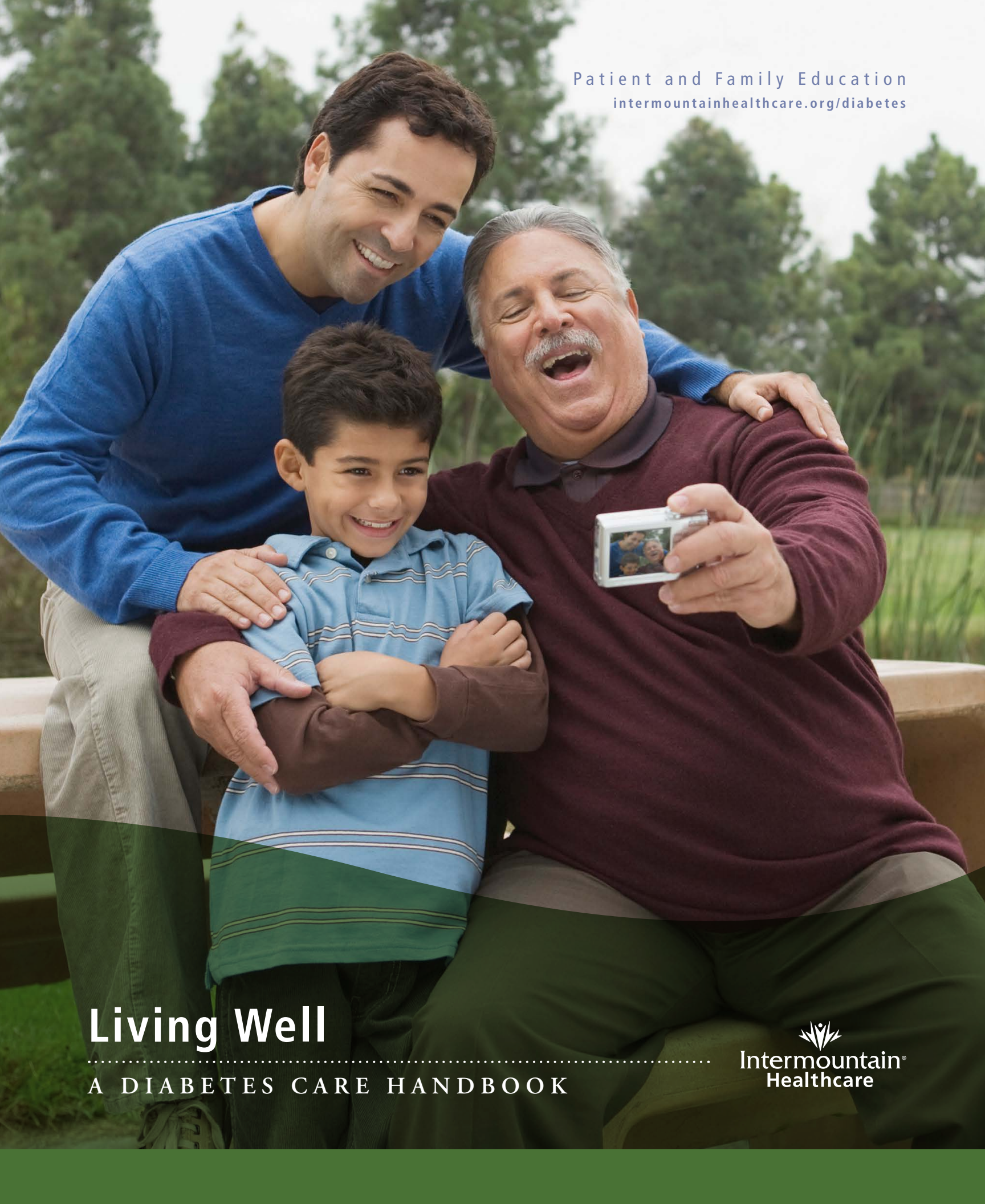


Patient and Family Education  
[intermountainhealthcare.org/diabetes](http://intermountainhealthcare.org/diabetes)



# Living Well

A DIABETES CARE HANDBOOK

  
Intermountain<sup>®</sup>  
Healthcare



**A PERSON WITH DIABETES HAS...**

***lots of company.***

Nearly 26 million Americans have diabetes, although more than one-third don't know they have it. Experts say that in the coming years, the number of people with diabetes will increase.

***a reason to learn more.***

Diabetes often comes with two other health risks, high blood pressure and high cholesterol. But each of these conditions can be treated — and the more you learn, the better you can take care of yourself.

***every chance for a healthy and satisfying life.***

Like many other people with diabetes, you can feel good, stay healthy, and enjoy your life for a long time to come.



This guide may not tell you everything you need to know about diabetes, but it's a great place to start. Along with your healthcare providers, the information in this guide will help you understand your diabetes and what you can do to take care of yourself.

This guide, and other diabetes education materials, are available on the internet at [intermountainhealthcare.org/diabetes](http://intermountainhealthcare.org/diabetes). For individualized information and support, contact a diabetes educator in your area. See page 110 for help connecting to diabetes education.



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“ When my doctor told me I had diabetes, I was shocked. I never thought it would happen to me — and I was really frightened.

But a friend with diabetes shared a saying that helped him when he was first diagnosed: “Fear is a reaction, but courage is a decision.” Well, the first decision I’ve made is to learn as much as I can about this disease. I can’t say that I feel brave yet, but the more I learn, the calmer I feel. I feel more in control.

I’m ready to do what it takes to stay healthy.”

— Mary B,  
recently diagnosed with  
type 2 diabetes

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# 1 Understanding Diabetes

You'll find it easier to manage your diabetes if you have a good understanding of what's going on in your body. This section explains how diabetes changes your body's normal processes and how the disease can affect your health.

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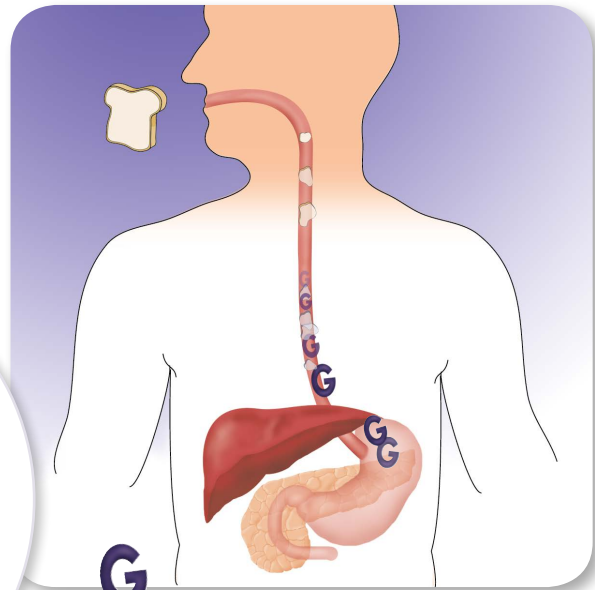
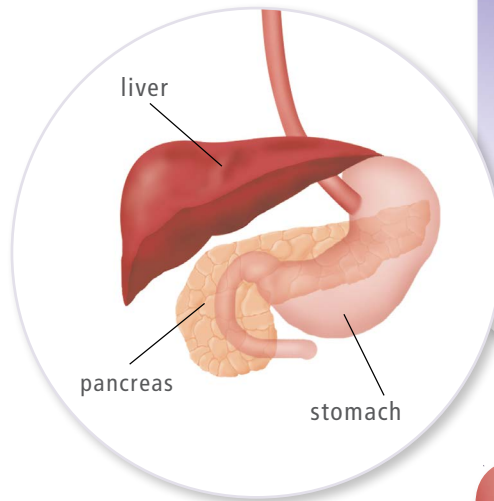
# How Things Normally Work

Diabetes affects your ability to turn food into energy. To really understand this impact of diabetes, it helps to know how your body does this when you DON'T have diabetes.

## From food to fuel

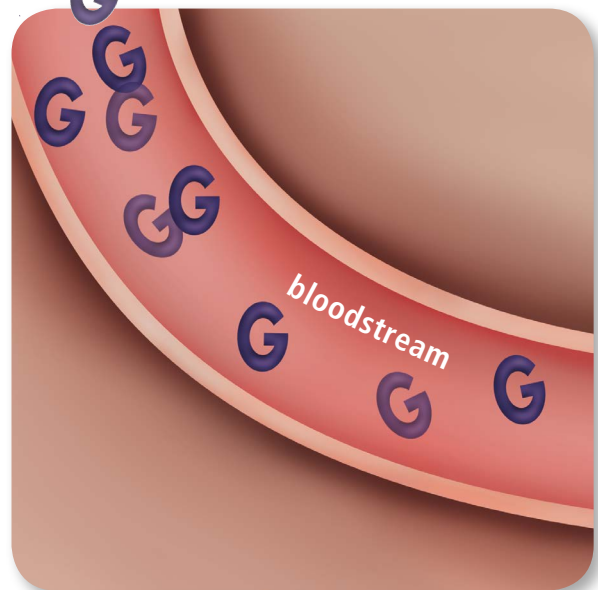
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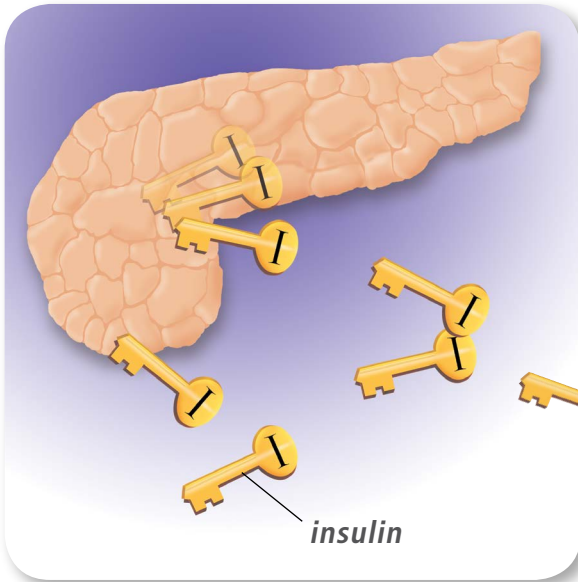
When you eat, your body breaks food down into glucose. **Glucose** is a type of sugar that is your body's main source of energy.



2

Glucose from food is absorbed into the bloodstream. Your **blood glucose** — the amount of glucose in your blood — begins to rise.



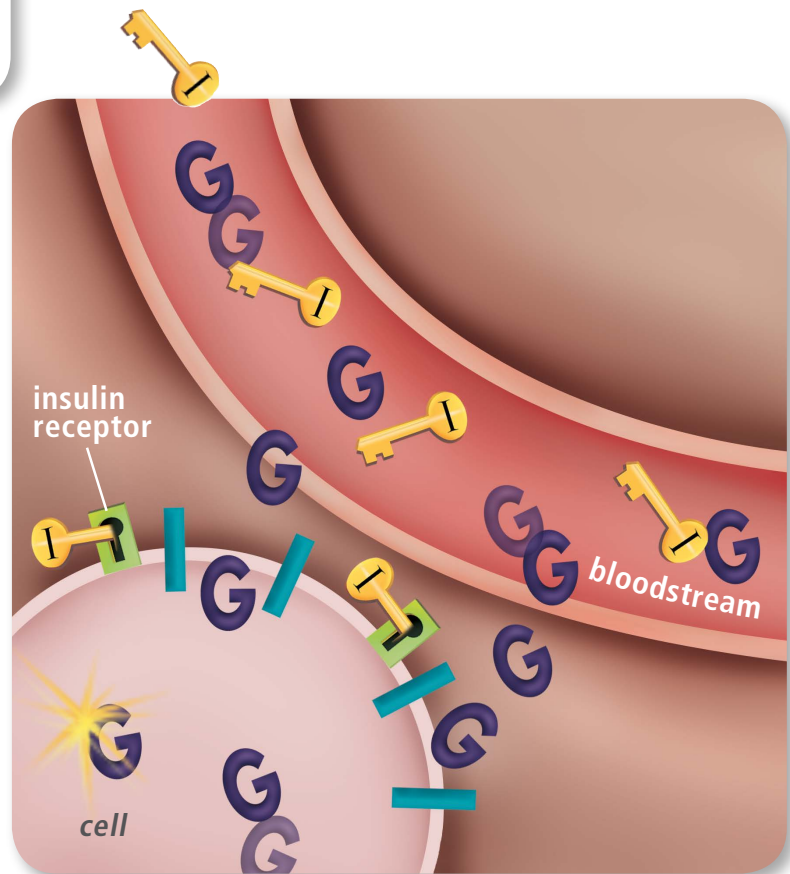


3

As blood glucose rises, the body sends a signal to the pancreas, which releases a hormone called **insulin**.

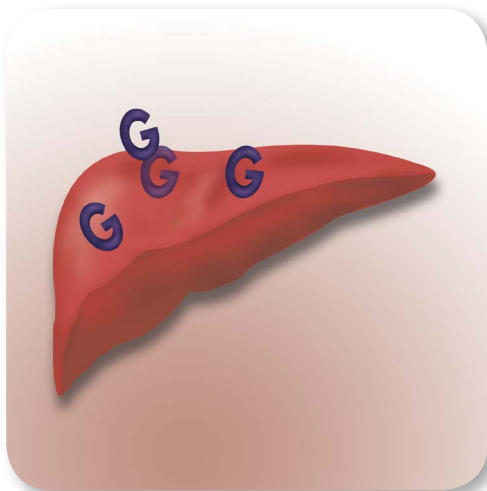
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Insulin allows the glucose to enter the body's cells. Here's how: Acting as a key, insulin binds to a place on the cell wall called an **insulin receptor**, unlocking the cell so that glucose can pass from the bloodstream into the cell. Once inside the cell, most of the glucose is used for energy right away.



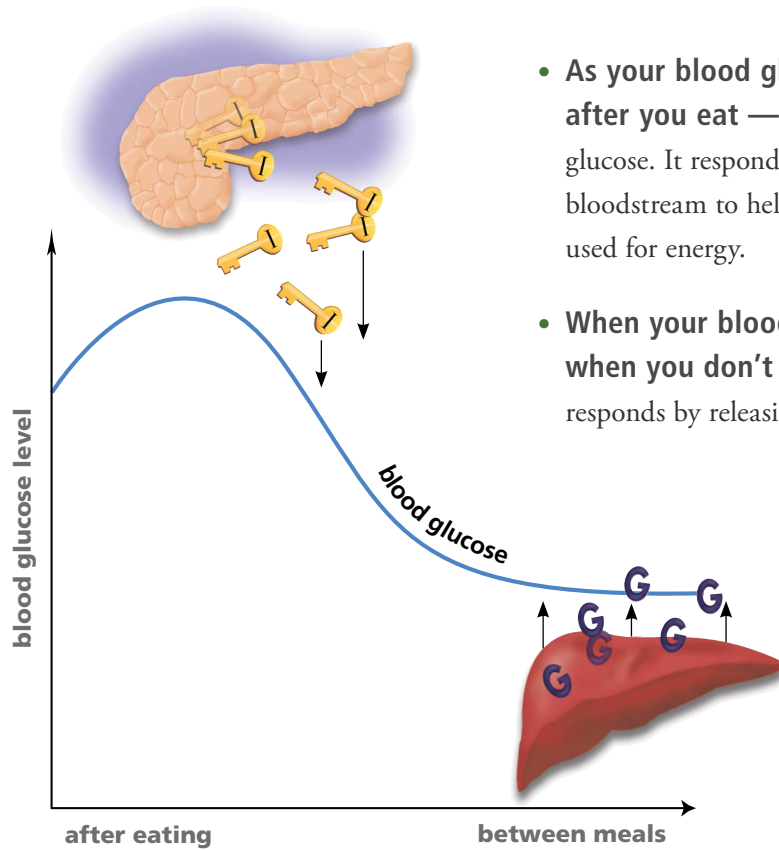
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Some glucose is stored by the liver for later use.



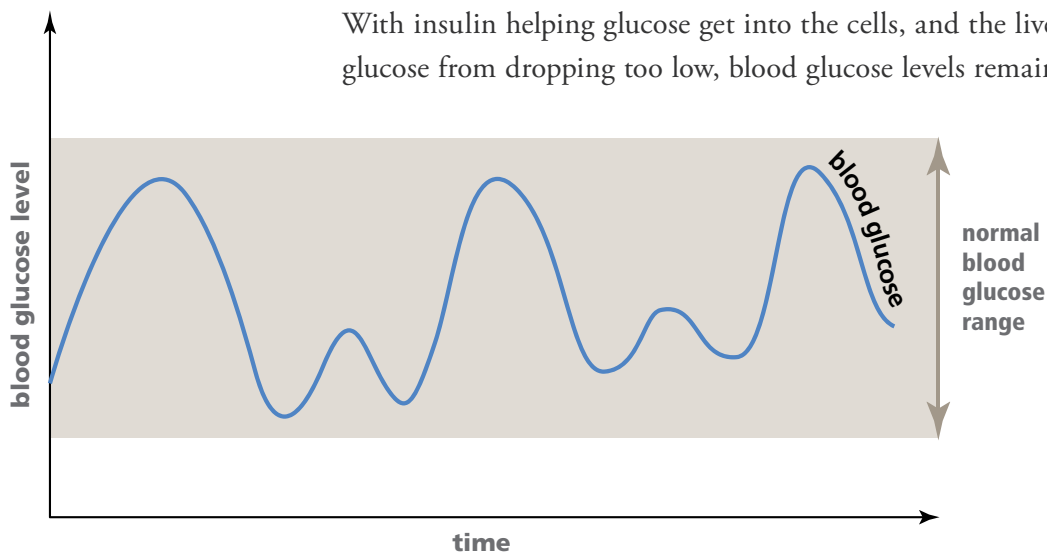
## Blood glucose regulation

Everyone's blood glucose levels go up and down throughout the day. They rise after a meal, then drop again as the body uses up the glucose provided by the food. The pancreas and liver help regulate these changing levels. Here's how it normally works:



- **As your blood glucose starts to rise — as it does after you eat** — the pancreas senses this rise in blood glucose. It responds by making insulin and releasing it into the bloodstream to help move the glucose into your cells where it's used for energy.
- **When your blood glucose is low — as can happen when you don't eat** — the liver senses this drop, and responds by releasing glucose into the bloodstream.

With insulin helping glucose get into the cells, and the liver preventing blood glucose from dropping too low, blood glucose levels remain within normal limits.





# What Happens with Diabetes?

When you have diabetes, your body still breaks down the foods you eat into glucose. The problem lies in what happens later, when your body tries to use the glucose.

## Starving cells — and high blood glucose

With diabetes, your body has trouble getting glucose out of your bloodstream and into your cells to be used for energy. The reasons for this depend on the type of diabetes you have. Your pancreas may make little or no insulin. Or, your body's cells may not respond properly to the insulin in your blood. Or you may have a combination of these problems. Still, without the right amount of properly working insulin, the end result is the same:

- **Your cells are starved for energy**, even though your blood contains large amounts of glucose. Right away you feel fatigue, hunger, and other symptoms.
- **Your blood glucose is too high**. Unused glucose builds up in your bloodstream. Over time, high levels of blood glucose can damage your nerves and blood vessels, and cause a variety of health complications.

### A MATTER OF METABOLISM

Diabetes is a metabolism disorder — a problem with the way your body uses digested food for growth and energy.

#### DIABETES MELLITUS: WHAT'S IN THE NAME?

The medical name for diabetes is diabetes mellitus, often abbreviated "DM." It comes from these words:

*diabetes =*  
*Greek for "siphon."*

*A reference to the thirst and frequent urination that can accompany untreated diabetes — as if people are like siphons, fluid pouring through them.*



*mellitus =*  
*Latin for "honey" or "sweet."*

*A reference to the glucose (sugar) in the urine of people with uncontrolled diabetes.*



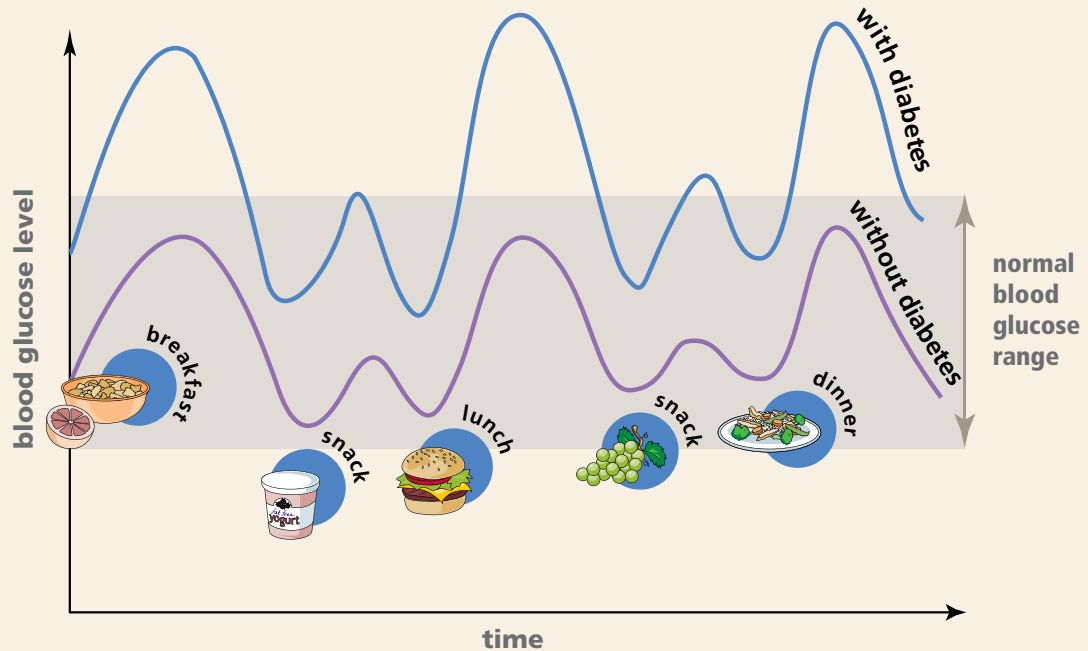
This ancient name is fitting for a disease that was first identified more than 2,000 years ago.

## Diabetes and your blood glucose levels

Here's a comparison of normal blood glucose levels — and those in a person with diabetes:

In a person **with diabetes**, blood glucose levels tend to run high. They may also vary dramatically throughout the day.

In a person **without diabetes**, blood glucose levels usually stay within normal ranges despite ups and downs throughout the day.



Keep in mind that there's a lot of variation from person to person and day to day. Still, generally speaking, when you have diabetes, your treatment needs to smooth out the peaks and valleys in your blood glucose levels and lower your average blood glucose level. This helps make sure your blood glucose stays in your target range.

### MYTH

*"Diabetes comes and goes."*

### TRUTH

Unfortunately not. Although diabetes symptoms may come and go — and your condition may change over time — the underlying disease is always there. It can't be cured, only managed.

That's why you need to stick to your diabetes self-management plan and stay in contact with your healthcare providers. If you do need an adjustment to your plan, they can help you.

# Types of Diabetes and Other Metabolic Disorders

The main types of diabetes are **type 1**, LADA (latent autoimmune diabetes in adults), and **type 2**. Two other conditions, **gestational diabetes** and **pre-diabetes**, also affect your blood glucose. So can **metabolic syndrome**, a condition that often contributes to the development of diabetes.

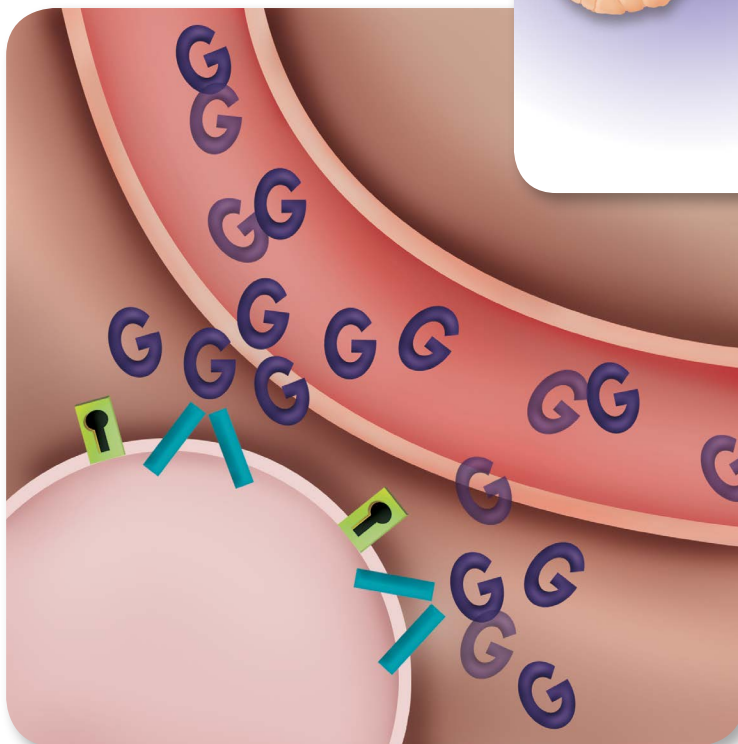
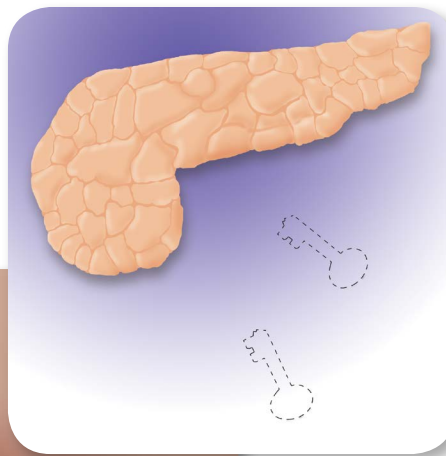
These conditions can have different causes, and they may behave differently and require different treatments. That's why it's important to know exactly what you've been diagnosed with and how it affects your body.

## Type 1 diabetes

If you have **type 1 diabetes**, your pancreas has stopped (or nearly stopped) making insulin. This is sometimes called **insulin deficiency**.

*When you have type 1 diabetes...*

*Your pancreas has stopped producing insulin.*



*Since you've suddenly lost your insulin "keys," you have no way to unlock your body's cells and allow glucose to enter.*

### HOW COMMON IS TYPE 1 — AND CAN IT BE PREVENTED?

About 1 in every 500 children or teenagers has type 1 diabetes.

Researchers are studying how and why type 1 happens. Right now there is no known way to prevent it.

**MYTH**

*"Type 1 diabetes can be cured with islet cell transplantation surgery."*

*(This is a surgery to implant new insulin-producing cells into the body of a person with type 1 diabetes.)*

.....

**TRUTH**

Although islet cell transplantation currently offers the best hope of a cure for people with type 1 diabetes, experts say that there are several serious obstacles to be overcome before it can be considered a true cure for diabetes.

Since 2000, more than 470 transplanted patients have been living without the need for insulin injections. However, these people must take powerful, potentially harmful drugs for the rest of their lives to prevent rejection of the transplanted cells. Another problem is the severe shortage of islets for human transplantation. The good news is that scientists are working hard to solve these problems.

## What causes type 1?

Type 1 diabetes happens when your body's immune system — which is responsible for fighting infection — attacks your own pancreas. When the pancreas cells that produce insulin are destroyed, your body can't make insulin any more.

What causes your body to do this? Scientists are still studying the reasons. But, it seems that both genetics (inheritance) and environment are factors. Scientists believe that type 1 occurs when something in the environment triggers diabetes in a person who already has a genetic tendency toward the disease.

Type 1 diabetes usually appears suddenly and progresses quickly. It tends to occur in people of normal weight. It can cause a rapid weight loss before it's detected and treated. Anyone can get type 1 diabetes. Children and young adults get it most often, especially those with a strong family history of type 1 diabetes.

## How is type 1 treated?

People with type 1 diabetes must take insulin every day — usually several times a day. Most people take insulin by injection (a shot). Others wear a small pump that delivers insulin continuously into their body. People with type 1 also need to follow a meal plan and get regular exercise to help regulate blood glucose levels.

## LADA (latent autoimmune diabetes in adults)

A slow-onset version of type 1 diabetes, LADA occurs only in adults. Although people with LADA may respond to oral diabetes treatments for a time, they typically need to take insulin within a few months. (Over time, the autoimmune process destroys insulin-producing cells in the pancreas.)

Because of their age at diagnosis, people with LADA are often mistakenly thought to have type 2 diabetes. Yet as their condition and response to treatment change, a LADA diagnosis may be considered. A blood test to check for autoimmune antibodies can indicate a LADA diagnosis.

