

## Staying healthy with diabetes

Oregon Diabetes Resource Bank  
Handouts to help people with diabetes

**Blood glucose (or "blood sugar") is the fuel that gives your body energy**



When you eat, your body digests the food and turns some of it into a special type of sugar called "**blood glucose**" (also called "blood sugar").

Your blood vessels carry blood glucose to cells in all parts of your body where it can be used for energy.

**With diabetes, blood glucose can build up in your blood and make your blood glucose too high**

To give your body energy, blood glucose needs to move from your blood into the rest of your body. Normally, this happens easily. But if you have diabetes, it does **not** happen easily:

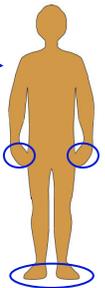
- Having diabetes means that it is hard for glucose to move from your blood into the cells of your body the way it is supposed to.
- When glucose does not move easily from your blood into the rest of your body, *too much glucose stays in your blood*. Your level of blood glucose gets too high and your cells are starved for energy.

**What can happen if your level of blood glucose stays too high?**

If your blood glucose stays too high for a long time, it can cause serious health problems. These health problems are called "complications" of diabetes. Here are some complications that high blood glucose can cause:

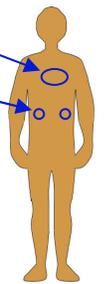
■ **Nerve damage**

High blood glucose can damage nerves throughout your body, causing numbness or tingling. Nerve damage is especially common in feet and hands.



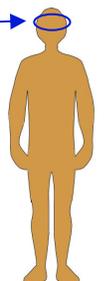
■ **Damage to your heart and your kidneys**

High blood glucose can damage the blood vessels that lead to your heart. This damage can cause heart disease and heart attacks. High blood glucose also damages the blood vessels in your kidneys. This weakens your kidneys and can eventually cause them to stop working.



■ **Damage to your eyes and vision**

Your eyes have tiny blood vessels that can be easily damaged by a high level of blood glucose. This damage can lead to blindness.



(more on the next page)

*(complications of diabetes, continued )*

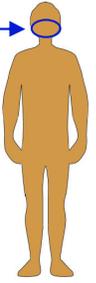
- **Sores on your skin that are slow to heal and can become infected easily**

High blood glucose makes it harder for a sore to heal. Sores are especially common on feet.



- **Gum disease and tooth decay**

High blood glucose damages the blood vessels that normally help keep your gums and teeth healthy. Having extra glucose in your blood makes gum infections worse.



## How can you stay healthy with diabetes?

### Keep your blood glucose at the right level

Keeping your blood glucose at the right level — not too high and not too low — helps prevent the complications of diabetes. *Here are tips:*

- **Watch what you eat**

To keep your blood glucose at the right level, you need to **eat the right kinds of food, in the right amounts, at the right**

**times.** Different foods affect your blood glucose in different ways. Ask your doctor for information on healthy eating and how to get help from a nutritionist.



- **Get regular exercise**

Staying active is one of the best ways to help keep your blood glucose under control.



- **Follow instructions for using medicine and checking your blood glucose**

If you need to test your blood, your doctor will give you instructions and tell you what to do if your blood glucose gets too high or too low.

### Get regular checkups

The tests and exams you get at your checkups help you know how well you are doing at keeping your blood glucose at the right level. Getting regular checkups helps catch complications of diabetes at an early stage, when they are easier to treat. *Here is what your checkups should include:*

- **Blood pressure** and blood tests, including a **cholesterol test** and an **“A-1-C” blood test** (this test tells what your average blood glucose has been during the past 2 to 3 months).
- A test to find out how well your **kidneys** are working.
- A **“dilated” eye exam.** This exam checks on whether there has been any damage to the blood vessels in your eyes. (This exam is not the same as the type of eye exam you get for glasses or contact lenses.)
- A **foot exam** that checks for nerve damage, sores, and other problems.

# Blood glucose, insulin, and Type 1 diabetes

Oregon Diabetes Resource Bank  
Handouts to help people with diabetes



## Blood glucose is the fuel that provides energy for your body

When you eat, your body digests the food and turns some of it into “blood glucose.” Blood glucose is sometimes called “blood sugar.”

Your blood vessels carry blood glucose throughout your body and your cells use it for energy.

## To be able to use blood glucose for energy, your body must have insulin

“Insulin” is a substance produced naturally inside the body by an organ called the “pancreas.” Insulin is needed to help move blood glucose from the blood into other parts of the body where it is used for energy.

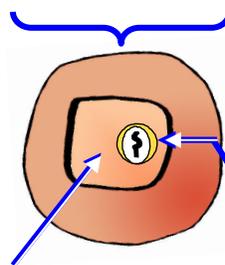
## When you have Type 1 diabetes, your body does not make insulin

For people who do not have diabetes, the body makes as much insulin as it needs. But when you have Type 1 diabetes, your body does not make its own insulin. Since your body must have insulin, you have to inject it.

## Insulin works with cells of your body like a key works with a lock

The pictures below explain why you need insulin and how it works in your body. The pictures show comparisons to a lock and key.

There are many trillions of cells in your body. Imagine that the drawing below is one of the cells in your body.

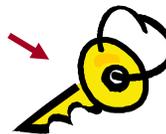


This “door” into the cell is closed and locked.

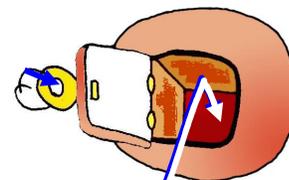
The right key in this “keyhole” will unlock the door.

To let blood glucose into the cell, the door to the cell has to be unlocked.

Insulin is the “key” that unlocks the door.



If the insulin “key” works in the lock, the door will open.



When insulin unlocks the cell, glucose can move from the blood into the cell to provide energy.

more on the next page →

## When you have Type 1 diabetes:

 When you have Type 1 diabetes, your body does not make its own insulin.

With Type 1 diabetes, your body does not make any insulin “keys.” Without the insulin “keys” there is no way to unlock the cells of your body to let in the blood glucose.

Because blood glucose cannot move from your blood into your cells, the blood glucose stays in your blood. The blood glucose level in your blood can quickly get very high. This leads to severe problems in your body, putting your life in danger.

 When you have Type 1 diabetes, you must inject insulin into your body.

Your body must have insulin in order to live. If your body does not make its own insulin, you need to **inject insulin into it**. This gives your body the insulin “keys” it needs.

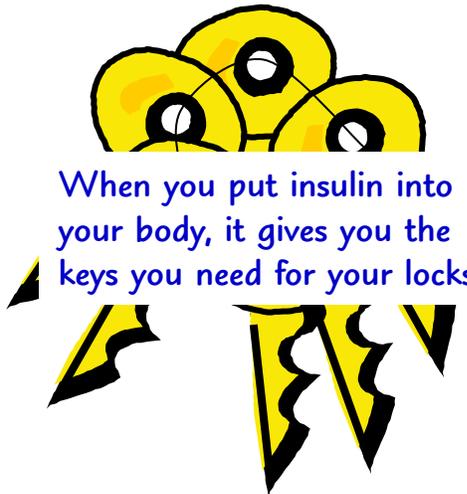
 When you have Type 1 diabetes, you can lead a long, healthy life.

