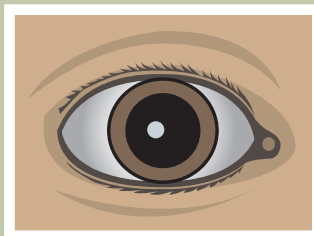
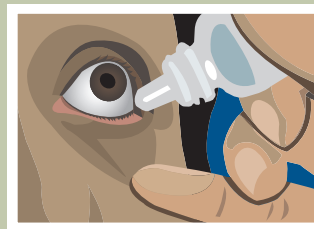


# Diabetic Eye Disease

## AN EDUCATOR'S GUIDE



*Diabetic Eye Disease: An Educator's Guide*, developed by the National Eye Health Education Program (NEHEP), is a patient education tool for health professionals and community-based educators who work with people who have diabetes. A Spanish version, *Enfermedad Diabética del Ojo: Una guía para el educador*, is also available.

The National Eye Institute (NEI) conducts and supports research that leads to sight-saving treatments and plays a key role in reducing visual impairment and blindness. The NEI is part of the National Institutes of Health (NIH), an agency of the U.S. Department of Health and Human Services.

For more information about the NEI, contact:

National Eye Institute  
National Institutes of Health  
2020 Vision Place  
Bethesda, MD 20892-3655  
Telephone: 301-496-5248  
E-mail: [2020@nei.nih.gov](mailto:2020@nei.nih.gov)  
Website: [www.nei.nih.gov](http://www.nei.nih.gov)

## Introduction

Diabetes is a leading cause of blindness among working-age adults in the United States. Yet with early detection and timely treatment, diabetic eye disease can be controlled. The key is to get a dilated eye exam at least once a year. By advising people with diabetes to get a dilated eye exam, you can help reduce their risk of vision loss and blindness.

## How To Use This Guide

*Diabetic Eye Disease: An Educator's Guide* is a desktop flipchart that has text to guide your discussion and illustrations for you to show to your patients. Use the back cover to set up an easel for the chart.

## Ask When the Patient Last Had an Eye Examination

Ask if the patient has had an exam recently. If the patient has not had an eye exam during the last year, find out why. You may be able to help.

## Give Referral Information

If patients do not have a regular source of eye care, providing a list of local eye care professionals will help patients take the next step—making an appointment for a dilated eye exam.

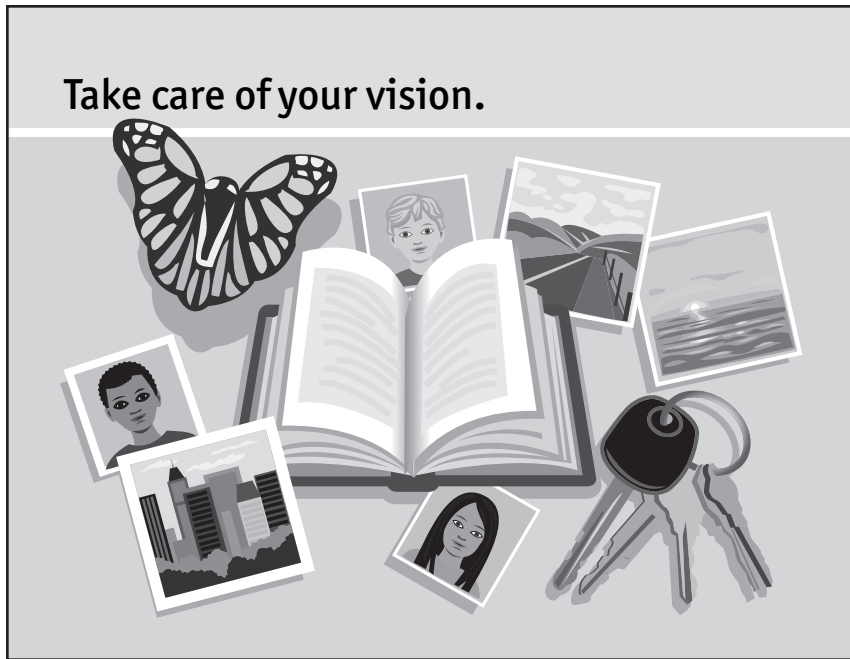
## Financial Aid for Eye Care

Many state and national resources regularly provide aid to people with vision problems. If a patient is in need of financial aid to assess or treat an eye problem, please see the list of programs provided on the NEI Website at [www.nei.nih.gov/health/financialaid.asp](http://www.nei.nih.gov/health/financialaid.asp).

