progressing by making changes to your lifestyle, nutrition, and working with your doctor to keep these conditions under control. Follow these tips to lower your risk for kidney disease:

- A balanced meal plan that limits salt (sodium) intake to less than 1 tsp (2,300 mg) per day is best for healthy kidney function.
- Take medications as prescribed to keep your blood sugar and blood pressure under control.
- Exercise for at least 30 minutes on five or more days of the week.
- Have regular check-ups with your doctor. Early detection and treatment can help prevent kidney failure.

If you have high blood pressure or diabetes, talk to your health care team about tests for protein at least once per year. The serum creatinine blood test measures the level of a protein (creatinine) in your blood and helps providers estimate how well your kidneys are filtering your blood. Health care providers may also order a blood test to estimate how much blood the kidneys filter each minute. This is called the estimated glomerular filtration rate (eGFR). eGFR results of 60 or above is the normal range. Results below 60 indicate kidney damage. Results below 15 indicate kidney failure.

Albumin is another protein present in blood that healthy kidneys normally block from entering urine. The urine albumin test detects and measures the amount of albumin in the urine. Results of 30 or more may be an early indicator of kidney disease.

## Care of Your Eyes

Diabetes is the leading cause of new blindness among adults 20-74 years old. Diabetic eye disease is a group of conditions that can affect vision when there is damage to small blood vessels and reduced blood flow in and around your eyes, the retina, macula, lens or the optic nerve.

Diabetic retinopathy is a condition caused by damage to the blood vessels in your retina, the light-sensitive area at the back of your eye. Your eyesight may become blurry, less intense, and begin to disappear. Early stages of this condition usually provide NO warning signs or symptoms so it's important to have a complete dilated eye exam (with eye drops) done every year even if you have no noticeable vision impairment.

During eye exams, providers will also look for cataracts (a clouding of the lens at the front of your eye), glaucoma (high pressure in your eye), macular edema (a buildup of fluid in the area at the center of your retina), and retinal vein occlusion (a blockage of blood flow in a retinal vein). All these conditions can cause vision loss.

Early detection, timely treatment, and appropriate follow up care is essential to prevent irreversible damage and protect against vision loss. Report changes in your vision, new blurriness, flashes of light in your eyes, blind spots, or 'things' floating in your eyes. If you smoke, quit. Use of tobacco causes high blood pressure which can make eye problems worse.

## Care of Your Legs and Feet



Diabetes can affect the blood vessels and arteries in your legs, causing them to become clogged or narrowed which also makes it more difficult for blood to flow to the legs and feet. This condition is called peripheral artery disease (PAD). Symptoms of PAD include leg weakness and pain in your calves that goes away with rest. If you have symptoms of PAD, providers may also do an ankle-brachial index test to check for PAD. This involves comparing the blood pressure in your arm with the blood pressure in your ankle. A normal result is between 0.9 and 1.3. Lower than normal results may require treatment.

People with diabetes are at higher risk for foot problems. Uncontrolled diabetes often damages nerves, making it hard to feel heat, cold, and pain in your legs and

feet. Nerve damage makes it easier for you to hurt your feet without knowing if, or when, you have an injury. Uncontrolled diabetes can also cause problems with circulation, making it harder for cuts and sores to heal. The longer it takes a wound to heal, the greater risk there is for an infection to develop.

**Check your feet every day.** Use a hand mirror to look at the bottom of your feet or ask family or a friend to help you. Keep your feet clean. Wash them with soap and water but do not soak them, this dries out the skin on the feet. Test water with a thermometer if available to make sure it isn't too hot. Dry your feet completely, especially between your toes. Put lotion on dry spots to prevent cracks in your skin. Lotion also helps prevent or reduce thick patches of skin called corns or calluses. Do not put lotion between your toes.

**Never cut corns or calluses.** Do not use corn plasters or chemical corn removers. You should go to the foot clinic to have corn and callus buildup trimmed monthly. Do not use heated blankets, hot water bottles, or heating pads on your feet. Avoid applying ice on your feet if you have neuropathy.