- See your doctor and other health providers regularly.
- Check your level of blood glucose to be sure it’s at a healthy level.
- Eat healthy foods and stay active.

With no insulin, there are no keys for your locks

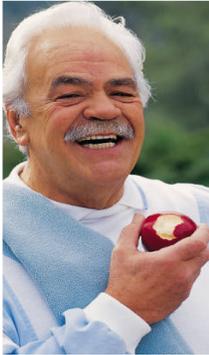


When you put insulin into your body, it gives you the keys you need for your locks



# Blood glucose, insulin, and Type 2 diabetes

Oregon Diabetes Resource Bank  
Handouts to help people with diabetes



When you eat, your body digests the food and turns some of it into "blood glucose."

## Blood glucose is the fuel that provides energy for your body

Blood glucose is sometimes called "blood sugar." Your blood vessels carry blood glucose throughout your body and your cells use it for energy.

## To be able to use blood glucose for energy, your body must have insulin

"Insulin" is a substance produced naturally inside the body by an organ called the "pancreas." Insulin is needed to help move blood glucose from the blood into other parts of the body where it is used for energy.

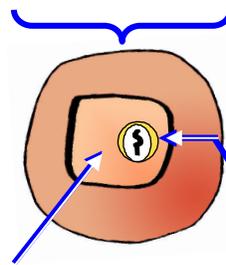
## If you have Type 2 diabetes, there's a problem with your insulin

Normally, the body makes as much insulin as it needs. This happens automatically for people who do not have diabetes. But if you have Type 2 diabetes, it means that you have one or more problems with insulin. Your body might not be making as much insulin as you need. Your insulin might not be working as well as it should.

## Insulin works with cells of your body like a key works with a lock

The pictures below explain why you need insulin and how insulin works in your body. The pictures show comparisons to a lock and key.

There are many trillions of cells in your body. Imagine that the drawing below is one of the cells in your body.

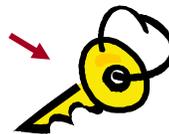


This "door" into the cell is closed and locked.

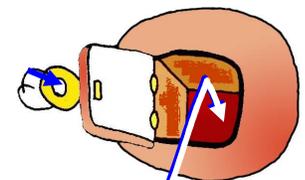
The right key in this "keyhole" will unlock the door.

To let blood glucose into the cell, the door to the cell has to be unlocked.

Insulin is the "key" that unlocks the door.



If the insulin "key" works in the lock, the door will open.

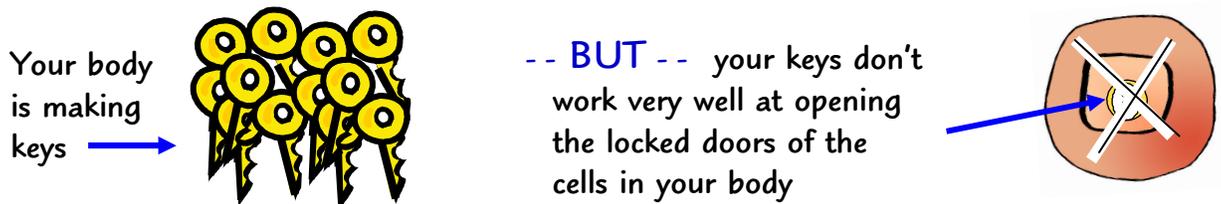


When insulin unlocks the cell, glucose can move from the blood into the cell to provide energy.

more on the next page →

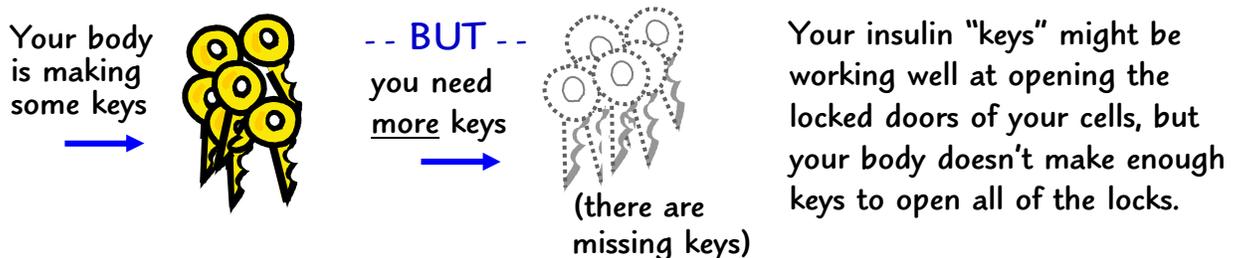
 When you have Type 2 diabetes, you can have *either or both* of these two types of problems with insulin:

**1** Your body makes insulin, but the insulin does not work as well as it should



When the keys and locks are not working well together, it's hard for blood glucose to move from your blood into cells of your body the way it should.

**2** Your body makes insulin, but not as much as you need

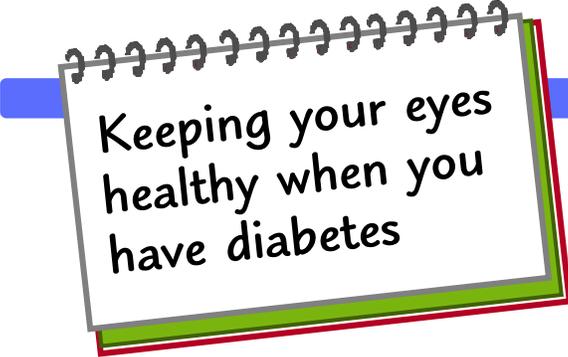


When there are not enough keys to open all the locks, it's hard for enough blood glucose to move from your blood vessels into the cells of your body.

 Because of these problems with insulin, the level of blood glucose in your blood can get too high

When your blood glucose stays too high for a long time, it can lead to serious health problems. To stay healthy with Type 2 diabetes, you must keep your level of blood glucose under control.

To help control your level of blood glucose, it's important to watch what you eat and to stay physically active. Some people with Type 2 diabetes take medications as well. Be sure to see your doctor regularly and follow your doctor's instructions for checking and controlling your level of blood glucose.



Keeping your eyes  
healthy when you  
have diabetes

Oregon Diabetes Resource Bank  
*Handouts to help people with diabetes*

If you have diabetes, here are things you need to know:

**1**

**Having diabetes makes some eye problems more likely.**

These eye problems *can be serious* and can even lead to blindness.

**2**

**There may be no symptoms at first.** Eye problems can develop slowly. Often there are no symptoms to warn you until the damage is severe.

**3**

**You can help prevent eye problems.** Just because you have diabetes does not mean that you will automatically get eye problems. Here are ways to help keep your eyes healthy:

- **Get a "dilated eye exam" every year.** This exam is the best way to catch eye problems at an early stage, when treatment can work better. (A dilated eye exam is different from having a checkup for eyeglasses or contact lenses. Page 6 of this handout tells you more.)
- **Do your best to keep your blood glucose (blood sugar) at a healthy level.**
- **Do your best to keep your blood pressure at a healthy level.**

**4**

**If you have eye problems, they can be treated.** The kind of treatment you need depends on what kind of eye problem you have. It's best to find and treat eye problems as soon as you can. Without treatment, your vision could get worse or you could become blind.