Take care of your vision.

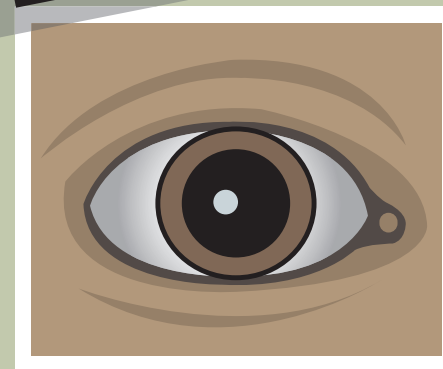
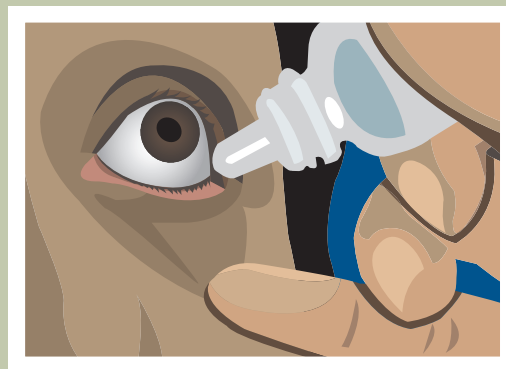
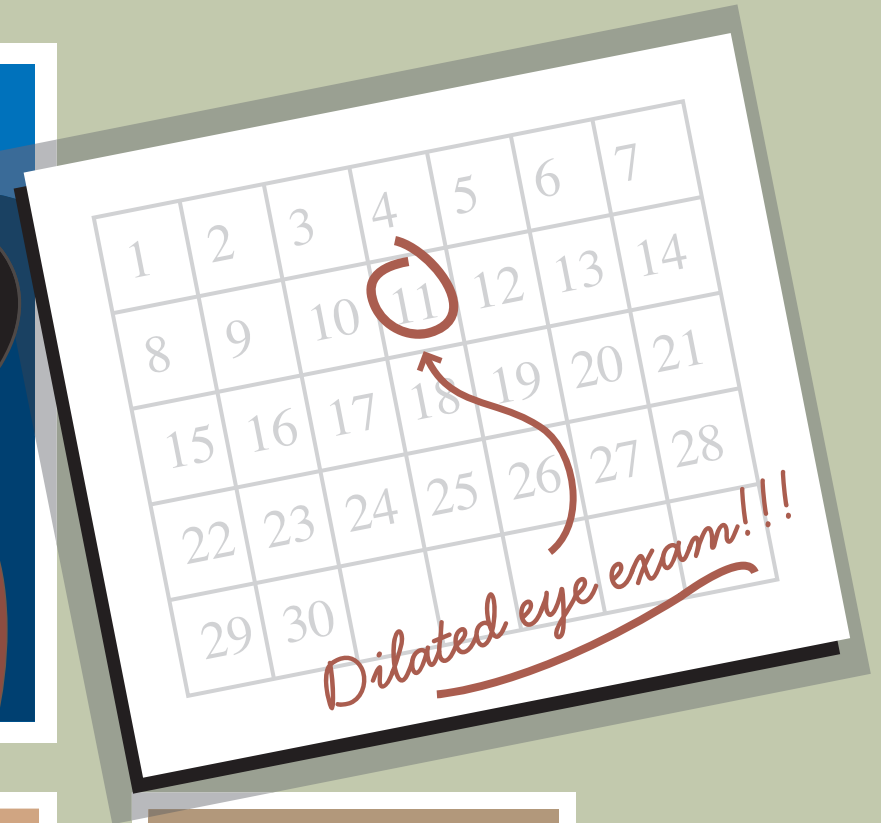
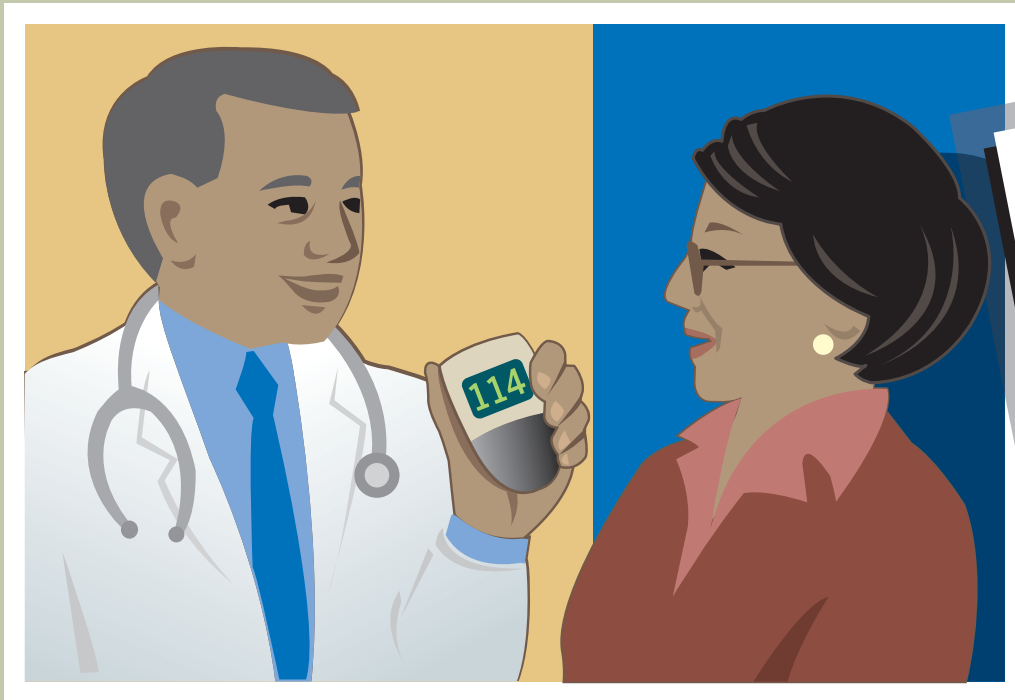