## Type 2 diabetes

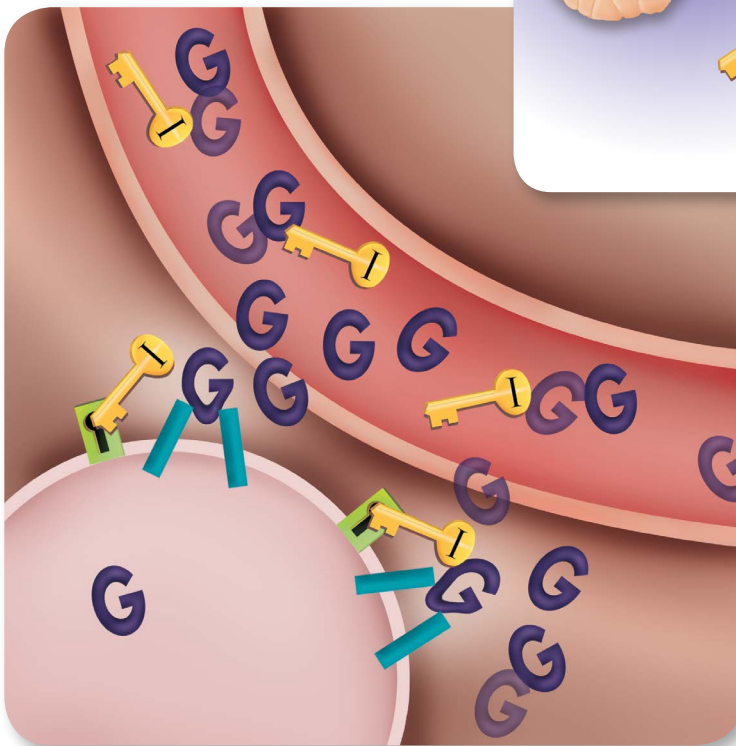
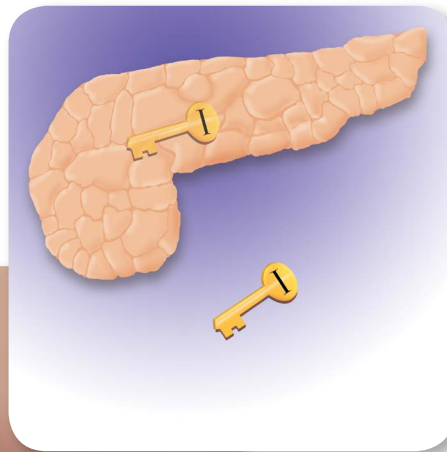
Most people with diabetes have **type 2 diabetes**. If you have type 2, you might have one or both of the following problems:

- Your cells don't use insulin properly. This is called **insulin resistance**.
- Your pancreas doesn't produce enough insulin. This is called **insulin deficiency**.

Often when type 2 diabetes is first diagnosed, the problem is insulin resistance. But as the disease progresses, the pancreas may also produce less insulin. Unlike type 1 diabetes, type 2 usually comes on gradually.

### When you have type 2 diabetes...

*Your cells may not use insulin properly. The insulin can't fully "unlock" the cells to allow enough glucose to enter.*



*At other times, the pancreas doesn't produce enough insulin. There are too few insulin "keys."*

### IN THE MAJORITY

About 90% to 95% of all people with diabetes have type 2.



### A WEIGHTY ISSUE?

Scientists don't know whether the factors listed at right act independently to increase your risk for type 2 diabetes — or if it's their connection to obesity that matters most.

The issue is complex, as several of these factors tend to go hand-in-hand. For example, you're more likely to gain extra weight if you're older and inactive. And being overweight may contribute to your high blood pressure.

What do we know for sure about risk factors for type 2? How to reduce them. Major studies have shown that **exercising regularly and reducing body weight** can go a long way in delaying the onset of type 2 diabetes — and perhaps even preventing it — in people at risk for the disease.

## What causes type 2 — and who gets it?

No one knows exactly why type 2 diabetes develops in some people. But several factors have been shown to increase your risk of developing type 2 diabetes. For example, scientists have shown that type 2 is more likely to occur in people who:

- **Are overweight.** Being overweight doesn't cause diabetes, but it may trigger it in some people. Having too much body fat promotes insulin resistance. And if you tend to carry your extra weight around your waistline — if you have an “apple-shaped” body — you have a higher risk than people who carry their excess weight on their hips and thighs.
- **Are 45 or older.** Type 2 is most common in older adults. But the disease is seen in more and more children every year. This is probably because more children today are inactive and obese.
- **Are physically inactive.** Inactivity promotes obesity and insulin resistance.
- **Have a parent or sibling with diabetes.** Type 2 diabetes often runs in families. In fact, the genetic link for type 2 is much stronger than it is for type 1 diabetes.
- **Are African American, American Indian/Alaskan Native, Hispanic American, or Pacific Islander.** Because the tendency to develop type 2 may be inherited, your ethnic background is also a factor. People in the groups listed above are at higher risk.
- **Have abnormal cholesterol levels.** For example, you may have high triglycerides, high LDL cholesterol (“bad cholesterol”), or low HDL cholesterol (“good cholesterol”) levels.
- **Have had gestational diabetes, or have given birth to a baby who weighed more than 9 pounds at birth.** Although gestational diabetes usually goes away when your baby is born, once you've had it, you're at risk for developing type 2 diabetes later in life.
- **Have high blood pressure.** High blood pressure and diabetes often occur together and are a dangerous combination for your heart and blood vessels.

## How is type 2 treated?

Type 2 diabetes is treated with a combination of diet, exercise, and oral medications (pills). In some cases, injections of insulin or other medications are needed to help control blood glucose levels.



### MYTH

*"You might start out with one type of diabetes — but switch later on."*

.....

### TRUTH

The type of diabetes you have doesn't change over time — although your treatment might. For example, if you have type 2, you may be able to control it with diet, exercise, and oral medications for some time. Later on, you might need to start taking insulin. But that doesn't mean that your type 2 has turned into type 1 diabetes. Type 1 and type 2 diabetes are two different diseases.

## PREVENTING TYPE 2 IN KIDS

.....

More and more American children and adolescents are being diagnosed with type 2 diabetes. The increase is so rapid, many experts now call type 2 an emerging childhood epidemic.

What does this have to do with you? If you're a parent with type 2, your children face a higher risk for the disease. To protect your kids from getting type 2, the whole family must help them do these things:

- **Stay at a healthy weight.** Being overweight is one of the biggest risk factors for type 2 — but studies show that parents often don't recognize their child's weight problems. Ask your child's healthcare provider what a healthy weight is for your child. Then, help your children reach their targets by encouraging them to be active and by cutting calories in meals and snacks.

- **Be active every day.** Physical activity will help your children keep a healthy weight and a positive attitude. So look for ways to keep your kids moving. Have them walk or bike to school. Limit TV time. Sign them up for sports or a fitness class. And exercise with them every day — it's a great way to stay close and get fit.
- **Eat healthy foods.** Build a better diet with a few small changes. Eat more fruits and vegetables. Choose whole grain foods. Drink water throughout the day, not sodas or sports drinks. Limit sweets, processed snacks, and fatty foods.

It may not be easy to change your family's habits. But it's worth it! By helping your kids build a healthy lifestyle, you're helping them live better, happier, and longer lives. For more tips to keep your family healthy, visit [intermountainhealthcare.org/weight](http://intermountainhealthcare.org/weight).



### TREATING FOR TWO

Gestational diabetes occurs in up to 1 in 10 of all pregnancies. Although it's a serious condition, there's a lot you can do to protect the health of your baby — and your own health. Your healthcare provider can show you what to do.

## Gestational diabetes

Gestational diabetes develops only during pregnancy. When you're pregnant, hormones make it more difficult for insulin to move glucose into your cells. If your body can't produce enough insulin to overcome the effects of this insulin resistance, you'll develop gestational diabetes.

If you're pregnant, you should be tested for gestational diabetes between the 24th and 28th week of your pregnancy. If tests show that you have gestational diabetes, you'll need to follow a treatment plan to help avoid problems for you and your baby. This means:

- **Following a meal plan.** Stick to the eating plan your healthcare providers give you. This will help you control your blood glucose while ensuring that you and your baby are well nourished.
- **Exercising consistently.** Regular exercise is also part of treatment for gestational diabetes. Follow your healthcare providers' recommendations to make sure you're exercising in a healthy way for you and your baby.
- **Self-testing of blood glucose.** Self-testing requires you to prick your finger to get a small sample of blood, then use a glucose meter to measure the amount of glucose in the sample. Your healthcare team can show you how to do this and how to know if your blood glucose is too high, too low, or just right.
- **Meeting regularly with your healthcare providers.** Keep your regular prenatal appointments, and call with any questions or concerns.

Most of the time, changing your eating habits and exercising regularly will control gestational diabetes and reduce the risk to you and your baby. However, your provider may prescribe medication to help you manage your condition.

Gestational diabetes usually disappears after delivery. However, once you've had gestational diabetes, you're at a higher risk for developing type 2 later in life. You're also more likely to have gestational diabetes again with future pregnancies. The good news is that you may be able to prevent these problems. Talk to your doctor about setting healthy goals for yourself, such as losing weight and becoming more physically active.



## Pre-diabetes

People with pre-diabetes have blood glucose levels that are higher than normal, but not high enough for a diabetes diagnosis. If you have this condition, you're at risk for developing type 2 diabetes. You're also more likely to have a heart attack or stroke.

Fortunately, pre-diabetes can be treated. Weight loss and regular exercise are most helpful in lowering blood glucose levels in people with pre-diabetes. In fact, studies show that these changes can delay — and perhaps even prevent — the onset of diabetes and other problems. Treatment with a medication called metformin has also been shown to be helpful.

Here are some of the most striking findings from the Diabetes Prevention Program (DPP), an important research study conducted on people with pre-diabetes:

- Participants who were counseled on effective diet, exercise, and behavior change reduced their risk of developing diabetes by 58%. This was true across all participating ethnic groups, and for both men and women.
- Lifestyle changes worked particularly well for participants aged 60 and older, reducing their diabetes risk by 71%.
- Treatment with metformin lowered diabetes risk by 31%.

Many clinics offer classes to help people with pre-diabetes lower their risk of developing diabetes. See page 110 for information on locating diabetes education near you.



*Lifestyle changes can lower your risk of developing diabetes.*



### RUNNING THE NUMBERS...

#### *and running the risks*

People with pre-diabetes have fasting blood glucose levels of 100 to 125 mg/dL (or HbA1c test results of 5.7% to 6.4%). These values are higher than normal, but not high enough for a diabetes diagnosis. See chapter 2 for more on diagnostic tests and what the results mean.

If you have certain other health risks — but don't yet meet the criteria for pre-diabetes — your doctor may still consider you to be at risk for diabetes. For example, high blood pressure, abnormal cholesterol, and the amount of fat around your waist together are signs of increased risk for diabetes. They also put you at a higher risk for heart disease.

You should always take a pre-diabetes diagnosis seriously and take steps to reverse it by losing weight and getting more exercise.

## STOPPING THE SYNDROME

People with metabolic syndrome are at high risk for heart disease and diabetes. The good news is that when it's found early, it can be slowed, and in some cases, even reversed. How? By losing weight and getting more exercise. Studies show that even small weight losses — even in people who are obese — can significantly improve metabolic factors.

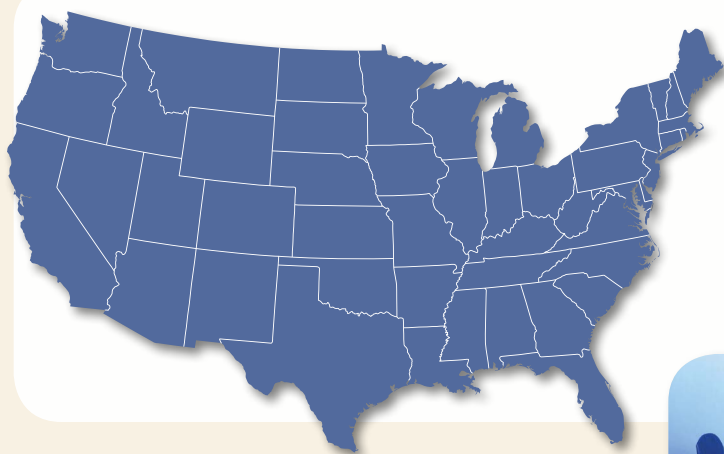
## Metabolic syndrome

Metabolic syndrome (also called **syndrome X** or **insulin resistance syndrome**) isn't a type of diabetes. But people with this syndrome often get diabetes. Like people with diabetes, they are at risk for hardening of the arteries and heart and kidney disease.

The National Cholesterol Education Program defines metabolic syndrome as the presence of any 3 of the following factors:

- **Excess weight around the waist** (waistline measurement of more than 40 inches for men, or more than 35 inches for women)
- **Triglycerides of 150 mg/dL or greater**
- **HDL cholesterol ("good" cholesterol) below 40 mg/dL for men, or below 50 mg/dL for women**
- **Blood pressure of 140/90 mm Hg or higher**
- **Fasting blood glucose levels of 110 mg/dL or higher**

The more factors you have in this syndrome, the greater the risk of diabetes and other problems. But you can help protect your health by losing weight, getting more exercise, and doing other things that your healthcare providers recommend.



### THE SYNDROME IN THE STATES

Metabolic syndrome has become increasingly common in the United States. It's estimated that 1 in every 4 US adults have it.



# How Diabetes Can Affect Your Health

Regardless of which type of diabetes you have, you'll need to manage your blood glucose levels carefully. The time and energy you spend doing this will be well worth it. Good management can help prevent serious short-term and long-term health problems.

## Short-term problems

In the short term, undiagnosed or poorly managed diabetes can result in high blood glucose (**hyperglycemia**) or low blood glucose (**hypoglycemia**). Both conditions require your immediate attention. If you don't act to bring your blood glucose within normal range, you risk serious problems, some of which are life-threatening.



### MYTH

*"People with diabetes always end up with terrible health problems — they go blind, end up in a wheelchair, etc."*

### TRUTH

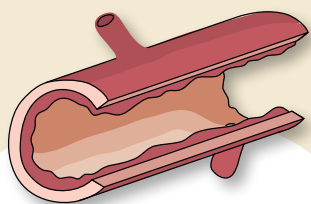
Many people never develop diabetes complications, even after many years with the disease. There's no guarantee that you won't have serious problems because of your diabetes. You can greatly reduce your chances of getting long-term complications by keeping your blood glucose levels and other health risk factors in control. You also need to get regular health checks.



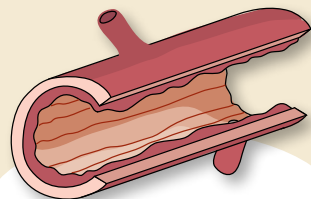
### TOO HIGH? TOO LOW?

*How do you know — and what do you do?*

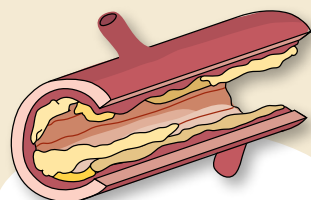
See pages 94 to 99 for information on recognizing and treating hyperglycemia and hypoglycemia. These short-term complications can become serious if they're not treated in good time.



Normal artery



Scarring in the artery



Atherosclerosis

## Long-term problems

In the long term, diabetes can cause health complications throughout your body. Diabetes complications are usually caused by damage to blood vessels and nerves.

### Damage to blood vessels

High blood glucose levels can damage small and large blood vessels, causing vascular disease. Here's how:

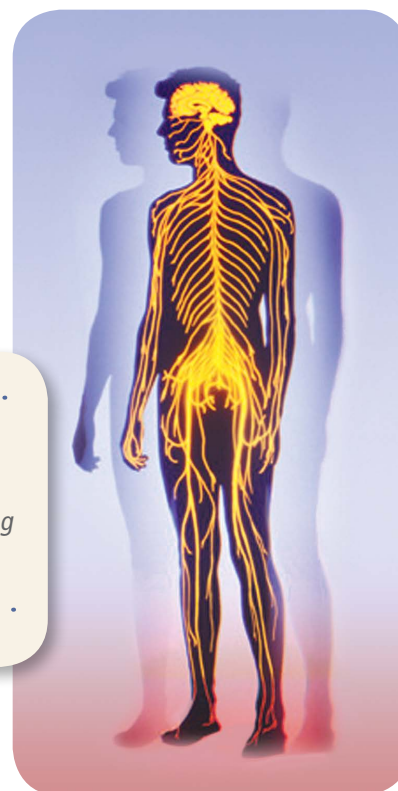
- **In smaller blood vessels**, high blood glucose can cause weakening and swelling. This can cause clogging and ruptures in the vessels that carry blood to your eyes, toes, fingers, and kidneys.
- **In larger blood vessels (arteries)**, high blood glucose — especially combined with high blood pressure and high cholesterol — can cause scarring. Your arteries become stiff and hard, and tend to collect fatty substances from the bloodstream. This fatty buildup narrows blood vessels and can cause clots and blockages. You have atherosclerosis and a higher risk for heart attacks, strokes, and other problems.

### Damage to nerves

High blood pressure can damage the nerves in your body, causing **diabetic neuropathy**. Neuropathy can cause nerve signals to stop, slow down, or be sent at the wrong time.

Neuropathy can bring sensations such as tingling, prickling, burning, pain, or numbness throughout your body. It can also interfere with your sex life and affect important bodily processes like digestion.

.....  
*Neuropathy may cause nerve signals to stop, slow down, or be sent at the wrong time — creating problems throughout your body.*  
 .....

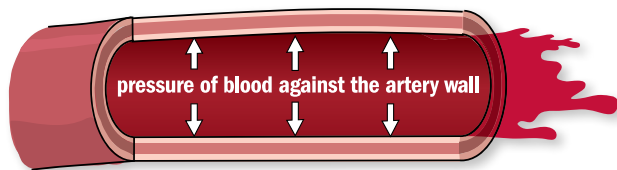


## Triple trouble: diabetes, high blood pressure, and high cholesterol

People with diabetes often have high blood pressure and high cholesterol, too. This is a serious “triple threat” to your health. Why? By itself, each condition can damage your blood vessels and your heart. If you have all three — high blood glucose, high blood pressure, and high cholesterol — the damage is likely to happen sooner and progress more quickly.

### High blood pressure

Blood pressure is the force of blood pressing against the walls of your arteries, much like the pressure of water in a garden hose.



You need some blood pressure to move blood through the arteries to where it's needed in the body. But if you have too much pressure inside your arteries — for too long — you have high blood pressure (**hypertension**). And like high blood glucose, high blood pressure can damage your blood vessels. It makes your heart work harder and increases your chance for serious health problems throughout your body.



#### FOR MORE INFORMATION...

To learn more about blood pressure and how to control it, see Intermountain's *BP Basics*. This booklet is available from your healthcare providers and on the Internet at [intermountainhealthcare.org/bp](http://intermountainhealthcare.org/bp).

### THE GOOD NEWS

The good news? You can control your blood pressure and cholesterol levels. In fact, much of what you do to manage your blood glucose — like getting regular exercise, losing weight, and quitting smoking — can also help lower your blood pressure and control your cholesterol. So can taking medications prescribed by your doctor for these conditions.

### High cholesterol

It's normal and healthy to have different types of cholesterol and fat in your body. But too much cholesterol and fat — or abnormal levels of different types of cholesterol and fat — can cause fatty buildup inside your blood vessels (atherosclerosis). But as with high blood pressure, you may not notice this dangerous condition. Most people have no symptoms.



#### “HIGH CHOLESTEROL” AS A CATCH-ALL TERM

People use the term “high cholesterol” to mean a high amount of total cholesterol — but also for abnormal levels of different kinds of cholesterol, for example:

- High LDL cholesterol (“bad cholesterol”)
- Low HDL cholesterol (“good cholesterol”)
- High triglycerides

A medical term for abnormal levels of cholesterol is **dyslipidemia**. Dyslipidemia is a risk factor for heart disease and other problems.

## Complications of diabetes

Over time, damage to your blood vessels and nerves can cause problems throughout your body. Some of the more common complications are described below.

### HEART DISEASE AND STROKE

*Two out of three people with diabetes die from a heart attack or stroke.*

Heart disease — caused by low blood flow in the arteries that feed your heart — may lead to heart attacks, heart muscle disease (**cardiomyopathy**), and other problems. Likewise, a blockage in the artery that leads to your brain can cause a dangerous stroke.

*to do...*

*To lower your risk of cardiovascular problems, you need to:*

- Control your blood glucose
- Lower any other risk factors you may have. For most people, this means controlling your blood pressure, cholesterol, and body weight.

### KIDNEY DISEASE

*Diabetes is the most common cause of kidney failure in the United States, accounting for more than 40% of new cases.*

Damage to your smaller blood vessels can cause **nephropathy**. This is a serious condition that makes it more difficult for your kidneys to filter waste and excess fluid from your blood. Unless it's detected and treated in its early stages, it can cause your kidneys to fail completely. Nephropathy is much more common with type 1 than type 2 diabetes.

*to do...*

*Since most people don't have any symptoms of disease until their kidneys are severely damaged, you need to:*

- See your healthcare provider for a regular screening test called a microalbumin screen.

### EYE DISEASES

*Diabetes is the leading cause of new cases of blindness among adults aged 20 to 74.*

People with diabetes are at risk for several different eye diseases. **Retinopathy** is caused by damage to the small blood vessels of the retina, an area in the back of your eye that records images and sends them to the brain. People with diabetes are also at risk for **cataracts** (a clouding of the lens of the eye) and **glaucoma** (increased pressure in the eyes, which can damage sensitive eye nerves).

*to do...*

*To help preserve your vision, you should:*

- Have an initial eye exam to give you a baseline for any changes that may occur later on.
- Have regular screenings tests to help catch and treat eye problems early.

### FOOT AND LEG PROBLEMS

*Among people with diabetes, about 70,000 lower-limb amputations are performed every year.*

Foot and leg problems can be caused by damage to nerves or blood vessels. If your nerves are damaged, you might not notice an injury to your leg or foot. And if your blood vessels are damaged, injuries to your feet and legs won't heal quickly. Overlooked and slow-to-heal, even a very small injury — such as a scrape, stubbed toe, or blister — can become serious.

*to do...*

*To help detect problems early and avoid serious complications with your feet, you should:*

- Inspect your legs and feet every day. Get regular check-ups with your healthcare provider.

### SEXUAL PROBLEMS

*Sexual problems are common in both men and women with diabetes.*

Nerve and blood vessel damage — and, for men, low testosterone — can cause sexual problems. Men may be less able to have or keep an erection, a condition called **erectile dysfunction**. Women may experience vaginal dryness and may be less able to have orgasms.

*to do...*

*Most sexual problems can be treated.*

- Don't be embarrassed to discuss sexual problems with your healthcare providers.

### STOMACH AND INTESTINAL PROBLEMS

*Diabetes is the most common cause of a digestive disease called gastroparesis.*

Nerve damage caused by high blood glucose levels can affect your stomach and intestines. For example, with **gastroparesis**, the nerves that help move food from the stomach into the intestines aren't working properly. The result is bloating and sluggish digestion. Nerve damage that affects your intestines (**enteropathy**) can cause both diarrhea and constipation.

*to do...*

*If you have symptoms of stomach or intestinal problems:*

- Call your doctor.

### PROBLEMS WITH SKIN, TEETH, AND GUMS

*Almost one in three people with diabetes have severe dental disease.*

For a variety of reasons, people with diabetes are more prone to skin and dental problems. Skin problems range from dry skin to infections. Dental problems include cavities and gum disease. High blood glucose levels put you at a higher risk for these problems, and may slow healing when problems do occur.

*to do...*

*To prevent or treat dental problems, you need to:*

- Practice good dental hygiene and see your dentist regularly.
- See your dentist more often if you have problems such as a toothache, canker sores, or bleeding gums.

### YOUR RISK: your actions

Nobody likes to think about diabetes complications. But learning about these problems — and taking action to prevent them — can help you cope. It also helps to know that your actions DO matter. Studies show that you can help prevent complications today and in the long-term by doing the following:

- Keeping your blood glucose, blood pressure, and cholesterol levels as close to normal as possible. Follow the guidelines in this booklet and the advice of your care team.
- Getting regular health screenings. See the recommended schedule for various tests on page 78.



“ I’ve been on my self-management plan for several weeks now. And although it sounds strange to say this, I’m glad I was diagnosed. I’m a lot better off knowing that I have diabetes. I have a chance to do something about it, and a chance to feel good — really good — for the first time in years. ”

— Bryce C.,  
recently diagnosed with  
type 2 diabetes

---



## 2 Diagnosing Diabetes

You might wonder how your doctor figured out that you have diabetes. You may even question whether the diagnosis is correct, especially if you haven't had any symptoms. The truth is, diabetes often doesn't have symptoms. Or, the symptoms may be so mild that you aren't concerned. But a diabetes diagnosis CAN be clearly made, and ultimately depends on one thing: high blood glucose levels, as measured by blood tests.

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## Symptoms

Sometimes — but not always — symptoms are the first clue that a person has diabetes. These common symptoms may be caused by high blood glucose levels, and may go away once blood glucose is controlled.

- **Fatigue.** It makes sense that untreated diabetes makes you feel tired and weak. Your body is having trouble getting energy from glucose.
- **Intense thirst and frequent urination.** When you have high blood glucose, your body loses more fluid than normal. To replenish these fluids, you drink more and more. You urinate more as well.
- **Unusual hunger.** Many people report that they're hungry all the time. That's because even though they may have plenty of glucose in their bloodstream, their cells are starving for energy. In response, their bodies prompt them to eat more.
- **Unexplained weight loss.** Some people find that they're losing weight, even though they may be eating and drinking more than usual. As glucose builds up in your blood, it spills into your urine. Glucose in your urine is a significant drain of calories.
- **Numbness or tingling in your hands and feet.** This is a result of nerve damage caused by high blood glucose. Unless the damage is severe, these sensations may slowly go away when your blood glucose returns to normal.
- **Blurred vision.** When your blood glucose is high for days in a row, the lenses of your eyes tend to swell. This makes it harder to focus and harder for you to see clearly.
- **Frequent infections, or cuts and sores that are slow to heal.** High blood glucose can increase your risk for infections for two reasons:
  - The bacteria and fungi that cause infection thrive in a high-glucose environment. (And if you've got untreated diabetes, your whole body is probably a high-glucose environment.)
  - Your immune system — which is responsible for fighting infection — doesn't work as well when you have high blood glucose.



### GOT SYMPTOMS?

Did you notice any of these symptoms before you were diagnosed? Your answer may depend in part on the type of diabetes you have. For example, people with type 1 usually have clear symptoms that come on quickly. Type 2 usually develops more gradually, so someone with this type of diabetes may not notice any symptoms in the early stages. This can delay a diagnosis for many years.



# Blood Glucose Tests

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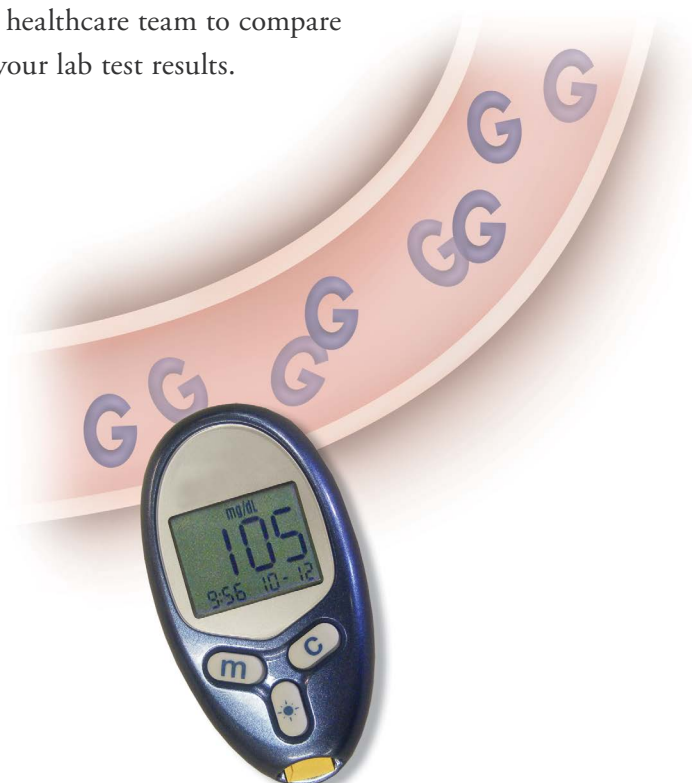
Although symptoms may suggest that you have diabetes, only blood tests can tell you for sure. Two different types of blood tests are used to figure out your blood glucose levels. The HbA1c test reflects average glucose levels over time and is *discussed on page 45*. This page discusses blood glucose testing, which directly measures your glucose levels at the time of testing.