This handout tells about eye problems and how to help prevent them.



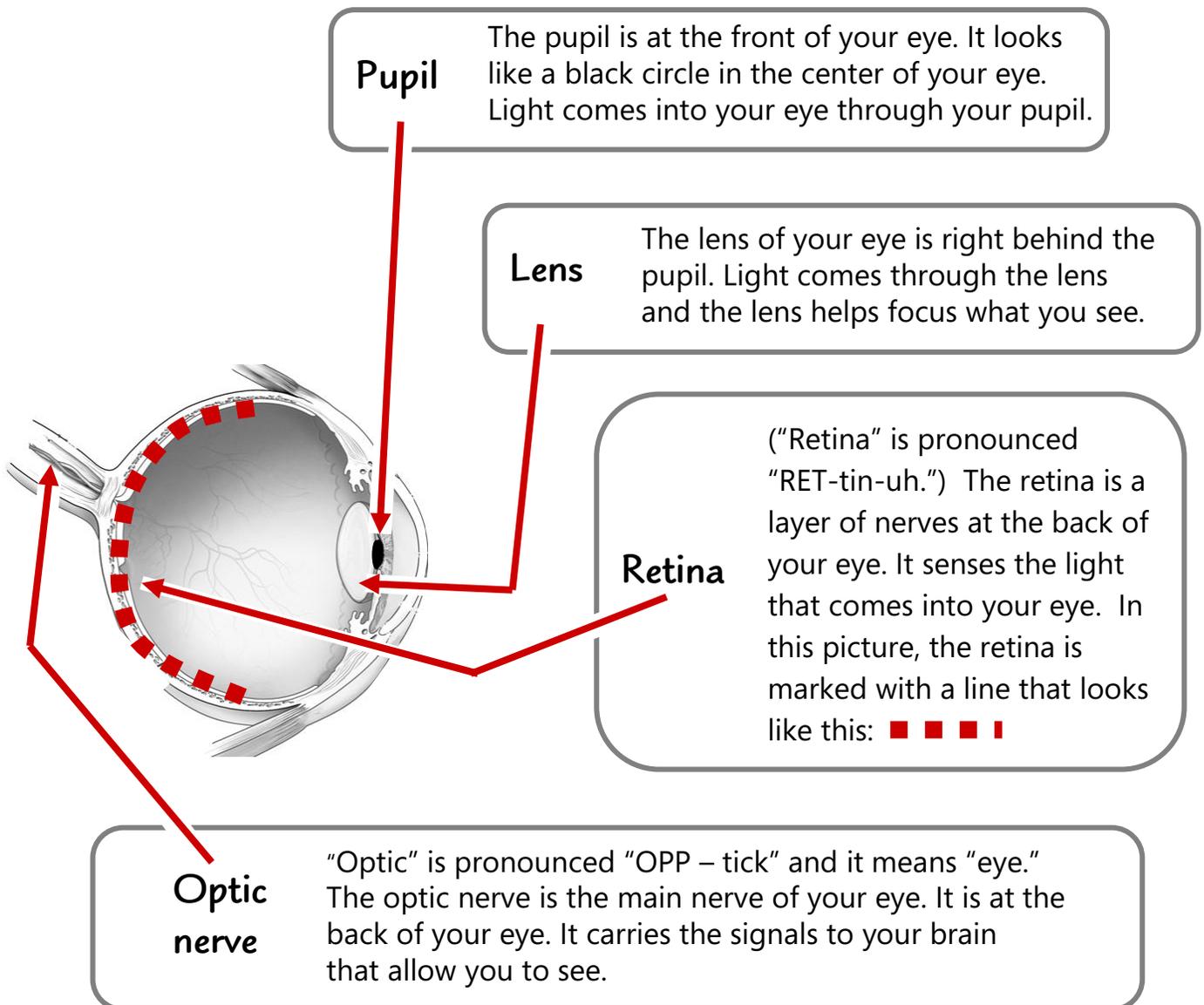
## What are the parts of the eye?

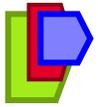
This handout tells about three kinds of eye problems. Since each problem affects a different part of the eye, we start by showing you the main parts of the eye.



This drawing of a woman shows a **side view** of one of her eyes.

The picture below is *also* a side view of an eye. It shows a **close-up side view of the entire eye**, including parts of the eye that are inside the head.





## What eye problems are a concern when you have diabetes?

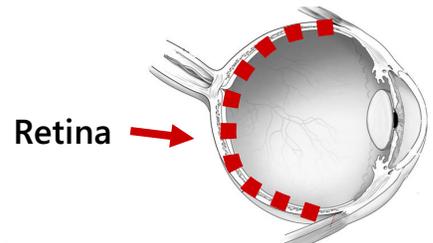
This handout tells you about three types of eye problems that can result from having high blood glucose:

- The first is called “**diabetic retinopathy.**” (“Retinopathy” is pronounced “ret-tin-AH-path-ee.”) As you can tell from its name, diabetic retinopathy is mainly a problem for people with diabetes.
- The other two eye problems are **cataracts** and **glaucoma.** These eye problems are a special concern for people with diabetes. (People who do *not* have diabetes can also get cataracts and glaucoma.)



## What is “diabetic retinopathy”?

Diabetic retinopathy is the *most common* eye problem for people with diabetes. It involves **damage to the blood vessels in the retina.**



- Sometimes the blood vessels swell and leak fluid. Sometimes abnormal new blood vessels grow on top of the retina.
- These changes in the blood vessels in the retina can lead to vision loss or blindness. To see how having diabetic retinopathy can affect vision, compare the two pictures below:

**1**

Here is how two boys look to a person who has **normal vision:**



**2**

Here is how the *same boys* look to a person who has **diabetic retinopathy:**

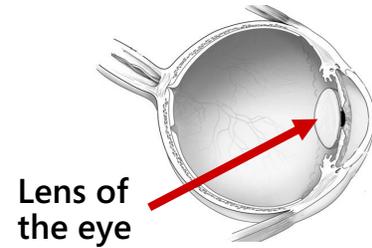




## What are "cataracts"?

Cataracts **affect the lens of your eye**, making the things you look at seem **blurry**.

