



DIABETES PATIENT GUIDE

Living with Diabetes

An Introduction

Whether your doctor has just diagnosed your diabetes or you've had it for a while, this patient guide is for you. We want to teach you more about your disease and show you ways to live a healthy life. Diabetes can be a serious disease, but you can control it. **You have the power to take care of yourself and prevent some of the problems that diabetes can cause.**

In recent years, researchers have made many new discoveries about diabetes. What they've learned offers hope to people living with this disease. Doctors can detect diabetes at earlier stages now. Treatment can begin sooner with new and better medicines and steps can be taken to control diabetes through diet and exercise. With earlier treatment you are less likely to develop serious health problems related to diabetes.

Living with diabetes is still challenging, but, because clinicians know more about diabetes, they can give you more help in making the changes you need to make to live well and live long. Your healthcare team is here to help you every step of the way. They will give you the information you need each day to make important decisions about your health.

There is a lot of information to learn and you might feel overwhelmed at first. But take it a step at a time. Read a little of this manual at a time and refer back to it when you have questions. Also, be sure to talk with your Providers- they are there to answer all your questions and concerns.

At the start of each chapter are goals to help guide you through the chapters. At the end of each chapter you will find questions. The answers to these questions can be found at the end of the manual.

Your Healthcare Team

Your healthcare team is a group of clinicians who will work with you to help you keep your diabetes in control. You will see your primary care physician for most office visits. Once or twice a year you should see other specialists, like dentists and eye specialists. You might also see specialists like endocrinologists, podiatrists,

nutritionists, and mental health clinicians. All of these health professionals are here to help you manage your diabetes. While these clinicians are here to help you, you can help yourself, too. Here are a few tips:

- Ask your PCP all of your questions. Have them explain anything that isn't clear. Write things down if you think you might forget.
- Read this patient guide to learn about diabetes and what you can do to improve your health and prevent complications of diabetes from developing.
- Talk with other people who have diabetes. It helps to hear how they handle their disease.
- Share this patient guide and your feelings with your family and friends. It will help them understand what you're going through and how they can help you.

Who are they? . . What does the Healthcare Team do?

Primary care physicians (PCP), family physicians (FP), and internists (IM) -- Are medical doctors who diagnose, treat, and prevent diseases.

Endocrinologists -- Are medical doctors who diagnose and treat diseases of the endocrine glands, including diabetes.

Registered nurses (RN) -- Provide test results, handle patient calls, and provide patient education. They also help with routine care, exams, and procedures.

Nurse practitioners (NP) -- Are registered nurses with advanced training in a certain area of medicine. They diagnose and treat common medical problems and do physical exams. They prescribe medicine under the supervision of a licensed physician.

Case Managers -- Nurses, Social Workers, and Clinical Gerontologists who help you manage your diabetes and provide you with skills to self manage the disease

Physician assistants (PA) -- Cover certain physician's duties, such as history-taking, physical exams, diagnostic tests, and minor surgery, all under the supervision of a licensed physician. They also can prescribe medicine under the supervision of a licensed physician.

Registered nutritionists -- Teach classes and counsel patients one-on-one about eating properly, getting to or staying at a healthy weight, and changing eating patterns when necessary.

Certified diabetes educators -- Are nurses, registered nutritionists, or pharmacists who teach classes and counsel patients one-on-one on all aspects of diabetes management, such as diet, exercise, and medicine.

Podiatrists -- Perform basic foot care, like trimming toenails and removing calluses. They also treat foot diseases.

Dentists -- Prevent, diagnose, and treat diseases and injuries of the mouth, jaw, and teeth.

Ophthalmologists --Are medical doctors who examine and treat the eyes for diseases and other problems.

Optometrists -- Examine the eyes and prescribe and fit glasses.

Mental health clinicians -- Are psychiatrists, psychologists, social workers, and psychiatric nurses who help patients cope emotionally with diabetes and other long-term diseases.

Chapter One

Diabetes—Key Questions



What is diabetes?

Diabetes is a disease that occurs when you have too much sugar in your blood. Everyone's blood has some sugar in it because the body uses sugar as its main source of energy. Too much sugar in your blood causes problems.



How does high blood sugar occur?

After you eat, your body breaks the food down into sugar and other nutrients. Your blood carries the sugar to the cells in your body, which then use that sugar for energy. The sugar can only get into the cells when insulin is there to let it in.

Insulin is a hormone made in the pancreas, a gland behind your stomach. The pancreas releases insulin into the blood. If your body doesn't make enough insulin or the insulin doesn't work properly, the sugar cannot get into the cells, and instead stays in the blood. This makes your blood sugar level high, causing you to have diabetes.



How many people have diabetes?

Diabetes—The Numbers

Diabetes affects **17 million** Americans, which is about 6.2% of the population. Approximately half of these people don't even know they have the disease.

Doctors diagnose about **1 million** new cases of diabetes each year.



What are the symptoms of diabetes?

The symptoms of diabetes are:

- Being very thirsty

Being very hungry
Urinating a lot
Feeling very tired
Losing weight without trying
Having sores that heal slowly
Having dry, itchy skin
Losing feeling in the feet or having tingling in the feet
Having blurry eyesight

You may have noticed one or more of these symptoms before you found out you have diabetes. Very often, unless your blood sugar is high, there are no symptoms of diabetes at all.



Are there different types of diabetes?

Types Of Diabetes

There are three common types of diabetes: type 1, type 2, and gestational. Gestational diabetes occurs during pregnancy. It usually goes away after the baby is born, but diabetes may return later. This manual focuses on the first two types of diabetes.

Type 1 Diabetes accounts for about 10% of diagnosed cases of diabetes and occurs most often in children and young adults. In type 1 diabetes the immune system attacks and destroys insulin-producing cells in the pancreas, which results in high blood glucose levels. Insulin injections are required to treat type 1 diabetes.

Type 2 Diabetes accounts for 90% of all diagnosed cases of diabetes. In type 2 diabetes “insulin resistance” occurs. This happens when the pancreas produces insulin but the body’s cells cannot read the signal to let glucose into the cells. Being overweight or obese is a leading risk factor for developing type 2 diabetes. Other risk factors include: physical inactivity, aging (type 2 diabetes is more prevalent in middle-age and older adults), family history of diabetes, prior history of gestational diabetes, and certain racial groups.

There are two other conditions that pose risk for developing diabetes, including pre-diabetes and the metabolic syndrome.



What is there such a thing as pre-diabetes?

Pre-diabetes:

Yes. About 41 million Americans have a condition called pre-diabetes in which blood glucose levels are higher than normal but not high enough to have a diagnosis of diabetes. Pre-diabetes raises the risk of developing type 2 diabetes and increases the risk of heart disease by 50 percent. Most people with pre-diabetes develop type 2 diabetes within ten years. Lifestyle modification involving weight loss and physical exercise helps to prevent or delay the onset of diabetes.



What is metabolic syndrome?

The metabolic syndrome is another commonly used term in discussing diabetes. Metabolic syndrome, which is sometimes referred to as “insulin resistance syndrome” or “syndrome X” is a cluster of conditions including obesity, high blood pressure, high cholesterol, and high triglycerides, that may indicate a tendency to develop diabetes, hypertension and heart disease.

Components of metabolic syndrome include:

- √ **Obesity/Abdominal fat.** Obesity is often determined by using body mass index (BMI). The BMI provides an indicator of the amount of fat (abdominal) fat an individual has based on normal height and weight ranges. Abdominal fat is linked with an increased risk for heart disease

- √ **Hypertension.** High blood pressure is associated with heart disease, kidney disease, and stroke.

- √ **Dyslipidemia.** This occurs when the amount of lipids in the blood are higher or lower than normal. Dyslipidemia is present when low density lipoprotein (LDL) is high, when high density lipoprotein (HDL) is low, or a combination of those factors.

- √ **Insulin resistance.** Insulin resistance is believed to be a major factor in allowing the metabolic syndrome to develop.

√ **Triglycerides.** Having high levels of triglycerides in your blood has been linked to cardiovascular disease.