# Take care of your vision.



Vision is an important part of your everyday life. If you have diabetes, you need to take special care to protect your vision from diabetic eye disease.

# People with diabetes need to know...



# People with diabetes need to know...

## People with diabetes need to know...



- You are at risk for developing diabetic eye disease, especially diabetic retinopathy, which can cause vision loss—even blindness.
- Getting a dilated eye exam at least once a year is important in finding and treating diabetic eye disease early.
- It is important to talk with your doctor about diabetes self-care.

# Who can develop diabetic retinopathy?





# Who can develop diabetic retinopathy?

## Who can develop diabetic retinopathy?



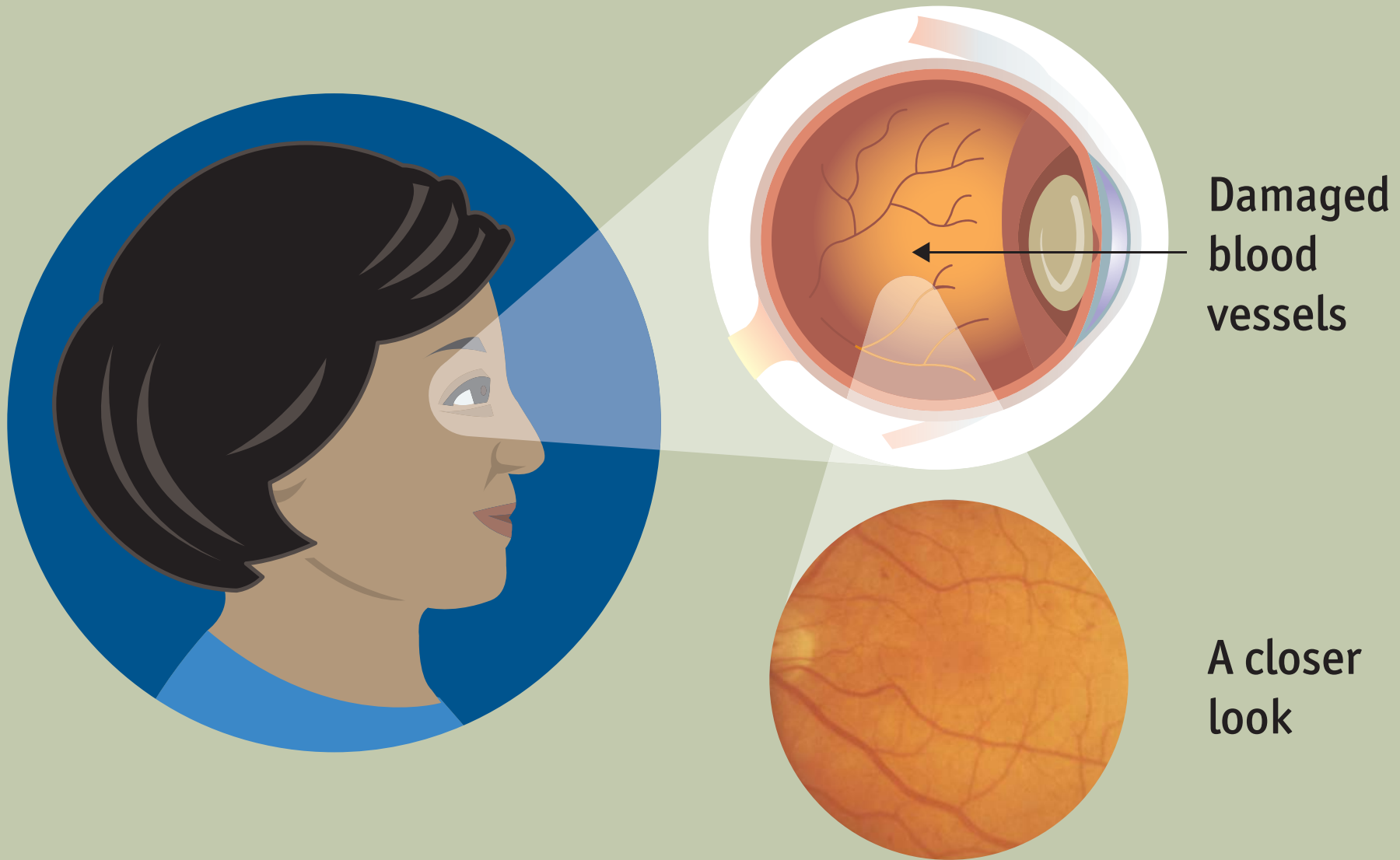
All people with diabetes—type 1 and type 2—can develop diabetic retinopathy, the most common diabetic eye disease. The longer you have diabetes, the more likely it is that you will develop diabetic retinopathy.

---

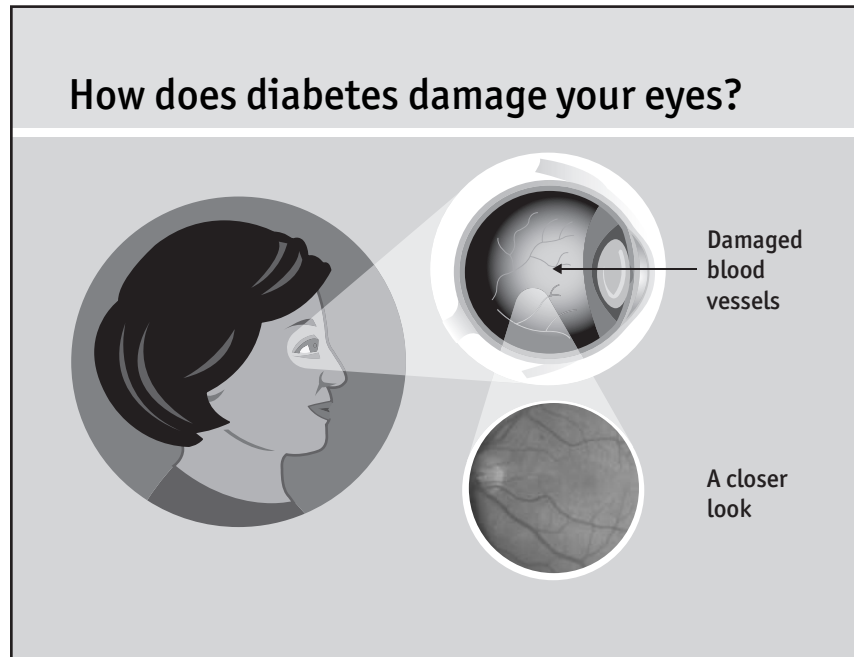
### Optional information:

More than half of people with type 1 diabetes have some retinopathy after 10 years of diabetes. Almost one-third of people with type 2 diabetes have some retinopathy at the time they are diagnosed.

# How does diabetes damage your eyes?



# How does diabetes damage your eyes?



A healthy retina is needed for good vision. The retina is at the back of the eye. It is the part of the eye that can sense light. Over time, high blood sugar, blood pressure, and cholesterol can damage the tiny blood vessels in your retina. These blood vessels may swell and become blocked. New, weaker blood vessels may form. When these changes occur, a person has developed some level of diabetic retinopathy.

---

## Optional information:

People with diabetes are also at risk for these other diabetic eye diseases:

- **Cataract:** A clouding of the lens, the part of your eye that focuses light rays on the retina.
- **Glaucoma:** A group of diseases that can damage the eye's optic nerve. The optic nerve is the part of your eye that sends information from your retina to your brain to tell you what you are seeing.

# How can diabetic retinopathy cause vision loss?



Left untreated,  
diabetic retinopathy  
can cause vision loss.

Diabetic retinopathy can damage  
your eyes even before you see  
changes in your vision.



# How can diabetic retinopathy cause vision loss?

## How can diabetic retinopathy cause vision loss?



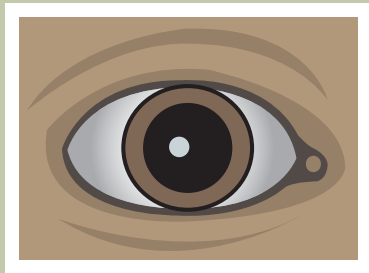
Left untreated, diabetic retinopathy can cause vision loss.



Diabetic retinopathy can damage your eyes even before you see changes in your vision.

Diabetic retinopathy can damage your eyes even before you see changes in your vision. Left untreated, diabetic retinopathy can cause vision loss.

# Why is a dilated eye exam important?



# Why is a dilated eye exam important?

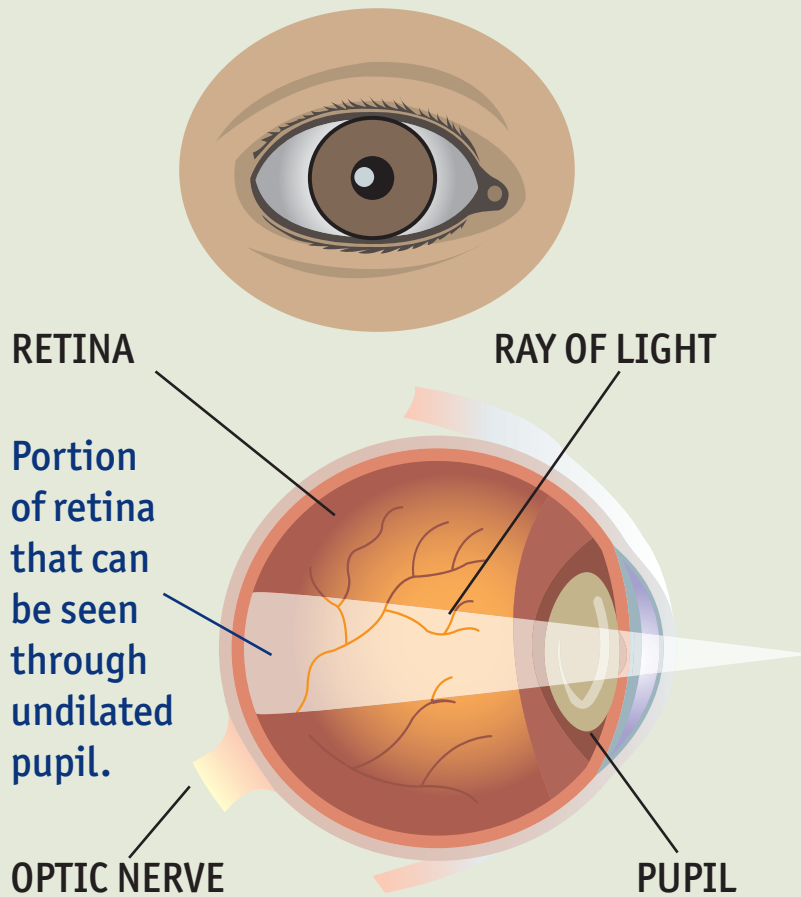
Why is a dilated eye exam important?