- The **lens** is at the front of your eye. It focuses light on your retina.
- Usually the lens of your eye is clear, but if you have a cataract, the lens turns cloudy.
- When the lens turns cloudy, it makes your vision blurry. To see how having cataracts can affect vision, compare the two pictures below:



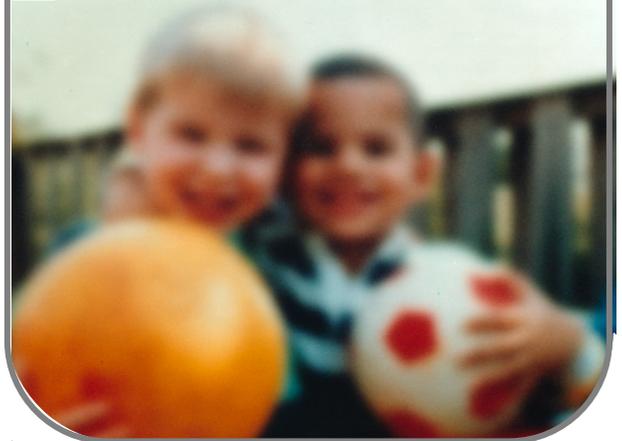
**1**

Here is how two boys look to a person who has normal vision:

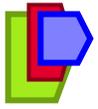


**2**

Here is how the *same boys* look to a person who has cataracts:

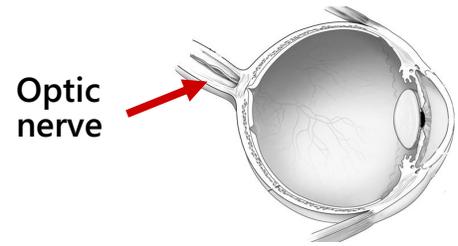


- To help you see clearly again, cataracts can be removed by surgery.
- Anyone can get cataracts. But **if you have diabetes, you are more likely to get cataracts at a younger age.**



## What is "glaucoma"?

When you have glaucoma, **pressure builds up inside your eye and damages the optic nerve.**



- The optic nerve carries signals to the brain that help you to see. When your optic nerve gets damaged, it causes vision loss. To see what the vision loss from glaucoma is like, compare the two pictures below:

**1**

Here is how two boys look to a person who has **normal vision**:



**2**

Here is how the *same boys* look to a person who has **glaucoma**:



- At first, the vision loss from glaucoma is just from the sides of your eyes, as shown in photo #2 above. But if you have glaucoma and it is not treated, it can lead to blindness.
- If you get regular eye exams, it is easy to catch glaucoma at an early stage. When you find glaucoma early, it's usually easy to treat.
- Anyone can get glaucoma. But **people who have diabetes are nearly twice as likely to get glaucoma** as other adults.



## Help keep your eyes healthy!

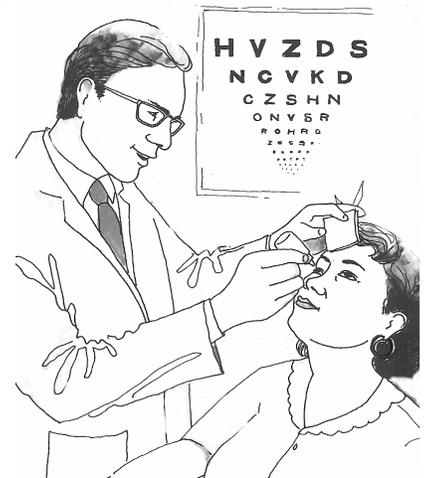
Don't let eye problems take your vision away.

The rest of this handout tells you what you can do to help keep your eyes healthy.

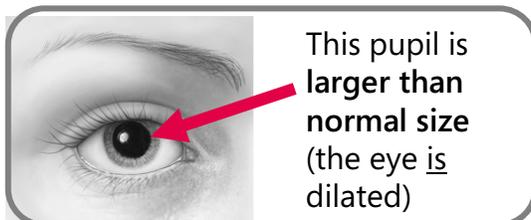


### To help find eye problems at an early stage, get a "dilated eye exam" at least once a year

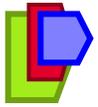
- A dilated eye exam **checks for damage to the blood vessels in your eyes**. It's best to find damage to blood vessels at an early stage when treatment can work better.
- **This exam is not the same as the eye checkup you get for glasses or contact lenses.** Instead, it's a special type of eye exam for people with diabetes that lets your doctor get a good look at the blood vessels in your eyes.
- When you have a dilated eye exam, you will be given **eye drops to "dilate your eyes."**
- "Dilate" means to get bigger. As shown in the pictures below, the eye drops make your pupils get bigger (the pupil is the dark center of your eye).



This woman is getting eye drops to **dilate** her eyes.



When your pupils get larger, **your eye doctor can get a much better view of the inside of your eyes**. This makes it easier to check for possible damage to blood vessels in your eyes.



## How often should you get a dilated eye exam?

### ■ If you have no symptoms, get a dilated eye exam once a year

Even if you see just fine and your eyes seem fine, you could have some damage in your eyes.

Eye problems can develop slowly. You may not notice any symptoms until the damage is already serious.

So be sure to get a dilated eye exam at least once a year. This exam is the best way to catch eye problems at an early stage when treatment will work better.



### ■ If you notice symptoms, get a dilated eye exam right away

If you feel that something is changing or seems wrong with your eyes, make an appointment for a dilated eye exam.

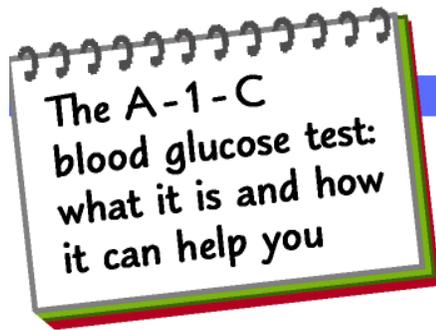
Signs of possible eye problems could include blurry vision or if you have trouble when you are reading. You may also notice things such as rings around lights, dark spots, or flashing lights.



## Do your best to keep your blood glucose (blood sugar) as close to normal as you can

When your blood glucose stays too high for a long time, it can cause serious damage to your body. This damage can include eye disease.

**Controlling your blood glucose is the best way to keep your eyes healthy.** Talk with your health care team about your blood glucose numbers and ask what numbers you should aim for. They can help you find a way to keep your blood glucose under control.



The A-1-C  
blood glucose test:  
what it is and how  
it can help you

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I tell my patients that knowing their A1C number will help them stay healthy with diabetes. If the number is too high, we talk about what they can do to get their blood glucose down to a lower level to help protect their health.



### What is the “A1C” test?

A1C is pronounced “A - one - see.” The A1C test is also called the hemoglobin A1C test.

The A1C test is a simple test for blood glucose (or “blood sugar”) that you get at your doctor’s office.

The result from the A1C blood test tells how high your average blood glucose has been during the past two to three months.



### Who needs the A1C test?

Everyone who has diabetes needs to get this test, even if they test their own blood glucose at home.

Most people with diabetes should get the A1C test *at least two times a year*. Ask your doctor how often you should get the A1C test.



### What is your “goal” for the result of your A1C test?

The A1C goal for many people with diabetes is below 7. You and your health care team will decide on an A1C goal that is right for you.

If your A1C number is higher than your goal, it means that your blood glucose has been staying *too high* during the last couple of months.

If your blood glucose stays too high for a long time, it can damage blood vessels throughout your body.

When high blood glucose damages your blood vessels, it can lead to *serious health problems*. These problems include:

- damage to your kidneys that can make them stop working
- eye problems that can lead to blindness
- sores and skin infections of the feet that can lead to amputation
- heart disease
- nerve damage



### What can you do to stay healthy?

No one wants the health problems caused by high blood glucose, and *you don’t have to have them!* Keeping your blood glucose at a healthy level will help prevent these problems.