There are several ways you can reduce your risk for developing the metabolic syndrome, including:

- Lose weight
- Increase physical activity
- Lower your blood pressure
- Lower your cholesterol



How do I control my diabetes?

Here are four things you need to do to keep your blood sugar level under control.

- If you are overweight, lose weight
- Eat healthy food in the right portion sizes
- Exercise regularly
- Take your diabetes medicine or insulin (as prescribed by your doctor)



Who gets diabetes?

Diabetes is not contagious. You cannot “catch” it from someone else. You also cannot get it from eating too much sugar. But here are three factors that can increase your chance of getting the disease:

- Being overweight (about 9 out of every 10 Americans with type 2 diabetes are overweight). This includes being a child or adolescent who is overweight.
- Having a family history of diabetes
- Getting older



What is the goal of treatment?

The goal of treatment for diabetes is to keep blood sugar levels close to normal to prevent complications. The American Diabetes Association’s guidelines for blood glucose levels for people with diabetes are 80-120 mg/dL before meals and 100-140 mg/dL before bedtime. Ask your PCP what goal levels are best for you. Blood sugar levels fluctuate so checking your blood sugar level as fre-

requently as your provider recommends will help you see how food, exercise, stress, medicine, and being sick affect your blood sugar levels.

Chapter Two

Lifestyle Modification

Eating Healthy

Having diabetes does not mean you need special foods, or that you will never be able to eat sweets again. You can eat the same healthy foods that everyone else can! Your eating plan should include foods that are low in saturated fat, salt, and sugar, and high in fiber (such as beans, fruits, vegetables, and whole grains). Eating properly will help you:

Reach and stay at a weight that is good for you

Keep your blood sugar in a healthy range

Prevent heart and blood vessel diseases You should work with your nutritionist or diabetes educator to develop a meal plan that meets your needs.



What is a meal plan?

A **meal plan** is a daily eating plan. There are many different types of meal plans. Some focus on controlling calories or portion size, while others count fat or carbohydrates. Still others combine both of these methods. Your nutritionist will work with you to develop the best plan for you.

The exchange meal plan



What is an exchange meal plan?

With this meal plan, you can choose a specific number of servings each day from these six food groups: **starch/bread, meat (or fish, poultry, or meat alternative such as soy products) vegetable, fruit, milk, and fat**. The number of servings is based on how many calories you can have each day. Using Exchange Lists for Meal Planning, developed by the American Diabetes Association and American Dietetic Association, you can choose the foods you would like to eat for each meal.



How do exchange lists work?

Your nutritionist or diabetes educator will help you figure out:

How many calories you should have each day

How many servings of each food group you can have each day based on your individual needs

How many servings of each food group you can eat for breakfast, lunch, dinner, and snacks.

This system divides all food into six categories — starch, fruit, milk, vegetable, meat and fat groups. A defined serving or “exchange” of each food item in one of these categories has the same calories, grams of fat, protein and carbohydrate in it as every other food item in that category. So, under the “fruit choices” in the exchange system, for example, ¹ 2 cup of applesauce and a small banana each equals one “fruit exchange” that has 60 calories, 15 grams of carbohydrate, and no protein or fat.

In the exchange meal planning system, your healthcare team works with you to develop a meal plan that distributes a number of exchanges from each of the six food categories through each of three meals and two or three snacks each day. The meal plan is developed based on the patient's diabetes treatment plan and goals. If weight loss is a goal, for example, the patient will have fewer exchanges to spend at each meal, so that total calories are kept at a level to enable the patient to lose weight. Patients then use food lists to figure out how to “spend” those exchanges at each meal.

The serving sizes in the chart below are based on the Exchange Lists for Meal Planning. They may be different from the serving sizes on the USDA Food Guide Pyramid, which is used to teach people in general how to eat a balanced diet from a variety of foods. Exchange lists are useful tools for planning calorie-controlled diets and meal plans that require specific amounts of carbohydrate, protein, fat and other nutrients.

Consult with your PCP to help determine your caloric intake based on personal history and lifestyle.

| Exchange Lists for Meal Planning - Suggested Servings Per Day | | | | | |
|--|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| | 1,200 Calories/Day | 1,500 Calories/Day | 1,700 Calories/Day | 1,800 Calories/Day | 2,000 Calories/Day |
| Food Groups | Servings/Day | Servings/Day | Servings/Day | Servings/Day | Servings/Day |
| Starch/Bread | 4 | 6 | 7 | 8 | 9 |
| Meat/Fish/Poultry/Meat alternative | 4 | 5 | 6 | 6 | 6 |
| Vegetable | 3+ | 3+ | 3+ | 3+ | 3+ |
| Fruit | 4 | 4 | 5 | 5 | 5 |
| Milk | 2 | 2 | 2 | 2 | 3 |
| Fat | 2 | 3 | 4 | 4 | 4 |

Here are few other things you should know:

It is more important for you to know your carbohydrate allowance for each meal and snack than it is to know your total for the day, because this will help you keep your blood sugar in the normal range.

Skipping food exchanges can affect your blood sugar. Your meal plan is designed with the right amount of calories, carbohydrates, protein, and fat to give you energy throughout the day while keeping your blood sugar in control. It is best to follow your meal plan.

There is a list of free foods in the Exchange List for Meal Planning. Free foods have less than 5 grams of carbohydrate, so you do not have to count them. For example, if you add 1 tablespoon of fat –free mayonnaise to your sandwich you do not need to count this.

Foods within each exchange list can be substituted for each other as long as you eat the amount shown. That means you should not eat more or less than the portion size given in the exchange list. You can substitute foods between food groups if they have about the same amount of carbohydrate. There are many possible substitutions. Ask your PCP to teach you how to make the substitutions.



Is there much measuring?

At first it is important to measure your food. You'll need a small kitchen scale and measuring spoons and cups. Keep in mind that a dinnerware teaspoon or cup

may not be the same size as a measuring teaspoon or cup used for cooking. After a while you will be able to estimate portion sizes just by sight.

Carbohydrate counting



What is carbohydrate counting?

At first, the idea of counting all the grams of carbohydrate you eat may seem like too much work, but this meal plan is actually quite simple. However, it's important to talk with your nutritionist or diabetes educator about how many carbohydrates you can eat each day, because it varies depending on the individual. Then, you can plan your meals and snacks so that you don't go over or under your carbohydrate number.

Carbohydrate counting is not a new system, but it has received more attention in recent years. When you eat carbohydrates, the body digests them into several different sugars, one of them being glucose. The body uses glucose for energy. However, when you have diabetes, the cells of the body cannot use glucose and it remains in your blood. Therefore as a result, when you eat carbohydrates, your blood sugar goes up.

Many clinicians believe that because carbohydrates have the biggest effect on blood sugar a patient should be allocated a number of grams of carbohydrate to eat at each meal in order to keep their blood sugars under control without needing to do a lot of math. Studies show that the total amount of carbohydrate you eat each day affects the amount of insulin your body needs. These studies also show that the type of carbohydrate you eat is not as important as the total amount of carbohydrate you eat. This is true even if some of the carbohydrate comes from pure sugar.



What are carbohydrates?

There are three types of carbohydrates: **simple sugars**, **complex carbohydrates**, and **fiber**. Both simple sugars and complex carbohydrates increase the amount of sugar in your blood. Simple sugars can increase your blood sugar faster than complex carbohydrates.

Fiber plays an important part in the diabetic diet. Fiber may reduce blood sugar levels and the amount of insulin your body needs. Fiber is not digested and absorbed like other carbohydrates. It does not increase the amount of sugar in your blood as much as other carbohydrates do. In fact, it may help slow the rate at which your blood sugar rises. It is healthier to eat high-fiber carbohydrates like kidney beans or brown rice than processed carbohydrates like white bread or white rice. Try to make fiber-rich foods a big part of your eating plan.

Simple sugars are digested quickly. Many simple carbohydrates contain refined sugars and few essential vitamins and minerals. Examples include fruits, fruit juice, milk, yogurt, honey, molasses, maple syrup and sugar.