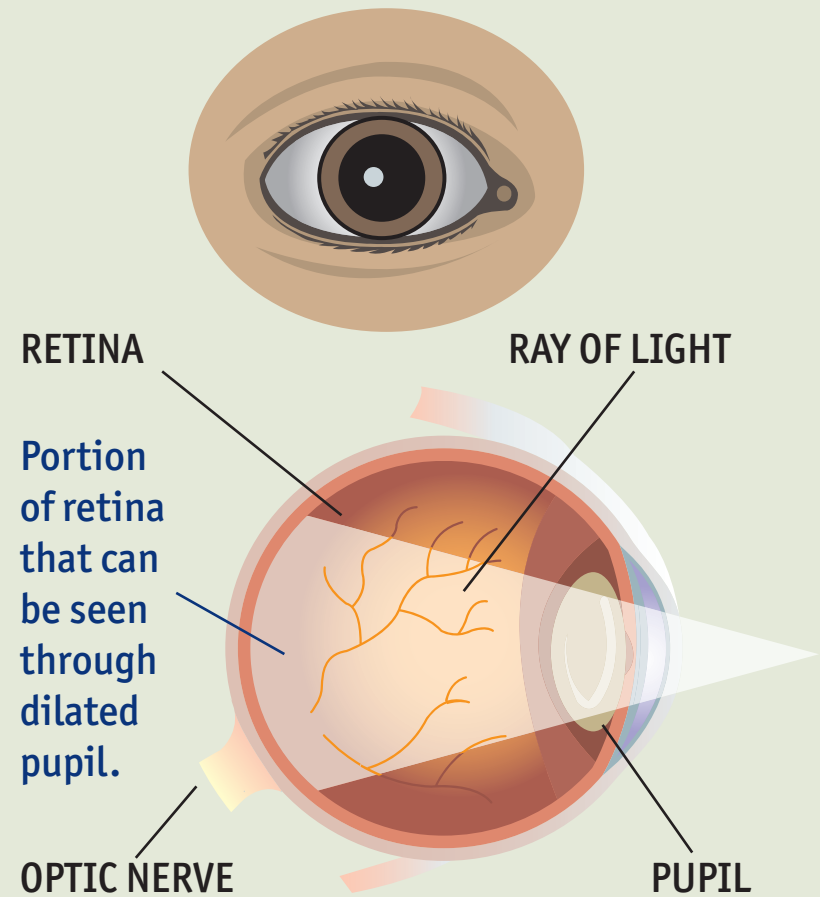
There are no warning signs for diabetic retinopathy. A dilated eye exam allows the eye care professional to see the early signs of the disease and help you before your vision is affected. Finding and treating diabetic retinopathy early can help protect your vision.