**Cut your toenails straight across** being careful not to cut skin, using clippers. Do not use scissors, knives, or razor blades to cut your toenails. Cut nails after a shower when nails are soft. Do not trim toenails yourself if you have loss of feeling in your feet or are taking blood thinners - have a podiatrist trim them for you. You can also ask for a podiatrist to help if you have hard or thick toenails.

**Never go barefoot.** Always wear socks and shoes that cover your toes, not flip flops or sandals. Wear soft cotton socks that do not have a seam at the toes. When buying shoes, have your feet measured because your feet can change size and shape. Comfortable shoes help promote blood flow. Exercise also improves blood flow to your legs and feet.

Before you put shoes on, shake out the shoe to find any small objects that could hurt your feet. If you have neuropathy in your hands you should not feel inside of the shoe for objects that might be inside of it.

Tell your provider about pain or swelling in your feet, a cut or burn that becomes red or tender, sores that do not go away, calluses, corns, and in-grown toenails. Get a comprehensive foot exam at least once per year and visual inspections at every clinic visit. Remove shoes and socks at every medical visit so that your health care team check your feet.

## Care of Your Mouth

People with diabetes are at risk for oral infections. Periodontal (gum) disease can damage the gum and bone that hold your teeth in place, causing painful chewing problems.

Gum disease occurs in about 1/3 of people with diabetes and the likelihood for it developing is nearly 5 times greater among smokers with poorly controlled diabetes.

Diabetes can also cause dry mouth and thrush, a fungal infection that develops painful white patches in your mouth. Visit a dentist for routine check-ups, at least once per year.

### Take Care of Your Mouth

- ✓ Control your blood glucose.
- ✓ Brush your teeth with a fluoride toothpaste every morning and night. If possible, brush 10 minutes after a meal.
- ✓ Floss once per day.
- ✓ Occasionally check your teeth for white or brown spots after brushing. These may be signs of cavities.
- ✓ Avoid sodas, sugary snacks, and sticky candies. Limit starchy foods or foods with added sugar.
- ✓ Quit smoking – it makes gum disease worse.
- ✓ Do not get piercings in your mouth.



### Call the Dentist if:

- ✗ You have gum, tooth, or jaw pain.
- ✗ You notice your gums bleed when you brush or floss.
- ✗ You have red, swollen, or bleeding gums at any time of the day.
- ✗ You have a bad taste in your mouth.
- ✗ You have very bad breath.
- ✗ You have a problem with a filling, crown, implant, or denture. Tell the dentist if your dentures do not fit right or are causing your gums to be sore.
- ✗ You have a broken or loose tooth.
- ✗ You notice a growth in your mouth that is not going away.

## Care of your Emotional Health

Managing emotional health is just as important as your physical health. Changes in blood sugar levels can affect emotions. People with diabetes are twice as likely to have depression. Learning ways to take care of your *whole* self will help you control diabetes and other chronic diseases you may have.

Emotions such as anxiety and depression can also affect how your blood sugar is regulated. Managing stress and finding ways to relax are important but often overlooked elements for controlling diabetes. Everyone feels stressed at times, but chronic stress can aggravate medical conditions and increase blood glucose levels.



Common causes of stress that are often overlooked are:

- **Smoking.** Tobacco use causes chemical changes in your blood and brain that can add to stress in your body and increase your blood sugar.
- **Pain.** Your body reacts to pain with muscle tension that adds to stress. Pain is also exhausting, robbing your body of energy.
- **Depression.** Most people feel sad or down at some time in their life but frequent feelings of helplessness, hopelessness, or loneliness can be symptoms of depression. If you feel overwhelmed or have trouble sleeping or eating, talk to your health care team, church leader, or counselor. Don't wait – depression can be treated.
- **Not enough good sleep.** If you snore loudly, are tired all the time, and every action seems to require more energy than it should, then ask your health team if you should be tested for sleep apnea. Sleep apnea interrupts your breathing and causes you to have less oxygen in your blood. This affects more than half of people with diabetes and most don't know it.