Complex carbohydrates take longer to digest and are usually packed with fiber, vitamins and minerals. Examples are vegetables, breads, cereals, legumes and pasta.

The bulk of the carbohydrate choices should be complex carbohydrates and most of the simple carbohydrate choices should come from fruits and milk or yogurt, which also contain vitamins and minerals.

Avoid making the bulk of your carbohydrate choices from refined foods high in sugar, since they are usually low in the nutrients we need to maintain health and energy levels.

Whole grains

Whole grains are very beneficial to your diet. They can help reduce your risk of heart disease, stroke, type 2 diabetes, several forms of cancer and some gastrointestinal problems. Whole grain varieties include wheat, oats, corn and rye along with lesser-known grains like barley, spelt, groats, wheat berries, millet and flaxseed. Whole grains are found in cereals, breads, flours and crackers and some whole grains can be used as side dishes or part of an entree. Whole grains are superior to refined grains because they include fiber, vitamins, minerals and many other important nutritional components.



How can I find out how much carbohydrate is in the foods I eat?

You can get the carbohydrate content of foods from four places:

1. **The American Diabetes Association's (ADA) Food Exchange Lists.** Contact the American Dietetic Association at 1-800- 366-1655 or the American Diabetes Association at 1-800-342-2383.
2. **Food labels.** Food labels list the carbohydrate content of one serving of food in grams. They also list the amount of dietary fiber and sugar. Be sure to count the **total** amount of carbohydrate, not just the carbohydrate from sugar.
3. **Food count books.** You can get books at your local library or bookstore that have food count information. Some good ones are:

The Diabetes Food and Nutrition Bible, by Hope S. Warshaw, MMSC, RD, CDE, and Robyn Webb, MS.

ADA Complete Guide to Diabetes, 3rd edition by the American Diabetes Association

Counting Carbs Made Easy for People with Diabetes (Fast Fact Series), by Marie McCarren

ADA Complete Guide to Carb Counting, by Hope S. Warshaw, MMSC, RD, CDE, and Karmeen Kulkarni, MS, RD, CDE.

The Doctor's Pocket Calorie, Fat & Carbohydrate Counter, by Allan Borushek (Family Health Publications)



How much carbohydrate should I eat?

Your nutritionist or diabetes educator will give you a range of carbohydrate you can eat throughout the day. It will depend on your body weight, your activity level, your current blood sugar level, and whether you have elevated blood fats called triglycerides.

A general guideline for meals would be 45- 60 grams of carbohydrates per meal, and 15- 20 grams per snack, however the amount of carbohydrates you need will sometimes vary. For example, on days when you are more physically active you may need to eat more carbohydrates. The only way to know if a carbohydrate quantity is right for you is to test your blood sugar. The amount of carbohydrates you eat during a meal will influence your blood sugar level after that meal. Measuring your blood sugar will help you figure out how much carbohydrate to eat at each meal.



Can I include sugar in my meal plan?

Most people with diabetes can eat foods with sugar in them. Studies show that pure sugar does not increase blood sugar any more than low-fiber starch. For example, one tablespoon of maple syrup (15 grams of carbohydrate) will raise your blood sugar level by about the same amount as ¹ 2 cup of mashed potatoes (also 15 grams of carbohydrate).

To control your blood sugar, the total amount of carbohydrates should stay the same for each meal or snack. For instance, if you want to eat a piece of cake for dessert, then you must eat fewer carbohydrates from other sources, like bread at that meal. This way, your total carbohydrate count stays the same for that meal.



So can I eat as many sweets as I want?

The key is moderation. If you eat too many sweets, your blood glucose level will rise. Sweet foods are usually low in vitamins, minerals, and fiber, and may cause you to gain weight. A good diet includes more complex carbohydrate foods than simple sugars. These include whole grain cereals, breads whole grain rice and whole grain pasta, legumes, and starchy vegetables. Once in a while you can eat a sweet instead of a healthier carbohydrate food as long as the total amount of carbohydrates you eat stays the same.

Meal planning tips

These tips are good for all meal plans:

Choose a variety of foods from each food group.

Eat foods high in complex carbohydrates and fiber.

Fiber may help lower your blood sugar level after a meal. You can increase the fiber in your diet by eating more whole grain breads and cereals. Eat lightly cooked or raw fruits and vegetables. Add dried beans, peas, or lentils to your daily diet.

Reduce cholesterol and saturated fats.

People with diabetes are at higher risk for heart disease and stroke. A diet that is low in saturated fat and cholesterol helps you reduce your risk of heart disease. The total amount of fat you consume each day should be no more than 30% of your total daily calories. This means:

√ Choose low-fat dairy products like skim or 1% low-fat milk and yogurt, low-fat cheese (less than three grams of fat per ounce), and 1% low-fat cottage cheese. Choose fish, skinless poultry, and meat alternatives (like beans, peas, and tofu).

√ Limit beef, lamb, veal, and pork to less than three meals a week. When you do choose these meats, select leaner cuts. Replace fatty luncheon meats with sliced turkey, chicken, lean ham, lean roast beef, or water-packed tuna. It's okay to add a little low-fat mayonnaise.

| Sources of Lean Protein | |
|--------------------------------|--|
| For this protein source | Choose from these cuts |
| Beef | extra lean sirloin tenderloin round |
| Lamb | loin leg |
| Pork | loin leg |
| Veal | Loin |
| Fish | cod, flounder, trout, salmon |
| Meat Alternatives | Tempeh, tofu |

- **Use only the amount of fat recommended in your meal plan.**

When you do use fat, use olive oil or canola oil instead of butter, lard, margarine, and other oils. Olive oil and canola oil are monounsaturated fats. This type of fat does not cause cholesterol to increase. It helps to lower LDL (bad) cholesterol. Saturated fats come from butter, cheese and meat and poultry. This type of fat can cause LDL to rise. Oil is 100% fat, so you'll need to count it in your meal plan. You will want to include some fat in your diet. If you lower fat too much, you may wind up eating too many carbohydrates. That could increase your blood sugar.

Avoid trans fats.

Trans fats are found in processed foods and should be avoided because they may elevate your cholesterol levels. Avoid foods with "partially hydrogenated oil" on the label. You may notice hydrogenated fats on labels for crackers, cereals, granola bars, candy, pasta, instant soup mixes, and many other processed foods.

Use sugar in moderation.

For dessert consider choosing fresh fruits or canned fruits packed in natural juices. Ask your nutritionist or diabetes educator how you can add cookies and muffins sweetened with fruit juice into your diet.



Can I have sugar substitutes?

Yes. There are many sugar substitutes for you to choose from. Some have calories and carbohydrates, and others don't. Be sure to read labels to know what you are buying.

There are two types of sugar-free products. The first includes products like diet drinks. The Food & Drug Administration (FDA) has approved the use of these low calorie sweeteners, and the American Diabetes Association accepts the FDA's conclusion that these sweeteners are safe; saccharin (Sweet'N Low[®]), Aspartame (Equal[®], Nutra-Sweet[®]), Acesulfame potassium (Sweet One[®]), Sucralose (Splenda[®]).

The second group includes products that say "sugar-free" on the label, but really have many calories. Sugar-free ice cream, yogurt, and cookies are good examples. These foods may be advertised as "sugar-free." However, most of them contain other forms of carbohydrate that need to be counted. Examples include the artificial sweeteners sorbitol, mannitol, and xylitol. Your provider can help you work these foods into your meal plan. Some other sugar-free products, like diet chocolate, are mainly saturated fat. Try to avoid them.

In addition, there is a dietary supplement available called stevia (STEE-vee-uh) that comes from a shrub native to Paraguay whose leaves have been used for centuries to sweeten food and beverages. Stevia is hundreds of times sweeter than table sugar, calorie-free, and does not raise blood sugar. It is best used for sweetening beverages. The U.S. Food and Drug Administration has approved stevia as a dietary supplement but not as a sweetener, because of insufficient safety data. You can buy stevia in health food stores as a dietary supplement.