# What happens when you get a dilated eye exam?

## UNDILATED PUPIL



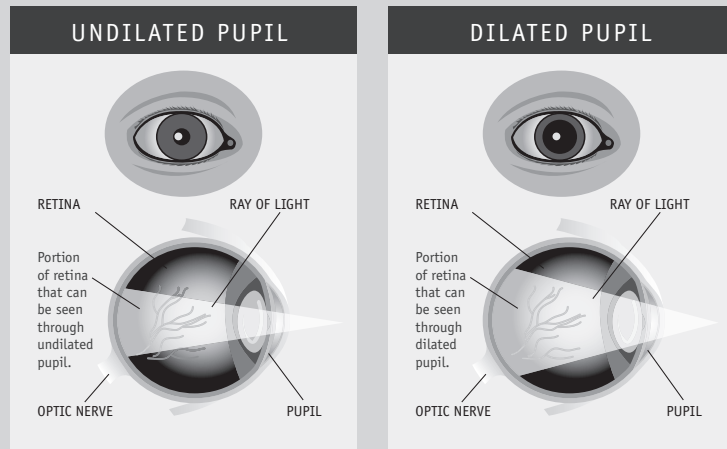
## DILATED PUPIL





# What happens when you get a dilated eye exam?

Get a dilated eye exam.



A dilated eye exam from an eye care professional is the best way to tell if you have diabetic retinopathy, before it affects your vision. This exam includes—

- **Pupil dilation:** Drops will be put in your eye to dilate (widen) the pupil. Your eye care professional will use a special magnifying lens to look at your retina and other parts of your eye.
- **Visual acuity:** A test during which you are asked to read an eye chart to measure how well you see at different distances.
- **Tonometry:** A test to measure the pressure inside your eye.

# What can you do to protect your vision?

**T**

Take your medications as prescribed by your doctor.



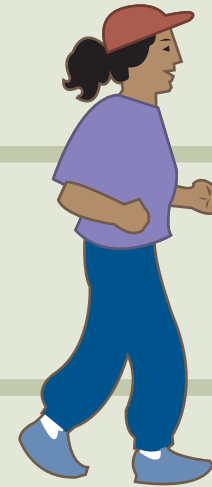
**R**

Reach and maintain a healthy weight.



**A**

Add more physical activity to your daily routine.



**C**

Control your ABCs—A1C, blood pressure, and cholesterol levels.








**K**

Kick the smoking habit.



# What can you do to protect your vision?

What can you do to protect your vision?

<b>T</b>	Take your medications as prescribed by your doctor.	
<b>R</b>	Reach and maintain a healthy weight.	
<b>A</b>	Add more physical activity to your daily routine.	
<b>C</b>	Control your ABCs—A1C, blood pressure, and cholesterol levels.	
<b>K</b>	Kick the smoking habit.	

**Get a dilated eye exam at least once a year, and...**

**Keep TRACK of your diabetes:**

**T:** Take your medications as prescribed by your doctor.

**R:** Reach and maintain a healthy weight.

**A:** Add more physical activity to your daily routine.

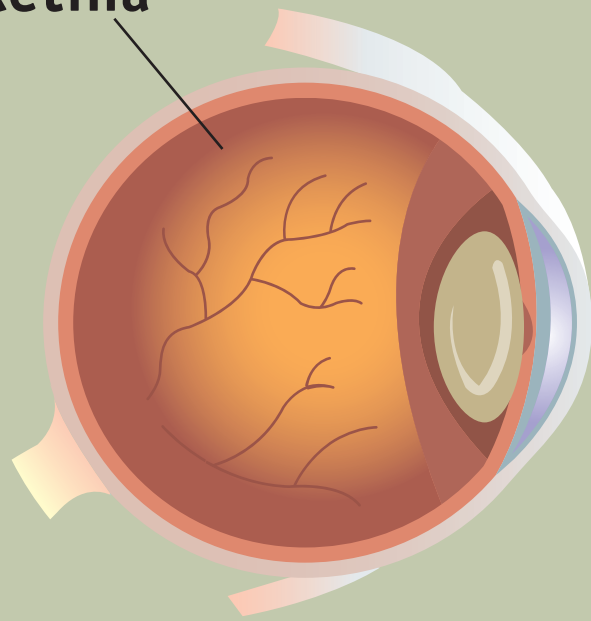
**C:** Control your ABCs—A1C\*, blood pressure, and cholesterol levels.

**K:** Kick the smoking habit.

\*A1C is a simple lab test that measures your average blood glucose level over the last 3 months. It is the best way to know your overall blood glucose control.