## Measurement terms

The term “blood glucose” generally refers to the amount of glucose in your blood. Most blood glucose tests actually measure the amount of glucose in the liquid part of your blood — called the blood **plasma** — rather than the amount of glucose in your whole blood. That’s why you’ll sometimes hear people call it **plasma glucose (PG)**.

To diagnose and monitor diabetes, healthcare providers test your plasma glucose levels. In the United States, plasma or whole blood glucose are measured in **milligrams per deciliter, or mg/dL**.

Most of today’s home glucose meters also measure plasma glucose. If yours doesn’t — and instead measures the amount of glucose in your whole blood — then it may be an old meter. You may want to check into getting a new one. Plasma and whole blood values aren't that different, but if your home meter measures plasma glucose, it makes it easier for you and your healthcare team to compare home test results with your lab test results.



### MYTH

*“Some people have just a touch of diabetes — it depends how you look at it.”*

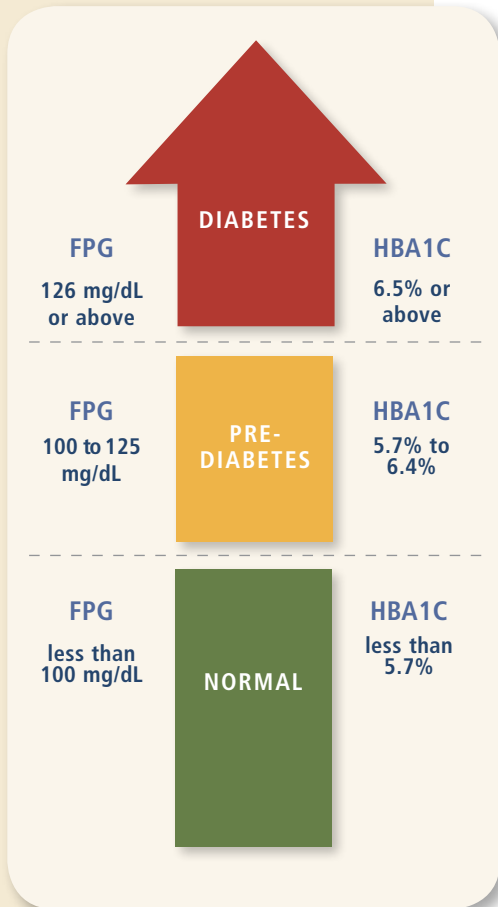
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### TRUTH

A diabetes diagnosis isn’t a matter of opinion or degree. Using the standard criteria shown in the table on the next page, your healthcare provider can use test results to tell whether you have diabetes or pre-diabetes. If you have either, you need to take it seriously — and take action to control it.

**DIAGNOSIS AT-A-GLANCE**

Both the fasting plasma glucose (FPG) test and the HbA1c test are used to diagnose diabetes in non-pregnant adults.



## Types of tests — and what the results mean

The table below summarizes two common ways to diagnose diabetes. Note that for diagnosis, **all results must be confirmed by a second test given on a different day.**

TEST	CRITERIA FOR DIAGNOSIS	
	DIABETES	PRE-DIABETES
<p><b>FASTING PLASMA GLUCOSE (FPG) TEST</b></p> <p>For the FPG test, you first need to fast (not eat or drink anything except water) for at least 8 hours. Then, a sample of your blood is drawn and analyzed at your healthcare provider’s office.</p>	<p><i>126 mg/dL or above</i></p>	<p><i>100 to 125 mg/dL</i></p>
<p><b>HbA1c TEST</b></p> <p>This test can be done any time during the day, whether or not you’ve eaten recently. Like the FPG test, it requires a small blood sample that’s then analyzed.</p> <p>The HbA1c test is used to monitor diabetes as well as to diagnose it. See page 45 for more information on this test.</p>	<p><i>6.5% or above</i></p>	<p><i>5.7% to 6.4%</i></p>

# What Type of Diabetes?

Part of diagnosing your diabetes is figuring out the type of diabetes you have. To do this, your healthcare provider may look at several things. These include:

- **Your symptoms.** Type 1 comes on suddenly, while LADA and type 2 are more gradual. The symptoms you have may also differ based on the type of diabetes you have.
- **Your risk factors.** Your doctor will look at your age, your body weight, and other factors to see if you fit a profile for type 1, LADA, or type 2. But your doctor won't rely on this alone. Plenty of people with diabetes don't have the expected age or risk factors.
- **Results from other blood tests.** In addition to blood glucose tests, your doctor may want to run tests for insulin, antibodies, ketones, C-peptide, and other substances in your blood.

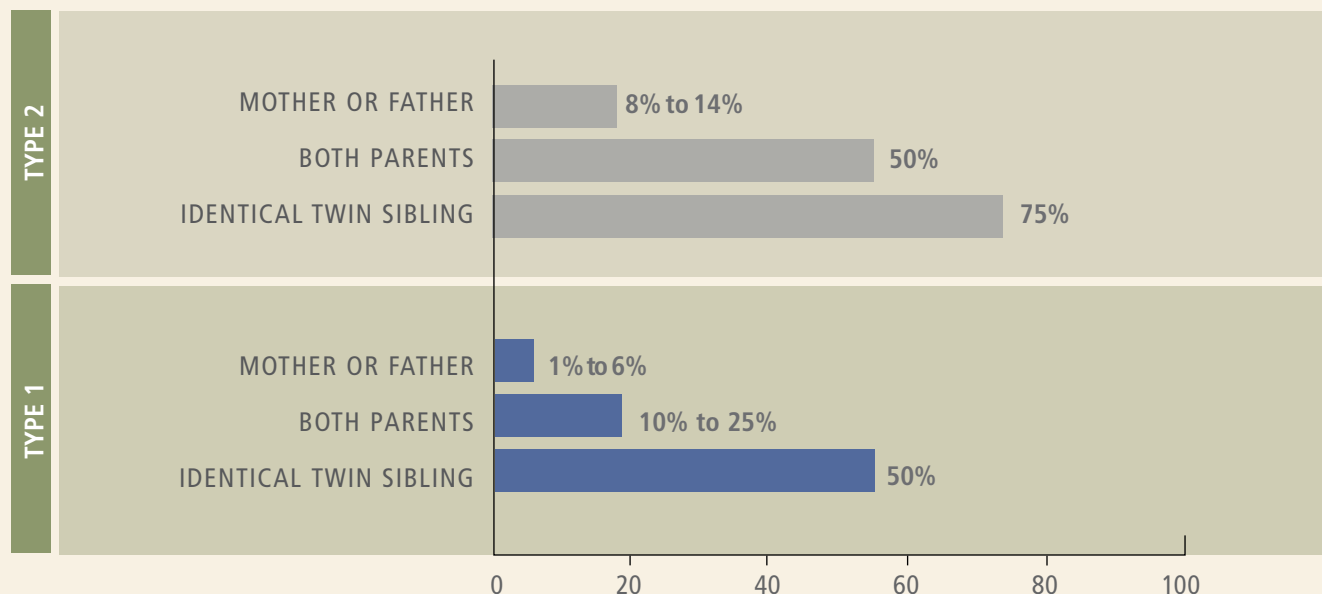


## WHAT ABOUT FAMILY?

### *The inheritance of diabetes*

Researchers don't fully understand why some people get diabetes and others don't. But it's clear that family history (genetics) plays a part. The table below shows your odds of getting diabetes based on your family history.

### YOUR RISK OF DIABETES





“ How does diabetes affect my life? That’s a hard question to answer. A few years ago, I might have said, “How DOESN’T it affect my life?” I had to make so many changes at first, and it seemed like I was thinking about my health around the clock.

But now, the things I do for my diabetes are just second nature. I live a healthy life — exercise, have a good diet — but I don’t obsess about it. Diabetes just IS my life, and I accept it. After all, the things I do really aren’t that different from what everyone should do for their health. ”

— Wayne B.,  
diagnosed five years ago  
with type 2 diabetes

# 3 Managing Diabetes

Doctors are constantly learning about diabetes and how to treat it. This chapter describes what you can expect from diabetes treatment right now — and what’s on the horizon. It also sets out the goals for diabetes self-management, shows you what you need to do to reach those goals, and outlines how family, friends, and your diabetes care team can help.

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# Diabetes Care Today and Tomorrow

Here's what you can expect from diabetes care, based on what we know today and what's being studied for the future.

## Living well today

Right now, there is no cure for diabetes. You have a chronic (lifelong) illness that you need to continually monitor and manage.

The good news? Diabetes is highly controllable, and you can have a long and healthy life in spite of your disease. Thanks to medical research, today we know a lot about what you can do to take care of yourself. Learning about and doing these things can be a challenge, but it will yield a big reward: your good health.

## Hope for tomorrow

But what about diabetes care in the future? Although no one knows for certain what the future of diabetes care looks like, it's reasonable to expect that as medical research advances, diabetes care will only get better.

Right now, scientists are working to better understand the following:

- Specific genes that cause diabetes, weight gain, and high blood pressure
- How we can prevent or delay common diabetic complications, such as diseases of the heart and blood vessels
- Why some people respond well to certain diabetes medications, while others don't
- How insulin therapy can be improved
- The growth and workings of cells that affect metabolism, such as fat cells and insulin-producing cells

Research projects like these can improve strategies for preventing and treating diabetes and its complications.

Ultimately, the goal is to wipe out this disease altogether.



### THE ROLE OF RESEARCH

When medical researchers discovered insulin in 1921, they dramatically changed the lives of people with diabetes. Today, research continues to improve diabetes care.



### FOR MORE INFORMATION

For the latest on what's happening in various areas of diabetes research, look to the organizations *listed on page 111*. Their websites and newsletters can give you the most up-to-date news about diabetes research.



# Your Goal Is Control

As you learn to take care of your diabetes, you'll hear a lot about controlling your blood glucose. Glucose control is vital — but there's more to diabetes treatment than that.

People with diabetes are more likely to die of a heart attack or stroke than of any other cause. High blood glucose alone isn't to blame for this. High blood pressure and high cholesterol are nearly always factors as well. They can also play a role in other complications of diabetes, such as kidney disease. That's why doctors now set three main goals for diabetes treatment: control of blood glucose, blood pressure, and cholesterol.

## THREE CONDITIONS — SAME HEALTHY HABITS

If controlling three health conditions at once sounds complicated, don't worry. You might have separate medications for glucose, blood pressure, and cholesterol. But, you don't have to do different things for each condition. The healthy things you do to control your diabetes — like exercise and healthy eating — will help you manage all of these conditions.

1

### CONTROLLING YOUR BLOOD GLUCOSE

Your doctor will give you a target range for your blood glucose levels. Your aim is to keep your blood glucose within these ranges most of the time by following your treatment plan every day.



*See pages 42 to 47 for guidelines for monitoring blood glucose levels.*

2

### CONTROLLING YOUR BLOOD PRESSURE

The usual target for people with diabetes is 140/90 mm Hg or less. But if you have kidney disease, your doctor may give you a lower target.



*See page 78 for information on monitoring your blood pressure.*

3

### CONTROLLING YOUR CHOLESTEROL

Depending on your sex and other factors, your doctor will set targets for various types of fat and cholesterol in your bloodstream. Here are the usual targets for people with diabetes:

**LDL levels:**  
less than 100 mg/dL

**HDL levels:**  
greater than 40 mg/dL in men  
greater than 50 mg/dL in women

**Triglyceride levels:**  
less than 150 mg/dL

*See page 78 for information on monitoring your cholesterol.*

# Introduction to Diabetes Self-management

Your goal is good control — of blood glucose, blood pressure, and cholesterol. But how do you get there? Primarily through self-management. This is a big job. Self-management affects many different aspects of your life, and at first, you'll probably need to make changes in your lifestyle. For most people with diabetes, this means taking on the key activities summarized below (and explained in detail later in this guide).

## MONITORING BLOOD GLUCOSE

Two different kinds of tests — self-tests and HbA1c tests — can give you a good understanding of your blood glucose control.

*See page 39 for more information.*



## FOLLOWING A MEAL PLAN

Eating more wisely is one of the best things you can do to help protect your health. A meal plan will help you do this.

*See page 59 for more information.*



## TAKING MEDICATION

Depending on the type of diabetes you have — and how your body responds to the other pieces of your management plan — your doctor may prescribe medication to help control your blood glucose, blood pressure, and cholesterol levels.

*See page 49 for more information.*



## GETTING REGULAR EXERCISE

Regular exercise is another key piece of your treatment. Your healthcare providers can get you started on a program that gives you the best chance for better health today — and in the long run.

*See page 69 for more information.*



## PUTTING THE PIECES TOGETHER...

*To complete your picture of good health, you need ALL of these pieces, ALL of the time. It may take a while before you understand how each piece works and how they fit together — but you can do it.*

### *...and taking care of your emotions, too.*

Diabetes is a physical disease, but like any chronic condition, diabetes can also affect your emotions. So as you learn to care for your body, learn to care for your mind and spirit as well. *See pages 87 to 89 for advice on managing stress and dealing with depression and diabetes "burnout."*

# Working with Others to Care for Yourself

*Although you have the biggest responsibility for your day-to-day care, many other people will help you. This section tells you who you can rely on, and how you can work best with them.*



## Your diabetes care team

Many healthcare providers may help you manage your diabetes. You might not work with all of these people, and their roles often overlap. Still, it helps to know who they are and what part they may play in your care.

- **Primary care provider.** This is the person you usually see for health problems. Your primary care provider could be a family practice doctor, a general internist, a nurse practitioner, or a physician assistant.
- **Diabetes educators.** Diabetes educators are specially trained nurses, dietitians, or other healthcare providers who can help explain your diabetes and create individual treatment plans for you. They can also teach you skills like meal planning, and offer support and encouragement to keep you on track. Educators can work with you one-on-one, or in a diabetes education class.
- **Physician specialists.** You might see one or more specialists as part of your care. For example, you might see an endocrinologist. An endocrinologist is a doctor who specializes in hormone problems, including diabetes. You might also visit a podiatrist (foot doctor), an ophthalmologist (eye doctor), or other specialist to help you prevent, detect, and treat complications of diabetes.
- **Other healthcare providers.** Pharmacists, exercise specialists, and other healthcare providers may also work with you to help you manage your diabetes.
- **Care manager.** Care managers (also called case managers or disease managers) can help coordinate and reinforce your diabetes treatment plan.



### DIABETES EDUCATION

To contact a diabetes educator, see the information on page 110 of this guide.

.....  
*As you work with these professionals, keep in mind that YOU are the most important person on your care team! See the next page for ideas about how you can help your diabetes care team.*  
 .....

**MYTH**

*"I can cure my diabetes with herbs (or vitamins, or acupuncture, or energy belts, or...)"*

.....

**TRUTH**

If you hear or read anything that promises a cure for diabetes, don't believe it. It really IS too good to be true — and might even be unsafe for you to try.

Diabetes is a serious medical condition. So before you change anything about your self-management plan, get the advice of your medical care team. Your health is too important to risk on unproven therapies!

**ONLY YOU...**

*Lots of people have diabetes, but there's no one exactly like you. And no one cares more about your health than you do. That's why you need to take an active role in your care. You can help your care team figure out what you need for your unique situation and personality. Remember, you're the leader of the team, not a bystander.*

.....

## The team leader: YOU

How can you work well with others to manage your diabetes?

Here are a few ideas:

- **Ask questions.** The more you know, the better decisions you'll make. And your team members can offer better advice if they know what you're interested in, and what you don't understand.
- **Be open and honest.** To figure out a care plan with you, your healthcare providers need to know how you are responding to treatment.
- **Be comfortable with your care team.** Choose to work with people who are knowledgeable about diabetes, AND who click with you personally. Don't be afraid to shop around a little. Ask for referrals from family, friends, and support group members.
- **Trust yourself.** A big part of caring for yourself is learning to pay attention to your body, your emotions, and your behaviors. If something in your care plan doesn't feel right for you, don't ignore it. Talk to your healthcare providers. You might need an adjustment in your plan.

.....

***DON'T BE AFRAID TO TALK ABOUT...***

It's important to discuss your concerns with your care team, even when they involve the following:

- **Money.** Medications, supplies, and office visits can get expensive. But there are ways to make sure that money doesn't get in the way of good care.
- **Sex.** Most people — not just people with diabetes — have sexual concerns at some point in their lives.
- **Technical terms and concepts.** Don't worry about looking foolish. Diabetes is complicated! But it's your team's job to make sure you know the whats, whys, and hows of your disease and your care.

Remember, your healthcare providers are trained to help you with a wide range of issues, from the practical to the personal. To help you manage your disease successfully, they need your feedback and leadership.



## Family or Friend? What you can do

*Supporting someone with diabetes often means doing new things — and NOT doing others. If your loved one has diabetes, you may be wondering what you can do to help them. The lists below give a few ideas.*

### DO .....

- **Acknowledge the disease and the ways it affects your loved one and you.** The adjustments you make may not be easy, and the emotions you feel may be intense. But ignoring them never helps, though honesty and humor often do.
- **Adopt healthier new habits — like regular exercise and a better diet — along with your loved one.** With you as an active partner, your loved one will probably find it easier to live a healthier lifestyle. You'll benefit, too, from healthier daily habits!
- **Offer support and comfort.** Managing diabetes is a lifelong challenge, and your loved one will go through many ups and downs. On a "down day," go out of your way to show love and concern. You don't have to try to fix every problem. Sometimes just listening, or offering a hug, is the best thing you can do.

### DON'T .....

- **Don't act like a police officer.** Trying to control someone's behavior rarely works, and it can damage your relationship.
- **Don't lead them into temptation.** For example, if your loved one is trying to cut down on junk food, do them a favor by not keeping it in the house. And never encourage them to stray from their self-management plan. "It's all right to skip a few days of exercise." "One bite won't hurt." If you find yourself saying things like this, ask yourself why.
- **Don't broadcast your loved one's condition.** Although diabetes is nothing to be ashamed of, not everyone feels comfortable talking about it in public. Talk to your loved one about when and how to discuss diabetes with others.



“ At the time I was diagnosed with diabetes, I’d never said more than two words to my doctor. But I realized that to get a grip on this disease, I needed to come out of my shell.

The first thing I did was go to diabetes education classes. I learned a lot, and met some wonderful people who are still on my care team today. I asked all my questions. And when I saw my doctor the next time, I forced myself to tell her about a medication side effect I’d been wondering about. This wasn’t easy for me. I was worried that my doctor would think I was rude to question her!

But you know what? I’ve learned that my doctor really needs me to speak up. It helps her understand what’s working for me, and what isn’t. And in the end, that’s the most important thing. ”

— Anita R.,  
diagnosed twelve years ago  
with type 2 diabetes

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# 4 Tracking Blood Glucose

Blood glucose control is vital for your health. And the only way to tell if your blood glucose is in control is to check it regularly and track the results of your tests. You'll need to do both self-testing and HbA1c testing to know how well you are controlling your blood glucose.

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## Blood Glucose Basics

Most people know that high blood pressure and high cholesterol are bad for their health. But what about high blood glucose? If you've recently been diagnosed with diabetes, you're not used to thinking about this. You might find it hard to take blood glucose control seriously or know what affects it.

### Why is blood glucose control so important?

Controlling your blood glucose levels is important on a day-to-day basis, and also for your long-term health. Daily control helps you feel better and avoid the sometimes-dangerous effects of high blood glucose (hyperglycemia) and low blood glucose (hypoglycemia). For the long term, keeping your blood glucose within target ranges can help you avoid diabetes complications. Need convincing? Look below to see what research shows.



#### THE DIABETES CONTROL AND COMPLICATIONS TRIAL (DCCT)

The DCCT is one of the largest, most comprehensive diabetes studies ever done. Researchers studied 1,441 volunteers with type 1 diabetes. They found that keeping blood glucose levels as close to normal as possible slows the start and progression of eye, kidney, and nerve diseases caused by diabetes. For example, the DCCT showed that lowering blood glucose provides the following:

- 76% lower risk of eye disease
- 50% lower risk of kidney disease
- 60% lower risk of nerve damage

The study also showed that keeping blood glucose in target ranges for any period of time helps, even if the person has a history of poor control.



#### THE UNITED KINGDOM PROSPECTIVE DIABETES STUDY (UKPDS)

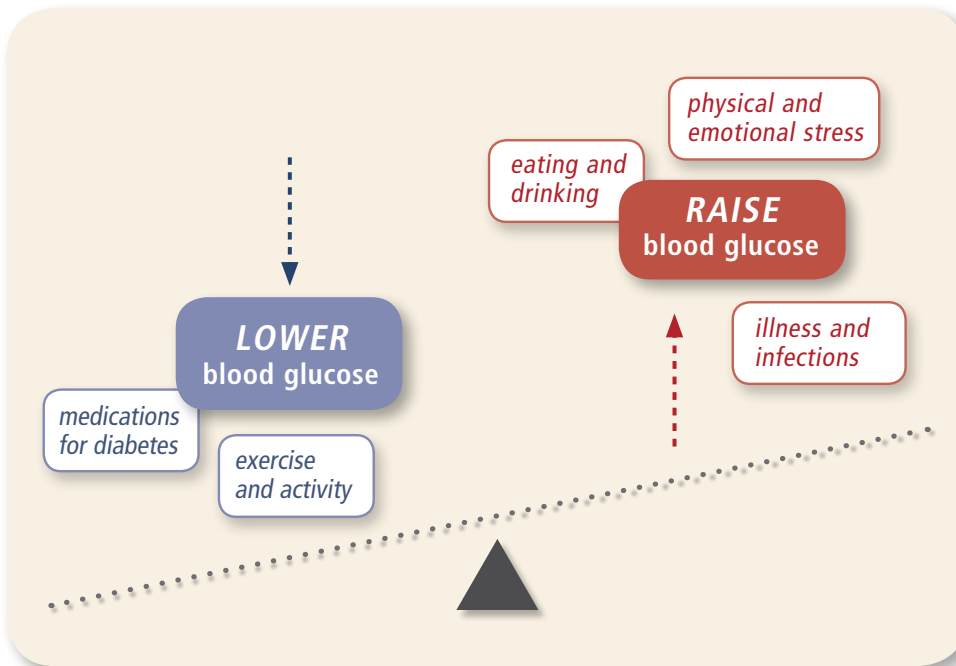
The UKPDS was done with volunteers who were newly diagnosed with type 2 diabetes. This important study looked at the effects of improving blood glucose AND blood pressure levels. Researchers found two main things:

- Good control of your blood glucose significantly reduces the complications of diabetes, in particular the risk of diabetic eye disease.
- Good control of blood pressure significantly reduces the risks of stroke, eye disease, and death from diabetes complications.



## What affects blood glucose levels?

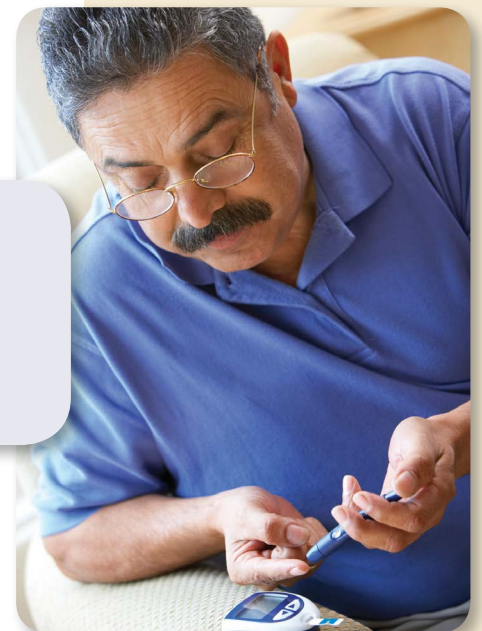
Controlling your blood glucose is a balancing act. That's because the amount of glucose in your blood can change from hour to hour. And, many things can cause it to change. Here's what tends to raise and lower blood glucose levels:



You need to keep all of these factors in mind as you manage your blood glucose each day. This means planning ahead for when your levels might go up or down — and knowing what to do if they fall outside your target range. As with any balancing act, you may need to make frequent adjustments. But you'll get better at this over time.

### ALL IN A DAY'S WORK

*With diabetes, you have to work to do what your body once did by itself: regulate blood glucose levels.*



### A MATTER OF BALANCE, NOT "BADNESS"

The things that raise and lower your blood glucose aren't "bad" or "good." They're just things you need to balance every day to stay within your target range.



### FOR MORE INFORMATION

Follow the instructions that come with your glucose meter for self-testing. They will tell you how to get a clean blood sample, how to prepare and maintain your meter, and what strips to buy. You can also ask a member of your healthcare team for help.

### CONTINUOUS GLUCOSE MONITORING

A continuous glucose monitoring system (CGMS) is another way to track glucose. It doesn't replace testing with a glucometer, but it can be an important part of your care.

A CGMS system automatically records glucose levels all day and night. It gives you readings every 5 minutes. It also helps you see trends in your glucose control. CGMS can help you and your doctor understand how food, exercise, and medication affect your glucose levels.

**A CGMS device includes a monitor and a sensor-transmitter. The sensor-transmitter has a tiny electrode that's placed under the skin. The electrode takes glucose readings from the fluid that surrounds the cells in your body. It then sends the readings to the monitor for viewing.**



## Blood Glucose Self-testing

Testing your own blood glucose can tell you if your blood glucose is too high, too low, or just right. Most people need to test blood glucose regularly, often more than once a day.

### How do I self-test?

Self-testing requires you to prick your finger to get a small sample of blood. Then you use a small machine called a **glucose meter (glucometer)** to read the sample and display your blood glucose level. Since different meters work in slightly different ways, be sure to follow the instructions that come with your meter. (If you have a question about your meter and want to talk directly with someone, call the toll-free number on the back of most meters — or call your diabetes educator.)



Pricking your finger

*Most meters are quite small, and can easily fit into your purse or pocket. Always wash your hands before and after testing.*



Drawing blood



Reading the meter

### What does self-testing tell me?

Testing your blood glucose can tell you how well you're controlling your diabetes day-to-day, or even hour-to-hour. The test measures your blood glucose at the time you test, so you can see right away how food, activity, or diabetes medications are affecting your blood glucose level. This allows you to make adjustments as needed to keep your blood sugar as normal as possible.

## When should I self-test?

Your healthcare provider will tell you when and how often to self-test. Here are some common times to self-test and what your results tell you:

- **Fasting.** Fasting is when you haven't had anything to eat or drink except water for at least 8 hours. Usually, this is when you first wake up in the morning. A reading taken when you are fasting tells you how your body handled your blood glucose during the night.
- **Before meals.** This reading tells you how your body has handled the glucose from your most recent meal. This helps you plan for the next meal.
- **2 hours after a meal** (sometimes called "2 hours postprandial"). Your blood glucose peaks about 1 or 2 hours after you eat, so testing at this time will tell you how high your blood glucose goes after eating.
- **Bedtime.** This reading gives you a baseline for your blood glucose before you begin your overnight fast, and helps you know whether your body is ready for the fast.

On days when you're sick or battling an episode of high or low blood glucose, you'll need to self-test more often. **Also, if you take insulin or you often get low blood glucose, you need to test before you drive a car.** See the chapter beginning on page 91 for more information on how to manage your blood glucose in special circumstances.



### CHOOSING A BLOOD GLUCOSE METER — AND OTHER DIABETES SUPPLIES

Wondering which blood glucose meter to buy? Call your diabetes educator and health insurance company. They can tell you what you need to think about when shopping for a meter and other diabetes supplies. They may even be able to help you get a meter for a reduced price (or even free).

### OUT OF RANGE?

If your readings often fall outside of your target ranges, talk to your healthcare team. You may need to adjust your treatment plan.



### TARGET BLOOD GLUCOSE RANGES (PLASMA GLUCOSE) for people with diabetes

#### What numbers am I aiming for?

This box provides guidelines for blood glucose ranges (plasma values). But you should ask your healthcare providers what goals are best for you. You might need to aim for different numbers, depending on your unique condition.

	typical (ADA) target	my target
Fasting (before breakfast)	80 to 130 mg/dL	_____
Before a meal	80 to 130 mg/dL	_____
2 hours after the beginning of a meal	less than 180 mg/dL	_____
Other times _____		_____

## FOLLOW THE PATTERN

Look at your logbook for patterns in your blood glucose readings. Scan each column or row to see if you consistently have highs or lows at certain times of the day. Note what might be causing them. High blood glucose an hour after breakfast? Consistent lows after your afternoon exercise? You might need to adjust some part of your self-management plan.

**BG TRACKER**

WEEK OF	breakfast			lunch		
	before meal	carbs	insulin	before meal	carbs	insulin
Mon	91			122		
Tue	87			98		
Wed	95	25g		82		
Thu	94			83		
Fri	90			103		
Sat	88			81		87
Sun	87					

**BG TRACKER**

dinner	bedtime	notes
102		110 Ex 30 min
104		102 work in yd
91	15u	110 104 work in yd
81		105 work in yd
95	135	110 99 Ex 20 min
125		
138	95	104 Big lunch

## Tools for keeping track

Keeping a record of daily blood glucose readings can reveal patterns in your overall blood glucose control. Use your record to keep notes about your diet, activity, and medication. This can help you and your healthcare team understand what may be causing certain trends. And, it will help you decide what treatment changes — if any — are needed.