- **Try to eat your meals and snacks at about the same time each day. Do not skip meals.** If you take diabetes pills or insulin, do not space meals more than five hours apart.
- **Monitor your Triglycerides.** Triglycerides are a form of fat in the diet that can clog arteries and increase the risk of developing heart disease and stroke. People with diabetes tend to have elevated triglyceride levels and triglycerides appear to be related to blood sugar control. Therefore, to

improve triglyceride levels it is important to maintain good control of blood sugar, follow a low fat diet, exercise, and if prescribed by your provider, take medication to lower your triglycerides.

- **Use alcohol sparingly, if at all.** Avoid sugary mixed drinks, sweet wines, and liqueurs. If you drink alcohol, it is best to drink it with a meal. Limit alcohol to no more than two drinks per day for men and one drink per day for women. A drink is a 5-ounce glass of wine, a 12-ounce can of beer, or a mixed drink containing one ounce of alcohol.
- **Limit the amount of sodium in your diet if your provider tells you to.** Sodium can affect your blood pressure if you are sensitive to salt. Your PCP can tell you which foods to select and which to avoid. Some items high in sodium are table salt, processed (refined) foods, restaurant and fast foods, and canned foods. Ask your provider if your over-the-counter medicines are low in sodium (for example, Riopan and Gelusil are low-sodium antacids.)

Shake the salt habit

Instead of salt, try using garlic powder, onion powder, or an herb seasoning like Mrs. Dash. Or make your own herb seasoning by mixing together 3 teaspoons thyme, 1 ½ teaspoons sage, 1 ¼ teaspoons basil, and 3 teaspoons marjoram. If you must add salt, reduce the amount.

To limit salt in your diet

Avoid seasoning food with: **Instead, try:**

| | |
|--|---------------------------|
| Salt | Herbs and spices |
| Seasoned salts | Onion powder |
| Monosodium glutamate (MSG) | Garlic powder |
| Prepared mustards | Dry mustard |
| Catsup, soy sauce, cooking wines, Worcestershire sauce | Green pepper, lemon juice |
| Steak sauce | Lemon juice |
| Barbecue sauce, salad dressings, pickle relish | Vinegar |

Exercise and Fitness

Exercise is important for everyone, especially people with diabetes. For instance, it:

- Helps your body use sugar faster and better
- Improves your blood flow and blood pressure and strengthens your heart and lungs
- Lowers the amount of fat (cholesterol and triglycerides) in your blood. This is important since fat plays a big part in heart and blood vessel diseases
- Makes insulin work better. People with diabetes who exercise daily often don't need as much insulin
- Increases your energy level and improves your strength and muscle tone
- Helps you lose or maintain weight. If you lose weight, you may reduce your need for diabetes medicines and your risk of complications from diabetes
- Lowers tension and stress
- Improves your overall mental and physical health



How do I choose an exercise program?

Talk with your provider before starting an exercise program. There may be special considerations due to your diabetes. Your provider will help you choose a routine based on your health and what you like to do. Be sure the exercise you pick fits your lifestyle and interests. If you choose an activity you enjoy, you'll be more likely to stick with the program.



Are there any general exercise tips?

Sure, here are a few:

- **Check with your provider before beginning an exercise program.** You should have a physical examination, including an exercise tolerance test, before beginning a new exercise program.
- **Check the weather if you exercise outdoors.** On hot days, exercise during cooler, less humid times of day like the early morning or evening. Drink extra fluids. Wear light, loose-fitting clothes. On cold days, wear one layer less of clothing than you would wear if you were outside but not exercising. Also, wear gloves and a hat.

- **Drink water during exercise.** It is important to replace fluids lost through sweating. Water is the best choice for staying hydrated.
- **Keep at it.** Unless you have to stop your regular workout for a health reason, stay with it. Set small, short-term goals for yourself. If you get bored, try exercising with a friend or family member.
- **Choose exercises that fit your health.** Select activities that are suited to your health condition. For example, if you have lost feeling in your feet, swimming may be a better choice for you than walking.
- **Listen to your body.** Some stiffness is normal at first. But if you hurt a joint or pull a muscle or tendon, stop exercising and rest for several days or until the pain is gone.
- **Take it easy.** Don't do too much too soon. Try for slow, steady progress.
- **Warm up and stretch.** Warm up with a low-impact exercise, such as walking, before beginning more strenuous exercise. Include stretching as part of your exercise program.
- **End your workout with a cool-down.** Gradually slow down at the end of your workout until your breathing becomes regular.
- **Add strength training to your workout routine.** Train with weights, bands, or on strength training machines to increase your body strength.
- **Do not take any over-the-counter medicine for injuries without talking with your provider.** S/he can tell you if it will interfere with any other medicine you're taking.

Whatever you choose, your initial goal should be to exercise 30 minutes, four days a week. If you can exercise longer or more often, that's great, but even 30 minutes a day will improve your health. The U.S. Surgeon General recommends that Americans exercise 30 minutes on most—preferably all—days of the week. Note that you can break the 30 minutes into 10-minute segments spread throughout the day.

Listen to your heart!

If you have heart problems, pay attention to the warning signs. Sudden dizziness, cold sweat, paleness, fainting, nausea or vomiting or pain or pressure in your upper body during or just after exercising, could be signs of trouble. Call your provider or 911 right away.



Are there any special tips for people with diabetes?

Be sure to follow these tips, along with those listed above.

Blood sugar

- **Check your blood sugar before and after exercising** If you plan to exercise for an hour or longer, check your blood sugar during exercise, too.
- **Do not exercise if:** your blood sugar is above 300 mg
you are taking insulin or diabetes pills and your blood sugar is below 100 mg
- **It is okay to exercise if** you are **not** taking insulin or diabetes pills and your blood sugar is below 100 mg.
- **For type 1 diabetics exercising too hard can raise blood glucose**
- **For type 2 diabetics exercising can lower blood glucose and it is recommended that you carry glucose tablets.**
- **Know how to treat high and low blood sugar**
- **Be sure your shoes fit well and feel comfortable.** They should not pinch, feel too tight, or rub.
- **Check your feet for cuts and redness before and after exercising.** Treat any problems you see.
- **Try to exercise one to two hours after eating.** This is the time when your blood sugar is the highest, and exercise tends to lower your blood sugar. Try not to exercise right before meals or when your medicine is peaking. This could make your blood sugar go too low.
- **If you plan to exercise after an insulin injection, do not use the parts of the body to be exercised as an injection site.** For example, if you plan on rowing, do not inject your arm. If you plan on running, do not use your thigh as an injection site. Your abdomen or buttocks is often a better site. This way, there is less chance the exercise will cause low blood sugar.

Walking Program

Your provider might start you on a walking program. Begin your program slowly; there's no rush. Keep in mind that you're not going to see dramatic results overnight. Your body will get stronger and healthier over time. For now, don't worry about stopwatches and technique. Just take a walk. Stick to a comfortable pace, just slightly more than a stroll.



Where should I walk?

The good thing about walking is that you can do it anywhere—around your neighborhood or at a gym or track. You can even do it at a mall. Many malls now have walking programs. Most malls are air-conditioned, so the temperature is always comfortable. Your community may have a walking group- walking can be a fun way to exercise with other people.

Quit Smoking

There is no safe way to smoke, and diabetes and smoking are a bad combination. Smoking puts you at greater risk for heart and blood vessel problems, like heart attack and stroke. It also increases your risk for lung cancer and other cancers, chronic lung disease (e.g., emphysema, chronic bronchitis) diabetic eye disease and kidney problems. Advantages to quitting smoking include:

- Decreasing your risk for heart attack, stroke, lung cancer, other cancers, and chronic lung disease

- Having fewer illnesses from colds and flu viruses

- Eliminating premature wrinkling of the skin, bad breath, bad smelling clothes and hair, and yellow fingernails associated with smokers



What is the best way to quit?

There are many ways to quit. For example, there are counseling services (e.g., telephone-based help to quit), self-help materials, and medicines (like nicotine replacement therapy and other medicines) available to help you quit successfully. People who are most successful in quitting participate in behavioral counseling and a combination of therapies such as nicotine replacement and medicine.