Learn ways to control your stress and stick to a routine. Here are some tips to help you cope with stress:

- **Focus on wellness.** Eat healthy food, get adequate sleep, and be physically active. Exercise is a natural stress reliever that also helps lower blood glucose. Avoid alcohol, it is a 'depressant.'
- **Make time to do things you enjoy.** Try a new hobby. Help someone else. Volunteer.
- **Join a diabetes support group.** Use a support network of family and friends. Ask for help when you feel down.
- **Make time to relax.** Yoga, tai chi, prayer, deep breathing, and visualizing a relaxing scene are all ways of relaxing the mind and body. Practice mind-body therapies such as mindfulness and meditation.
- **Set reasonable goals.** Set small short-term goals. When you are successful you feel less stressed. Be assertive and learn to say 'no' when appropriate. **Tell your family what help you need and what is not helpful.**
- **Get better quality of sleep.** Go to bed and get up at the same times each day. Limit caffeine, smoking, and alcohol – especially after 3 p.m. (alcohol keeps you in the light stages of sleep). Turn off TVs, mobile phones, tablets, and other electronic screens at least 1 hour before bed. Relax by taking a shower, dimming the lights, and turning down the volume of noises around you. If your pets move around or make noise, try moving them out of the bedroom.

Sleep in a cool dark room. If you continue having trouble sleeping for more than 2 weeks in a row, see your doctor for help.

## Care of your Sexual Health

Diabetes is a leading cause of sexual health issues, along with hypertension, high cholesterol, and smoking. Both men and women can develop sexual problems from damage to nerves and small blood vessels in the genital area. Stress, aging, illness, anxiety, and depression can also affect sexual functioning.

Men with diabetes can experience sexual health issues that include:

- ❖ Erectile dysfunction. This is a consistent inability to have an erection firm enough for intercourse. This can be related to complications from impaired blood flow and poor nerve conduction (neuropathy) and may also occur from side effects of certain medications, psychological factors, smoking, and low hormone levels.
- ❖ Low testosterone. This hormone is associated with arousal and sexual energy (libido). When levels of this are low, interest in sex can decline.
- ❖ Delayed ejaculation or orgasm. This is associated with neuropathy and can also be related to use of some anti-depressants.
- ❖ Retrograde ejaculation. This occurs when ejaculate backs up into the bladder rather than being ejected from the penis, and is related to neuropathy.
- ❖ Peyronie's disease. This causes a painful curvature of the penis resulting from plaque build-up in an artery of the penis.

Women with diabetes can also experience sexual issues such as:

- ❖ Vaginal dryness. This is associated with elevated blood sugar, impaired blood circulation, and neuropathy. Lack of lubrication can cause discomfort and pain during intercourse.
- ❖ Difficulty achieving orgasm. This is associated with neuropathy.
- ❖ Yeast infections. This is a type of infection that is more likely to occur when blood sugar levels are elevated.

Treatments are available for most of the problems that are related to sex and intimacy. Some may restore functioning and others may simply help you identify different ways to achieve your goals. If you are having any of these problems, reflect on what you are doing to take care of yourself and tell your provider about the specific nature of your problem.

## Helpful Questions to Ask & Answer

### Self-Reflect:

- ☐ Do you talk, touch, play, laugh and feel safe with your partner?
- ☐ Are you healthy, happy with your body, and maintaining a healthy weight?
- ☐ Do you smoke, drink, exercise, eat well, sleep well and manage your stress levels?
- ☐ What kind of medications do you take?

### Self-Report:

- What is the nature of your problem?
- When did this start?
- When does it happen? Every time, some of the time, when you are stressed?
- What makes a difference? More stimulation, different stimulation, more time in foreplay?
- Does it matter how well your diabetes is controlled? Does it happen when your blood sugar is elevated?
- Has your interest in sex changed?

## Sick Day Management

Your body releases stress hormones during times of illness and wound healing that causes your blood sugar levels to rise. During illness, your body needs sugar to use for energy to help fight the illness but this will affect your ability to maintain blood sugar within your stable goal range. You will need to keep taking your insulin or other diabetes medicine even though you may be eating less than normal while you are sick.