There are several tools to help you track your daily blood glucose readings:

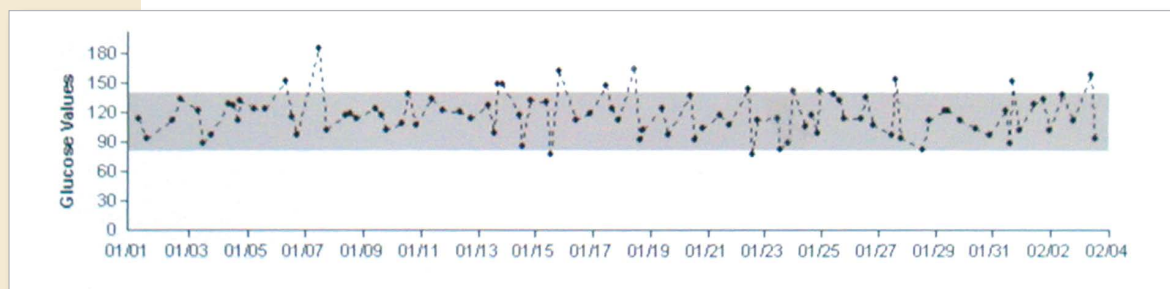
- **Logbook.** Most people use a paper logbook to record their daily readings and other important notes (symptoms, meals, exercise, and so on). You'll get a free logbook with your glucose monitor.
- **Meter memory function.** Some glucose meters have enough memory to store several hundred test results. Some can even link the result with specific events such as meals, exercise, and illness. And some models with memory contain a data port that allows you to download your readings to your personal computer — so you can understand your readings and see patterns easily.

### LOW-TECH OR HIGH-TECH TRACKING?

*Keeping track of your daily blood glucose readings can be as simple or sophisticated as you like. The important thing is to keep a consistent record and to bring it with you to every appointment with your healthcare providers.*

*Use a simple tool like a logbook or tracker...*

*...or use an electronic tracking system. The graph shown below was created when meter readings were downloaded into a computer with special software.*



# HbA1c: the Blood Test with a Memory

An HbA1c test (also called a glycosylated hemoglobin test, or simply an A1C test) is the second important way to check your blood glucose. You'll have this blood test at least twice a year.

## What is HbA1c?

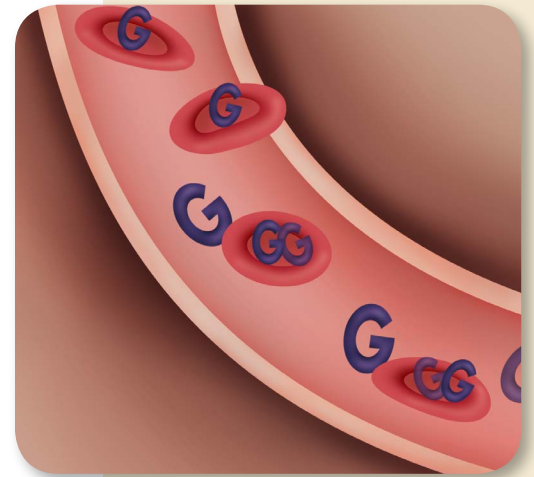
An HbA1c test measures the percentage of **glycosylated hemoglobin** in your bloodstream. Here's what it means:

- **Hemoglobin** (Hb) is a protein in your red blood cells. It carries oxygen and is what makes your blood red.
- Hemoglobin picks up glucose from your bloodstream, becoming "**glycosylated.**" As blood glucose rises, so does the level of glycosylated hemoglobin, or HbA1c. And once hemoglobin becomes glycosylated, it stays that way for the life of the red blood cell, or about 3 months.

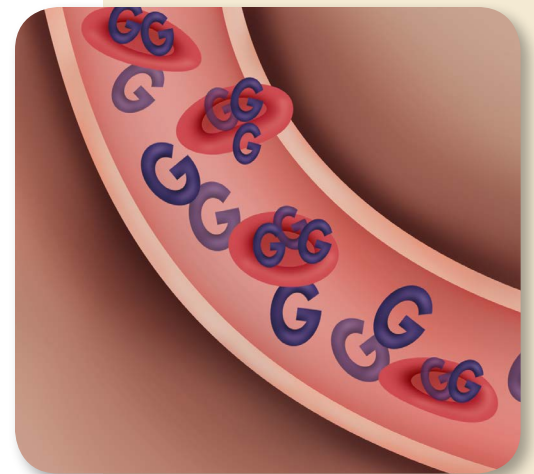
## What does the HbA1c test tell me?

Your HbA1c test result tells the percentage of your hemoglobin that is glycosylated. The amount of glycosylated hemoglobin is a measure of your average level of blood glucose over the last 3 months. (That's why the HbA1c test is sometimes called "the blood test with a memory.") People with diabetes typically have higher HbA1c results than people without the disease. That's why HbA1c test results can be used to diagnose diabetes.

The HbA1c test is also a good way to check your long-term diabetes control. The lower your HbA1c score, the better your blood glucose control and the less chance you have of developing complications. If your HbA1c number is too high, you and your healthcare team can examine your treatment plan and make changes to bring your number down.



When your blood glucose levels are normal, only a small amount of hemoglobin gets glycosylated. The HbA1c level is low.



If you have diabetes — and tend to have a lot of glucose in your bloodstream — more of your hemoglobin will be glycosylated. The HbA1c level is higher.



**TARGET**  
in people with diabetes

	typical target	my target
HbA1c	Less than 7%	_____

You and your healthcare provider can discuss the best goal for you.

## When should I get an HbA1c test?

You should get an HbA1c test at least twice a year. Your doctor may recommend that you have one more often, especially if you have type 1 diabetes or if your treatment plan changes. And although home testing for HbA1c is possible, most people need to visit their healthcare provider to have blood drawn for this test.

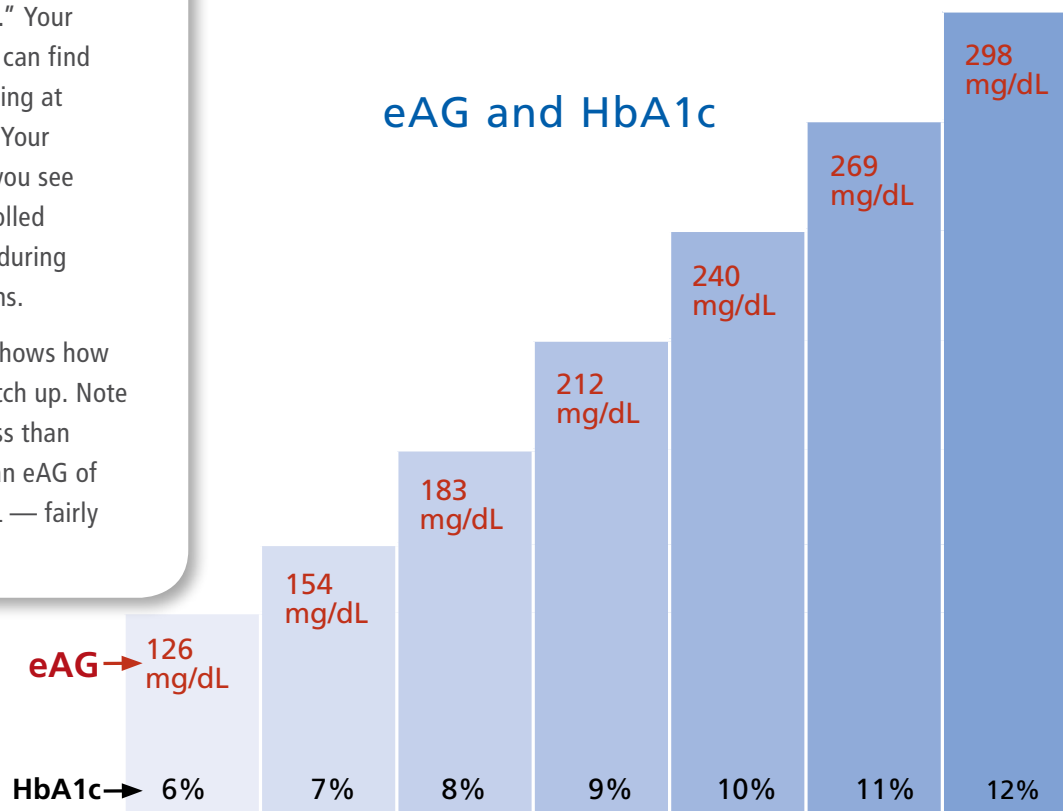
## What number am I aiming for?

With HbA1c results, lower is better. A healthy person without diabetes will have an HbA1c between 4% and 6%. If you have diabetes, the closer your HbA1c is to 6% the better your diabetes is in control. That's why the ADA recommends a goal of less than 7% for most people with diabetes.

### WHAT'S YOUR **eAG**?

An eAG is "**estimated Average Glucose.**" Your healthcare provider can find this number by looking at your HbA1c results. Your eAG number helps you see how well you controlled your blood glucose during the last three months.

The graph at right shows how HbA1c and eAG match up. Note that an HbA1c of less than 7% matches up to an eAG of less than 154 mg/dL — fairly good control.



Here's how your HbA1c results compare with your average fasting blood glucose test results.

## If I get HbA1c tests, do I still need to self-test?

Yes. An HbA1c test is the easiest and most accurate way to paint the big picture view of your blood glucose control. But there are things that only self-testing — and good records of your readings — can tell you.

For example, while an HbA1c gives you an average of your blood glucose over a 3-month period, it can't tell you whether you're balancing high blood glucose with periods of low blood glucose. It also can't help you make connections between your blood glucose and your daily food choices, exercise, and other activities. That's why you need both regular HbA1c tests AND good records of your self-testing.



### WHY GO LOW?

Research shows that for every 1% decrease in your HbA1c, you reduce your risk of kidney disease by 35%. You lower your chance for other complications as well.

#### MYTH

*"I don't need to self-test or get an HbA1c test. I know my blood glucose by how my body feels."*

#### TRUTH

You're asking for trouble if you rely on symptoms to help you guess what's happening with your blood glucose.

Here's why:

- Symptoms of low and high blood glucose can be similar, and are easily confused. You need to be sure of the problem before you can correct it!
- Symptoms are "old news." By the time you have symptoms, your blood glucose may be seriously out of control.
- Symptoms are often easy to ignore. People tend to become used to their symptoms — and some people no longer have symptoms at all.
- Symptoms can come from things other than your diabetes. In this case, adjusting your treatment won't do you any good — and may even be harmful.

You need clear, reliable, early signs of blood glucose trouble. **Only blood glucose self-testing and regular HbA1c tests can give you this.**



“ I’ve never liked medication. I don’t even like to take aspirin for a headache! So when my doctor prescribed diabetes pills, I didn’t even fill the prescription.

Well, guess what? Improving my eating habits and getting more exercise helped my diabetes — but not enough. My blood glucose spiked nearly every day, and I never could get my HbA1c below 10%. I finally had to admit that I really did need medication, and I started taking it like my doctor recommended.

Now my blood glucose is well controlled, and I feel great. I still don’t love taking medication, but I know from experience how important it is for me. ”

— Jill S.,  
recently diagnosed  
with type 2 diabetes

---



# 5 Taking Medication

Diabetes medications come in two broad categories — oral medications (pills) and injectable medications (shots). You may need to take one or both types, as well as medication for other health risks such as high blood pressure and high cholesterol.

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## Oral Diabetes Medications (Pills)

People with type 2 diabetes often take medicine by mouth. These pills are called oral medications.

### How do oral medications work?

Oral medications won't cure your diabetes. Their purpose is to help lower your blood glucose — and they work in different ways to do this. You can read about the different medications on the next page.

### How many pills will I have to take?

There are many possible ways to treat diabetes with medication. You may be given only one type of oral medication. Or, you may be given two or more different types of pills, or pills that combine the actions of two different medications. Some people will need to take diabetes pills as well as insulin injections.

#### MYTH

*"If you have to start taking insulin, it means you're failing at self-management."*

#### TRUTH

Your diabetes will change over time. And the change may have nothing to do with how well you're following your self-management plan.

If your condition does change, what worked for you before may not work as well right now. So don't beat yourself up about it. Talk to your healthcare providers. Adjusting your plan, your medications, switching your meal plan, or even adding insulin can get you back on track.

## Oral diabetes medications help lower blood glucose by...

### ...making it easier for your body to use insulin.

By lowering your body's insulin resistance, your cells can take in more glucose from the bloodstream.

**generic name (Brand Name) examples:** metformin (Glucophage), glitazones such as pioglitazone (Actos) and rosiglitazone (Avandia).

### ...slowing the digestion and absorption of complex carbohydrates.

Your body is less likely to get overloaded with glucose after you eat.

**generic name (Brand Name) examples:** alpha-glucosidase inhibitors such as acarbose (Precose) and miglitol (Glyset).

### ...lowering the amount of filtered glucose your body reabsorbs.

This medication changes the way your kidneys work, so more glucose ends up in your urine instead of your blood.

**generic name (Brand Name) example:** canagliflozin (Invokana).

### ...lowering the amount of glucose released by the liver.

This helps make sure that you don't have more glucose in your bloodstream than your body can handle.

**generic name (Brand Name) examples:** metformin (Glucophage), glitazones such as pioglitazone (Actos) and rosiglitazone (Avandia).

### ...increasing insulin production OR prolonging its release by the pancreas.

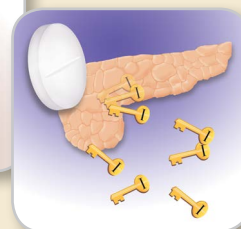
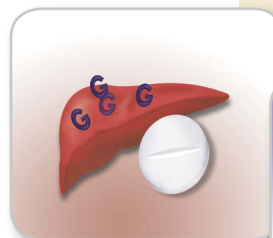
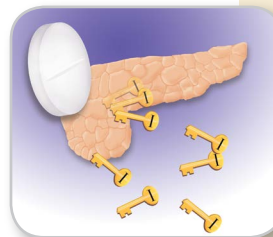
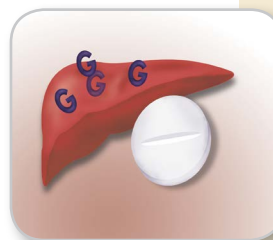
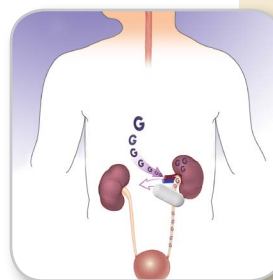
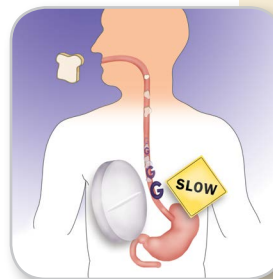
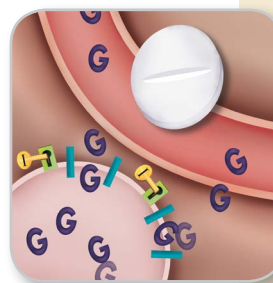
Increasing the amount of available insulin your body makes helps move glucose out of your bloodstream and into your cells.

**generic name (Brand Name) examples:** sulfonylureas (Glucotrol, Amaryl) and meglitinides (Prandin, Starlix).

### ...lowering the amount of glucose released by the liver AND stimulating insulin production

The dual-action of certain medications called DPP-4 inhibitors can help your body achieve a better insulin-glucose balance.

**generic name (Brand Name) examples:** alogliptin (Nesina), linagliptin (Tradjenta) sitagliptin (Januvia), saxagliptin (Onglyza).



## COMBINATION MEDICATIONS

Some diabetes medications combine two types of medication in a single pill. Some examples:

- Avandamet (rosiglitazone plus metformin)
- Avandaryl (Avandia plus Amaryl)
- Janumet (Januvia plus metformin)

## WHAT YOU NEED TO KNOW about your oral medication

- What type you're taking and how it works
- When to take each medication and when not to take it (for example, you shouldn't take metformin if you're vomiting)
- How much to take and what to do if you accidentally miss a dose
- What side effects you may have and what you can do about them

**Don't forget to ask your doctor, diabetes educator, or pharmacist for this information!**

**MOST PEOPLE WITH DIABETES NEED INSULIN EVENTUALLY**

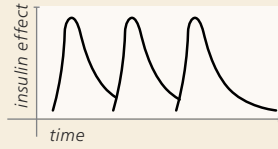
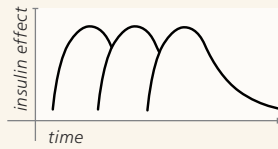
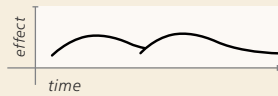
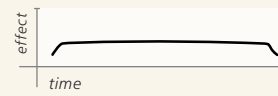
People with type 1 diabetes need insulin right from the start. People with type 2 diabetes usually start needing insulin about 8 to 10 years after diagnosis. That's because the beta cells (the cells that make and release insulin) don't work as well over time.

# Insulin and Other Injectable Diabetes Medications

Everyone with type 1 or LADA needs to take insulin to keep blood glucose in good control. So do many people with type 2.

## How does insulin work?

In general, insulin medication works just like the insulin made in a normal pancreas. It helps move glucose out of the bloodstream and into your cells. There are several different types of insulin medication. Some types are quick acting, and some work a little slower. Some will last a long time in your system, and others last only a short time. Your doctor will prescribe a type of insulin based on your condition, and will help you understand how it works. The table below lists the types of insulin and how they work in your body.

INSULIN type	name generic (Brand)	onset (when it starts to work)	peak (when its effect is strongest)	duration (how long it works)	usually taken...
<b>Rapid-acting</b>	aspart (NovoLog) glulisine (Apidra) lispro (Humalog) admelog (Admelog, Humalog) inhaled insulin (Afrezza)	10 to 20 minutes	1 to 2 hours	2 to 5 hours	3 times a day 
<b>Short-acting (regular)</b>	(Novolin R) (Humulin R)	30 to 60 minutes	2 to 4 hours	4 to 8 hours	3 times a day 
<b>Intermediate-acting</b>	NPH (Novolin N) NPH (Humulin N)	1 to 3 hours	4 to 10 hours	10 to 18 hours	2 times a day 
<b>Peakless</b>	glargine (Lantus, Toujeo, Basaglar)	2 to 3 hours	peakless	24 + hours	1 time a day 
	detemir (Levemir, Tresiba)	1 hour	peakless	18 to 24 hours	
<b>Insulin mixes</b>	70/30 (NovoLog mix), 75/25 (Humalog mix), 50/50 (Humalog mix)				2 times a day

## How is insulin taken?

If you need to take insulin, you'll take it in one of the following ways:

- **Injection.** Most people take insulin in daily injection shots. In this case, you'll inject the insulin yourself, into the fatty part of your stomach, thigh, arm, or hip. You'll need to take a shot two or more times a day, depending on your condition, lifestyle, body type, and other factors.
- **Insulin pump.** An insulin pump delivers insulin directly into your body through a thin tube (catheter) placed under your skin. You "wear" the pump all the time. It can be carried in your pocket or on your waistband — wherever it's most comfortable for you. The pump is programmed like a computer to deliver a little insulin throughout the day. At mealtimes (or when your blood glucose is high), you can set it to deliver extra insulin.
- **Inhaled insulin.** Inhaled insulin is a new treatment for adults with type 1 or type 2 diabetes. It is usually taken at mealtime. The insulin comes in a powder form and is breathed into the lungs. People with asthma shouldn't use inhaled insulin.



## What are other injectable medications for diabetes?

Several newer diabetes medications are also taken by injection. These medications are not insulin. Rather, they work with other diabetes medications — insulin or oral medications — to help control your blood glucose.

There are two main types of these injectable medications. The first type is called a GLP-1 agonist. This type includes drugs such as exenatide (brand named **Byetta**), extended-release exenatide (**Bydureon**), liraglutide (**Victoza**), albiglutide (**Tanzeum**), and dulaglutide (**Trulicity**).

The other type is an amylin analog medication. This includes pramlintide acetate (**Symlin**).

These medications are used in slightly different ways, but both work to control glucose by:

- Slowing or blocking the release of glucose from the liver
- Slowing the release of food from the stomach after a meal
- Helping you eat less, either by lowering your appetite or helping you feel full after you eat

These medications are usually injected at a mealtime. Your doctor, diabetes educator, or pharmacist can give you more information about how and when to use them.

## WHY CAN'T I JUST TAKE AN INSULIN PILL?

So far, pill forms of insulin haven't worked well. Since insulin is a protein, stomach acids tend to digest the insulin protein in pills just as they do the proteins in food. This destroys the insulin before it has a chance to work.

Researchers continue to search for insulin therapies that DON'T require injections. Just recently, an inhaled insulin was approved for use in adults. (See page 52) Most experts are optimistic that the coming years will bring more and more options for delivering insulin.

### WHAT YOU NEED TO KNOW about taking insulin or another injectable medication

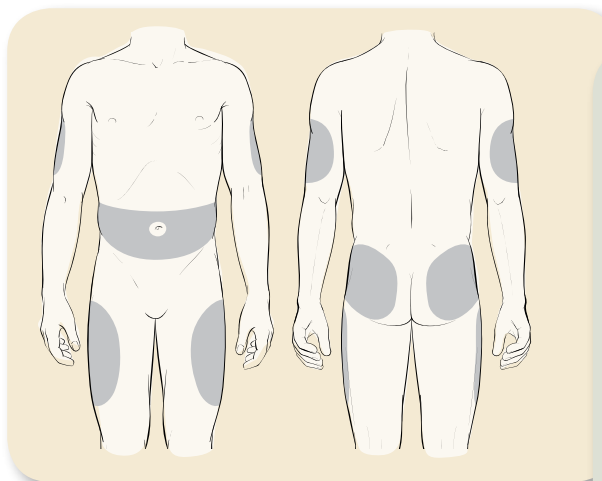
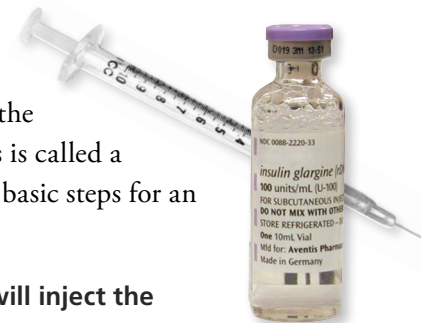
- What type you're taking, and how it works
- How often to take it, and when to adjust your dose up or down
- How to give yourself an injection
- How to handle and store the medication
- How to properly throw away your used needles, test strips, and other supplies.

**Don't forget to ask your nurse or diabetes educator for this information!**

## How to give an injection

You need to inject insulin just below the skin, into the fat layer — not into a muscle or a blood vessel. This is called a **subcutaneous, or "sub-Q", injection**. Here are the basic steps for an insulin injection:

- 1 Choose the place on your body where you will inject the insulin.** This area is called the injection site. Use a different site each time — see the picture at the bottom of the page for some good sites.
- 2 Make sure the area is clean.** If it isn't, wash it with soap and water. As a general rule, don't use alcohol to clean the site. This dries and toughens the skin.
- 3 Lift up (pinch) about an inch of the skin and fat tissue with your thumb and fingers.**
- 4 Holding the syringe like a pencil, touch the needle to the skin, then push it into the skin.** Push it straight in, not at an angle — and make sure the needle is in all the way. You might feel a sting.
- 5 Once the needle is in the skin, let go of the pinch of skin.**
- 6 Push the plunger down slowly and steadily, all the way.**
- 7 When the plunger is all the way down, count to 5 slowly before removing the needle.** This helps keep insulin from leaking out of the site.
- 8 Press your finger over the site for a few seconds.** This helps stop any bleeding that can happen when you pull out the needle.



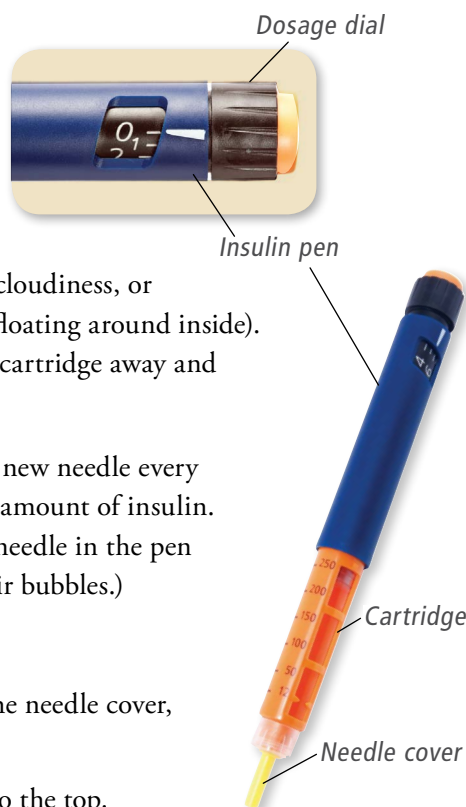
The shaded areas of the bodies at left are good places for injections. Notice that each area has room for several different injection sites. It's best to pick an area and then switch between sites in that area every day to prevent scar tissue, which can toughen the skin. Also, avoid the area close to your navel (belly button).

## How to use an insulin pen

Your doctor may have you use an insulin pen to inject insulin. Insulin pens can be easier to use. But you have to use them correctly to make sure you're getting the right amount of insulin. Here are the steps to follow.

### 1 Check the pen before you use it.

- Make sure the dosage dial turns easily.
- Look at the amount of insulin in the cartridge — is there enough for your dose?
- Check the insulin for any discoloration, cloudiness, or sediment (stuff sitting on the bottom or floating around inside). If you see any of these, throw the pen or cartridge away and use another.



### 2 Attach a new needle to the pen.

Using a new needle every time helps you make sure you get the right amount of insulin. (A reused needle can clog, and leaving the needle in the pen between injections can cause leaking and air bubbles.)

### 3 Prime the pen — this is important!

- Dial up 2 to 4 units of insulin, remove the needle cover, and point the pen upward.
- Tap the cartridge until any bubbles rise to the top.
- Prime the pen by pressing the injection button down all the way. If you don't see a stream of insulin, keep pressing until insulin does come out of the needle.

### 4 Inject the insulin following steps 1 through 5 on the previous list of steps:

choose your injection site, clean the site, pinch up some skin, insert the needle straight into the fatty tissue, and let go of the pinch of skin.

### 5 Press the injection button down all the way, counting to 10 slowly before removing the needle.

For larger doses of insulin, you may need to count to 15 before removing the needle. In general, it takes a bit longer for insulin to come out of a pen than out of a syringe. If there's insulin dripping from the needle when you pull it out, that tells you that you need to leave it in longer next time.

## STORING INSULIN

It's important to store insulin at the right temperature to make sure it works as you expect.

- Unopened pens or vials should be stored in the refrigerator. Do not freeze. They're good until the expiration date.
- Opened pens or vials can be kept at room temperature (between 36°F and 86°F).
- Do not let insulin overheat. Don't leave it in the car or in direct sunlight.
- Throw away open vials after 30 days (42 days for Levemir).
- Throw away open pens after 10 to 42 days, depending on the type of insulin (ask your doctor, pharmacist, or diabetes educator).





### TO CONTROL YOUR BLOOD PRESSURE...

Most people with diabetes need more than one medication to control blood pressure.

### TO CONTROL YOUR CHOLESTEROL...

Good blood glucose control can help control your cholesterol too — especially your triglyceride levels. Statin medications can help lower your LDL cholesterol.