Ask your doctor about treatments to help you quit.

Nicotine replacements or other treatments can help you quit smoking. Additional resources for information on smoking and how to quit include:

American Lung Association 800-586-4872

www.lungusa.org

American Cancer Society

800-ACS-2345

www.cancer.org

American Heart Association

(800) 242-1793 (call center) www.amhrt.org

National Cancer Institute

Cancer Information Service 800-4-CANCER or 800-422-6237

www.cancer.gov

Nicotine Anonymous

877-TRY-NICA (877-879-6422) www.nicotine-anonymous.org

Smokefree.gov

(Online materials, including information on state Quitlines)

www.smokefree.gov

Chapter Three

Medication Therapy

Diabetes Pills

If you have type 2 diabetes, you may have tried to control your blood sugar through exercise and diet. If diet and exercise alone have not worked, you may need to take diabetes pills. Diabetes pills, also called oral diabetes medicine or oral hypoglycemic agents, only work in people whose bodies make some insulin of their own.

There are many different kinds of diabetes pills. Each works differently in the body, and you may need to take more than one type of pill. Some pills, like glyburide and glipizide, increase your insulin output. Others, like metformin, Actos[®], help enhance the work of insulin.

Diabetes pills are safe and easy to take. Be sure to tell your provider if they make you feel sick or if you have any other problems. Keep in mind that diabetes pills may not lower blood sugar enough by themselves. You will still have to follow an eating and exercise plan to help lower your blood sugar. Losing even a little bit of weight can sometimes help lower your blood sugar, and you may be able to stop taking diabetes pills if you lose weight.

Sometimes people who take diabetes pills need insulin shots for a short period of time. For example, insulin is sometimes given to patients when their blood sugar levels are very high, but once the levels are brought down to a normal range they are treated with diabetes pills. You may also need insulin shots if diabetes pills no longer work to lower your blood sugar, or you may need to take both. Also, new evidence has shown that combination therapy in which certain diabetes pills are taken along with insulin can be effective in keeping blood sugar levels in control when diabetes pills alone or insulin alone fail to do so.

Insulin



What is insulin?

Insulin is a hormone made in the pancreas, and everyone needs it to stay alive. Insulin works like a gatekeeper, allowing the sugar in your bloodstream to enter the cells, which is where the sugar is used as fuel for your body.

People with type 1 diabetes do not make any or enough insulin. People with type 2 diabetes cannot use insulin properly, so they need more of it. In both types of diabetes there is not enough insulin to let the sugar into your cells. As a result, sugar builds up in your bloodstream. This leads to high blood sugar.

If your body does not produce enough insulin to keep your blood sugars under good control, your doctor may prescribe insulin. Insulin, along with diet, exercise, and pills help to prevent complications.



How does the insulin get into your body?

Insulin cannot be taken as a pill. You need to inject it into your body. There are three ways to do this:

Needle and syringe: Most people inject insulin this way. At first you may be afraid to give yourself a shot, but most people find that the shots hurt much less than they expected. The needles are small and sharp and do not penetrate your skin deeply. **Always use your own needles, and never share them with anyone else.** This way you avoid any disease that can be passed from person to person.

Insulin pen: This device uses a replaceable insulin cartridge and a sterile disposable needle. Insulin pens are handy because you don't need to carry extra syringes and insulin bottles.

Insulin pump: Also known as Continuous Subcutaneous Insulin Infusion, insulin pumps are special devices worn outside the body on a belt or in a pocket. People who use this device have a steady supply of insulin delivered through a tube that connects to a small plastic catheter placed under the skin. The device then adjusts the amount of insulin delivered according to meals/food that is eaten.

Talk with your provider about the best method for you.



Are there different types of insulin?

Rapid- and short-acting insulins begin working quickly but don't last as long as the other types of insulin. They are mainly used to prevent rises in blood sugar after eating.

Regular is a common form of short-acting insulin and has been on the market for many years. A newer rapid-acting insulin called *lispro* (Humalog®) is available by prescription. It begins working 15 minutes after it is injected.

Intermediate-acting insulin takes a little longer to start working, but lasts longer than the short-acting insulin. It peaks 6 hours after it is injected. It usually does not last longer than 16 hours.

NPH and Lente are two forms of intermediate-acting insulin. Both have added ingredients that make them cloudy. NPH (Neutral Protamine Hagedorn) has protein added to it, and Lente contains zinc. The protein and zinc extends the insulin duration time of Lente and NPH. Always roll both types of insulin back and forth in your hands to make sure they're mixed. **Insulin should never be mixed by shaking.**

Long-acting insulin starts very slowly, but can last up to 24 hours. The amount of zinc added to *Ultralente* helps it last longer than Lente. You also should roll Ultralente back and forth in your hands to mix it.

Another type of long acting insulin called *glargine* (Lantus®) provides a slow, steady release of insulin. **Glargine cannot be mixed with other insulins.** Because it has no peak time, you may need to take a faster-acting insulin before meals. Be sure to take your *glargine* at the same time every day. There are no well-controlled studies of the use of insulin glargine (Lantus®) in pregnant women. Insulin glargine can be safely administered to pediatric patients greater than 6 years of age. Administration to patients less than 6 years of age has not been studied.

Your provider will tell you which insulin(s) is right for you, how often to use it, and how much to take. It will depend on the type of diabetes you have, your eating and exercise habits, and your typical blood sugar patterns through-out the day. You might need to use more than one type of insulin to get the best results. For example, you might have to mix short-acting and intermediate-acting insulin in

the same injection. This means the intermediate-acting insulin will peak when the short-acting insulin stops working. Once the rubber cap on the insulin is punctured the insulin will last for 30 days, with the exception of *glargine*, which only lasts for **28** days after the rubber cap is punctured.

There are other factors that also could affect how much insulin you need. When you are sick, have an infection, or are under a lot of stress, you might need more insulin. If you exercise a lot, you might need less insulin.

It is very important that you pay attention to the time you eat and exercise. Your provider will carefully design your insulin schedule so that your blood sugar stays as close to normal as possible. If you alter the timing of these activities, your insulin schedule will be thrown off, and you will not get the amount you need at the right time. Because your insulin doses are the same each day, you have to eat approximately the same amount of food at the same time each day, as well as maintain the same level of activity every day, in order to match your insulin dose. Your doctor may modify your insulin dose based on the results of your blood glucose measurements, how you're feeling, and major events occurring in your life - such as change in your job shift, weight loss or gain, illness, or travel across multiple time zones.

| Type of insulin | Onset-time it takes to start working (after entering the body) | Peak-time it works best (after entering the body) | Duration-total time it works |
|--|--|---|------------------------------|
| Rapid-Acting Lispro, Asparto | 0–15 minutes | 1- 2 hours | 2-5 hours |
| Short-Acting Regular | ½–1 hour | 2–4 hours | 4–8 hours |
| Intermediate-Acting NPH Lente | 2–4 hours 2–4 hours | 6–10 hours 6–10 hours | 10–16 hours 10–16 hours |
| Long-Acting Ultralente | 4–6 hours | 8–20 hours | 24–36 hours |
| Long-Acting Glargine, (Lantus) | 1 hour | no pronounced peak | 24 hours |
| 70/30 Pre-Mixed 70% NPH, 30% Regular | ½–1 hour | 2–3 hours/6–10 hours | 16–24 hours |



How is insulin measured?

Insulin is measured in units. Each unit lowers your blood sugar a certain amount. Your provider will tell you how many units of insulin you need during a 24-hour day to keep your blood sugar close to normal. Everyone's insulin dose and schedule are different. Many people need more than one injection a day.



How do I choose an injection site?

Usually you inject insulin into the fatty tissue under the skin. Be sure you do not inject it into muscles. The best injection site is the abdomen (except for the one-inch ring around the navel), but the buttocks, front of the thighs, and the back of the upper arms are also good injection areas. Insulin enters the bloodstream most dependably when injected into the abdomen. Insulin injected into other parts of the body, like the buttocks or thighs, absorbs more slowly. Your PCP might tell you to use the slower-absorbing injection sites at night when you want insulin to last for a longer time.