*More on next page* →



### What is “blood glucose”?

Your body changes food you eat into “blood glucose.” Blood glucose is also called “blood sugar.”

Your blood vessels carry the blood glucose throughout your body to give your body energy.

In order to give your body energy, the blood glucose has to move from your blood into the rest of your body. For people who do not have diabetes, this happens easily.

But if you have diabetes, **it’s hard for the glucose to move from your blood to other parts of your body the way it should.** So too much glucose may stay in your blood instead, and this is not good for your body:

- Your blood vessels will have too much glucose, which **causes damage.**
- The rest of your body will not get as much glucose it needs, so it will be **starved for energy.**



### Often there are no symptoms to warn you when your blood glucose is too high

To know for sure whether your blood glucose is at a healthy level or too high, **you have to test your blood.** That’s why it’s so important for you to get your A1C blood glucose tests.



### Your A1C tests

You and your doctor can fill this in:

You should have an A1C test:

Every 6 months (2 times a year)  
 Every 4 months (3 times a year)  
 Every 3 months (4 times a year)  
 Other: \_\_\_\_\_

Your A1C goal is \_\_\_\_\_

**Your A1C numbers are:**

Date	A1C =
Date	A1C =
Date	A1C =

For many people with diabetes, **the goal is an A1C below 7.**

When your A1C number is *higher than your goal*, this means that *your blood glucose is staying too high.*

- When your blood glucose is staying too high, you have a greater chance of getting serious health problems.
- The next page has tips on how to get your blood glucose down to a healthier level. →

**What should you do if your A1C test shows that your *blood glucose* is too high?**

- **Talk with your doctor** and other members of your health care team about what to do. They can suggest changes that will help you bring your blood glucose down to a healthier level.

*Here is a place for you to write down changes you plan to make:*

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- **Eat the *right foods* in the *right amounts* at the *right times*.**
  - Different foods affect your blood glucose level in different ways.
  - To learn more about how eating affects your blood glucose, talk with your health care team. Ask how you can get help from a nutritionist.
- **Stay active.** Exercise is a great way to get better control over your blood glucose. Get regular physical activity as advised by your health care team.
- **Take your diabetes medicines** if any have been prescribed for you.

**Testing your own blood**



Everyone with diabetes needs to have an A1C test at least two times a year. *But to help manage their blood glucose from day to day, many people with diabetes also test their own blood at home. You can use a blood glucose kit or meter and you will get the results right away.*

Ask your doctor about whether you should test your blood at home and how often you should do it.

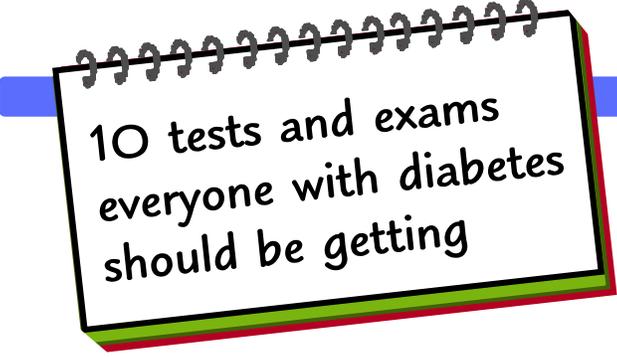
Testing your blood will show you how your blood glucose can change from day to day or hour to hour, depending on such things as what you eat and how much you exercise. This helps you know what lifestyle changes you could make to reach a healthy level of blood glucose.

**Keep working toward your goal for a healthy A1C number**

The closer you can get to your goal A1c number, the better your chance of preventing or delaying health problems that can happen when you have diabetes.

Research studies show that if your A1C number goes down by just one point, this can mean that your risk of long-term complications of diabetes goes down by as much as 40%.

*[Source: U.S. Department of Health and Human Services' National Diabetes Education Program]*



10 tests and exams  
everyone with diabetes  
should be getting

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1. **A-1-C blood glucose (blood sugar) test** *(This lab test should be done every 3 to 6 months. It is different from blood testing you do yourself. The A-1-C tells what your blood glucose has been during the last few months.)*
2. **Blood pressure** *(at every office visit)*
3. **Blood test** to measure “good” cholesterol, “bad” cholesterol, and triglycerides in your blood *(once a year)*
4. **“Dilated” eye exam** to see if the blood vessels inside your eye are healthy *(once a year)*
5. **Urine test** to see if your kidneys are healthy *(once a year)*
6. **Complete foot exam** to see if the blood circulation, nerves, and skin in your feet are healthy *(a complete exam once a year, a brief foot exam at every office visit)*
7. **Exam of your gums and teeth** *(every 6 months)*
8. **Weight** *(at every office visit)*
9. **Flu shot** *(at the beginning of flu season every Fall)*
10. **Pneumococcal vaccination** *(ask your doctor if you need it)*



Why should you be getting these 10 tests, exams, and other care?

■ **Because you want to stay healthy.**

Having diabetes can lead to serious health problems called “complications of diabetes.” They include heart disease and stroke, kidney problems, nerve damage, problems with eyesight, sores and skin infections on feet, and gum disease that can lead to loss of teeth.

**Getting the 10 tests and exams helps prevent or delay these health problems.** Staying up to date on the 10 tests and exams helps find any new health problems at an early stage when the problems are still small and easier to treat.

**National standards for quality care say that everyone with diabetes should be getting these 10 tests, exams, and other care.** These quality standards are set by medical experts. They are based on results from medical research to find out which types of care work best for people with diabetes. (See references at the end of this handout.)

**1**

A-1-C blood glucose (blood sugar) test

**You should have an A1C test every 3 to 6 months**  
(at least 2 to 4 times each year).

- **The A1C is a lab test that tells what your average blood glucose has been during the previous 2 to 3 months.**

A1C is pronounced “A – one – see.” The A1C test is different from blood testing you might do yourself. When you test your blood, this tells what your blood glucose is at the moment you do the test. The A1C test is like a summary score of what your blood glucose has been over a period of time.

- **How does the A1C test help you stay healthy?**

If your blood glucose stays too high over a long period of time, it can cause blood vessel damage and lead to serious health problems. **Often, there are no symptoms** to warn you when your blood glucose has been staying too high. To know for sure whether your blood glucose is staying at a healthy level or not, you need to have an A1C test at least twice a year.

- **What is the usual goal for the A1C?**

For many people with diabetes, the A1C should be less than 7. You and your health care team will decide on an A1C goal that is right for you.

- **If your A1C number is higher than your goal, it means that your blood glucose has been staying *too high* during the last 2 to 3 months.**

When your A1C number is too high, it’s a warning that you need to work on getting your blood glucose lower to help protect your health. The closer you can get to the goal number for your A1C, the better your chance of preventing or delaying health problems that can happen when you have diabetes.

- **If your A1C number is too high, work with your health care team on ways to get it down.**

Your doctor, diabetes educator, nutritionist, and others on your health care team can give you information and advice on what to do to get your blood glucose under better control. Your plan might include being more active, working on eating the right foods at the right times in the right amounts, and taking medications if prescribed.