## Medications for Other Health Risks

People with diabetes usually need medication for other health conditions, such as high blood pressure and high cholesterol. Here are a few of the more common medications prescribed for people with diabetes:

<p><b><i>ACE inhibitors</i></b> (angiotensin-converting enzyme inhibitors)</p>	<p>ACE inhibitors are used to treat high blood pressure and heart failure. They block the enzymes that can cause your blood vessels to tighten. This relaxes your blood vessels, lowering your blood pressure and increasing the amount of blood your heart can pump.</p>
<p><b><i>ARBs</i></b> (angiotensin II receptor antagonists)</p>	<p>ARBs are used to treat high blood pressure and heart failure. They're often prescribed when a patient can't tolerate ACE inhibitors.</p>
<p><b><i>aspirin</i></b></p>	<p>Aspirin makes it harder for your blood to clot. This lowers the risk of strokes and heart attacks that can occur when blood clots get stuck in small blood vessels.</p>
<p><b><i>beta blockers</i></b></p>	<p>Beta blockers are used to treat high blood pressure, chest pain (angina), and irregular heart rhythms. They work by blocking the chemicals that make your heart pump faster and more forcefully. This lowers your blood pressure and slows your heartbeat.</p>
<p><b><i>diuretics</i></b> ("water pills")</p>	<p>Diuretics help lower blood pressure by helping your body get rid of excess fluid. This lessens the volume of blood inside your blood vessels and takes the pressure off artery walls.</p>
<p><b><i>statins</i></b></p>	<p>Statins help lower your LDL cholesterol ("bad cholesterol"). They block the substance your liver needs to make this kind of cholesterol.</p>
<p><b><i>corticosteroids</i></b> (steroids)</p>	<p>Steroids decrease inflammation and reduce the activity of the immune system. They're often used with arthritis, asthma, or certain immune disorders.</p>



## How to manage your medications

You'll get the most benefit from your diabetes medications if you follow a few basic rules:

- ✓ **Follow ALL parts of your plan.** Medication works best when combined with regularly checking and tracking your blood glucose, meal planning, and exercise.
- ✓ **Always take medications just as your doctor tells you to.** Don't stop taking medication because you feel fine — and don't mix diabetes medications with other medications unless your doctor says it's okay. This includes herbs, cold remedies, vitamins, and supplements.
- ✓ **Pay attention to how your medications affect you — and communicate with your doctor.** Your blood glucose readings and any symptoms and side effects are good clues as to how your medications are working for you.
- ✓ **Stick to a regular routine for taking medications.** Set an alarm clock to remind you to take your medications. Or, take your medications at the same time you do other regular activities like brushing your teeth, watching the evening news, or eating a meal.
- ✓ **Get organized.** For oral medications, use a pillbox for different times of the day, or different days of the week. You can line up your insulin doses on the counter in the same way. Having a system can help you see at a glance whether you've taken each dose.
- ✓ **Order more medications when you're down to a 2-week supply.** Pharmacies sometimes have a delay in filling orders — and it's important that you don't run out of your prescription.





“ My doctor said “meal plan” — I heard “diet.” I thought I was in for a lifetime of deprivation. No cookies, no brownies...no life!

Luckily, my hearing was a little better by the time I met with the dietitian. She filled out a meal plan for me, and explained the whys and whens and the choices I could make each day. Slowly I got the message, and it wasn't that bad. The plan she helped create for me doesn't have “forbidden foods” or anything like that. It just helps me plan better, eat a more balanced diet — and find a good way to fit in those sweets from time to time. ”

— Rex A.,  
recently diagnosed  
with type 2 diabetes

---

# 6 Following a Meal Plan

A diabetes meal plan shouldn't be painful or hard to follow. When you follow the basic guidelines, you will find it easier to manage your diabetes, without giving up all the foods you enjoy. Making smart choices throughout your day will help you reach your goals.

- MEAL PLAN BASICS . . . . . 60**
  - What is a meal plan? . . . . . 60
  - Why is a meal plan important? . . . . . 60
  - How do I get a meal plan? . . . . . 60
  - Healthy eating for people with diabetes: key activities . . . . 61
- ESTABLISH CONSISTENT EATING PATTERNS . . . . . 62**
  - What's in a pattern? . . . . . 62
  - The carbohydrate connection . . . . . 62
  - Eating patterns and the rest of your plan . . . . . 63
- CHOOSE FOODS WISELY . . . . . 64**
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### RX FOR AN RDN

Your diabetes care team may include a registered dietitian nutritionist (RDN). In fact, many diabetes educators are also dietitians.

An RDN can teach you about nutrition, help you choose foods and plan menus, monitor your progress, and encourage you to stick with your meal plan.

## Meal Plan Basics

This section tells you what a meal plan is, how it helps you manage your diabetes, and how you can make a meal plan yourself.

### What is a meal plan?

A meal plan is a set of guidelines for when to eat, what to eat, and how much to eat. It isn't a strict set of rules. There's really no such thing as a "diabetic diet." Instead, a meal plan is a tool to help you develop consistent, healthy eating habits.

Your plan can be a written worksheet, or just a set of principles to guide your decisions each day. It can be highly individualized for your unique situation, or kept more general. It all depends on the goals you and your healthcare providers set together.

### Why is a meal plan important?

A meal plan is a vital part of your diabetes treatment. It helps you control your blood glucose, blood pressure, and cholesterol. It can also help you reach other goals like losing weight. By helping you eat healthy, it can help control your symptoms and lower your chance of diabetes complications.

### How do I get a meal plan?

If you want the structure of a written meal plan, call the diabetes education center near you (*see page 110 for more information*). Many diabetes educators are dietitians, and they can work with you to create a written plan specifically for you. To do this, they'll consider your lifestyle and food preferences as well as your diabetes and other health risks.

What if you don't have a written plan? You still need to use the ideas in this chapter to guide your food choices. It's a little extra work, but nothing out of the ordinary for a healthy eater. And with time, meal planning will probably become second nature to you.







# Meal Plan

Name: David Date: 2/14/13  
 Dietitian: Lucy Phone: 314-2894

## DAILY TARGETS

	grams total	percent daily calories	servings per day
carbohydrates	225		
protein			2-3
fat			3-4
calories: 2,000			
other			
<input type="checkbox"/> sodium (salt):	<2500 mg/day	<input type="checkbox"/> fiber:	25-35 g/day
<input type="checkbox"/> alcohol:		<input type="checkbox"/> caffeine:	
<input type="checkbox"/> saturated fat:		<input type="checkbox"/> calcium:	
<input type="checkbox"/> cholesterol:		<input type="checkbox"/> water:	

If you're counting carbohydrates, remember:  
**1 choice = 15 grams of carbohydrate**

Time	Choices	Menu Ideas
<b>Breakfast</b> 	Choose foods wisely—and watch your portions ✓ <b>Carbohydrate:</b> <u>60</u> grams <input checked="" type="checkbox"/> Starches <u>2</u> <input checked="" type="checkbox"/> Fruits <u>1</u> <input checked="" type="checkbox"/> Milk <u>1</u> <input type="checkbox"/> Non-starchy vegetables _____ ✓ <b>Protein:</b> meat/meat substitutes <u>1</u> servings ✓ <b>Fat:</b> oils and fats <u>1</u> servings	Enjoy your food 2 slices whole-grain toast with 1T light margarine 1 cup low-fat milk 1/2 grapefruit 1 egg
<b>Snack</b> 	✓ <b>Carbohydrate:</b> <u>15</u> grams <input type="checkbox"/> <b>Protein:</b> meat/meat substitutes _____ servings <input type="checkbox"/> <b>Fat:</b> oils and fats _____ servings	1 pear
<b>Lunch</b> 	✓ <b>Carbohydrate:</b> <u>60</u> grams <input checked="" type="checkbox"/> Starches <u>2</u> <input checked="" type="checkbox"/> Fruits <u>1</u> <input checked="" type="checkbox"/> Milk <u>1</u> <input type="checkbox"/> Non-starchy vegetables _____ ✓ <b>Protein:</b> meat/meat substitutes <u>1</u> servings ✓ <b>Fat:</b> oils and fats <u>1</u> servings	turkey sandwich on whole-wheat bread with fat-free mayonnaise 1 apple 1 cup low-fat milk
<b>Snack</b> 	✓ <b>Carbohydrate:</b> <u>15</u> grams ✓ <b>Protein:</b> meat/meat substitutes <u>1</u> servings ✓ <b>Fat:</b> oils and fats <u>1</u> servings	3 graham cracker squares 1T peanut butter
<b>Dinner</b> 	✓ <b>Carbohydrate:</b> <u>65</u> grams <input checked="" type="checkbox"/> Starches <u>3</u> <input type="checkbox"/> Fruits _____ <input checked="" type="checkbox"/> Milk <u>1</u> <input checked="" type="checkbox"/> Non-starchy vegetables <u>2</u> ✓ <b>Protein:</b> meat/meat substitutes <u>1</u> servings <input type="checkbox"/> <b>Fat:</b> oils and fats _____ servings	1 chicken thigh salad green beans 1 cup brown rice 1 cup low-fat milk
<b>Bedtime snack</b> 	✓ <b>Carbohydrate:</b> <u>15</u> grams <input type="checkbox"/> <b>Protein:</b> meat/meat substitutes _____ servings <input type="checkbox"/> <b>Fat:</b> oils and fats _____ servings	1 light yogurt

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## WHAT CAN I EAT?

A written meal plan (like the one shown here) is a great tool to help you focus on your nutritional goals, stay on track, and train yourself to make healthy choices about food every day.

## FROM RANDOM TO REGULAR

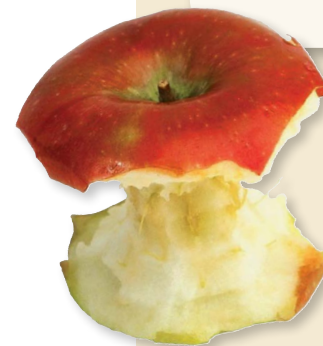
Just like a day planner helps you organize your work, a meal plan can structure and improve your eating habits.

## Healthy eating for people with diabetes: key activities

Healthy eating isn't as difficult as it sounds. And in spite of what you might think, your meal plan can actually make life simpler. How? By helping you do these three key activities:

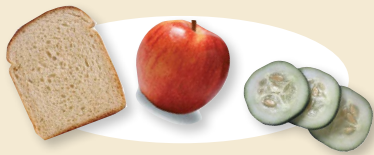
- Establish consistent eating patterns
- Choose foods wisely
- Control your portion sizes

The next few pages give you more information on each of these key activities.



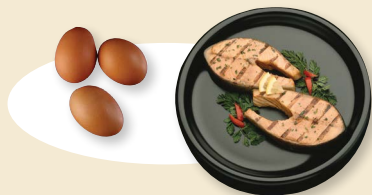
## MAJOR TYPES OF FOOD NUTRIENTS

You need each of these food nutrients in your diet:



### Carbohydrates.

Carbohydrates are your body's main source of energy. They're found in starchy foods (like bread, rice, and potatoes), fruits, dairy products, and vegetables.



### Proteins.

Protein in your diet helps build and repair your hard-working muscles, bones, organs, and other tissues. Protein is found in fish, poultry, meat, and eggs.



### Fats.

Your body uses fats to repair your cells and help your cells send signals. And as you probably know, your body also stores fat in various places around your body — often your hips and waist — as a “backup” energy source. Fats come from oils, nuts, butters, and other sources.

# Establish Consistent Eating Patterns

Food and blood glucose levels are closely connected. When you eat erratically — for example, too much at one time, too little at another — your blood glucose levels also tend to be all over the place. But eating consistently (regularly), can smooth out some of the peaks and valleys in your blood glucose levels. This helps keep your levels within your target range.

## What's in a pattern?

Your eating pattern consists not only of the times you eat throughout the day, but also the amount and types of foods you choose. Different foods affect your blood glucose in different ways, and it helps to keep this in mind as you plan your meals.

## The carbohydrate connection

Your body breaks down the foods you eat into three major types of nutrients: carbohydrates, proteins, and fats. Of these, **carbohydrates have the biggest impact on your blood glucose**. That's because most carbohydrates get broken down into glucose, while very little of the fats and proteins that you eat become glucose.

Because of the strong link between carbohydrates in your food and glucose in your bloodstream, it helps to know a few key facts about this carbohydrate connection:

- **The more carbohydrates you eat at one time, the higher your blood glucose goes.** So if you eat too many carbohydrates for a meal or snack, your blood glucose can go too high. Your body simply can't move the glucose into your cells quickly enough.
- **Some foods contain more carbohydrates per serving than others.** This is true even for foods that seem similar. For example, a bagel has four times as many carbs as a slice of bread.
- **Consistency is key.** If you're consistent in the amount of carbohydrates you eat, you have a better chance of maintaining consistently healthy blood glucose levels.

For these reasons, your meal plan focuses on helping you track the carbohydrates you eat, and spreading them evenly throughout the day. You **DON'T** want to avoid carbohydrates altogether — they're an important source of energy. Just make healthy choices and stick to your meal plan.

## Eating patterns and the rest of your plan

As you settle into a routine, keep in mind that MOST people — not just people with diabetes — eat healthier, feel better, and have more energy when they eat regular meals. And for you, there's an added bonus: because your diet is more stable day to day, you can better anticipate your body's needs and adjust the rest of your self-management plan accordingly. Balancing food intake with medications and physical activity will become that much easier.

### How to establish consistent eating patterns

Follow your meal plan to help make sure you do the following:

- ✓ **Eat meals and snacks at regular times every day.** This helps you keep the amount of carbohydrates you eat consistent throughout the day.
- ✓ **Don't eat between meals, except for planned snacks.** Eating between meals will make it harder for you to maintain a healthy weight — and control your blood glucose.
- ✓ **Don't skip meals.** When you don't eat, your blood glucose may drop too low. Also, when you finally do eat, hunger may make you to eat too much. This can cause the opposite problem, high blood glucose.
- ✓ **Follow a consistent carbohydrate meal plan** as instructed by your diabetes nutritionist or dietitian.
- ✓ **Evenly space your carbohydrates** throughout the day.



### MYTH

*"People with diabetes have to eat special food."*

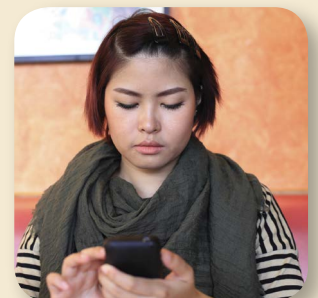
### TRUTH

Just because you have diabetes doesn't mean you can't enjoy the same foods as everyone else. You just need to do a bit of planning and make healthy food choices.



### DEAR DIARY

Consider keeping a food diary. This can help you see how your food choices and eating habits affect your blood glucose. There are many smart phone apps that can help you do this if you don't want to write it down.



**THINGS TO LOOK FOR IN A COOKBOOK**

- Sound nutrition principles. Steer clear of fad diet books that offer “quick-fixes.”
- Recipes that are generally low in saturated fat, cholesterol, and sodium (salt).
- Easy-to-find ingredients.
- Easy-to-follow instructions.
- Recipes that have nutrition information (for example, calories, fat grams, cholesterol, sodium, and so on).

# Choose Foods Wisely

A meal plan doesn't take away your food choices — it just helps you make better ones. And the truth is, the nutritional guidelines for people with diabetes aren't all that strict, unfamiliar, or hard-to-follow. For the most part, they're the same guidelines that everyone should follow to improve their health.

## Six building blocks

You can make better food choices with the six basic nutritional building blocks shown below. These ideas are the foundation of good nutrition — helping to protect your heart and blood vessels, ensure you get enough nutrients, and keep your whole body strong and running smoothly.

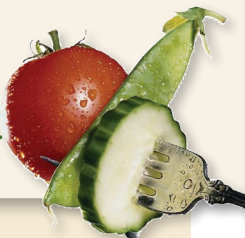
### Build a better diet with these



**EAT LOTS OF FRUITS AND VEGETABLES**

For more vitamins, minerals, fiber, and antioxidants:

- For lunch and dinner, fill half your plate with non-starchy vegetables.
- Snack on vegetables and fruits — not chips or candy.
- Buy pre-washed, pre-cut vegetables for quicker salads and snacks.
- Eat whole fruits more often than juices. And, watch out for syrup or other added sugars in canned and frozen fruit.
- Eat more dark green, orange, and yellow vegetables.



**EAT MORE WHOLE GRAINS**

To get the most good from bread, rice, cereal, and other grains:

- Make sure at least half your grains are whole grains. (Read the nutrition label!)
- Choose bread and tortillas made from whole wheat or corn — not white flour.
- Switch to brown rice.
- For breakfast, eat oatmeal or cold cereals with a whole grain as the first ingredient on the nutrition label.

**Food wise**

There's no such thing as a “wrong” or “bad” food. You just need to be smart about the foods you choose. This means balancing your choices throughout the day and considering other parts of your management plan, such as exercise and medication. A good meal plan can help you do this.

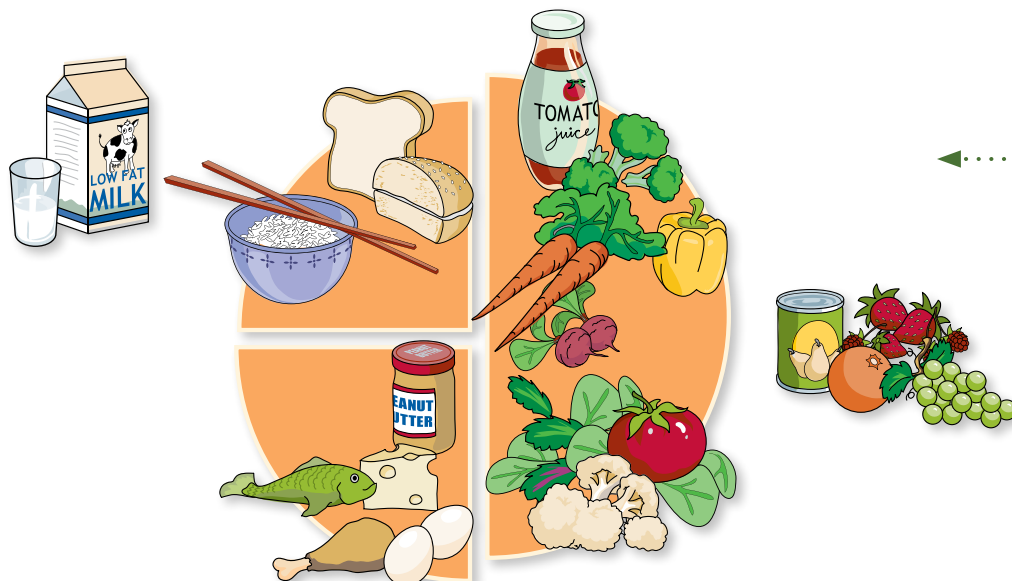


**CHOOSE HEART-HEALTHY PROTEINS**

Don't rely on high-fat meats for all your protein:

- Include more beans and peas in your meals. They're a great source of fiber as well as protein.
- Add soy products to your diet. Soymilk and soybeans (edamame, tofu) give you protein and help balance your cholesterol.
- Eat fish and shellfish 2 to 3 times each week.
- Go for skinless, white-meat chicken and turkey.
- Choose lean cuts of red meat — and keep your servings about the size of a deck of cards.
- Snack on nuts a few times each week. Some good options are almonds, pistachios, and walnuts.





**EAT A VARIETY OF FOODS**

This helps make sure you get all the nutrients you need. So every day, choose from a range of foods: vegetables, fruits, protein-rich foods like fish or eggs, dairy products, and grains.

**6 basic nutritional building blocks:**



**CHOOSE UNSATURATED FATS AND OILS**

You need fat in your daily diet. The key is choosing healthier fats:

- Most often, choose monounsaturated fats. Olive, canola, and peanut oil are in this category.
- Less often, choose polyunsaturated fats like corn, sesame, and safflower oil. Salmon and tuna are also healthy sources.
- Limit saturated fat. High-fat meat and dairy products have a lot of saturated fat, as do tropical oils like coconut and palm oil.
- Avoid trans fat. This harmful fat is found in foods containing hydrogenated or partially hydrogenated oil. (Read the nutrition label!)



**CHOOSE LOW-FAT DAIRY PRODUCTS**

Dairy products are good sources of calcium, protein, and vitamins. To get these benefits — without the fat and cholesterol:

- Buy low-fat, skim, or fat-free milk.
- Choose low-fat cheese and yogurt.
- If you're lactose-intolerant, choose lactose-free milk. Unsweetened milk made from soy, almonds, cashews, coconut, and rice may also work. (Choose one that has added calcium.)



**LIMIT YOUR SODIUM, SUGAR, AND ALCOHOL INTAKE**

Most Americans — not just people with diabetes — need to limit sodium, sugar, and alcohol.

- Keep sodium to 2,400 mg a day or less. Foods that come in cans or boxes tend to have a lot of sodium. Choose those that say "low sodium" or "low salt."
- Skip foods and drinks with added sugar and artificial sweeteners. For example, drink water instead of soda or sports drinks. Save sweet treats for special occasions.
- If you don't drink alcohol, don't start. If you do, talk to your healthcare provider or diabetes educator about how to fit alcohol into your meal plan. Always limit your daily intake to one drink (for women) or two (for men).

## Control Your Portions

When and what you eat is important — and so is how much you eat. Your meal plan may have targets for several different measures. For example, your plan may tell you how many calories to eat each day, and tell you the number of servings, or grams of certain nutrients you need to get at each snack and meal time. The best way to hit these targets — without having to do a lot of math — is simply to control your portions.

### Why pay attention to portions?

Here's why you need to start paying more attention to your portions:

- **To manage your carbohydrates.** The only way to be consistent in your eating patterns is to use consistent portion sizes. After all, when it comes to carbohydrates, a big plate of pasta is not the same as a measured cup of noodles. You need to be aware of this as you make choices throughout the day.
- **To help manage your weight.** Eating too much food — even very nutritious food — makes it harder to control your blood glucose. It also makes it harder for you to maintain a healthy weight. Maintaining a healthy weight is important for people with diabetes, especially people with type 2 diabetes. Too much body fat makes it hard for your body to make and use your own insulin.

- **To promote variety in your diet.** You ate every bite of a big, juicy steak, and now you're too full to even look at your side dish of vegetables. Sound familiar? Eating smaller portions will make it easier for you to have many different kinds of foods in your meals — without eating too many calories.

### What's the right amount?

How much you should eat — at one sitting or in your whole day — depends on several factors. It depends on how active you are, and on your age, height, weight, and gender. It also depends on the type of food you plan to eat, and the time you plan to eat it. If this sounds complicated, don't worry. Your dietitian can help you set targets for how much of various foods you should eat.



#### "RIGHT-SIZE" VERSUS "SUPER-SIZE"

Studies show that most people will eat what's put in front of them, regardless of how hungry they actually are or how big a portion should be. The more we're served, the more we eat. And unfortunately, most Americans are used to "super-sized" servings.

## How to control your portion sizes

One of the best ways to control your portions is to simply pay attention to them — and to how your body feels as you eat. Beyond that, you might find it helpful to check your portions against some outside measure. Once you get used to how big various portions are, you won't need to keep checking.

- ✓ **Measure or weigh it.** Get a set of measuring cups and spoons, and leave them out on the kitchen counter where you can easily see and use them. Some people find that food scales — which show ounces, grams, or both — are also useful. This is especially important when you start your meal plan because your eyes are often "bigger than your stomach."
- ✓ **Eat slowly — and stop before you feel full.** Your stomach is only about the size of your fist. It doesn't take much food to fill it up. But unfortunately, it takes a while for the "I'm full" signal to reach your brain. By the time it does, you've already eaten too much.
- ✓ **Read the nutrition label.** You might be surprised at the portion sizes of some packaged foods. Read labels carefully to make sure you're eating only one serving at a sitting. Measure a serving (1 cup, 7 crackers) and don't eat out of the container.
- ✓ **Develop "hand-eye coordination."** You can use your hand to estimate portion sizes. See the pictures below.

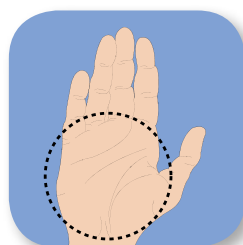
## COUNT MY CARBOHYDRATES?

To help you gain even tighter control over your blood glucose levels, your doctor or diabetes educator may recommend that you count the number of carbohydrates you eat.

- **Who does it?** Carbohydrate counting is helpful for anyone who wants to better control their blood glucose by regulating their food intake. It's particularly useful for people who take insulin to help control their diabetes. It helps them balance the amount of insulin they inject with the number of carbohydrates they eat.
- **How is it done?** This technique requires some instruction from a registered dietitian (an RD). An RD can help you learn the number of carbohydrates you need each day, and how to distribute them throughout your meals and snacks. Your healthcare provider can refer you to a dietitian near you.



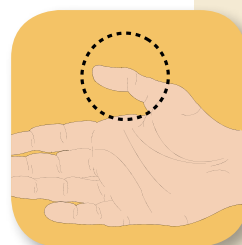
**fist =  
1 cup**



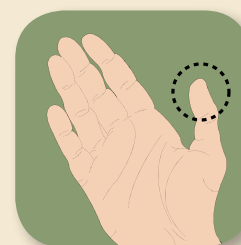
**palm =  
3 ounces**



**handful =  
1–2 ounces**



**thumb =  
1 ounce**



**thumb tip =  
1 teaspoon**



“ I started off slowly — and even a little reluctantly — walking a few blocks each day. For company, I went with my neighbor. We increased the distance a little each week. And after a while, I noticed two surprising things: I felt good, and I was enjoying myself! So even after my neighbor moved away, I kept up with it on my own.

I started exercising because of my diabetes. But I continue because of my spirit. As I walk along each day, I notice the trees and flowers. I think and I daydream. And when I come back, I feel refreshed. ”

— Ginny A.,  
diagnosed three years ago  
with type 2 diabetes

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# 7 Getting Regular Exercise

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Exercise isn't a cure-all for your diabetes, but it may be the next best thing. When you combine regular exercise with eating well and medication, you can expect to feel better, have fewer complications, and live a longer and healthier life.

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**MYTH**

*“People with diabetes can’t play sports.”*

**TRUTH**

Actually, people with diabetes SHOULD be physically active. Many top athletes have diabetes. The key is balancing physical activity with other aspects of your treatment, such as meal planning and taking medications. This helps to make sure your blood glucose stays in your target range.

## Why Exercise?

Exercise (physical activity) has a real and powerful effect on your diabetes. Here’s what it does for you:

- **Lowers your blood glucose and improves your body’s ability to use glucose.** You’re burning more fuel, in a more efficient way.
- **Helps reverse the resistance to insulin that comes from being overweight.** As you lose excess body fat, you actually increase the number of insulin receptors on your cells and improve your body’s ability to use insulin.
- **Helps control your blood pressure and cholesterol.** This will lower your chance of developing atherosclerosis and other problems that can cause heart attacks and strokes.

Besides helping you manage your diabetes, exercise can boost your overall mental and physical health. It will make you stronger, give you more energy, and help you cope with daily stress. It can give you a spring in your step and boost your mood.



### NEED ANOTHER REASON?

If you have type 2 diabetes, exercise — when combined with a meal plan — may allow you to control your diabetes without medication.

## Exercise Basics

Exercise includes anything that gets you moving, such as walking, dancing, or working in the yard. It only takes a few small changes to increase your level of activity each day (see the text at right for ideas). But to help control your diabetes, and to see other benefits, such as losing weight, you need scheduled exercise sessions. Here are a few answers to some common exercise questions:

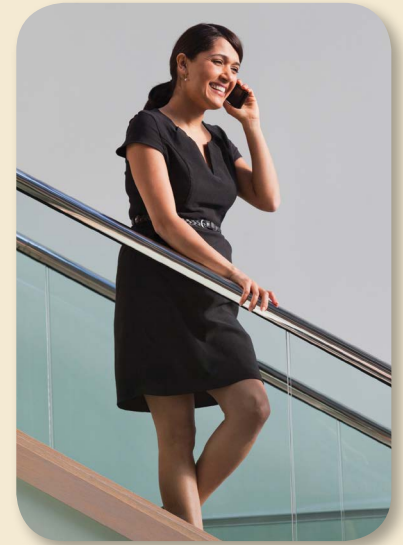
- **How much exercise is enough?** Aim for at least **150 minutes of moderate aerobic activity a week** — or 30 minutes most days of the week. If you need to lose weight, aim for **250 to 300 minutes a week** — or 45 to 60 minutes or more each day. You can divide this into sessions of at little as **10 minutes** at a time. Don't worry about exercising more than you can manage. Build up slowly. Every week, add a few more minutes to your daily routine.
- **What is "aerobic activity?"** Aerobic activity is any rhythmic activity that "revs you up" — gets your heart pumping a little faster and a little stronger. Examples include brisk walking, jogging, swimming, or using equipment such as a treadmill or stationary bike. Start with whatever activity you like and think you can stick with. Then mix it up when you become more confident.
- **What about other types of exercise?** Aerobic activity should be the centerpiece of your exercise program. But strength training is also important. It builds muscle and revs up your metabolism. It also helps with weight loss and weight maintenance. **Include strength training** — work with weights or weight training machines, resistance bands, and tubes — **2 to 3 times per week**.

If you've been inactive for some time, you may not be able to exercise much at first. You'll need to build up gradually. See the next section for ideas on getting started.

### New research on sitting

New research shows that — even if you're getting the recommended amount of exercise — **too much sitting can increase your risk of chronic disease**. Breaking up sitting time with short amounts of walking has been shown to improve glucose and insulin levels. Here's how to protect yourself:

- ✓ **Limit total sitting time** to less than 6 hours per day. If you have to sit a lot at work or school, try to stand up and move around every 20 or 30 minutes.
- ✓ **Limit screen time** (TV, video games, Internet), not including work or school, to less than 2 hours per day.