Short term illness can often be managed at home by having a 'sick day kit' and following simple guidelines. Have these supplies on hand:

- Phone numbers for your health care team and the Urgent Care Clinic. A list of friends or family members who can check back with you regularly to make sure you're OK.
- Blood sugar testing equipment
- Clear liquids with and without sugar (juice, popsicles, Jell-O).
- Thermometer. Acetaminophen, decongestant, & sugar-free throat lozenges.

## Sick Day Rules

- 1. Tell someone.** Contact your family or friends so they can check on you while you're sick.
- 2. Stay hydrated.** Drink sugar-free liquids unless you need to treat symptoms of low blood sugar. Make sure your blood sugar remains above 70mg/dL.
  - Drink 8 oz. of fluid (1 cup) every hour you are awake, or small sips every 5-15 minutes.
  - Every 3<sup>rd</sup> hour, the 8-oz. drink should be a sodium-rich fluid such as bouillon.
- 3. Keep eating.** If unable to tolerate usual meals, get calories from easy-on-the-stomach liquids or soft foods. Aim for 45-60 grams of carbohydrates every 3-4 hours while you're awake.
- 4. Monitor your blood sugar.** Check more often, at least every 4 hours while you are sick.
  - For Type 1 diabetes, check every 2-4 hours.
  - For Type 2 diabetes, check every 4-6 hours.
- 5. Keep taking diabetes medicines.** Continue long-acting insulin doses and oral medicines even if you are unable to eat your usual meals.
  - Only take your rapid/fast-acting insulin if you are eating meals.
  - If you are vomiting, have diarrhea, or have a fever higher than 101°F, contact your healthcare provider to ask what to do about your medicine. If in doubt, always call and ASK before deciding to not take a medicine.
- 6. Check labels.** Make sure that over-the-counter medicines, cough drops, and syrups you buy are sugar-free. To be on the safe side, ask the pharmacist about sugar-free medicines.
- 7. Diabetes identification.** If you go to the Urgent Care Clinic or the ER, immediately tell medical staff that you have diabetes. Wear a diabetes identification bracelet or necklace in case you're not able to talk to the doctors or nurses.

## Some Food Options

	Serving Size	Grams of Carbs
Juice: Apple or orange	½ cup	15
Cereal, cooked	½ cup	15
Coffee, tea, bouillon, or broth	1 cup	0
Cream soup (made with water)	1 cup	15
Dry toast (what bread)	1 slice	13
Graham crackers	3 squares	16
Ice cream (vanilla)	½ cup	15
Popsicle or frozen pop	1	8
Pudding (sugar-free)	½ cup	15
Saltine crackers	6 squares	13
Yogurt (fruit flavored)	1 cup	30-45

Call a nurse at  
VA Connect:  
(813)903-  
3600, or  
1-888-811-  
0107

## When to Call for Help

- ✗ You have fever of 100° or higher for more than two days and it isn't getting better
- ✗ Your blood sugar is over 250mg/dL for 24 hours while you're sick
- ✗ Your blood sugar is over 300mg/dL for 2 tests in a row (in a 2-8-hour period) and it hasn't improved with your insulin doses and sugar-free fluids
- ✗ You have ketones in your urine (moderate to large amounts) or blood ketones are greater than 0.6 mmol/L (keep a record of these readings for the MD).
- ✗ You have Type 1 diabetes, your blood sugar is over 250mg/dL AND urine ketones are positive.
- ✗ You are vomiting or have diarrhea more than 5 times, or for longer than 6 hours.
- ✗ Your breath smells fruity.
- ✗ You have trouble breathing
- ✗ You have confusion, dark urine, irregular or fast breathing, fast or pounding heartbeat, and low blood pressure.

If you have Type 1 diabetes you are at increased risk for developing diabetic ketoacidosis. This occurs when you do not have enough insulin for your body to use sugar as fuel. Your body will break down fat for fuel instead, creating ketones that build up in the blood stream. When high enough, ketones cause symptoms of nausea, vomiting, thirst, abdominal pain, diarrhea and sometimes shortness of breath. When you have these symptoms in the presence of unusually high blood sugar, you should seek help immediately.