Use the same area for each injection, but separate each injection by one inch. Change the site once a week. If you take more than one injection a day, your provider may want you to use the same area for a certain time of day. For example, s/he may want you to give all morning injections in the abdomen.

If you are going to exercise within one hour after an injection, do not use the parts of the body to be exercised as an injection site. For example, if you plan on rowing, do not inject your arm. If you plan on running, do not use your thigh. When you use the part of the body being exercised as an injection site, the insulin enters the bloodstream very quickly. This can cause low blood sugar.



How do I store insulin?

- Keep the insulin you're using at room temperature. Unsealed insulin keeps for one month at room temperature. Keep any sealed insulin that is not being used in the refrigerator. If you're using insulin pens, check the instructions for storage information.
- Never let insulin freeze.
- Keep insulin out of sunlight.

- Do not leave insulin in the car where it can become too hot or too cold.
- Always check the expiration date and the type of insulin before using it.
- Always keep insulin with you when you travel. Do not check it through with your baggage.



How can I make my injections less painful?

Here are a few tips:

- Be sure the insulin is at room temperature before injecting it.
- Avoid air bubbles.
- Let the alcohol on the injection site dry before injecting insulin.

Monitoring Blood Sugar Control

Self Testing

When your body works normally, it automatically checks the level of sugar in your blood. If the level is too high or too low, your body adjusts the sugar level to make it normal again. But with diabetes, your body cannot adjust the level of sugar in the blood automatically. To make up for this, you need to test your blood for sugar. If it has too much or too little sugar, you may need to make changes in your eating, exercise, or medicine plan.

Testing your blood is a very important part of keeping your blood sugar under control. Your provider will tell you how often you should check it.

To test your blood sugar, you need a small needle called a lancet (used with a fingerstick device), special blood testing strips, and a blood sugar testing machine called a meter. Here are a few basic steps to follow:

1. Wash your hands with soap and warm water. Dry them well.
2. Hang your arm at your side for 30 seconds so that blood flows to your fingertips.
3. Rest your hand, palm side up, on a flat surface. Quickly prick your finger with the lancet and finger-stick device to get a drop of blood.
4. Apply the blood to the testing strip as directed by the instructions on your meter.
5. The meter will give you an exact number for your blood sugar.

5. Use the lancet only once. As soon as you're done, put it in a metal or hard plastic container with a screw-on or tightly secured lid. A coffee can is fine, but be sure to put heavy-duty tape around the lid before you throw it away.

Everyone with diabetes should use a meter to monitor blood sugars. Follow the instructions that come with the meter. Ask your pharmacist if you have questions.

Ketone Testing

While urine testing is not very accurate for checking your blood sugar, but it can show if you have **ketones** in your urine. Ketones are a chemical your body makes when it burns fat, instead of sugar, for energy. Your body makes ketones when there is not enough insulin in your blood. This occurs more often in type 1 diabetes. You probably will only have to do a urine test when you are sick or if your blood sugar is unusually high (over 240–300 mg) before eating a meal.

Ketones can make you very sick. Call your provider right away if you find ketones when you do a urine test. You may have a sickness called ketoacidosis. Ketoacidosis is serious. If you don't get medical help, you can die. Signs of ketoacidosis are **vomiting, weakness, fast breathing**, and a **sweet smell on the breath**. Ketoacidosis is more likely to develop in people with type 1 diabetes.

Your provider can prescribe strips for testing urine and will show you how to use them. You can also buy strips for testing urine at a pharmacy.

Hemoglobin A1c

Three Month Sugar Test: Hemoglobin A1c Blood sugar levels vary a lot from day to day, especially if you have diabetes. Any time you check your blood sugar you get important information, but you are only getting the level for that one time. The glycosylated hemoglobin test (often called the hemoglobin A1c test or HbA1c test) shows your average blood sugar levels over a three-month period.

Hemoglobin is the protein in red blood cells. The HbA1c test measures the amount of sugar attached to the hemoglobin. The amount increases as your blood sugar level rises. Since red blood cells survive for about three months, this test can show your average blood sugar over that time. The HbA1c is a simple blood test done in a lab. Ideally, your HbA1c level should be 6.5% or less, however this is not always easily achieved so your provider will help you set your specific goal.

You should have the HbA1c test for the first time when you are diagnosed with diabetes and then every three to six months. Your provider will tell you how often you need to have it based on your type of diabetes, treatment plan, and level of control. The HbA1c test is a valuable tool to help you and your provider decide if you need to make changes in your treatment plan. However, you also need to check your blood sugar regularly at home to make sure it does not go too high or too low at any time.

Record keeping

Each time you test your blood or urine, it's important to write down the results. Your provider will show you how to use a record sheet to keep this information. You also might want to write down:

- If you ate more or less food than you usually do
- If you felt sick or tired
- The kind of exercise you did and for how long

Take your record sheets with you when you see your Provider. S/he will review them to see if any changes need to be made in your insulin shots or diabetes pills, or in your eating or exercise plan.

All glucose meters will keep a track of blood sugar readings. Some have the capability to record/have memory of more results than others. Some will provide averages of glucose readings and others have downloadable software from the internet. Check the toll free number that is provided for your meter to see whether yours has this feature. There are also free internet websites such as MyDiabetes.com where you can record and keep track of your blood sugar readings.

Chapter Four

Managing Diabetes and Preventing Complications

Taking good care of your diabetes every day does more than keep your blood sugar from going too high or too low. **It is the most important thing you can do to prevent long-term health problems.** Long-term (chronic) health problems don't happen overnight. They develop over months and years. Often, these problems are not reversible. In most cases, you don't even know that diabetes complications are occurring until they cause a serious problem.

Your heart and blood vessels

Cardiovascular disease (CVD) includes those conditions that affect the proper functioning of the heart and blood vessels. It is the most common complication of diabetes, and can lead to heart attacks, strokes, and other serious problems. Examples of cardiovascular disease include heart attack, angina, heart failure, stroke and peripheral vascular diseases, which can cause gangrene or ulceration of the feet and leg, requiring amputation. People with diabetes are two to four times more likely to suffer from heart disease or stroke. Risk factors for cardiovascular disease include high blood pressure, high blood fat (lipid) levels, high blood sugar, obesity, inactivity, heredity, sex (males), and advancing age.

By controlling your lipids (total “good” and “bad” cholesterol and triglycerides) and blood pressure you can help reduce the risk of cardiovascular complications. Your doctor will work with you to monitor your blood pressure and lipids levels. Both should be checked at least once a year and more frequently if you are not at goal. If your blood pressure is not at goal, or if you have heart disease, your doctor may suggest that you monitor your blood pressure at home.

Diet, exercise, and not smoking are the most important ways of controlling your blood pressure and lipids. However, many people also need to take medicine to reach their blood pressure and lipids goals.

Blood pressure and lipids goals for people with diabetes:

- Blood pressure should be less than 130/80 millimeters of mercury (mm/Hg)
- LDL (bad) Cholesterol should be less than 100 mg/dl
- Triglycerides should be less than 150 mg/dl

- HDL (good) Cholesterol should be greater than 40 mg/dl

Clinical studies have shown that a daily aspirin can help to prevent heart attack or stroke in many people. Blood contains platelets that act by clotting blood. The blood of people with diabetes tends to be “stickier” than those without diabetes. The stickiness of the blood is more prone to clotting and thereby puts those with diabetes puts at risk for heart attacks and strokes. Aspirin works by blocking the tendency of platelets to clot. Talk with your doctor about which medications, including non-prescription medications like aspirin, are right for you.

Your eyes

Diabetes can cause many types of eye disease, like **retinopathy**, **glaucoma**, and **cataracts**. Diabetic retinopathy is an eye disease in which there is damage to the small blood vessels in the retina of the eye. Glaucoma is an increase in fluid pressure inside the eye. Cataracts are a clouding of the lens of the eye. While all three are serious, retinopathy and glaucoma can lead to permanent loss of vision or even blindness if left untreated. You can help prevent eye problems by having routine eye exams and by keeping your blood sugar level as close to normal as possible. If your eyes are already damaged, an eye doctor may be able to save your sight with laser treatments or surgery.