### MOVEMENT: IT ALL ADDS UP!

Not all of your daily activity needs to come from formal exercise sessions. ALL activity adds up to better health. Here are some tips for adding more activity to your lifestyle:

- Take the stairs instead of the elevator.
- Walk whenever you can, instead of driving.
- Park farther away and walk.
- Stand up while talking on the phone.
- Hide your TV remote control. Get up to change channels. Exercise during commercial breaks.
- At work, use lunch hours and coffee breaks to take a walk around the building.
- Make social occasions more active — instead of dining out, go dancing, bowling, or window-shopping!



### A FEELING OF FITNESS

Wondering whether you're exercising too hard, or not hard enough? Pay attention to your body. Here's what moderate aerobic activity feels like:

- You're breathing a little harder, but you're not out of breath.
- You can carry on a conversation, but you can't sing a song without pausing for breath.
- You might be perspiring lightly, but you're probably not dripping with sweat.
- Your muscles may feel a little tired, but they're not burning with pain.
- You feel invigorated, not exhausted.

### THE BIGGEST RISK

What's the biggest risk of exercising? Not starting.

Studies show that being physically fit improves your health in a number of important ways — including lowering your heart disease risk.

## Getting Started, Staying Safe

Take some time up front to plan your exercise program with your care team. Since they know your medical history and current level of fitness, they can help you set reasonable goals. They can also teach you to balance increased physical activity with changes in food choices and medication timing or doses.

Once you've set up your program — get started! As you do, be sure to follow the guidelines below.

### How to exercise safely

- Check your blood glucose before, during, and after exercise.** Checking can help you understand how exercise affects your blood glucose and help you avoid problems. Once you get a sense of how exercise works with your food choices, medication, and other factors that affect your blood glucose, **you probably won't need to check your levels as often.** Here's what you're looking for when you check, and what to do about your readings:

  - **Before.** If blood glucose is below your recommended range, eat a carbohydrate snack before starting to exercise.
  - **During.** Check blood glucose levels every 30 to 45 minutes while exercising. If you're exercising strenuously, you may want to check your levels more often. Eat quick energy, low-fat snacks as needed to keep your blood glucose within your target range.
  - **After.** Your blood glucose levels may continue to drop for several hours after activity. That's why you might want to continue monitoring at two-hour intervals, for up to 18 hours after exercise. Snack as needed to keep your levels where you want them.
- Carry water and a carbohydrate source.** While you exercise, make sure you drink enough water — it's easy to get dehydrated. You should also carry glucose tablets or some other quick energy source, such as a package of Lifesavers candies. Use them to prevent or treat low blood glucose.
- Carry diabetes identification.** Always carry some sort of diabetes identification, such as a medical alert bracelet or a wallet card that can explain how you should be treated if you pass out from low blood glucose.





### THE BEST DRINK FOR PEOPLE ON THE MOVE

Do you need a special sports drink to take along when you exercise? Probably not.

Water is the best thing to keep you hydrated during exercise. You won't run the risk of raising your blood glucose too high by drinking too much water as you might with a sports drink that's full of sugar.



### How to exercise safely (continued) .....

- ✓ **Warm up before, and stretch afterwards.** Begin each session at a gentle pace, then go on to more vigorous activity after you've warmed up. Stretch a bit afterwards. This will help you avoid injury and stiffness.
- ✓ **Be consistent from day to day.** If you exercise all week and sit around all weekend, you may find that the sudden lack of activity causes unused glucose to build up in your blood. Being a "weekend warrior," on the other hand, can cause problems like hypoglycemia. Just like with eating, consistency with exercise helps you control blood glucose.
- ✓ **Be careful of your feet.** To help avoid problems with your feet, always do these things:
  - Wear clean, smooth-fitting socks made of natural fibers such as cotton or wool.
  - Make sure your shoes fit well, and are right for the kind of exercise you're doing.
  - After you exercise, check your feet for blisters, cuts, and scrapes — and look for redness or signs of infection.

*See pages 82 and 83 for more information on foot care.*



### IF YOU TAKE INSULIN, FOLLOW THESE EXTRA GUIDELINES:

**Ask your care team if you should reduce your pre-exercise dose of insulin.** If you exercise hard, eating extra carbohydrates alone may not keep your blood glucose in your target range. Ask your care team if you can use less insulin before exercise.

**Time it right.** Try to time your workouts so that they don't happen during the peak time for insulin absorption. The best time to exercise is usually 1 or 2 hours after a meal, when your blood glucose is still relatively high.

**Don't inject insulin into areas that are close to working muscles before exercise.** Instead, choose an area that won't be used during your exercise (like your belly). Insulin is absorbed faster into working muscles. This can lead to hypoglycemia.

**Sit it out when you need to.** DON'T EXERCISE if your blood glucose is over 300 mg/dL or if you have ketones in your urine. Exercise may make your blood glucose go higher.

## TOO LOW? TOO HIGH? WHY?

Exercise has a powerful, positive effect on your health. But from day to day, the effect of exercise on your blood glucose may not always be quite what you expect. So as you take up a more active lifestyle, watch out for low or high blood glucose. Here's what can happen:

- **You go too low (hypoglycemia).** Exercise usually lowers blood glucose. That's because the working muscles use more glucose. But if there's not enough glucose available, your blood glucose may drop too low. This is a particular risk if you take insulin to control your diabetes, or if you're exercising longer than 30 minutes.
- **You go too high (hyperglycemia)** Occasionally, very strenuous exercise can make your blood glucose rise too high. That's because the activity has caused your liver to increase the amount of glucose it releases into your bloodstream.

### IF LOW BLOOD GLUCOSE GETS IN THE WAY

*If low blood glucose is interfering with your exercise routine, talk to your healthcare team. They may suggest eating a snack before you exercise, or adjusting your medication. They WON'T suggest you give up exercise!*

## Balancing Activity and Food

Once you settle into a regular exercise routine, you probably won't have much trouble maintaining healthy blood glucose levels before, during, and after physical activity. But some people may continue to find it tricky, particularly if they take insulin. In this case, follow the additional guidelines below to balance physical activity with food intake:

Type of exercise		If your blood glucose before exercise is...	...then eat:
low to moderate intensity	• walking half a mile	less than 100 mg/dL	• During exercise: 10–15 grams of carbohydrate every hour
	• bicycling at a slow pace for less than 30 minutes	more than 100 mg/dL	• No food necessary
moderate intensity	• tennis • swimming • jogging • bicycling • gardening • golfing	less than 100 mg/dL	• <i>Before exercise:</i> 35–50 grams of carbohydrate • <i>During exercise:</i> 10–15 grams of carbohydrate every hour
		100–180 mg/dL	• During exercise: 10–15 grams of carbohydrate every hour
		180–300 mg/dL	• No food necessary
		more than 300 mg/dL	• Don't begin exercise until blood glucose is under better control
strenuous exercise	• long-distance running • aerobic dancing • racquetball • basketball • bicycling at a hard and fast pace • swimming • shoveling heavy snow	less than 100 mg/dL	• <i>Before exercise:</i> 50 grams of carbohydrate • <i>During exercise:</i> monitor blood glucose closely
		100–180 mg/dL	• <i>Before exercise:</i> 25–50 grams of carbohydrate, depending on intensity and duration of activity • <i>During exercise:</i> monitor blood glucose closely
		180–300 mg/dL	• During exercise: 10–15 grams of carbohydrate every hour
		more than 300 mg/dL	• Don't begin exercise until blood glucose is under better control

# Staying Motivated

If you find it hard to stay motivated for exercise, try these tips:

- **Consider your interests.** You're more likely to keep up a new habit if it reflects who you are. Do you prefer bursts of speed or long, steady efforts? Going solo or being guided through the moves? Choose things you enjoy, and mix up your routine occasionally to keep things interesting.
- **Schedule it.** Decide on a specific time for activity every day. Then keep this appointment! Remember, you won't "find" time for exercise. You have to make it.
- **Find a buddy.** Having someone to exercise with can help you stay on a regular schedule and make fitness more fun. Exercising with family or friends is a great way to build your relationships AND your health.
- **Set short-term and long-term goals.** For example, if your long-term goal is to exercise half an hour every day, set a short-term goal of exercising for 10 minutes every day this week. The following week, try for 12 minutes a day, and so on until you reach your long-term goal. (And don't forget to treat yourself to something special when you reach a goal!)
- **Track your progress.** Write down how much you exercise every day in your logbook, or simply put an "X" on the calendar. You might also use a pedometer (a step counter). When your progress is plain to see, you'll probably feel more motivated to keep up the good work.



## WHAT IF YOU MISS A SESSION?

A day off — or two days off — usually isn't cause for concern. But you do need to get back into your exercise routine as soon as you can.

- If you've only skipped a day or two, pick back up where you left off.
- If you've missed more than a week, start back at a lower level than before.
- If you've missed exercise because of a short-term, minor illness (like a cold), wait until you feel better before you start exercising again.
- If you've missed sessions because you have a minor injury, wait until your pain disappears. Start back to exercise at two-thirds of your normal intensity, just to make sure you don't reinjure yourself.

Don't waste energy feeling guilty about not exercising — after all, nobody's perfect! Instead, use that energy to get back on track.

It's easier to stay motivated if you choose a goal you're really ready to work on — and you make a clear plan for keeping it. These Intermountain tools can help.

Ask your healthcare provider about the *Live Well Readiness Worksheet* and the *Live Well Action Plan*.

**Live Well Action Plan**

Write your plan here: \_\_\_\_\_

**What will you do to meet your goal?**

**Live Well Readiness Worksheet**

**What are you ready to do?**

**BASED ON CONCERNS**

**BASED ON BEHAVIORS**

**SET YOUR GOAL**

Intermountain Health logo



“ It’s strange. I have diabetes, but most of the time I’m healthier than my friends who don’t have diabetes. I get a lot of exercise, and I eat really well. I know my body and I pay attention to how I feel. A lot of teenagers don’t do these things.

Of course, I’m not perfect, and I do let things slide a bit from time to time. But eventually I come back around. I want to feel good, and not have complications, and have a normal, happy life. ”

— Karla P.,  
diagnosed eight years ago  
with type 1 diabetes

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# 8 More Healthy Habits

Besides the four main pieces to your diabetes self-management plan — monitoring, medication, meal planning, and regular exercise — other habits are also important. This chapter gives additional guidelines for staying healthy every day, your whole life long.

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  - Signs of diabetes complications . . . . . 78
- MAINTAIN A HEALTHY WEIGHT . . . . . 79**
  - How to begin changing your “heavyweight habits” . . . . . 80
  - How do I know if I’m overweight? . . . . . 81
- CARE FOR YOUR FEET . . . . . 82**
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- CARE FOR YOUR SKIN . . . . . 84**
- CARE FOR YOUR TEETH AND GUMS . . . . . 85**
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- DEAL WITH DEPRESSION AND “BURNOUT” . . . . . 88**
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**SIGNS OF DIABETES COMPLICATIONS?**

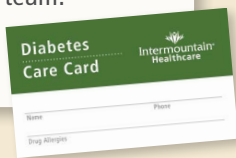
When you have diabetes, you need to listen to your body — and trust your instincts. Any time you don't feel right and can't explain it, *call your healthcare provider.*

It's especially important to call your healthcare provider if you notice any of these possible signs of diabetes complications:

- Vision problems or changes
- Feeling tired all the time
- Pain in your legs while walking
- Numbness or tingling in your hands or feet
- Chest pain or tightness
- Cuts or sores that stay infected or take a long time to heal

**A TOOL FOR YOU**

Intermountain Healthcare makes a wallet card to help people with diabetes keep track of various medical tests and appointments. If you don't have one already, ask your care team.



# Get Regular Medical Care

You have a lot of responsibility for your health — but you shouldn't try to go it alone. You need regular appointments with your healthcare team to make sure your self-management plan is working well and to check for and treat any long-term problems. Your team can also help monitor and manage any other issues (besides diabetes) that put your health at risk, such as high blood pressure and high cholesterol.

How often you see your healthcare team depends on your health, your team's recommendations, and your risk factors. Intermountain recommends the schedule below for various screenings and immunizations.

***Schedule for routine medical care for people with diabetes***

WHAT TO CHECK	HOW OFTEN?
<b>HbA1c</b> Goal is less than 7%, or _____	2 to 4 times/year
<b>Blood pressure</b> Goal is lower than 140/90, or _____	At least 2 times/year
<b>Cholesterol</b> Total cholesterol is 200 mg/dL or less, or _____ <b>LDL goal</b> is 100 mg/dL or less, or _____ <b>HDL goal</b> is above 40 mg/dL for men, or _____ above 50 mg/dL for women, or _____ <b>Triglyceride goal</b> is less than 150 mg/dL, or _____	At least every other year
<b>Dilated eye exam</b> Helps prevent and detect eye problems	1 time/year
<b>Foot exam</b> Don't forget your own daily foot care and inspection	At least 1 time/year
<b>Dental exam</b> Regular cleaning and checkups help prevent and detect tooth and gum disease	2 times/year
<b>Urine albumin/creatinine ratio</b> Goal is less than 30, or _____	1 time/year
<b>Flu shot</b>	1 time/year
<b>Pneumococcal vaccine</b>	Once (repeat at age 65)

## Maintain a Healthy Weight

If you're overweight, losing weight is one of the single greatest steps you can take to control your diabetes. That's because as you get rid of excess fat, you increase your body's sensitivity to insulin. This makes it easier for you to control your blood glucose. You and your doctor might even find that you need less medication for your diabetes. You're also likely to see other benefits such as lower blood pressure and cholesterol.

For a safe, permanent weight loss, let your care team help you. They can create a complete program just for you. Your plan will have 3 main goals:

- **Consistent exercise and activity.** Your team will help you design an exercise plan to help you use all of the calories you're eating — plus a few more — until you lose weight.
- **A meal plan.** Your dietitian will create a meal plan to support your weight loss. You will probably be asked to count calories and servings at first. Your dietitian may also ask you to limit fat in your diet, and eat more of some other foods to make sure you're getting the nutrition you need while you lose weight.
- **Goals and supervision.** Crash diets and fad diets don't work very well over the long term. They are often unsafe, especially for people with diabetes. Your team will help you choose reasonable goals to help you lose weight slowly and permanently. A good goal for most people is to try to lose weight at a rate of 1 to 2 pounds a week.

If you are very obese — with a BMI greater than 35 (see page 81) — weight loss surgery may be an option. However, this is usually only recommended if you haven't been able to control your type 2 diabetes with lifestyle changes and medication. Your healthcare team will talk with you about surgery.

### BECOME A LOSER — BUT SLOWLY!

Permanent weight loss usually happens a little at a time. A good goal for most people is to try to lose weight at a rate of 1 to 2 pounds a week. If you're losing weight faster than that, you may be doing something unhealthy.



### CALORIES IN = CALORIES OUT?

According to experts, keeping a healthy weight means making sure that the number of calories you eat is right for the energy you use in your daily activity.

- If you eat a lot of calories, you will gain weight unless you increase your activity level to burn off those extra calories.
- If you eat fewer calories and/or increase your activity, you can expect to lose weight.
- If you're using all the calories you're eating, you've reached a balance that will allow you to keep weight off for the long term.

Want help balancing calories? Consider joining the *Weigh to Health*® class. *Information is on the next page.*

PREFER A PROGRAM?



Intermountain Healthcare’s *The Weigh to Health*® program can help you lose weight and manage diabetes. Participants go to 12 sessions over a 6-month period, including:

- Two individual sessions with a dietitian trained in weight management.
- Nine or more 90-minute group classes. Topics include:
  - Physical activity
  - Behavior change
  - Meal planning
  - Emotional eating
  - Label reading
  - Positive body image
  - Stress management
  - Healthy cooking
  - Eating out
  - And more!
- Classes are taught by a registered dietitian, with guest instructors, including exercise experts, behavior specialists, and chefs.

Many health insurance providers cover the entire cost of this class.



FOR MORE INFORMATION

on weight management, talk with your Intermountain Healthcare provider or visit

[intermountainhealthcare.org/weight](http://intermountainhealthcare.org/weight)

*How to begin changing your “heavyweight habits”*

Change is rarely easy. As you begin trying to lose weight, you’ll probably find that many of your old, familiar habits get in the way of your good intentions. How do you break the cycle and begin to make health your top goal?

The key is increasing your awareness. Here are a few ideas to help you recognize some of the behaviors that may have led to your weight gain — and substitute healthier habits:

- ✓ **Make room for more movement.** Look for ways to be more physically active all day long. Look for opportunities to stand rather than sit down, and to walk rather than drive. Choose active recreation, like dancing or hiking, more often than passive entertainment, like watching television.
- ✓ **Beware of “unconscious eating.”** It’s easy to overeat if you’re watching TV or doing some other distracting activity at the same time. Turn off the TV and your phone during your meals or snacks. Be aware of — and enjoy! — every bite you take.
- ✓ **Watch out for “emotional eating.”** People often go off their meal plan as a response to emotions such as boredom, loneliness, stress, excitement, or joy. Don’t make food your main source of entertainment, companionship, or comfort.
- ✓ **Be extra aware of your portion sizes.** Control your portion sizes by keeping serving platters off the table. Eat from smaller plates and bowls. Measure your helpings as you serve yourself. Don’t eat directly from food packages. And, keep in mind that if it’s bigger than your hand, it’s probably more than one portion! See page 67 for more tips on controlling your portions.
- ✓ **Lead yourself out of temptation.** Most people have “trigger foods” that they tend to overeat. Figure out what your triggers are — potato chips? chocolate? ice cream? — and try to keep them out of your house.
- ✓ **Write it down.** Write down every thing you eat and drink each day. This will help you understand your eating habits, and help your healthcare providers see what works best for you.



## How do I know if I'm overweight? .....

There are two ways healthcare providers figure out if you're at an unhealthy weight: the **body mass index (BMI)** and **waistline measurement**.

### 1 Body mass index (BMI)

BMI is a measure of body fat based on your weight and height. Studies show that BMI is a better measure of body fat than any other formula. Adults with a BMI of 25 or more are considered at risk for premature death and disability. This risk goes up as the level of obesity increases. See the chart below to see which risk category your weight puts you in.

### 2 Waistline measurement

Studies show that carrying too much fat around your stomach can also increase your risk for disease. Use a tape measure to measure around your natural waistline (just above your hipbones).

- For women, greater than 35 inches is too high.
- For men, greater than 40 inches is too high.

BODY MASS INDEX (BMI) TABLE																					
	Normal						Overweight					Obese									
BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Height	Body Weight (pounds)																				
4'10"	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186
4'11"	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193
5'	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199
5'1"	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206
5'2"	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213
5'3"	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220
5'4"	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227
5'5"	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234
5'6"	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241
5'7"	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249
5'8"	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256
5'9"	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263
5'10"	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271
5'11"	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279
6'	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287
6'1"	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295
6'2"	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303
6'3"	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311
6'4"	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320



To use the BMI table, find your height in the left-hand column, and then move across to your weight. The number at the top of the column is the BMI for your height and weight. The label across the top shows which category you're in (normal, overweight, or obese). Keep in mind that BMI should not be the only tool used to assess risk. For example, people with a lot of muscle (such as athletes) may be perfectly healthy at a higher BMI.

## Care for Your Feet

Diabetes puts your feet at risk for serious problems caused by nerve damage or poor circulation. Even a minor, seemingly harmless skin irritation can cause a major problem in your high-risk feet. Fortunately, taking care of your feet every day can go a long way toward preventing serious problems. Follow the foot-care guidelines described below.

### How to care for your feet

- ✓ **Wash your feet every day.** Use warm water, and be gentle! Don't use hot water, or soak or scrub your feet. Doing these things can damage the skin. Afterward, dry your feet really well, especially between the toes.
- ✓ **Avoid temperature extremes.** Don't use heating pads or hot water bottles. Never put your feet near a fire or on a heater vent where they can easily get burned.
- ✓ **Prevent and treat dry skin.** Use petroleum jelly (Vaseline) on your skin. It's especially good for places that dry and crack, like feet, hands, and elbows. But be careful not to get it between your toes. It can trap moisture and cause infection.
- ✓ **Don't use sharp tools or harsh chemicals on your feet.** Don't try to remove calluses, warts, or corns yourself with razors, scissors, or chemical agents. Leave this to your healthcare providers.
- ✓ **Keep your toenails trimmed.** Cut toenails straight across, and use an emery board to smooth the edges.
- ✓ **Be "shoe smart."** Taking care of your feet means being smart about footwear. Here are a few guidelines.

  - Always wear shoes or slippers to protect your feet. Never go barefoot, even indoors or when running to the bathroom in the middle of the night.
  - Always wear socks with your shoes — but don't wear tight socks or garters. Don't wear socks that have holes in them or socks that have been mended.
  - Don't wear plastic shoes, flip-flops, and open-toed or pointy-toed shoes.
  - Break in new shoes over several days or weeks.
  - Buy and wear comfortable shoes that don't pinch or rub. When buying new shoes, make sure the toe box is roomy enough to allow you to wiggle your toes, and make sure the heel fits without slipping.
  - Check the inside of your shoes for rough, worn, or sharp internal parts. Your foot may not feel a problem with your shoe.
  - If you often have foot problems, consider wearing customized shoes or inserts that are made to protect areas of the feet that are easily injured.
- ✓ **Inspect your feet every day.** This helps catch problems before they become serious. If you have trouble seeing your feet, use a hand mirror or ask someone to help you. Look closely at each foot — top, bottom, and in between your toes. Look out for the following:

  - Cuts, scratches, and sores
  - Blisters, corns, and calluses
  - Dry skin and cracked skin
  - Thickened or ingrown toenails
  - Color and temperature changes
  - Areas that are cold, tingling, red-colored, or puffy (swollen)

If you see any of the problems listed above, call your healthcare provider.



### CARE FOR YOUR FEET

Caring for your feet every day — and getting a foot exam at least once a year — can help prevent serious problems.

## What to expect from your foot exam

In addition to daily care of your feet, you need regular foot exams. Help remind your healthcare provider to check your feet by taking your shoes and socks off at each visit. Or, make an appointment with a **podiatrist** (foot specialist) for your foot exam. During your exam, here's what you can expect:

- Your healthcare provider will generally begin with a **review of your medical history**. Be sure to tell your provider about any foot problems you're having now or that you have had in the past.
- To **check the circulation in your feet**, your provider will take the pulse in each foot and ankle, and in some cases, order an ultrasound test to measure blood flow.
- To **test for nerve damage**, your provider may use a thin nylon wire to test how much feeling you have in certain areas of your feet. Your provider may also assess your sensitivity to vibration and temperature.
- Finally, your healthcare provider may **look at the condition of the skin and bones of your feet**. Your provider may check the position of your toes, and look for weakness or collapse in your bones and joints. Your provider may also order an x-ray, a bone scan, an MRI (magnetic resonance imaging), or a CT scan (computed tomography) to check for bone or skin infections and look for other problems.

## Care for Your Skin

Diabetes can hurt your skin in two ways:

- **Dryness.** High blood glucose causes your body to lose fluid. This can make your skin get too dry. Diabetes also causes nerve damage. This decreases the amount you sweat and contributes to dry skin.
- **Infections.** The biggest problem with dry skin is that it can promote infection. Dry skin is often itchy, and can crack easily. Scratches and cracks allow germs to enter and cause infection. And, high blood glucose feeds germs and makes infections worse.



### How to care for your skin

To keep your skin healthy, follow these guidelines:

- ✓ **Wash with warm water** (not hot water). You probably don't need to use soap on most days. But when you do use soap, make sure it's mild soap. Rinse well afterwards.
- ✓ **After you wash, dry yourself well.** Make sure you get into the places where moisture can collect, like between your toes, under your arms, under your breasts, and between your legs.
- ✓ **Keep your skin moisturized with petroleum jelly** (Vaseline). Rub it on your feet at night, then put socks on to keep your sheets from getting greasy.
- ✓ **Wear all-cotton underwear.** Cotton allows air to move around your body better.
- ✓ **Wear gloves and other appropriate clothing to protect yourself when you're doing work** that may injure your skin. For example, wear gloves and long sleeves when trimming a thorny hedge.
- ✓ **Use sunscreen, and cover up** to avoid sunburn.
- ✓ **Drink lots of fluids, such as water, unless your care team tells you not to.** This will help prevent skin dryness from the inside out.

## Care for Your Teeth and Gums

Tooth, mouth, and gum diseases are more common in people with diabetes. That's because when you have high blood glucose, your saliva encourages disease-causing bacteria to grow in your mouth.

### How to care for your teeth and gums

To help prevent tooth and gum problems, follow the guidelines below:

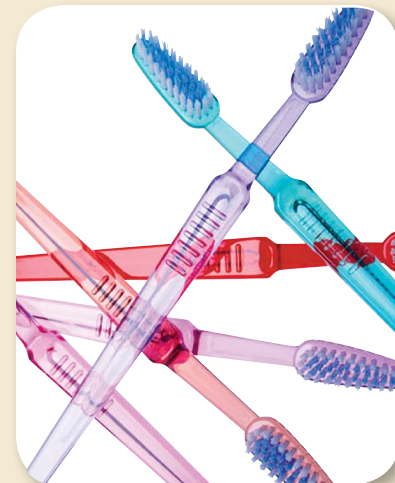
- ✓ **Brush your teeth** with toothpaste after every meal. Use a soft toothbrush, and rinse your mouth thoroughly.
- ✓ **Rinse your toothbrush** thoroughly after each brushing, store it vertically (with the bristles at the top), and replace it at least every 3 months. (Toothbrushes can hold on to bacteria.)
- ✓ **Floss your teeth** once a day.
- ✓ **Clean your dental bridges or dentures** exactly as your dentist has instructed.
- ✓ **Keep your regular dental appointments.** Make sure your dentist knows you have diabetes.



### HIGH GLUCOSE AND GUM DISEASE: A 2-WAY CONNECTION?

According to the American Academy of Periodontology, recent research says that the relationship between gum (periodontal) disease and diabetes may go both ways: not only does diabetes put you at risk for gum disease, but severe gum disease may make it more difficult for people with diabetes to control their blood glucose.

That's why it's important to prevent gum disease if possible — and to treat it right away if it does happen.



### SIGNS OF TOOTH TROUBLE?

Don't forget to visit your dentist every 6 months for a routine cleaning and checkup. You should also call your dentist if you notice any of the following:

- Bleeding gums when you brush or eat
- Red, swollen, or tender gums
- Pus between your teeth and gums when you press on your gums
- Continual bad breath or bad taste in your mouth

**TRY, TRY AGAIN**

If you've tried to quit smoking before without success — try again! Most smokers make at least 5 attempts before they're able to quit smoking for good.

Ask your healthcare provider for a copy of Intermountain's *Quitting Tobacco: Your Journey to Freedom* — or find it at: [intermountainhealthcare.org/prevention](http://intermountainhealthcare.org/prevention). This booklet is a step-by-step guide to quitting and lists Intermountain, state, and national resources to help you.



# Quit Smoking



You already know that smoking is bad for your health, and that you should quit. But if you're a smoker with diabetes, you have three especially urgent reasons to quit:

- Smoking contributes to insulin resistance.
- Smoking speeds up the damage to nerves and blood vessels that often occurs with diabetes.
- Smoking puts you at especially high risk for other diabetes complications — including eye, kidney, and heart disease.

If you're a smoker, today is a great day to quit. Look below for ideas to help you.

## How to find a program to help you quit tobacco

✓ For structured support to help you kick the tobacco habit, you may want to join one of the programs listed below:

### Phone-based programs

• **Way To Quit**

In English: 1-800-QUITNOW (1-800-784-8669)

In Español: 1-855-DEJELO-YA (1-855-335-3569)

**Way to Quit** is a free telephone program to help you quit smoking. Trained coaches provide the information and motivation you need to live a tobacco-free life. Quitting tobacco isn't easy. But it **CAN** be done. People do it successfully every day, and you can, too. The service is available to all Utah teens, uninsured adults, and adults on Medicaid or Medicare. Way to Quit also provides support and information for pregnant women trying to quit tobacco.

• **Quit for Life Program**

Call 866-QUIT-4-LIFE (866-784-8454)

This is a confidential, phone-based tobacco cessation program. It offers one-on-one telephone support from a trained specialist who can help create a personalized quit program that fits your lifestyle. This program is available at no charge to all SelectHealth members. It's now available in 13 languages and translation services are available for other languages.

### Online programs

• **utahquitnow.org**

Get support from trained quit coaches on your journey to freedom from tobacco.

• **Freedom From Smoking  
ffsonline.org**

Get advice and support from the American Lung Association.

• **Quitnow.net/Idaho**

A free online program. Get ready, take action, and live the rest of your life as a non-smoker.