You should know when to ask for help, when to call the doctor, how often to measure blood sugar, what medicines to take, and what to eat if you can't tolerate the food you normally eat. If you cannot contact your primary health care team, you should go to the emergency room.

## Immunizations

**Vaccines are one of the safest ways to protect your health. The Centers for Disease Control and Prevention (CDC) recommends the following immunizations for adults:**

- Flu (influenza) vaccine. Yearly vaccination is recommended for everyone 6 months or older. Ideally, you should get your flu shot by the end of October. October is generally the start of flu season.
- Pneumonia (pneumococcal) vaccine. Pneumonia is a lung infection that can cause mild to severe illness in people of all ages. Everyone 2 years or older who has diabetes should get this vaccine. If you are 65 or older, you should get the pneumonia vaccine as a series of two separate shots.
- Hepatitis B vaccine. This is recommended for adults shortly after they have been diagnosed with diabetes.
- Tdap (tetanus, diphtheria, and pertussis) vaccine. Tetanus and diphtheria are serious bacterial infections that enter the body through cuts, burns, or animal bites and cause painful muscle spasms. Pertussis (whooping cough) can be life threatening for infants under 2 months of age. Women should get one dose during every pregnancy, and all other adults age 19-64 should get the single dose of Tdap, especially if they will be caring for young infants. All adults should get a Tdap booster dose every 10 years.
- Shingles vaccine. Shingles usually starts as painful or itchy blisters. People who have had chickenpox are at risk for developing shingles in their senior years. People who have had chicken pox should get this vaccine when they are 50 years or older.

## Tips for Travel

Enjoy traveling with some planning. Use a small makeup or travel bag to pack your 'diabetes tool kit' to stay organized. Contents for your tool kit should include: a notebook for record keeping, glucometer, test strips, lancets, lancing device, insulin syringes (or pen needles), vials of insulin (or pens), and oral medications for diabetes. Other tips:

- Pack twice the amount of diabetes medication and supplies than you usually need. If original containers are too bulky to pack, use plastic bags to hold your medications instead and ask your pharmacist to print extra prescription labels that you can stick on them.
- If wearing diabetes devices (pumps, CGMs) opt out of body scanners in Airport security and do not send these devices through the X-ray machine. Request a pat-down security screen to help avoid any potential issues. Bring a back-up pump if possible.
- Do not check your diabetes tool kit with luggage, keep it close to you in a carry-on bag that has easy access. Do not put it in the overhead bin. At security check points, inform staff of insulins in your bag.
- Carry a list of your medications, doses, allergies, and medical problems in your wallet. Carry your medical insurance card too.
- Request an aisle seat if you need frequent bathroom breaks.
- Remember to adjust medication for time zone changes and anticipate blood sugar fluctuations for the first 48 hours after arriving in new time zones.
- Wear a medical-alert bracelet or necklace and carry a diabetes care card. You can also lock your cell phone's home screen with an alert that reads 'I have diabetes.'
- Pack easy to carry snacks such as string cheese, nuts, or jerky.
- Wear comfortable closed-toe shoes, you may be walking more than usual. Be attentive to your feet.

## Resources & Services

MOVE! is a weight management, health promotion service that encourages healthy eating behavior, physical activity, and promotes all weight loss efforts that are guided by a MOVE! Care team. TeleMOVE! Is a Home Telehealth version of MOVE! that lets you participate where, when, and how you want to. This uses a messaging system or interactive voice response system at a location of your choosing (home, office, while traveling, etc.).



Diabetes HealthSense is an online tool that has been designed to be a one-stop site providing diabetes information, interactive services, and tools to help reduce risk and manage diabetes. The section called 'Make A Plan' guides users through the process of choosing goals and how goals can be achieved. This resource is evidence based and effective with content that has been vetted by experts from the NDEP, NIH, & CDC.