Here are some other rules for caring for your eyes:

- **If you have type 1 diabetes:** Have your eyes examined after you have had diabetes for five years and every year after that first exam. (Children should have an eye exam in their early teens).
- **If you have type 2 diabetes:** Have an eye exam right away and then once a year after the first eye exam.
- **If you are thinking of becoming pregnant:** Have an eye exam first.

Call your doctor right away if your eyesight is blurry, or you see dark spots, flashing lights, or rings around lights.

Your kidneys

Your kidneys help clean waste products from your blood. They also work to keep the right balance of salt and fluid in your body.

Too much sugar in your blood is very hard on your kidneys. After a number of years, high blood sugar can lead to **kidney failure**. Diabetes is the main cause of kidney failure. In people with diabetes, controlling blood pressure is also very important for preventing kidney failure.

Some ways to help prevent kidney problems include:

- Keep your blood sugar in tight control.
- Take your high blood pressure medicine.
- Ask your PCP if you should eat less protein, like meat, eggs, cheese, milk, and fish.

See your PCP right away if you have signs of a bladder or kidney infection. These signs include; **cloudy or bloody urine, pain or burning when you urinate**, and **having to urinate often or in a hurry**. Back pain, chills, and fever are also signs of kidney infection.

Your Provider should test your urine once a year for signs of kidney damage. Current testing methods can detect kidney damage before any damage occurs. These results will allow your provider to begin therapy to prevent kidney damage. Certain blood pressure medicines may help reverse or slow kidney disease.

Your gums and teeth

Diabetes can lead to infections in the gums and bones that hold your teeth in place. Like all infections, gum infections can cause blood sugar to rise, making the problem worse. Without treatment, teeth may become loose and fall out.

To help prevent damage to your gums and teeth:

- See your dentist twice a year. Tell him or her that you have diabetes.
- Brush your teeth with a soft-bristle toothbrush at least twice a day.
- Floss your teeth at least once a day.
- Replace your toothbrush every three to four months.

Your nerves

Over time, high blood sugar can harm the nerves in your body. Nerve damage, or neuropathy, from diabetes can cause you to lose feeling in your feet or have painful, burning feet. It can cause pain in your legs, arms, or hands. Nerve damage can also cause problems with digesting food, urinating, or having sex.

Damage to nerves happens slowly. You may not realize that some of your symptoms are related to nerve problems. If you are having symptoms, tell your doctor. There may be treatments available to help with symptoms. Your Provider should check your nerves once a year. Part of this exam should include tests to check your sense of touch and the pulses in your feet.

The diabetic foot

Nerve damage to the feet along with circulation problems are the main causes of complications, which can lead to amputations in people with diabetes. You may not feel pain from injuries or sore spots on your feet. If you have poor blood flow because of blood vessel problems in your legs, the sores on your feet may not heal and might become infected. If the infection is not treated, it could lead to the need for amputation. Check your feet every day to look for problems you might not feel.

Foot Care

If you have diabetes, caring for your feet needs to be as routine as brushing your teeth. This means you must check your feet for cuts, scratches, redness, and swelling every day. You also need to protect them with the right footwear. These steps are an important part of staying healthy and avoiding serious foot problems.



Why should I check my feet?

People with diabetes can develop infections easily from minor wounds. This happens because:

- Diabetes can damage nerves in your feet, making you less able to feel pain. As a result, you may not feel a small cut or scratch until you have a bad infection.
- Diabetes can reduce your circulation. This is a problem since you need proper blood flow to heal injuries.

- High blood sugar can make your body unable to fight infection from cuts and scratches.

You can reduce your risk of infection by keeping your blood sugar in good control and learning how to properly care for your feet.



When should I see a podiatrist?

A podiatrist is a doctor who specializes in care of the foot. You should see a podiatrist if:

- Your primary care physician refers you for evaluation of a foot problem and education about proper foot care. The podiatrist will teach you how diabetes can affect your feet. S/he may set up a foot care program for you.
- You have problems in caring for your own feet or have a lack of feeling or poor blood flow in your feet. You may need to see a podiatrist on a regular basis for evaluation and foot care. However, most people with diabetes can care for their own feet on a regular basis.



How do I care for my feet?

Here's what you should do every day

Washing

- Wash your feet with mild soap and lukewarm water. Always check the water temperature with your elbow (or another part of your body that is sensitive to heat) before putting your feet in. Never put your feet into hot water.
- Never soak your feet. This dries the skin and makes it more prone to cracking and infection.
- Use a soft washcloth to clean your feet thoroughly and get all the soap off.
- Use a soft towel to dry your feet, especially between your toes. Never dry or warm your feet by putting them on or near a radiator or heater.

Inspecting

Check your heels, the tops and bottoms of your feet, and between your toes for any signs of irritation or infection, such as:

- Sores
- cuts

- blisters
- cracks
- blue, purple, or white spots
- coldness (your feet should be warm)
- red “hot” spots
- swelling
- scaling

If you can't see the bottoms of your feet, use a mirror. If you still can't see them, have someone look for you. If you see any of these signs, follow the instructions under “Foot First Aid on page 36. If you see something unusual or have any concerns, call your podiatrist or primary care clinician right away.

Skin care

Apply a water-soluble moisturizing cream (like Eucerin or Nivea) to keep skin soft. This is very important for dry and callused skin. Never use cream between your toes or on open sores. It is recommended that you do not use petroleum jelly, Vaseline, mineral oil, or perfumed lotions that contain alcohol.

Toenails

- Cut your toenails after a shower. This is when they are softest.
- To avoid cutting the skin around the toe, trim toenails straight across using nail clippers, an emery board, or a file. Do not use scissors.
- Carefully file sharp toenail edges to prevent them from cutting into your skin.
- If it's hard to trim your own nails, if you lack feeling in your feet, or if you have poor blood flow, see your podiatrist for help.

Your sex life

Diabetes can damage the nerves that control blood flow to the genitals. This can prevent a man from being able to have an erection (called erectile dysfunction), and it can cause vaginal dryness in women. The good news is that there are many treatments available. Don't be afraid or embarrassed to talk with your doctor about this problem.

Tell your Provider about any problems with your feet, legs, hands, or arms. Tell him or her if you have trouble eating, urinating, or having sex, or if you feel dizzy sometimes. And don't smoke. Smoking makes poor blood flow worse.

Your Emotions



What emotions are normal?

Most people feel many emotions about having diabetes. Some are angry, sad, afraid, or depressed. Some deny they have the disease. Usually, they feel a mixture of emotions that come and go.

Though uncomfortable, these emotions are normal. Diabetes requires that you change your lifestyle, and this can be hard to handle. You need to learn to accept your disease. The good news is that diabetes is treatable. If you make the necessary changes, you can live a happy, fulfilling life.

Denial

You may wonder how diabetes could happen to you. Perhaps you have been healthy your whole life and just recently found out you have diabetes. Denial can be a healthy reaction to your disease. It gives you time to deal with your new situation. However, once you accept the disease, you are better able to make changes in your lifestyle.

Denial also can be harmful, especially if it keeps you from checking your blood sugar often, taking your medicine, watching your diet, or getting exercise. If you don't take care of your body, you put yourself at risk for more problems.

Anger

It is very common for people with diabetes to feel angry. You may feel trapped and frustrated by the disease. Sometimes people direct this anger toward their family, their clinicians, or themselves.

Everyone feels anger now and then. Sometimes anger at the disease can help motivate you to control your diabetes. But it is important that your feelings about the disease do not control your daily living, keep you from coping well, or harm your relationships.

Fear

Major illnesses can be scary. You may worry about health problems linked to diabetes. You may even worry about death.