# Manage Stress

Everyone has stress in their lives, but not everyone is “stressed out.” Since stress can make your blood glucose rise, it’s important to make sure you deal with stress in a healthy way. The table below will help you recognize stress and find ways to manage it.

## How to manage your stress

### Take the stress test...

Some of the behaviors and changes below might be caused by your diabetes or another health problem. But, they’re often signs of stress.

- Sleeping too little or too much
- Nightmares or poor sleep
- Nervous habits like nail-biting or foot tapping
- Eating too much or too quickly
- Decreased sex drive
- Teeth grinding
- Irritability or impatience
- Migraine or tension headaches
- Muscle tension
- Shallow breathing or sighing
- Racing heart
- Upset stomach
- Cold or sweaty hands

### ...then take action

Most people need to train themselves to deal with stress in a healthy way. The list below gives a few ideas.

- ✓ **Stop and breathe.** When you first notice stress symptoms, stop what you’re doing — or thinking — and take a few deep breaths. Yoga, meditation, or prayer can also give you a few useful minutes of “time-out” and help you calm down.
- ✓ **Adjust your outlook.** Your reaction to stress begins with how you see stress. Do you tend to imagine the worst will happen? Or maybe you obsess over details, or take things too personally? See if you can adjust your perceptions. Try to find the humor in difficult situations, and give others the benefit of the doubt. Finally, put things into perspective by asking, “Will this matter in five years?”
- ✓ **Reprioritize your time.** Are you too busy or busy with things you don’t really enjoy? Or do you find yourself with too much free time? If so, schedule your time to reflect your interests. Have the courage to say “no.” Choose to enjoy your activities, without feeling rushed or pressured.
- ✓ **Develop de-stressing habits.** What helps you relax? Escape from your worries with a healthy distraction like socializing, exercising, or doing a favorite hobby.

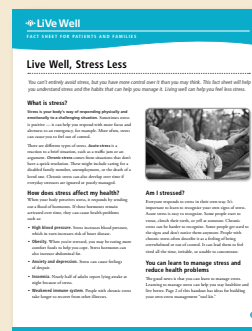
## LOW TESTOSTERONE?

As many as one-third of men with diabetes have low levels of testosterone, the main male sex hormone. This can affect a man’s mood, sex life, muscle strength, and energy level.

If you’re a man 45 years or older, ask your doctor about checking your testosterone levels. If your levels are low, treatment may make a big difference in your life.

## LIVE WELL, STRESS LESS

For more ideas about managing stress, ask for the Intermountain fact sheet *Live Well, Stress Less*.



**DIABETES BURNOUT**

You know what to do for your health, but you just aren't motivated to keep up the daily grind of self-care. Are you alone in this feeling? Hardly. It's so common that it has a name: diabetes burnout.

Deal with burnout and other negative emotions when they arise. These feelings may be common, but they shouldn't be ignored.

# Deal with Depression and "Burnout"

A diabetes diagnosis often causes strong feelings of fear, denial, anger, and sadness. These feelings may fade after a while. But they may not stay away forever. They often come back, bubbling up as you face new challenges in your life with diabetes.

The table below explains some common emotions of people with diabetes. Each person is different. Your emotions may not be the same as those listed here. But it may help you to know what others have felt, too.

**WHAT you may feel**

*Sometimes your emotions may just need to run their course — and sometimes they may signal a more serious depression that requires treatment. See the next page to help you know the difference.*

- **Denial.** When you're first diagnosed, you tell yourself that your doctor made a mistake: "Not me — this must be someone else's test result!" Later on, you convince yourself that your diabetes has gone away, or that it's really not a very serious disease.
- **Fear or anxiety.** You fear diabetes complications. You're anxious about your future. You worry about how people see you, how you're handling self-management, or if your children will get diabetes. Or you just feel uneasy — without knowing why.
- **Anger or self-pity.** You get hung up on the "unfairness" of having diabetes. You're angry about the burden of daily self-management activities, or just resent having to think about your health every day.
- **Sadness.** You feel a sense of loss about your "old" (prediagnosis) body, self-image, or lifestyle. You feel defeated by the rigors of self-management, or discouraged about what the future may hold.

*Keep in mind that emotional problems often have physical causes. For example, poor blood glucose control, medication side effects, and chemical or hormonal imbalances can all contribute to emotional problems.*

**WHEN you may feel it**

*Even if you've adapted well to your diabetes, negative feelings may crop up from time to time. Often there seems to be no "good reason" for your mood. But sometimes you're responding to specific events in your life. Negative feelings may appear or reappear:*

- **At the time of your diagnosis.** News of your disease can be overwhelming. Grieving for yourself is natural — and even healthy — so long as you can still function.
- **After your first episode of low or high blood glucose.** Such episodes can be frightening, and can leave you feeling vulnerable.
- **If you're pregnant or thinking about starting a family.** Parenthood is an important milestone in anyone's life. It makes sense that your feelings about your diabetes are more intense right now.
- **If you have repeated infections.** You have yet another reminder — as if you need one! — that you have a chronic condition. Plus, you have the additional burden of treating the infection.
- **When your self-management plan changes.** What used to work to control your diabetes isn't working anymore — and you wonder why. You dread taking new medication, starting insulin shots, or other changes.
- **If long-term complications appear.** You may feel that all your hard work to control your diabetes has failed. You fear for your health.





## How to cope with negative emotions

What can you do to cope with negative feelings? First, you need to acknowledge and try to understand your emotions. This will help you know what, if anything, you need to do about them. **The goal is to make sure that your feelings don't get in the way of your care — or with your ability to live a full, satisfying life.** Here are a few ways to do this:

- ✓ **Know when your emotions may be harmful.** Negative emotions can sometimes be helpful. For example, anger or fear may motivate you to take better care of yourself. Sadness might give you an excuse to cut back on activities and give yourself a needed break. But you need to know when your emotions are harmful — and when you should seek help. The list at right can help you evaluate your feelings.
- ✓ **Seek out support.** Besides your care team, get support from other people. A counselor, diabetes support group, or religious guide may be able to help you get through the rough patches. You can also look online for diabetes discussion boards or chat groups. These groups can put you in touch with people who understand what you're going through.
- ✓ **Keep up with your care — and make adjustments when necessary.** Poor blood glucose control can play havoc with your emotions. So even when you feel down, blue, sad, and bad, try to keep up with your self-management activities. When you have problems with blood glucose control, in spite of good self-management, don't accept it as your fate. Talk to your care team about how you can solve the problem.
- ✓ **Deal with the stress effect.** Stress can make a dark mood even darker. See page 87 for information on recognizing stress — and handling it in a healthier way.
- ✓ **Be kind to yourself — and set realistic goals.** Everyone with diabetes has bad days. Everybody feels tired and alone, and slips up with self-management from time to time. So if you feel bummed out, burned out, or just plain out of it — don't beat yourself up. Focus on what you've been doing right, then set a realistic, short-term goal for yourself. Motivation is fueled by success — and success depends on having practical, achievable goals.

## IS IT DEPRESSION?

If you have any of these symptoms — or if you've just been feeling down for two weeks or more — call your healthcare provider. You may be depressed.

- **Loss of pleasure.** You don't take interest in things you used to enjoy.
- **Change in sleep patterns.** You sleep too much, too little, or poorly.
- **Change in appetite.** You eat more or less than usual.
- **Trouble concentrating.** You can't watch a TV program or read an article because other thoughts or feelings get in the way.
- **Loss of energy.** You feel tired all the time.
- **Nervousness or fidgeting.** You always feel anxious, or you have trouble sitting still.
- **Guilt.** You feel you "never do anything right" and worry that you're a burden to others.
- **Moving or speaking slowly.** People may have noticed this.
- **Suicidal thoughts.** You feel you want to die or are thinking about ways to hurt yourself.

Your healthcare providers can help determine a strategy to get your life and your health back on track.



“ Last week, my husband thanked me for all the work I do to take care of myself. He said that he knew it wasn’t always easy, and he knows that I sometimes get discouraged. He thinks of my continued good health as my gift to our family.

That may be the nicest thing he’s ever said to me. Diabetes can be a lonely road — but that appreciation will help keep me going for a while. ”

— Rachel,  
diagnosed with type 2  
diabetes three years ago

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# 9 Special Circumstances

Because so many things affect your blood glucose, you need to be prepared and flexible to take care of yourself. You won't always do the same things day in and day out. Sometimes, you'll need to make changes. This section describes a few of the more common challenges you may face and tells you what you can do to meet them.

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## WHEN TO CALL YOUR HEALTHCARE PROVIDER

Call for advice or an appointment if:

- You're sick or had a fever for a couple of days and aren't getting better.
- You're vomiting or having diarrhea for more than 6 hours.
- You have a fever higher than 101.5°F or a fever that lasts for more than 24 hours.
- You have a fasting blood glucose level of 240 or higher for more than 24 hours.
- You have moderate to large amounts of ketones in your urine. **Get emergency care** if you can't reach your healthcare provider, or if you have large amounts of ketones in your urine.
- You begin to notice problems like confusion or dehydration (symptoms of dehydration include less urine output, dry mouth and skin, and dry sunken eyes).
- You aren't sure what to do to take care of yourself.

## Sick Days

An illness — even a minor illness like a cold — can make it harder for you to control your blood glucose.

### Why sick days need special attention

Here are a few reasons you may have trouble controlling your blood glucose while you're sick — and why you need to take special care of yourself:

- When you're sick, your body releases hormones that help you fight the illness. The problem is that some of these same hormones may also cause your blood glucose levels to rise. They can also make your diabetes medications less effective.
- When you don't feel well, you tend to lose your appetite. It's harder to follow your meal plan.
- You might be drinking less fluid than normal, or you may be vomiting. This can make you dehydrated. Dehydration can change how your medications work, and make it harder to follow your exercise routine and meal plan.

#### SICK-DAY SNACKS

When you're sick, you may not have much of an appetite, or feel like you can tolerate your usual foods. Try some of the foods and liquids listed below. Each has about 15 grams of carbohydrates — and might just hit the spot when you're under the weather:

- ½ cup regular Sprite
- ½ cup regular Jell-O
- ½ cup fruit juice
- ½ cup ice cream
- ¼ cup sherbet
- ½ cup creamed soup
- ½ cup instant breakfast drink



## How to care for yourself when you're sick

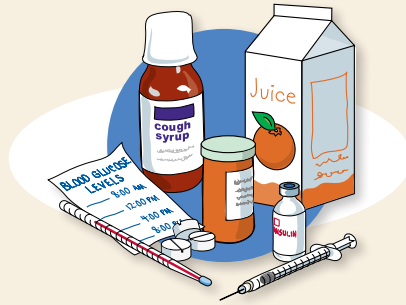
Follow the basic guidelines below to make it easier to control your blood glucose when you're ill.

✓ **Monitor blood glucose levels.** When you're ill, you need to monitor blood glucose levels more often — about every 3 to 4 hours. (If you take insulin, you might need to check your blood glucose even *more* often.) As always, keep a record of your blood glucose levels.

✓ **Maintain your meal plan.** When you're sick, you still need to take in enough carbohydrates to maintain recommended blood glucose levels. So if you can, continue to follow your regular meal plan — even if you're not very hungry, or if you're nauseated, vomiting, or have diarrhea. If you just can't manage to eat normal meals, try taking small sips of high-carbohydrate liquids, or small bites of high-carbohydrate foods, every 15 to 30 minutes. Be sure to choose foods that you can tolerate.

✓ **Test for ketones if necessary.** Ketones are chemicals produced when your body breaks down fat — instead of glucose — for energy. They signal dangerously high blood glucose. You can test for ketones in your urine with a simple home test, available at most pharmacies.

- If you have type 1 diabetes, you need to test for ketones every 4 hours.
- If you have type 2 diabetes, you only need to test for ketones when your blood glucose is over 250 mg/dL.



✓ **Drink plenty of caffeine-free fluids.** If you're losing fluid from fever, vomiting, or diarrhea, sip liquids with sugar or carbohydrate (for example, fruit juices, soups, or milk). Otherwise — and depending on your blood glucose levels — you might decide to sip sugar-free drinks like broth, tea, or water.

✓ **Continue to take your diabetes medications as prescribed — unless you're told otherwise.** Although there are times when you might need to stop taking your diabetes medications temporarily, usually you **SHOULD** continue taking them as prescribed. That's because when you're sick, your blood glucose levels are likely to be too high — even when you haven't eaten. Here are some guidelines:

- Don't stop taking your diabetes medications or change your medication schedule without first talking with your healthcare provider.
- If you take insulin to control blood glucose levels and are unable to eat, you may need to adjust your insulin levels. Your healthcare providers can teach you how to do this safely.

✓ **Take non-diabetes medications carefully.** Be aware that the non-diabetes medications you take when you're sick — like antibiotics, cold remedies, or cough syrup — may affect your blood glucose. Here are a few things you can do to make sure you're taking medications safely.

- Your doctor may prescribe medication to treat your illness. Always ask your doctor or pharmacist how a medication may affect your blood glucose.
- Always read the labels of your medications. Watch out for sugar and alcohol as ingredients. Sugar may raise your blood glucose levels, while alcohol may lower them. Look for sugar-free and alcohol-free versions of your favorite cough syrup, throat lozenges, and other remedies. If you're not having any luck, ask your pharmacist to help you find sugar-free or alcohol-free products.
- Watch out for medication side effects. Some over-the-counter medications may cause symptoms that mimic low blood glucose (shakiness, dizziness, sweating, clumsiness). If you have these symptoms, check your blood glucose right away. This will let you know if your symptoms are the result of low blood glucose or if they're side effects from your medication.

## High Blood Glucose (Hyperglycemia)

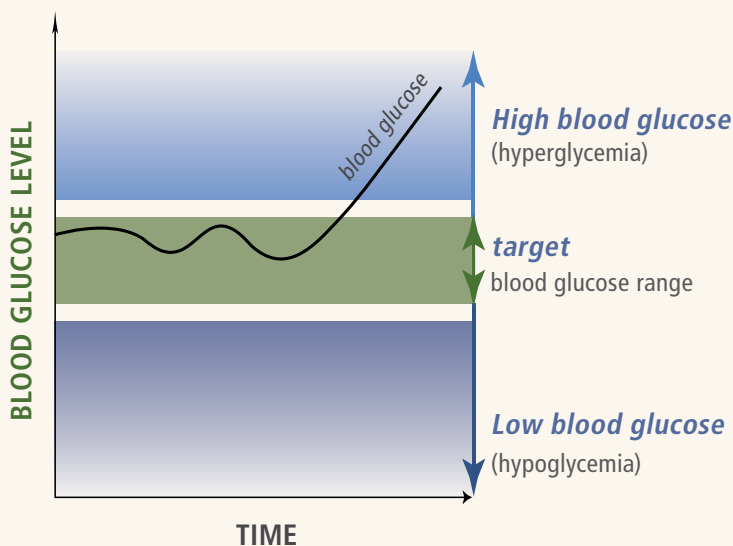
Hyperglycemia, or high blood glucose, can be a dangerous problem. In the short term, it can cause serious symptoms, and may even become life threatening. For example, one sign of dangerously high blood glucose is ketones in your urine. Ketones are acids your body makes when it burns fat instead of glucose for energy. They can build up to toxic levels in your body. This condition is called ketoacidosis (see more on page 95).

Over the long term, high blood glucose can increase your chance of diabetes complications. This is why you need to know how to recognize when you're hyperglycemic and take immediate steps to correct it.

### What causes high blood glucose — and how to prevent it

Most often, high blood glucose happens when you don't follow your self-management plan. Sickness or stress can also cause your glucose to rise too high. And sometimes — in spite of your best efforts — your glucose may rise without any apparent reason.

#### High Blood Glucose



Hyperglycemia is the medical term for high blood glucose. Although hyperglycemia is sometimes defined as a blood glucose reading **above 180**, everyone is different — and people have symptoms of hyperglycemia at different levels. Ask your healthcare providers what is too high for you.

The best way to avoid hyperglycemia is to stay on your self-management plan:

- Monitor your blood glucose regularly to catch hyperglycemia early on
- Take your medications as prescribed
- Follow your meal plan — eating nutritious foods regularly, in the right amount
- Get regular exercise to burn up glucose and help your whole body work better

#### DIABETIC COMA?

*Without glucose, your brain can't function. So when ketoacidosis is severe, you can go into a coma, or even die. That's why you need to be alert to the symptoms of hyperglycemia and act right away to correct it.*

## How to care for yourself ..... when you're hyperglycemic

Follow the basic guidelines below to make it easier to recognize and control your high blood glucose.

### ✓ **Recognize symptoms of hyperglycemia and ketoacidosis.**

Along with checking your blood glucose, watch out for the following symptoms:

#### Hyperglycemia symptoms

- Extreme thirst
- Dry, itchy skin
- Frequent urination
- Blurry vision
- Extreme hunger
- Fatigue

Because hyperglycemia tends to come on gradually, you may not notice these symptoms right away. A high reading on your glucose meter may be your first sign that blood glucose levels are running too high.

#### Ketoacidosis symptoms

- Ketones in your urine
- A fruity odor on your breath
- Extreme thirst or hunger
- Nausea/vomiting
- Extreme drowsiness
- Stomach pain
- Body aches

Ketoacidosis may occur when hyperglycemia is severe. People with type 1 diabetes are at the greatest risk of ketoacidosis. That's because people with type 2 diabetes usually have at least some insulin available to take glucose into the cells.

*Call your healthcare provider if you have moderate to large amounts of ketones in your urine. Get emergency care if you can't reach your healthcare provider, or if you have large amounts of ketones in your urine.*

### ✓ **Test for ketones if necessary.** ✓ **If you need to, get back on your self-management plan.**

Ketones are chemicals your body makes when it uses fat instead of glucose for energy. They signal dangerously high blood glucose. You can test for ketones in your urine with a simple home test, available at most pharmacies. Ask your doctor when to test for ketones. You may be told to test when:

- You have any of the symptoms (of hyperglycemia or ketoacidosis) listed above
- Your blood glucose is over 300 mg/dL
- You're sick (as with a cold or flu)

People often get high blood glucose when they don't take care of themselves. Make sure that you're monitoring your blood glucose, taking medications, following your meal plan, and exercising just as your plan tells you to.

**Look for a cause for your rising blood glucose, and make adjustments as necessary.** For example, you might realize that you're coming down with an illness, or that you're feeling particularly stressed. Try to treat or reverse these causes.



## WHEN TO CALL YOUR HEALTHCARE PROVIDER

Call for advice or an appointment if:

- You can't control your hyperglycemia, in spite of taking action to correct it
- You have 2 or 3 readings in a row with results of 240 mg/dL or higher
- You have more than 2 unexplained episodes of hyperglycemia in a week
- You have repeated high glucose readings during a particular time of day
- You have moderate to large amounts of ketones in your urine. **Get emergency care if you can't reach your healthcare provider, or if you have large amounts of ketones in your urine.**

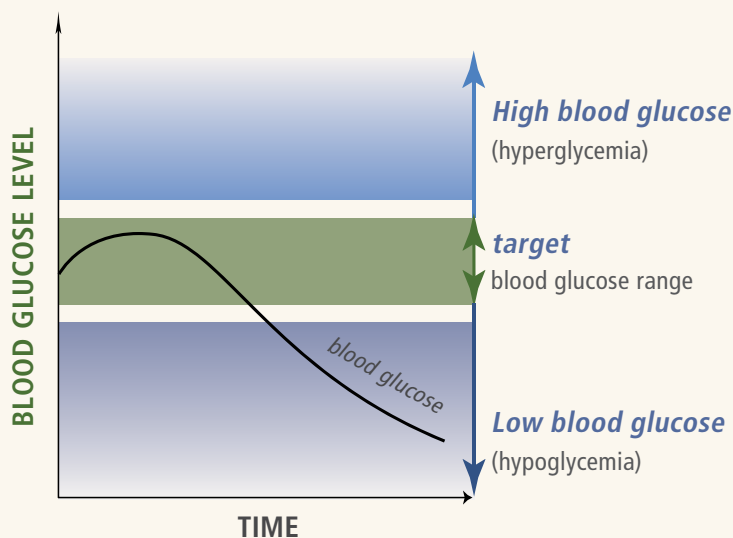
## Low Blood Glucose (Hypoglycemia)

Hypoglycemia is the medical term for low blood glucose. It can be dangerous for people with diabetes. You need to know what to watch for, and what to do to correct it.

### What causes low blood glucose — and how to prevent it

There are a lot of reasons why your blood glucose might drop too low. Here are a few common causes:

#### Low Blood Glucose



Low blood glucose is usually defined as a blood glucose reading below 70 — but you might feel symptoms at a different reading. As always, ask your healthcare provider what is too low for you.

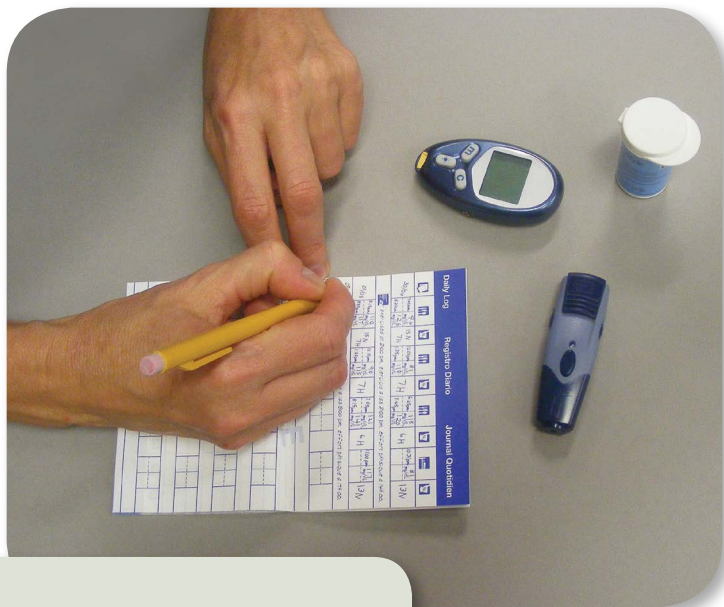
- Not eating on your regular schedule or going long periods between meals can cause your blood glucose to drop.
- Medications to control diabetes can also cause hypoglycemia, especially if they're not taken as prescribed. For example, too much insulin can sometimes cause low blood glucose, which is why it's sometimes called an "insulin reaction." Taking your diabetes medication at the wrong time can also make your blood glucose drop too low.
- Being more active than usual can cause hypoglycemia, since active muscles use up more glucose than inactive muscles. So even though exercise is a great way to keep your blood glucose levels normal, you need to exercise sensibly to stay safe.
- **To prevent hypoglycemia, stick to your self-management plan.** If you're having regular episodes of hypoglycemia and you can't figure out why — talk to your care team. They will help you figure out the problem and show you how to correct it.



## Hypoglycemic unawareness

The symptoms of low blood glucose, or hypoglycemia, include shakiness, headache, and sudden moodiness (see the next page for a more complete list of symptoms). But some people with diabetes don't notice any symptoms when their blood glucose levels are low. This is called **hypoglycemic unawareness**. Hypoglycemic unawareness can happen for several reasons:

- Over time, poorly controlled high blood glucose can cause damage to the hormonal system that tells you when your blood glucose is low.
- People who have low blood glucose often may get used to the feelings that come with it. They may no longer understand that those feelings are a warning sign of low blood glucose.
- Some medications may mask the symptoms of low blood glucose (for example, sleeping pills, sedatives, or heart medicines called beta blockers).



*If you have hypoglycemic unawareness, monitoring blood glucose is even more important. Regular monitoring can tell you when you have low blood glucose before it becomes a problem.*

### BE PREPARED!

Although you hope to avoid low blood glucose, you still need to be prepared in case it does happen to you. Always do the following:

- Make sure that the people you spend the most time with (coworkers, family, teachers, and friends) know the signs of low blood glucose. Show them how they can help you if you aren't able to help yourself.
- Always carry a carbohydrate snack and your emergency glucagon kit (if you have one).
- Carry a card in your wallet explaining that you have diabetes and what someone can do to help you if you show signs of hypoglycemia.
- Wear a diabetes ID.

### WHO NEEDS GLUCAGON?

If you're using insulin, ask your healthcare providers about **glucagon**. Glucagon is a medication that can quickly raise your blood glucose. It comes in an injection form or nasal spray.

Your healthcare providers can tell you whether or not you need this prescription medication and how to use it.



## WHEN TO CALL YOUR HEALTHCARE PROVIDER

Call for advice or an appointment if:

- You can't control your hypoglycemia, in spite of taking action to correct it.
- You have 2 to 3 readings in a row with results of 70 mg/dL or less.
- You have more than 2 unexplained episodes of hypoglycemia in a week.
- You have repeated low glucose readings during a particular time of day.
- **Get emergency care if you feel you are about to pass out.**

Remember, due to **hypoglycemic unawareness**, some people with diabetes don't notice any symptoms when their blood glucose levels are low. Check your blood glucose regularly. If you can't check your blood but you suspect hypoglycemia, treat yourself anyway.

## How to care for yourself when you're hypoglycemic

Hypoglycemia usually comes on quickly. So if you suspect you're hypoglycemic, check your blood glucose. If that's not possible, go ahead and treat yourself as if your blood glucose is low.

- ✓ **Recognize symptoms of hypoglycemia.** Along with checking your blood glucose, watch out for the following symptoms of low blood glucose:
  - Shakiness or dizziness
  - Sweating
  - Hunger
  - Headache
  - Pale skin color
  - Sudden moodiness or behavior changes, such as nervousness, irritability, or crying for no apparent reason
  - Clumsy or jerky movements
  - Difficulty paying attention, or confusion
  - Tingling sensations around the mouth
  - Fainting or seizure
- ✓ **Tell someone around you that you have low blood glucose, if you can.** You might need someone to help you, and they might not know what's going on with you unless you tell them. *(The box on the next page tells them how they can help you.)*
- ✓ **Eat or drink 15 grams of fast-acting, low-fat carbohydrate.** Give this treatment about 15 minutes to work. (See "Quick Energy Sources" on the next page for some examples.) Don't continue to eat until your symptoms go away. Overeating may have a rebound effect, causing your blood glucose to go too high.
- ✓ **Check your blood glucose 15 minutes after you eat.** If it's still below 70, eat another 15 grams of carbohydrate. Repeat this until your blood glucose is over 70 or until your symptoms go away.
- ✓ **Once your blood glucose is back to normal, get back on your management plan and look for causes.** Do you need to do a better job of following your meal plan, or taking your medications as prescribed? If you can't identify a cause of your hypoglycemia, contact your healthcare provider. You might need a change in your plan.

## Quick energy sources

The following items are quick energy sources that contain about 15 grams of carbohydrate:

- ½ cup juice or regular soda (not diet soda)
- 4 teaspoons of sugar
- 2 tablespoons raisins
- 4 to 5 saltine crackers
- 3 to 5 pieces hard candy
- 1 cup skim milk
- 1 piece bread
- 1 fruit roll-up
- 3 to 4 glucose tablets, or 1 tube glucose gel
- 11 jellybeans
- 8 Lifesavers candies (not sugar-free)



**Note:** Candy bars, cookies, and other higher-fat options are poor sources of quick energy — the fat slows down digestion of carbohydrates. High-fiber foods (such as many fresh fruits) also slow digestion. So whenever possible, stick to quick energy sources such as those listed above.



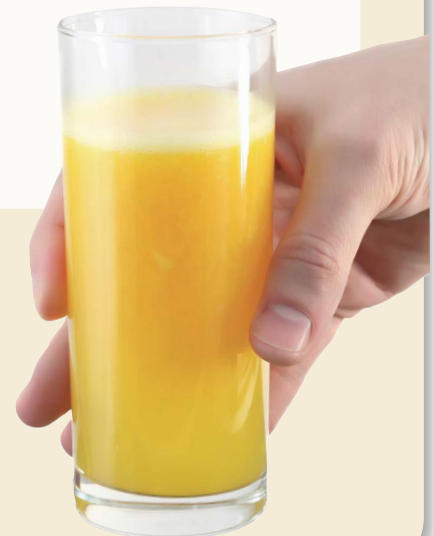
## Family or Friend?

### *What you can do to help someone else when they're hypoglycemic*

A person with moderate hypoglycemia may be weak or confused — they might even seem drunk or in a stupor. And as their hypoglycemia becomes worse, they may pass out or have a seizure.

Here's how to help someone who's experiencing low blood glucose:

- ✓ **Try to get them to eat or drink carbohydrates for quick energy** if they're still awake.
- ✓ **Call 911** if the person is passed out or having a seizure — or if you can't get them to take carbohydrates. If a **glucagon kit** is available, give an injection or use the nasal spray.