VA Mobile provides streamlined access to care and delivery of services through Mobile Applications (Apps) at the VA Appstore website. Some of the apps that are available include:

- A program for your blood sugar readings that you can track on My HealtheVet.
- The MOVE! Coach Toolkit offers a way to participate in the MOVE! Weight Management Program and can be used independently without scheduled check-ins with clinicians.
- Fitness smartphone apps can be used to help you track your food intake and activity. Fitness Coach, MOVE! Coach Mobile, and MyFitnessPal apps are all free.
- PTSD Coach app can help you learn about and manage symptoms that often occur after trauma. Features include reliable information on PTSD treatments proven to work, easy to use tools that help you handle stress symptoms, and direct links to support and help.

Local services provided by James A. Haley (JAH) Veterans' Hospital and Clinics are listed in the Outpatient Handbook and the Groups & Classes for Veterans and Family Members handbook. This includes information about a Diabetes Support Group that provides an informal setting where you can share concerns and ideas for diabetes self-management among others with diabetes.

### **Tobacco Cessation Services**

- **Local JAHVH services:** Ask for a consult to Primary Care Mental Health for individual tobacco cessation sessions, or call (813)972-2000, ext. 5287
- **Quit Vet Line:** 1-855-784-8838 (QUIT VET), Monday-Friday 8am-10pm. Provides counseling, helps you develop a quit plan, and follow up calls to support your efforts to quit.
- **Text the word VET to 47848** from your mobile phone and receive encouragement, advice, & tips to help you stay tobacco free
- **Apps:** QuitGuide at <http://smokefree.gov/apps-quitguide>

**Using more than  
one treatment  
format increases  
your success of  
quitting!**

## Online Organizations

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

**CDC** – Centers for Disease Control and Prevention  
<http://cdc.gov/diabetes>

**JDRF** – Juvenile Diabetes Research Foundation  
<http://www.jdrf.org>

**National Center for Health Promotion & Disease Prevention**  
<https://www.prevention.va.gov>

**NCCAM - National Center for Complimentary & Integrative Health**  
<http://www.nccam.nih.gov>

**NDEP** – National Diabetes Education Program  
<http://ndep.nih.gov>

**NIDDK** – National Institute of Diabetes & Digestive & Kidney Diseases  
<http://niddk.nih.gov>

## Diabetes Online Communities

**TCOYD** – Taking Control of Your Diabetes.  
 Founded by Steven Edelman M.D., an Endocrinologist and person with type 1 diabetes himself.

**TuDiabetes** - For all types of diabetes  
<http://www.TuDiabetes.org>

**EsTuDiabetes** - A Spanish language community  
<http://www.EsTuDiabetes.org>

## VA Services

**JAHVH Groups & Classes**  
<http://www.tampa.va.gov>  
<http://www.Facebook.com/VATampa>  
<http://www.veteranshealthlibrary.org>

**MOVE!**  
<https://www.move.va.gov>

**TeleMOVE!**  
<https://www.telehealth.gov>

**My HealtheVet**  
<http://www.myhealth.va.gov>

**Health Library**  
<https://www.veteranshealthlibrary.org>

**Veterans Crisis Prevention Line**  
<https://www.veteranscrisisline.net>

## VA Apps & Tools

**VA Mobile Applications (Apps)**  
<https://mobile.va.gov/appstore/veterans>

**MOVE! Coach Toolkit**  
<http://vaww.move.va.gov/MOVECoach.asp>

**Diabetes HealthSense**  
<https://www.ndep.nih.gov/resources/diabetes-healthsense/index.aspx>

**PTSD Coach**  
<http://www.ptsd.va.gov/public/materials/apps/PTSDCoach.asp>

## Primary Ambulatory Care Teams

PACT providers include your physician, nurses, clinical pharmacists, dietitians, social workers, physical therapists, and psychologists.

### Your PACT can:

- Issue Freestyle Freedom Lite glucometers.
- Provide referrals to specialists for assistance with your diabetes management.
- Order prosthetic consults for diabetic shoes, socks, long handled mirrors, medic alert bracelets or necklaces.

## Nutrition Resources

These sites have free searchable recipes and nutrition information.

- ✕ Allrecipes.com
- ✕ Calorieking.com
- ✕ Choosemyplate.gov
- ✕ Cookinglight.com
- ✕ Diabetes.org
- ✕ Eatingwell.com
- ✕ Fruitsandveggiesmorematters.org

## Disaster Preparedness

Always wear shoes and check your feet often for cuts, sores, red spots, blisters, or unusual conditions.