Again, though uncomfortable, these fears are normal. Diabetes will probably require you to change the way you usually do things and be more aware of how your body is working and feeling. While some fear can be motivating, too much

fear can sometimes lead to discouragement or despair. Keep in mind that people with diabetes who take care of their health can lead happy, healthy lives.

Talk with your health care team about what you find most frightening about diabetes. They may be able to relieve your fears or help you work out ways to avoid the problems.

Guilt

Sometimes people feel guilty because they think they have brought on their diabetes or that the disease is punishment for something else. Guilt may keep you from doing what is necessary to cope well and control the disease. It is also important not to let feelings of guilt lead to discouragement or depression. You can take responsibility and do many things to help control the disease once you have it.

Depression

No one wants diabetes. Although manageable, the condition will remain with you the rest of your life. This thought can be discouraging. It's hard to change the way you do things. Now you must watch what you eat and how much exercise you get. You need to remember to check your blood sugar and take your medicine. Your life may not be as carefree as it was before. This can be difficult and sad. Everyone feels "blue" now and then, especially when learning bad news. However, if feelings of discouragement lasts longer than four weeks and include some of the symptoms listed below, it may be a sign of clinical depression. The good news is that depression is treatable and reversible, but it is important that you discuss this with your Provider.



How can I deal with these feelings?

You may want or need help in dealing with depression, anger, guilt, or other feelings. Help is especially important if these feelings keep you from caring for yourself the right way. Here are a few things you can do:

- **Talk with your primary care clinician about what you are feeling.** S/he can help you evaluate whether you are suffering with depression and guide any treatment needed. S/he may suggest that you see a **mental health clinician** who can provide therapy and if necessary, medications to treat depression. Make sure you see someone who understands long-term diseases like diabetes.

- **Ask your family and friends for help.** They can be a great source of strength and encouragement. As much as possible, include family members in all decisions that affect you. Don't be shy. Let them know how they can help.
- **Join a diabetes support group.** It helps to talk with others going through the same thing. It's also important to know that you're not the only one with these feelings. Sharing your thoughts and experiences with other people with diabetes can be empowering.
- **Exercise every day.** Not only is exercise important for keeping your blood sugar in control, but it's a great way to relieve stress and anxiety.
- **Try meditation, yoga, or relaxation exercises.** While these simple techniques may not be right for everyone, many people find they are a good way to relieve stress.
- **Educate yourself.** Enroll in diabetes education classes. This can be one-on-one counseling with a nurse or diabetes educator or group diabetes education classes. Diabetes classes are good for people who have just been diagnosed with diabetes and those who need a refresher course. They also can be very helpful for family members and friends. Look in the library or bookstores for more information about diabetes. The more you read and learn, the better able you will be to make decisions about your health. Learning more can also help ease your fears.

Chapter Five

Special Situations

Special situations are times that you need to be extra focused on taking care of yourself and controlling your disease. Sometimes this just means finding ways to care for your diabetes in different settings, such as at school, or when you're away from home. Other times it requires that you watch your disease very closely, like when you are sick or planning a pregnancy. Your Provider can help you, but here are a few things you'll want to keep in mind.

When you are sick

You need to pay special attention to your diabetes when you have a cold, flu, infection, or other illness. Being sick can raise your blood sugar. Be sure to:

- Tell your Provider that you are sick.
- Test your blood sugar every four hours, and write down the results.
- Keep taking your diabetes medicines, but call your Provider right away if you cannot keep food down.
- Drink plenty of liquids.

Call your Provider right away if you have one or more of these symptoms:

- Your blood sugar is over 300 mg for two tests in a row at least an hour apart
- You find ketones in your urine
- You cannot keep fluids down
- You feel sleepier than usual
- You have trouble breathing
- You cannot think clearly
- You throw up more than once
- Acute abdominal pain
- You have diarrhea
- You have a fever higher than 101.5 F or 38.5 C

If you have to go to the hospital or emergency room, tell the doctors and nurses that you have diabetes. Ask them to call your Provider.

When you are away from home

Follow these safety suggestions:

- Try to eat meals at the same time each day.
- Take your diabetes medicine and test your blood sugar, as usual.
- Tell your teachers, friends, or close coworkers about the signs of low blood sugar. You may need their help if your blood sugar drops too low.
- Keep snacks with sugar in them in your desk and carry some with you at all times to treat low blood sugar reactions.
- Tell your company nurse or school nurse that you have diabetes.

When you travel

Don't let your diabetes stop you from traveling, whether it be a day trip or an extended vacation. You can live a normal life. But, it's very important to remember to take care of your diabetes, even when you're away.

Before you travel, remember to ask your Provider:

- For written prescriptions for your diabetes pills and insulin and the name of a doctor in the place you'll be visiting if you're going away for a long time.
- For a letter saying that you have diabetes and need insulin shots (if you're going to another country). If asked, show the letter to the customs agents.
- How to adjust your medicines, especially insulin shots, if you're traveling across time zones.

Take care of your medicines and supplies:

- Carry your medicines (insulin, insulin needles, and diabetes pills) and your blood testing supplies with you. Never put them in a suitcase you check at the airport or leave with someone else.
- Take extra pills, needles, insulin, and blood testing strips when you travel in case of loss or breakage. Don't count on buying extra supplies while traveling, especially when going to other countries. **Most other countries use different kinds of insulin and needles.**

- Buy special insulated bags to carry your insulin so that it does not freeze or get too hot. When traveling by car, keep your insulin in a small cooler. Heat spoils insulin quickly.
- Notify screeners if you are wearing an insulin pump and request that they should visually inspect the pump rather than removing it from your body.

Take care of yourself:

Always test your blood sugar before driving and during the trip if you're driving for more than a few hours. Always carry snacks like fruit, crackers, juice, or soda in the car in case your blood sugar drops too low.

- Ask ahead of time for a diabetes meal if re traveling by plane. Most airlines serve special meals for people with health needs. Check to see if the airline serves meals, as some do not. Carry food (like crackers or fruit) with you in case meals are late.
- Take more than one pair of comfortable, well-fitting shoes on vacation. You will probably be walking more than usual and should take extra good care of your feet.
- Advise airline screeners when experiencing a low blood glucose level and explain that you are in need of medical attention. New airline security regulations have been established that affect people with diabetes. **You should be aware of the following U. S. Federal Aviation Administration guidelines:**

1. Boarding with syringes or insulin delivery systems is acceptable only if a vial/pen/cartridge of insulin with a professional, pharmaceutical pre-printed label, which clearly identifies the medication is produced. No exceptions will be made. The FAA recommends that passengers bring the original insulin box, which usually displays the label.
2. Boarding with lancets for blood sugar monitoring is acceptable as long as the lancets are capped, and as long as the lancets are brought on with the glucose meter that has the manufacturer's name embossed on the meter (i.e. "One Touch" or "Accu-chek").
3. The FAA recommends that passengers traveling with glucagon kits keep it intact in its original pre-printed pharmaceutically labeled container.
4. international travel regulations. Be advised that the FAA's policy and the policy of each airline is subject to change.

5. Should a passenger be denied boarding, they should ask to speak to the security screener's supervisor or contact the FAA grounds security commissioner at the departing airport.

Organizations

American Diabetes Association (ADA)

1701 North Beauregard Street

Alexandria, VA 22311

Phone: **1-800-DIABETES (1-800-342-2383)**

Internet site: <http://www.diabetes.org>

Provides information, educational pro-grams, support groups, summer camps, and much more. Publishes a monthly magazine called Diabetes Forecast.

You also can contact your local chapter at one of the addresses in the table on the next page.

National Diabetes Information Clearinghouse (NDIC)

1 Information Way

Bethesda, MD 20892-3560

Phone: **1-800-860-8747** or **(301) 654-3327** Fax: (301) 907-8906

Email: ndic@info.niddk.nih.gov

Internet: www.diabetes.niddk.nih.gov

MedicAlert Foundation International

Phone: **1-800-ID-ALERT (1-800-432-5378)**

MedicAlert sells bracelets and necklaces engraved with your medical condition. In emergencies, medics can quickly call MedicAlert and get your health information.