### **Plan your pregnancy.**

*A planned pregnancy is safest, especially for women with diabetes. Careful planning and preparation can reduce diabetes-related risks to both mom and baby. Read the advice at right and talk to your doctor BEFORE you become pregnant.*

## Pregnancy and Diabetes

It's possible for a woman with diabetes to have a healthy pregnancy and a healthy baby. If you're a woman and plan to have a child, read this section to learn what you need to know and do to help protect your health and the health of your baby.

### What you need to know

As you consider having a baby, keep the following in mind:

- **Your pregnancy will be considered high risk.** During pregnancy, control of your blood glucose becomes more difficult — and more important. The extra risk of high blood glucose means extra risk for both you and your growing baby.
  - **Pregnant women with diabetes** have a higher-than-normal risk of urinary tract infection, pregnancy-related high blood pressure, and cesarean (C-section) delivery. Pregnancy can also speed the development of diabetes complications such as eye and kidney disease.
- **Risks to your baby are greatest early in pregnancy.** During the first 7 weeks of pregnancy, a baby forms vital organs, tissue, and bone. If your blood glucose isn't well controlled during these early weeks, the risk of a problem with your baby's development is especially high. Yet you may not even know you're pregnant during this early, critical time.
  - **Babies of women with diabetes** have a higher risk of birth defects and even death during the pregnancy (miscarriage or stillbirth). Their births tend to be more difficult. For example, babies of women with diabetes may be born too early or be very large and hard to deliver. After delivery, babies of women with diabetes are more likely to have jaundice, low blood glucose, and trouble breathing.
- **Good planning — and tight control of your diabetes — can lower risks significantly.** The good news is that if you plan your pregnancy, prepare your body, and control your blood glucose, you can lower risks almost to the same level as a woman without diabetes. Follow the steps described on the next page.

## What you need to do

There's a lot you can do to protect your health and the health of your baby. Follow these steps:

- **Talk to your diabetes care team and a pregnancy specialist now, before you become pregnant.** During your care before pregnancy (preconception care), your team will:
  - Explain the possible effects of diabetes on your pregnancy and provide family planning services.
  - Help you get better control of your blood glucose. Your providers will review all aspects of your treatment and recommend any changes needed to improve your control. For example, you may need to change your meal plan, exercise routine, or medication.
  - Talk to you about good preconception care, and encourage you to get vaccinations, become more physically fit, and to take a daily vitamin with at least 400 micrograms of folic acid. (Taking this vitamin before and during pregnancy can help prevent some birth defects.)
  - Evaluate your risk for diabetic complications (such as kidney, eye, and heart problems) and provide treatment if necessary. Remember, pregnancy can speed up the progression of complications.
- **Don't get pregnant until your diabetes is well controlled for 3 to 6 months.** Use some form of birth control while you work to achieve and maintain good control. A good, specific measure is to **maintain an HbA1c of less than 6.9% for at least 3 months — preferably 6 months — before getting pregnant.** This will give you the best foundation for a healthy pregnancy and baby.
- **When you become pregnant, stay in close contact with your care team.** You and your care team will both need to monitor your pregnancy closely. For you, this may mean testing your blood glucose more often or in a different way. Your providers must also check you and your baby's health carefully. As your pregnancy continues, your doctor may decide to adjust your treatment or make special plans for delivery.
- **Enjoy your pregnancy.** Try not to let the extra planning and precautions stress you out. By following the advice here, you're doing great things for yourself and your baby — and helping to ensure a healthy future for both of you.



*Good blood glucose control is important before and during your pregnancy.*



## Traveling and Diabetes

Getting ready for a trip? If you have diabetes, you can still travel and go camping. You just need to plan ahead. Knowing you're prepared will help you relax and enjoy your time on the road. Below are some things you need to do to ensure a safe trip.

### Planning ahead for a safe trip

#### See your doctor before you go

- ✓ **If you're going on a long trip, have a medical exam a few weeks before you go.** This will give you time to make sure your diabetes is in good control, or to make adjustments if necessary. If you need immunizations, allow enough time to recover if they make you sick.
- ✓ **Get a letter from your doctor that explains your diabetes treatment.** It should list the pills or shots you take, the insulin or syringes you use, and any other medication or devices you need. It should also list any allergies to foods or medications. If you need medical treatment while you're traveling, this will help the doctors know what to do.
- ✓ **Get a prescription for insulin or diabetes pills.** You should bring more than enough supplies for your trip. Just have the prescription with you in case there's an emergency or they get lost.
- ✓ **If you'll be crossing time zones and you take insulin,** talk to your doctor or diabetes educator before you go. They can help you plan the timing of your injections while you travel.

#### Prepare for an emergency

**Make sure you have a medical ID bracelet or necklace.** If you have a severe episode of hypoglycemia, a car accident, or another emergency, the information on the ID can help healthcare providers know how to treat you.

**If you'll be traveling to a country where most people don't speak English,** get a list of English-speaking doctors in the area. You can get this from the International Association of Medical Assistance to Travelers (IAMAT) at [iamat.org](http://iamat.org) or by calling 1-716-754-4883.



## What to pack

Take at least twice as much medication and blood-testing supplies as you think you'll need. Pack all of them in your carry-on bag that you can keep with you at all times. Make sure you have these items:

- ✓ Blood and urine testing equipment
- ✓ Insulin and syringes, if you use them
- ✓ Diabetes pills
- ✓ ID bracelet and identity card
- ✓ Well-wrapped snacks
- ✓ Some form of sugar to treat low blood glucose
- ✓ Glucagon kit, if you take insulin
- ✓ Other medical supplies such as anti-diarrhea medication, antibiotic ointment, or anti-nausea medication



## While you're in the air

You can request a special meal that's low in sugar, fat, or cholesterol. Place your request at least two days before travel.

If you inject insulin while in flight,

- Wait until you see your food coming down the aisle before you take your shot. A delayed meal could lead to low blood glucose.
- **Be careful not to get air in the insulin bottle.** The pressure differences in the cabin can make it hard to measure insulin accurately.

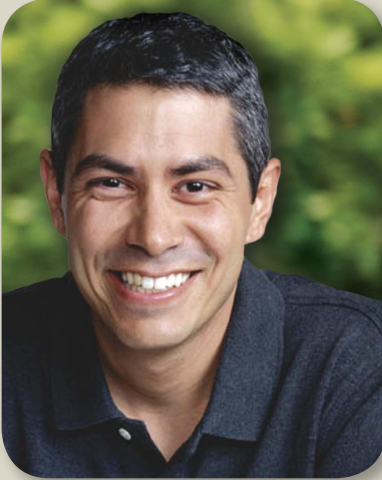


## TRAVELING WITH INSULIN

If you use insulin, make a plan for where you'll store it while you're traveling.

- **Store it at normal temperatures.** Insulin doesn't need to be refrigerated, but if it gets too hot or too cold it can lose strength. Don't store it in the glove box or trunk of the car. Consider getting an insulated pack to protect it.
- **If you need to get more insulin while traveling,** try to get the exact brand and formulation you use at home. If that's not possible, you can use the equivalent formulation of another brand (for example, NovoLog for Humalog, or Humulin R for Novolin R). Changing formulation (for example, rapid-acting Humalog to short-acting Humulin R) requires a doctor's supervision.
- **Insulins used in the United States are formulated at the strength U-100.** Insulins in other countries may come as U-40 or U-80. If you need to use these, you'll need to buy the matching syringes to get your dose right.

*Enjoy yourself. Try not to worry about your diabetes. If you're prepared, you can relax and have a good time.*



“ It doesn't really matter that the rest of the world doesn't understand what we go through. It matters that we're able to carry through with what we have to do. For understanding, we can go to each other.

For my part, I have my diabetes support group at my local community center. And I visit with people in an online discussion board. The relationships I've made are some of the most important ones in my life. ”

— Robert D.,  
diagnosed 25 years ago  
with type 1 diabetes

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# 10 Glossary and Resources

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Adjusting to diabetes can be a little like going to a foreign country — it helps to know the language and where you can go for help. This chapter provides definitions and resources to help you find your way as you learn to live well with diabetes.

<b>GLOSSARY</b> .....	<b>106</b>
<b>DIABETES EDUCATION IN YOUR AREA</b> .....	<b>110</b>
<b>ORGANIZATIONS AND WEBSITES</b> .....	<b>111</b>

# Glossary

The list below provides definitions for some of the terms in this book, as well as some others you may hear in the course of your treatment for diabetes.

## A

### albumin screen

Test for microalbuminuria, a condition that may indicate kidney disease.

### albuminuria

A condition where albumin (a type of protein) is present in the urine. This may be an indication of kidney disease.

### ACE inhibitor

Medication commonly used to treat high blood pressure and heart failure.

### arteries

The larger blood vessels in the body that carry blood away from the heart.

### atherosclerosis

A condition in which fat and cholesterol build up along the artery walls, causing them to narrow, harden, and become less elastic. Atherosclerosis is a major cause of heart disease and strokes.

## B

### beta blocker

Medication commonly used to treat high blood pressure, angina, and irregular heart rhythms.

### beta cells

Cells that make and release insulin. These cells are found in the islets of Langerhans, in the pancreas.

### blood glucose (BG)

The amount of glucose in your blood.



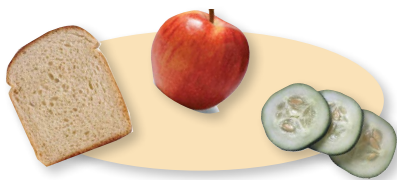
### bronze diabetes

See hemochromatosis.

## C

### carbohydrates

One of the 3 major types of nutrients in food (along with fat and protein). Carbohydrates are plentiful in starchy foods like bread and rice, and in fruits and vegetables. Carbohydrates are broken down into glucose during digestion, and have a significant impact on your blood glucose levels.



### carbohydrate counting

A meal planning technique that requires you to count the number of carbohydrates you eat at each meal or snack time. A registered dietitian (RD) can teach you this technique, which can help you gain tighter control over blood glucose levels.

### cardiomyopathy

Heart muscle disease. Cardiomyopathy can make your heart pump less effectively.

### casual glucose test

See random plasma glucose.

### cataracts

Cloudiness on the lens of the eye.

### cholesterol

A type of lipid (fat) found in the blood. Too much cholesterol in the blood can lead to a heart attack or stroke.

### coronary arteries

The arteries (large blood vessels) that feed your heart.

## D

### diabetes care team

The healthcare providers who help you monitor and manage your diabetes. Your care team may include physicians, diabetes educators, pharmacists, and others.

### diabetes educators

*(also called certified diabetes educators, or CDEs)*

Specially trained nurses, dietitians, or other healthcare providers who can help explain your diabetes and create individual treatment plans for you. They can also teach you skills such as how to take medication correctly, and offer support and encouragement to keep you on track. Educators can work with you individually, or in a diabetes education class. See page 110 for help connecting to an education center in your area.

### dialysis

A filtering procedure that removes waste from your bloodstream. People who have kidney failure must have regular dialysis to stay alive.

### diuretic

Medication used to help rid the body of excess fluid and salt. Diuretics are commonly used to control high blood pressure and congestive heart failure.

### dyslipidemia

*(also called high cholesterol)*

Abnormal levels of various types of cholesterol and fat in the blood.

**E****estimated Average Glucose (eAG)**

A mathematical formula based on your HbA1c, that estimates your average fasting blood glucose values for the previous 3 months.

**enteropathy**

Disease of the intestines.

**erectile dysfunction**

When a man is less able to have and keep an erection.

**F****fasting plasma glucose (FPG)**

Your blood glucose level after you have gone without food for at least 8 hours, or the blood test that measures this level.

**fat**

One of the 3 major nutrients in food (along with protein and carbohydrate). All fats contain different percentages of monounsaturated, polyunsaturated, and saturated fat. Your body uses fats to repair cells and help cells send signals.

**FPG**

See fasting plasma glucose.

**G****gastroparesis**

A condition in which the stomach becomes partially paralyzed, causing slower digestion.

**gestational diabetes**

The type of diabetes that occurs in women during pregnancy. Although gestational diabetes goes away after the pregnancy, women who have had gestational diabetes are at increased risk for developing type 2 diabetes later in life.

**glaucoma**

Increased pressure in the eye.

**glucometer**

A glucose meter.

**glucose**

A simple form of sugar that is the body's main source of fuel. It's made when carbohydrates are broken down in the digestive system. It can also be produced from protein or fat in the liver or kidney.

**glucose meter**

An electronic device used to measure blood glucose levels.

**glycosylated hemoglobin**

See HbA1c.

**H****HbA1c (also called A1C, or glycosylated hemoglobin)**

A blood test that measures the amount of glycosylated hemoglobin in your bloodstream. The result reflects your overall average blood glucose control over the previous 2-month to 3-month period.

**HDL cholesterol**

The "good" component of cholesterol. HDL cholesterol removes "bad" LDL cholesterol from the bloodstream, helping to prevent its build-up along artery walls.

**hemochromatosis**

(also called "bronze diabetes")

An inherited disorder that causes a person to absorb too much iron from a normal diet. This leads to an overload of iron in the body, and can sometimes cause a dark or bronze color in the skin. Unless it's detected and treated early, hemochromatosis can damage your organs, causing a variety of diseases, including diabetes.

**hemoglobin (Hb)**

A protein in your red blood cells. Hemoglobin carries oxygen, and is what makes your blood red-colored. It also picks up glucose from your bloodstream, becoming glycosylated (HbA1c is glycosylated hemoglobin).

**hyperglycemia**

Too much glucose in the blood (high blood glucose).

**hypertension**

High blood pressure.

**hypoglycemia**

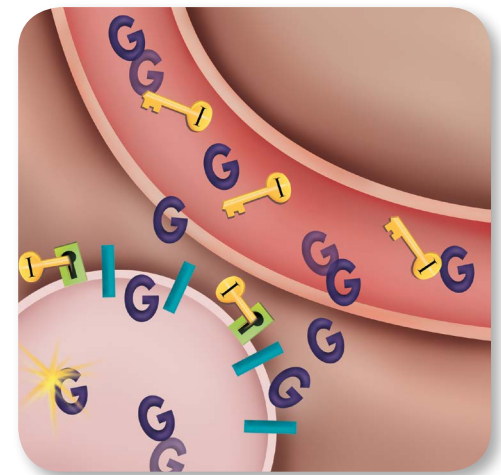
Too little glucose in the blood (low blood glucose).

**hypoglycemic unawareness**

When the body does not experience (respond to or recognize) the symptoms of low blood glucose.

**I****insulin**

A hormone produced by the pancreas. Insulin is the "key" that "unlocks" your cells and allows glucose to enter. Once inside, the glucose can serve as fuel for the cells.



**insulin deficiency**

When the pancreas has stopped — or nearly stopped — making insulin.

**insulin receptors**

See receptors.

**insulin resistance**

When the cells in the body do not respond properly to insulin. Insulin resistance is the most common cause of type 2 diabetes.

**intensive management**

*(also called intensive therapy)*

An aggressive way to manage blood glucose levels. It may include more frequent self-testing, a stricter meal plan, and the use (or more frequent use) of insulin.

**islet cells**

See islets of Langerhans, below.

**islets of Langerhans**

Clumps of cells within the pancreas. These clumps contain the cells that make insulin (the beta cells). Transplanting islet cells from a donor pancreas to the body of a person with diabetes is a promising treatment for people with type 1 diabetes.

**K****ketoacidosis**

A dangerous condition that can cause diabetic coma. Signs and symptoms of ketoacidosis include high blood glucose levels, ketones in the urine, low blood pressure, and breath with a fruity odor. Ketoacidosis occurs almost exclusively in people with type 1 diabetes.

**ketones**

Chemicals produced when the body breaks down fat for fuel. Ketones in your urine signal high blood glucose.

**L****LADA**

*(latent autoimmune diabetes in adults)*

A slow-onset version of type 1 diabetes, that occurs only in adults.

**LDL cholesterol**

The “bad” component of cholesterol. LDL cholesterol can stick to artery walls, narrowing and clogging them. The lower your LDL cholesterol level, the better.

**lipid**

Fat or fat-like substances stored in the body.

**lipid profile**

*(also called lipid panel)*

A blood test that measures the lipids (fats) found in your blood. A full lipid profile will measure your total cholesterol, LDL cholesterol, HDL cholesterol, and triglyceride levels.

**metabolic syndrome**

*(also called syndrome X)*

A set of health measurements that commonly result in an increased risk for heart disease and diabetes. These measurements are obesity, high blood pressure, low HDL, high triglyceride levels, high blood glucose, and a large waistline (greater than 40 inches around for men, greater than 35 inches for women).

**metabolism**

The physical and chemical processes that fuels the body’s most basic functions. The term often refers specifically to the breakdown of food and its transformation into energy. Diabetes is a metabolic disorder.

**mg/dL**

Milligrams per deciliter. In the United States, this is the unit of measure for blood glucose levels.

**N****nephropathy**

Kidney disease.

**neuropathy**

Nerve damage.

**O****oral glucose tolerance test (OGTT)**

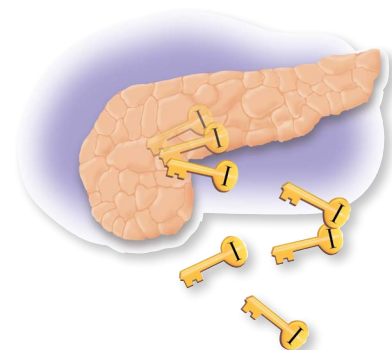
A blood glucose test that requires you to drink a sugar solution, then have blood drawn at regular intervals (after 2 hours, after 3 hours, and so on). This test is often done during pregnancy to check for gestational diabetes.

**P****pancreas**

The organ in your body that makes insulin.

**PG**

See plasma glucose.

**plasma**

The liquid part of your blood. Most blood glucose readings are based on a sample of your plasma.

**plasma glucose (PG)**

The amount of glucose in your plasma, the liquid part of your blood. Most blood glucose readings are based on a sample of your plasma.

**postprandial**

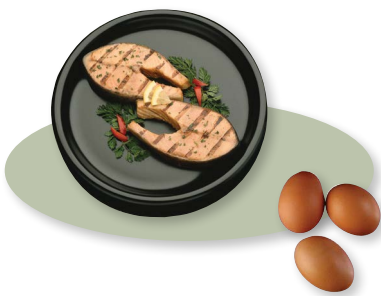
After a meal. A common time to check your blood glucose is 2 hours postprandial.

**pre-diabetes**

A condition in which blood glucose levels are higher than normal, but not high enough for a diabetes diagnosis. People with pre-diabetes are at increased risk for developing type 2 diabetes — as well as increased risk for heart attacks and strokes. However, studies show that exercise and weight loss can delay, or perhaps even prevent, the onset of these problems.

**protein**

One of the 3 major nutrients in food (along with fat and carbohydrate). Your body uses protein to build and repair muscles, bones, organs, and other tissues.

**R****random plasma glucose (RPG)**

A blood glucose reading (or test) taken at random (not at a specified time of day, before or after eating or fasting).

**receptors**

Structures on cell surfaces (or inside cells) that receive and bind a specific substance. For example, insulin binds to insulin receptors on the cell surface to allow glucose to enter the cell.

**retina**

The part of the eye that records images and sends them to the brain.

**retinopathy**

An eye disease caused by damage to the small blood vessels of the retina.

**S****statin**

A type of medication used to lower blood cholesterol.

**syndrome X**

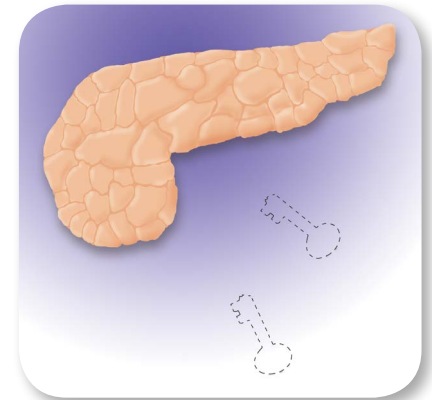
See metabolic syndrome.

**T****triglycerides**

A type of lipid (fat) found in the blood. High triglycerides are often found in people who have high levels of LDL (bad) cholesterol and low levels of HDL (good) cholesterol. High triglycerides signal increased heart risk.

**type 1 diabetes**

The type of diabetes that occurs when the pancreas has stopped — or nearly stopped — making insulin.

**type 2 diabetes**

The type of diabetes that occurs when the body no longer uses insulin properly (insulin resistance), fails to make enough insulin, or has a combination of these problems.

**V****vascular disease**

Blood vessel damage and disease. High blood glucose can cause vascular disease, which in turn may cause heart disease, strokes, and kidney and eye problems.



**ALSO FROM INTERMOUNTAIN...**

The materials shown above — and many others — are available from your healthcare provider, or online at [intermountainhealthcare.org](http://intermountainhealthcare.org)

**Carb Counselor**

Count carbohydrates as part of your diabetes meal plan

[intermountainhealthcare.org/diabetes](http://intermountainhealthcare.org/diabetes)

**Diabetes Care Card**

Stay on track with regular medical care

[intermountainhealthcare.org/diabetes](http://intermountainhealthcare.org/diabetes)

**Pre-Diabetes: Act now to protect your health**

Learn about pre-diabetes

[intermountainhealthcare.org/diabetes](http://intermountainhealthcare.org/diabetes)

**BP Basics and the BP Tracker**

Manage your blood pressure

[intermountainhealthcare.org/bp](http://intermountainhealthcare.org/bp)

**The Weigh to Health and The Habit Tracker**

Manage your weight

[intermountainhealthcare.org/weight](http://intermountainhealthcare.org/weight)

**Quitting Tobacco: Your Journey to Freedom**

(in English and Spanish)

Stop using tobacco

[intermountainhealthcare.org/prevention](http://intermountainhealthcare.org/prevention)

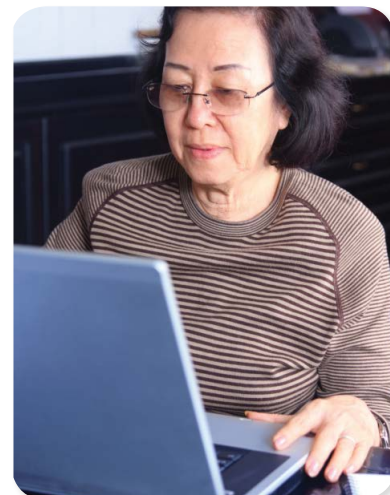
## Diabetes Education in Your Area

Diabetes educators work in a variety of settings. Some work in hospitals. Others work in doctor's offices, neighborhood clinics, or health insurance organizations. Use one of the contacts below to find an Intermountain diabetes educator near you.

### Online

[intermountainhealthcare.org/diabetes](http://intermountainhealthcare.org/diabetes)

Contact a diabetes educator, locate a class, and learn more about diabetes and how to manage it.



### By phone

#### Call SelectHealth Member Services

If you have SelectHealth insurance, you can call either of these phone numbers to locate a diabetes educator:

*in Salt Lake* 801-442-5038

*toll-free* 800-538-5038



## Organizations and Websites

It would be impossible to list all of the helpful diabetes organizations and websites. But the ones listed in this book are a good place to start. Explore these resources for educational materials, newsletters, updates on research and clinical trials, ideas for connecting with other people with diabetes, and advice about how you can get involved in the fight against diabetes. Check out the organizations listed below for more information and support.

### **Intermountain Healthcare** **[intermountainhealthcare.org/diabetes](http://intermountainhealthcare.org/diabetes)**

*For SelectHealth members:*  
SelectHealth Diabetes Management Program  
Phone: 800-442-5305

### **National Diabetes Information Clearinghouse** **[www.diabetes.niddk.nih.gov](http://www.diabetes.niddk.nih.gov)**

Phone: 800-860-8747  
1 Information Way  
Bethesda MD 20892

### **American Diabetes Association** **[www.diabetes.org](http://www.diabetes.org)**

Phone: 800-DIABETES (800-342-2383)  
ATTN: National Call Center  
1701 North Beauregard Street  
Alexandria VA 22311

### **Academy of Nutrition and Dietetics**

**[www.eatright.org](http://www.eatright.org)**  
Phone: 800-877-1600  
120 South Riverside Plaza, Suite 2000  
Chicago Illinois 60606

### **National Diabetes Education Program** **[www.ndep.nih.gov](http://www.ndep.nih.gov)**

One Diabetes Way  
Bethesda MD 20814

### **Juvenile Diabetes Research Foundation** **[jdf.org](http://jdf.org)**

120 Wall Street  
New York NY 10005

### **Joslin Diabetes Center** **[www.joslin.org](http://www.joslin.org)**

One Joslin Place  
Boston MA 02215



### **ONLINE COMMUNITIES**

Need to ask a question, get some reassurance, or just vent a little? An online discussion board or chat group allows you to do all of these things — without leaving the house or even revealing your name! Online communities are a great way to connect with people who understand the challenges of living with diabetes and who can offer you support, ideas, and hope.

There are many online communities devoted to different aspects of life with diabetes. To find a community that fits your interests, start by typing “online diabetes discussion” in your Internet search engine. Just be wise about sharing any personal information, and who you share it with.





# 11 When to Call Your Healthcare Provider

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This brief chapter summarizes when you should seek medical care or advice. Use it as a guideline — along with your own judgment and the suggestions of your diabetes care team.

GET EMERGENCY CARE.....	114
CALL YOUR HEALTHCARE PROVIDER .....	114



### GET EMERGENCY CARE (CALL 911)

#### *You have symptoms of ketoacidosis:*

- Large amounts of ketones in your urine
- A fruity odor on the breath
- Extreme thirst or hunger
- Nausea/vomiting
- Extreme drowsiness
- Stomach pain
- Body aches

#### *You think you may pass out:*

- You feel lightheaded or dizzy
- You feel yourself "fading" in and out of alertness



## Call your healthcare provider

*for advice or an appointment in these situations:*

### You're sick, and...

- You've had a fever for a couple of days and aren't getting better.
- You've been vomiting or having diarrhea for more than 6 hours.
- You have a fever higher than 101.5°F or a fever that lasts for more than 24 hours.
- You have a fasting blood glucose level of 240 mg/dL or higher for more than 24 hours.
- You have moderate to large amounts of ketones in your urine. If you can't reach your healthcare provider, or if you have large amounts of ketones in your urine, get emergency care.
- You begin to notice problems like confusion or dehydration (symptoms of dehydration include a decrease in urine output, dry mouth and skin, and dry sunken eyes).
- You aren't sure what to do to take care of yourself.

### You have high blood glucose (hyperglycemia), and...

- You can't control your hyperglycemia, in spite of taking action to correct it.
- You have 2 or 3 readings in a row with results of 240 mg/dL or higher.
- You have more than 2 unexplained episodes of hyperglycemia in a week.
- You have repeated high glucose readings during a particular time of day.
- You have moderate to large amounts of ketones in your urine. If you can't reach your healthcare provider, or if you have large amounts of ketones in your urine, get emergency care.

### You have low blood glucose (hypoglycemia), and...

- You can't control your hypoglycemia, in spite of taking action to correct it.
- You have 2 or 3 readings in a row with results of 70 mg/dL or less.
- You have more than 2 unexplained episodes of hypoglycemia in a week.
- You have repeated low glucose readings during a particular time of day.

## Also consider calling if...

- You're pregnant or thinking of becoming pregnant.
- You have questions about the goals of your treatment — for example, what your blood glucose numbers should be, or what a healthy cholesterol level is for you.
- You have questions or concerns about self-management. It's important that you feel confident about how to monitor your blood glucose, plan your meals, take your medications, and do the other things you need to do to care for yourself.
- You have any of the following:
  - Repeated stomach or digestion problems (for example, constipation or diarrhea)
  - Foot problems such as sores on your feet, thickened or ingrown toenails, or cold, tingling, or puffy feet (see page 82)
  - Tooth or gum problems, such as bleeding or tender gums or persistent bad breath (see page 85)
  - Depression or other emotional difficulties (see page 89)
- You just don't feel right, and want to make sure your treatment plan is still working for you.



### WHEN YOU CALL...

Have the following information ready when you call your healthcare provider:

- The time and results of your blood glucose tests (and, if monitored, your ketone levels)
- Temperature readings
- How much and what type of medications you've taken and when you took them
- Over-the-counter medications you've taken and when you took them
- Symptoms you are experiencing

### Names and phone numbers .....

My primary care doctor: \_\_\_\_\_ phone: \_\_\_\_\_

My diabetes educator: \_\_\_\_\_ phone: \_\_\_\_\_

Other healthcare providers: \_\_\_\_\_ phone: \_\_\_\_\_

\_\_\_\_\_ phone: \_\_\_\_\_

To find this and other resources, go to:  
[intermountainhealthcare.org/diabetes](https://intermountainhealthcare.org/diabetes)



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Patient and Provider Publications DB032 -12/19