■ **When your A-1-C number goes down, there is a big payoff for your health.**

If your A-1-C number is too high, work on getting it down. If it goes down by just one point (such as going from 9.0 down to 8.0), this can mean that your risk of long-term complications of diabetes goes down by as much as 40%.  
(*Source: National Diabetes Education Program.*)



Ask your doctor or other health professional for the following handout: *The A-1-C blood glucose test: What it is and how it can help you.* Or download it for free from the Oregon Diabetes Program website ([www.oregon.gov/DHS/ph/diabetes/resourcebank](http://www.oregon.gov/DHS/ph/diabetes/resourcebank)).

2

Blood pressure

**Your blood pressure should be checked at every office visit.**

■ **The purpose of checking your blood pressure is to make sure it is not too high, because high blood pressure can lead to heart problems and stroke.**

Diseases that damage the heart and blood vessels, including stroke, are the biggest cause of death for people with diabetes. Keeping blood pressure at a healthy level lowers the risk of heart attack and stroke. It also lowers the chance of dying from heart disease.

■ **For most people with diabetes, the goal is to have blood pressure less than 130 over 80.**

Goals for blood pressure can vary, so ask your doctor what your goal should be.

■ **If your blood pressure is too high, there are usually no symptoms.**

It's important to have your blood pressure checked at each office visit, because there are *usually no symptoms* to let you know if your blood pressure is too high.

■ **Keeping your blood pressure at a healthy level is one of the most important things you can do to stay healthy with diabetes.**

If your blood pressure numbers are too high, ask your health care team about what you can do to help get the numbers down. Often, this will mean lifestyle changes, such as healthier eating and being more active. Your doctor may prescribe blood pressure medication as well.

**3**

Blood test to measure “good” cholesterol, “bad” cholesterol, and triglycerides

**You should have this blood test at least once every year.**

**■ Cholesterol and triglycerides are types of fat that are found in your blood.**

Cholesterol is pronounced “koh-LESS-ter-all.” Triglycerides is pronounced “try-GLISS-er-ides.” Cholesterol includes both “good” cholesterol (also called HDL cholesterol) and “bad” cholesterol (also called LDL cholesterol).

**■ To help protect against heart disease and stroke, this blood test checks to see if your cholesterol and triglycerides are at healthy levels.**

If your cholesterol and triglycerides are not at the right levels for good health, you have a greater chance of getting heart disease or stroke. The goals for healthy levels of cholesterol and triglycerides can vary from person to person, so it’s important to check with your doctor to see what your goals should be.

- For “bad” cholesterol (LDL cholesterol), you want your number to be *low* enough. For people with diabetes, this usually means **less than 100**.
- For “good” cholesterol (HDL cholesterol), you want your number to be *high* enough. For men with diabetes, this usually means **higher than 40**. For women with diabetes, this usually means **higher than 50**.
- For triglycerides, you want your number to be *low* enough. For people with diabetes, this usually means **less than 150**.

**■ If your cholesterol and triglyceride numbers are not at healthy levels, work with your health care team on a plan to improve them.**

To get to healthier levels of cholesterol and triglycerides, you may need to make changes in your lifestyle (diet and exercise). Your doctor might prescribe medication.

**■ Keeping a close watch on your cholesterol is especially important if you have diabetes.**

There is a connection between cholesterol and blood glucose. When blood glucose stays too high, it can lead to higher levels of “bad” cholesterol and triglycerides. When you eat better and become more active, it can help you to improve your cholesterol numbers and keep your blood glucose at a healthy level.

4

“Dilated” eye exam to see if the blood vessels inside your eyes are healthy

You should have a dilated eye exam at least once every year.

- A “dilated” eye exam checks for possible damage to the inside of your eyes that can cause problems with your vision.

A dilated eye exam is different from the eye exam you get for glasses or contact lenses. When you get a dilated eye exam, you are given eye drops that help give the eye doctor a better look at the blood vessels deep inside your eyes. The doctor checks to see if there is any damage to these blood vessels. If damage to blood vessels inside your eyes is not found and treated, it can cause serious problems with your vision.

- High blood glucose and high blood pressure make eye problems more likely.

If your blood glucose stays too high over a long period of time, the high blood glucose can damage the blood vessels inside your eyes. Having high blood pressure can make this damage worse. If this blood vessel damage is not found and treated, it can lead to blindness.

- Having dilated eye exams helps catch problems with your eyes at an early stage when treatment is easier and more successful.

Eye problems can develop slowly. Often there are *no changes in your vision or other symptoms to warn you* until the blood vessel damage is severe. Having a dilated eye exam every year helps protect your vision. This exam helps find blood vessel damage at an early stage when treatment works better.



Ask your doctor or other health professional for the following handout: *Keeping your eyes healthy when you have diabetes*. Or download it for free from the Oregon Diabetes Program website ([www.oregon.gov/DHS/ph/diabetes/resourcebank](http://www.oregon.gov/DHS/ph/diabetes/resourcebank)).

**5**

Urine test to see if your kidneys are working well

**You should have this urine test at least once every year.**

■ **High blood glucose and high blood pressure are harmful to your kidneys.**

If your blood glucose stays too high for a long time, it can damage the tiny blood vessels in your kidneys. High blood pressure can make the damage to these blood vessels worse. When your kidneys get damaged in this way, proteins leak from your kidneys into your urine.

■ **This urine test checks how well your kidneys are working by measuring the amount of protein in your urine.**

- This urine test is sometimes called a test of “kidney function.” It looks for a type of protein called “albumin” (pronounced “al-BYOO-min”). Having too much albumin in your urine means that your kidneys may be damaged.
- Damage to your kidneys can be serious, and it can even cause your kidneys to stop working. Having this urine test of kidney function helps protect your health by finding possible kidney damage at an early stage when it is easier to treat.

■ **To help *prevent* kidney problems, keep your blood glucose and blood pressure at healthy levels.**

If kidney problems become serious, it can lead to a need for kidney dialysis or kidney transplant. To help keep from having serious kidney problems, do your best to keep your blood glucose and blood pressure at healthy levels.

**6**

Foot exam to see if your skin, nerves, and blood circulation are healthy

**You should have a *complete* foot exam at least once a year (plus a more limited foot exam at every office visit).**

■ **Having diabetes can make foot problems more likely.**

When you have diabetes, the nerves throughout your body can get damaged, and nerve damage tends to be more common in the feet. Nerve damage can make your feet feel numb. If you develop sores or tender spots on your feet, you may not notice them right away if your feet are numb. Unless you notice sores and start treating them right away, they can get worse and take a long time to heal.

If your blood glucose stays too high for a long time, it can damage blood vessels and slow down the circulation of blood in your feet.

- If you have blood vessel damage and poor blood circulation in your feet, it is hard for sores to heal.
- Having high blood pressure can make blood vessel damage even worse.

**■ Regular exams of your feet will help find any problems at an early stage when they are easier to treat.**

The foot problems that are complications of diabetes can be serious. If you don't find and treat these problems at an early stage, they can even lead to amputation (surgical removal of toes or feet).