Make sure your vaccinations, including tetanus are up to date.

Pack extra comfortable clothing, including underwear.

Take a mobile phone with an extra charger, or extra batteries for you & your family.

Choose a designated meeting place in case you get separated from your family and cannot reach them by phone.

### Prepare a portable, insulated, and waterproof emergency kit that contains all these items

- ☐ A written list that includes:
  - ✓ Type of diabetes you have
  - ✓ All your other medical conditions and prior surgeries
  - ✓ Allergies
  - ✓ Medications you take & contact information for your pharmacy and healthcare providers
- ☐ Most recent lab results, especially A1C, kidney and liver tests
- ☐ If possible, a 30-day supply of your medications
- ☐ Blood sugar testing supplies and extra batteries for your meter
- ☐ Cooler for 4 refreezable gel packs, insulin and other injectable medications to be placed in cooler before you evacuate. Do NOT use dry ice and avoid freezing the medication.
- ☐ Empty plastic bottles or sharps containers for syringes, needles, and lancets.
- ☐ Source of fast acting carbohydrate to treat hypoglycemia. Examples include glucose tablets, 6 oz. juice boxes, honey, clear hard candies, or glucose gel.
- ☐ A 2-day supply of nonperishable food such as peanut butter, cheese crackers, meal replacement shakes or bars.
- ☐ A supply of bottled water to last for at least 3 days.
- ☐ First aid supplies such as bandages, cotton swabs, dressings, and topical medications (antibiotic ointments or creams) and hand sanitizer.

## My Care Log

You are the most important member of your health care team. Keep a personal care record or a wallet card that lists all the tests that you have been routinely screened for and the results for each.

My Last Test & Exam	Frequency	Date	Results	My Goals
<b>A1C</b>	Every 3 to 6 months			Less than 7.0%
<b>Blood Pressure</b>	Every visit			Less than 130/80 mmHg
<b>Lipid Panel</b>	At least every year Every 5 years If you are NOT taking lipid lowering medication			LDL: <100 mg/dL LDL (High Risk): <70 mg/dL TG: <150 mg/dL HDL (Men): >40 mg/dL HDL (Women): >50 mg/dL
<b>Kidneys</b> • Urine albumin Test	Every year			Less than 30 mcg
• Serum Creatinine • eGFR Test	Every year If you have CKD			0.5 to 1.2 mg/dL Higher than 60 mL/min
<b>Foot Exam</b> Visual	Every visit			Normal or no worsening
Sensory Testing	Every year			Normal or no worsening
<b>Eye Exam</b>	Every year			Normal or no worsening
<b>Dental Exam</b>	Every 6 months			No dental problems

My Last Vaccination	Frequency	Date
<b>Flu Vaccine</b>	One Dose Every year (October)	
<b>Pneumonia Vaccine</b> • PCV13 (conjugate vaccine) For adults 19 years or older. Get this dose before getting PPSV23.	One Dose Some doctors may recommend a second shot 5 to 10 years later	
• PPSV23 (polysaccharide vaccine) For adults age 65 and over	One Dose 1 year after PCV13 dose	
<b>Tdap Vaccine</b> (3 options)	• One Dose: as a child or adult • Booster every 10 years • Booster with pregnancy	
<b>Shingles Zoster</b> • RZV (for adults age 50 and over)	Two Doses Every 5 years	
• ZVL (for adults age 60 and over)	One Dose 5 years after RZV dose	
<b>Hepatitis B Vaccine</b>	Once Usually given as 3 or 4 shots over 6-months	

### My Diabetes Team

Doctor: \_\_\_\_\_

Phone \_\_\_\_\_

Diabetes Educator: \_\_\_\_\_

Phone \_\_\_\_\_

Case Manager: \_\_\_\_\_

Phone \_\_\_\_\_

Dietitian: \_\_\_\_\_

Phone \_\_\_\_\_

Pharmacist: \_\_\_\_\_

Phone \_\_\_\_\_

## Daily Blood Sugar Log

[illegible]

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