To find foot problems at an early stage, you need three types of exams:

1. At least once a year, you need to have a **complete and thorough foot exam by your doctor** or other health professional. This exam includes tests to see if your nerves and blood circulation are healthy.
2. Each time you have an office visit, it should include a **brief exam** of your feet. To help remind your health professional to look at your feet during the visit, you can take off your shoes and socks in the exam room.
3. You should **examine your own feet each day**, checking for any red spots, sores, or numbness. If you find any problems, tell your health professional.

**■ To help *prevent* foot problems, keep your blood glucose and blood pressure at healthy levels and make sure that your shoes fit well.**

**7**

Exam to see if gums and teeth are healthy



**You should have this exam at least once every 6 months (twice a year).**

**■ High blood glucose makes gum disease more likely.**

If your blood glucose stays too high, it causes damage to blood vessels throughout your body, including the small blood vessels that keep your gums and teeth healthy. When these blood vessels in your mouth are damaged, it can lead to infected gums, tooth decay, and even loss of teeth.

- **To find and treat gum disease and tooth decay at an early stage, have a dental exam every 6 months.**

If gum disease is found at an early stage, treatment works better. If your dental exam shows early signs of a problem, ask what changes you should make in brushing and flossing to help make your gums and teeth more healthy.

- **To help prevent gum disease and tooth decay, keep your blood glucose at a healthy level and take good care of your gums and teeth.**

**8**

## Checking your weight

**You should be weighed at each office visit (at least once every 12 months).**

- **Being overweight is harmful to your health and common for people with Type 2 diabetes.**

Studies show that *more than half* of Americans are overweight. Often, people who have Type 2 diabetes are overweight when they first find out they have diabetes. Being overweight makes you more likely to get Type 2 diabetes. Being overweight also makes you more likely to get heart disease and many other health problems.

- **Having a healthy weight makes it easier to stay healthy with diabetes.**

When you are at a healthy weight, it is easier for you to keep your blood glucose and blood pressure at healthy levels. When you are able to keep your blood glucose and blood pressure at healthy levels, you help prevent the serious health complications of diabetes.

- **If you are overweight, losing weight is one of the best things you can do for better control of diabetes and better health.**

Having your weight checked at every office visit is part of quality care for diabetes and a good reminder about how your weight affects your health.

If you need to lose weight, ask for help from members of your health care team. Set goals for weight loss that are realistic and do your best to stay active and eat healthy foods.



Did you know that the average serving size for many foods has grown much larger over the years? Learn about “portion distortion” and get practical tips for weight loss at the government website run by the Centers for Disease Control and Prevention: [www.cdc.gov/nccdphp/dnpa/nutrition/pdf/portion\\_size\\_pitfalls.pdf](http://www.cdc.gov/nccdphp/dnpa/nutrition/pdf/portion_size_pitfalls.pdf)

## 9 Yearly flu shot

**You should have a flu shot every year.**

### ■ Getting a flu shot yearly can help keep you from getting the flu.

If you have diabetes, it’s important to prevent serious illness whenever you can. The flu can be a serious illness. When people with diabetes get the flu, they tend to get sicker than people who do not have diabetes. Getting sick can make it hard to keep blood glucose under control.

In general, doctors recommend that people with diabetes get a flu shot each year at the beginning of flu season, during the fall or the early weeks of winter. Sometimes the flu shot can prevent you from getting the flu altogether. If you do get the flu after you have had a flu shot, having had a flu shot can help keep you from getting as sick.

## 10 Pneumococcal vaccination *Ask your doctor if you need it*

**Most people with diabetes should have this vaccination once** (and then have it again at age 65 if it has been more than 5 years since they had it).

### ■ Getting a pneumococcal vaccination helps protect you from serious infections.

“Pneumococcal” is pronounced "new-mo-COCK-ul." The pneumococcal vaccination is sometimes called the "pneumonia shot." This vaccination helps protect you against certain serious infections caused by the germ “pneumococcus.” These include infections in the bloodstream and in the fluid around the brain. Like the flu, these infections can be especially dangerous for people with diabetes. Getting these infections can also make it hard to keep blood glucose under control.

### ■ Check with your doctor to see if you are due for a pneumococcal vaccination.

In general, doctors recommend that people with diabetes get a pneumococcal vaccination once. When they are 65 years old, they will need to have this vaccination again if it has been more than five years since they had it. Some people need it more often.

## REFERENCES:

*Standards of Medical Care in Diabetes – 2008.*

This article by the American Diabetes Association is published in *Diabetes Care*, Volume 31, Supplement 1, January 2008, S12-S54. You can download it from this website: [care.diabetesjournals.org/cgi/reprint/31/Supplement\\_1/S12](http://care.diabetesjournals.org/cgi/reprint/31/Supplement_1/S12)

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

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

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



Staying healthy with diabetes:

## 4 action steps for quality care

Oregon Diabetes Resource Bank  
Handouts to help people with diabetes

### 1 KNOW which tests, exams, and other care you should be getting.

According to national standards for *quality care* for diabetes, there are 10 tests, exams, and other care that *everyone* with diabetes should be getting. Staying up to date on this care will help find health problems at an early stage when the problems are still small and easier to treat.

### 2 MAKE SURE you are getting all 10 of these tests, exams, and other care as often as you should.

To help stay on schedule, keep your own written record of when you get the tests and exams. Include your goals and test results.

### 3 USE your test results to help improve your health.

Your test results give you and your doctor important information about whether your blood glucose (blood sugar), blood pressure, and cholesterol are at healthy levels. If your test results are not as good as you'd like, you can work on lifestyle changes and other ways to help improve your health.

### 4 GET the information and help you need to stay healthy with diabetes.

To do a good job of managing your health from day to day, you need to understand how diabetes affects your body and know what to do to help keep your diabetes under control. Ask your doctor, diabetes educator, and other professionals for information, handouts, and practical advice. Ask questions – and if you get an answer you don't understand, ask again.

# 1 KNOW which tests, exams, and other care you should be getting.

1. **A-1-C blood glucose (blood sugar) test** *(This lab test should be done every 3 to 6 months. It is different from blood testing you do yourself. The A-1-C tells what your blood glucose has been during the last few months.)*
2. **Blood pressure** *(at every office visit)*
3. **Blood test** to measure “good” cholesterol, “bad” cholesterol, and triglycerides in your blood *(once a year)*
4. **“Dilated” eye exam** to see if the blood vessels inside your eye are healthy *(once a year)*
5. **Urine test** to see if your kidneys are healthy *(once a year)*
6. **Complete foot exam** to see if the blood circulation, nerves, and skin in your feet are healthy *(a complete exam once a year, a brief foot exam at every office visit)*
7. **Exam of your gums and teeth** *(every 6 months)*
8. **Weight** *(at every office visit)*
9. **Flu shot** *(at the beginning of flu season every Fall)*
10. **Pneumococcal vaccination** *(ask your doctor if you need it)*

## ■ Staying up to date on these tests and exams helps you stay healthy.

Having diabetes can lead to serious health problems called “complications of diabetes.” They include heart disease and stroke, kidney problems, nerve damage, problems with eyesight, sores and skin infections on feet, and gum disease that can lead to loss of teeth. Getting the 10 tests and exams helps **prevent or delay these health problems**. The tests and exams help find any new health problems at an early stage when the problems are still small and easier to treat.

## ■ These tests and exams are an important part of *quality care*.

According to national standards for quality care, *everyone* with diabetes should be getting these 10 tests, exams, and other care. These quality standards are set by medical experts. They are based on results from medical research to find out which types of care work best for people with diabetes. (See references at the end of this handout.)

- **The results from your tests and exams let you and your doctor know whether your diabetes is under control.**

For example, your test results will show whether your blood glucose, blood pressure, and cholesterol are at healthy levels. If these or other test results are not at healthy levels, it's a sign that you need to work with your doctor on ways to get your diabetes under better control.



To get the details on the care you should be getting, see this handout from the Oregon Diabetes Resource Bank: *10 tests and exams that everyone with diabetes should be getting.*

- This handout explains each test or exam, tells why it is important, and gives typical goals for test results.
- Ask your doctor or other health professional for a copy or download it for free from the Oregon Diabetes Program website ([www.oregon.gov/DHS/ph/diabetes/resourcebank](http://www.oregon.gov/DHS/ph/diabetes/resourcebank)).

## 2 MAKE SURE you are getting all 10 of these tests, exams, and other care as often as you should.

- **Using a “Care Card” makes it easy to keep track of your tests and exams.**



◀ This is the cover of a **fold-out wallet card** from the Oregon Diabetes Coalition.

Ask your doctor or other health professional for this card. Or download it for free from the Oregon Diabetes Program website ([www.oregon.gov/DHS/ph/diabetes/carecard](http://www.oregon.gov/DHS/ph/diabetes/carecard)).

You can use this card to keep track of your care by writing down the dates and results from your tests and exams. You can also write down goals you and your doctor have set for your test results.

To help you stay on schedule, the card tells how often you should have each test and exam. This card also has places to write down your medications, allergies, and emergency contact information.

### 3 USE your test results to help improve your health.

- **Your test results give you some important “diabetes numbers” that you can use to know your problem areas.**

Your “diabetes numbers” include your weight, your A-1-C number (blood glucose level), your blood pressure numbers, and your cholesterol and triglyceride numbers.

Keeping these numbers in the healthy range will help prevent or delay the serious health problems that can happen when you have diabetes. Talk with your doctor about what your goals should be for each of these diabetes numbers.

- **If your test results show that your diabetes numbers are not where they should be, work with your doctor on ways to improve your numbers.**

When you improve your diabetes numbers, it means that you are getting your diabetes under better control. Getting your diabetes under good control is the key to staying healthy with diabetes.



Get help from your doctor and other health professionals on what you need to do to improve your diabetes numbers.

- Lifestyle changes, such as eating healthier foods and getting more exercise, are two of the *best ways* to improve your diabetes numbers and overall health.
- Your doctor might prescribe new medications or make changes in the medications you are taking.

- **It’s worth the effort! Even a small change can improve your health.**

If your diabetes numbers are not in the healthy range, it may take some time to make improvements. Set goals that are realistic and don’t be discouraged.

Even small changes such as losing a few pounds or lowering your blood pressure by a small amount can help you become healthier.

If your blood glucose is too high, work on getting it down. If it goes down by just one point (such as going from 9.0 to 8.0), this can mean that your risk of long-term complications of diabetes goes down by as much as 40%. (*Source: National Diabetes Education Program.*)

## **4** GET the information and help you need to stay healthy with diabetes.

### **■ Doing your part to manage your health from day to day.**

Managing diabetes from day to day means doing your best to keep your blood glucose (blood sugar), blood pressure, and cholesterol at healthy levels. It means getting to a healthy weight, staying physically active, and eating healthy foods. It includes taking any medication that has been prescribed for you.

### **■ To help manage your health, ask for information and advice.**

Managing diabetes from day to day is a challenge. You can't do it all by yourself, and you shouldn't have to.

Staying healthy with diabetes is a *team effort*. Ask for information and help from your team of health professionals. Your team includes the doctors and nurses you see. It also includes any other professionals you see, such as diabetes educators, nutritionists, nurse practitioners, dentists, eye doctors, and exercise specialists.

- Ask for information materials to help you understand how diabetes affects your body.
- Ask for practical advice about what you should be doing to keep your diabetes under control.
- Ask questions! If you get an answer that you don't understand, ask again. Remember, it's your body and you need to understand the information and advice you are being given.

### **■ To learn about healthy eating, ask an expert.**



When you have diabetes, good nutrition can be a complicated topic.

- To keep your blood glucose at the right level for good health, you need to eat the right *kinds* of food in the right *amounts*, at the right *times*.
- You need to understand how different foods affect your blood glucose in different ways.

To learn more about healthy eating, get help from an expert – a nutritionist or a diabetes educator. If you need help in finding one, ask your doctor.

■ **Using the “Diabetes Question Sheet” makes it easier to ask for information.**

Health care visits can be rushed. Sometimes it’s hard to remember the questions you want to ask. Sometimes it’s hard to know how to get more information.

The *Diabetes Question Sheet* can help. It’s a tool that makes it easier to ask questions and easier to make sure you get the information and answers you need.



- The *Diabetes Question Sheet* has boxes you can check to show which topics you want to talk about during a health care visit.
- It also has places to write down questions you want to ask.

Fill out your *Diabetes Question Sheet* at home and then take it with you to your appointment. Give it to the doctor or other health professional at the beginning of your visit.

The *Diabetes Question Sheet* was developed for the Oregon Diabetes Resource Bank. Ask your doctor or other health professional for this sheet. Or download it for free from the Oregon Diabetes Program website ([www.oregon.gov/DHS/ph/diabetes/resourcebank](http://www.oregon.gov/DHS/ph/diabetes/resourcebank)).

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

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

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



# Diabetes Question Sheet

Mark boxes to show which types of information you need and what questions you want to ask. Then take this sheet with you to your next appointment and give it to the doctor, nurse, or other health professional.

## Keeping my blood glucose (blood sugar) at a healthy level:

- What should my blood glucose goals be?
- What can I do to get my blood glucose under better control?
- Testing my blood glucose at home
- A-1-C blood glucose lab test
- Injecting insulin
- Diabetes medications
- Other topics & questions:

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## Concerns and questions about my health:

- Information about how diabetes affects my body and the health problems it can cause
- Cholesterol and triglycerides
- Damage to blood vessels
- Heart problems or stroke
- High blood pressure
- Numbness, pain, or tingling in feet or hands
- Foot sores or other skin problems
- Kidney damage or urine problems
- Problems with eyes or vision
- Sore gums or tooth problems
- Other topics & questions:

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## Healthy eating and meal planning:

- Help and information on how to eat the right foods in the right amounts at the right times
- I want to see a nutritionist or diabetes educator or attend a meal planning class
- Other topics & questions:

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## Staying healthy:

- Keeping active, guidelines for exercise
- What is a healthy weight for me?
- Safe & effective ways to lose weight
- Dealing with stress
- Getting help to quit tobacco
- What is a "dilated eye exam" and why do I need to have one?
- Instructions on how to check my feet
- Instructions for what to do about meals and medications when I am sick
- Should I get a flu shot?
- What is the pneumococcal vaccination and should I get it?
- Other topics & questions:

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