# How is diabetic retinopathy treated?

Retina



## A CLOSER LOOK

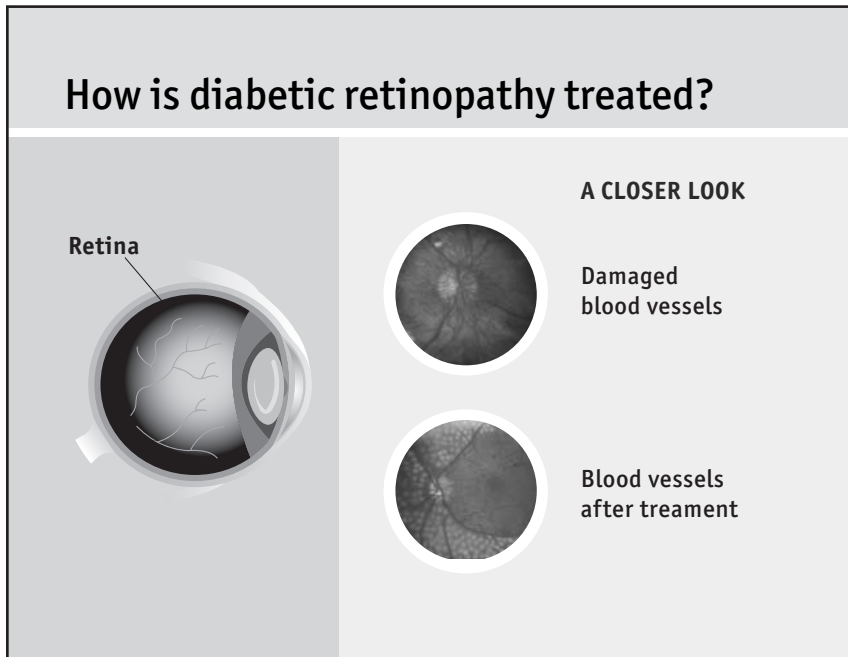


Damaged  
blood vessels



Blood vessels  
after treatment

# How is diabetic retinopathy treated?



If you develop diabetic retinopathy, your eye care professional will know when and how to treat the damage to your eyes. Often, laser surgery (using a special beam of light) is performed to treat the damaged blood vessels inside the eye.

## Optional information:

Note: The optional information below may not be necessary to share with the patient at this time. Pictures of these treatments are available on the National Eye Institute Website at [www.nei.nih.gov](http://www.nei.nih.gov).

The picture on this page shows the results of scatter laser treatment. There are other treatments for the different ways that diabetic retinopathy can damage the eyes. These include treatments for—

**Macular edema:** This occurs when the weak blood vessels in the center of the retina leak fluid within the macula. The macula is the central part of the retina responsible for straight-ahead vision. Macular edema is treated with focal laser surgery.

**Vitreous bleeding:** The vitreous is the large space in the center of the eye. It is filled with a clear gel-like fluid. If this fluid becomes clouded by blood from damaged blood vessels, a person may need an eye operation called a vitrectomy. The cloudy fluid is replaced with a clear salt solution that is similar to vitreous fluid.

# Making the most of your vision...



# Making the most of your vision...



Treatment may not restore vision already lost to diabetic retinopathy. In this case, a person may have low vision. People with low vision find it difficult to do everyday tasks, even with regular eye glasses, contact lenses, medicine, or surgery. The good news is that vision rehabilitation can help people make the most of their remaining vision and maintain independence.

Vision rehabilitation can—

- Make home and work surroundings safer and more convenient.
- Make it easier to travel alone.
- Show you how to use visual and adaptive devices.

If you develop low vision, your eye care professional can refer you to a specialist in low vision who can help you make everyday activities easier.

# Remember—get a dilated eye exam.

**T**

Take your medications as prescribed by your doctor.

**R**

Reach and maintain a healthy weight.

**A**

Add more physical activity to your daily routine.

**C**

Control your ABCs—A1C, blood pressure, and cholesterol levels.

**K**

Kick the smoking habit.





# Remember—get a dilated eye exam.

## Remember—get a dilated eye exam.

**T**

Take your medications as prescribed by your doctor.

**R**

Reach and maintain a healthy weight.

**A**

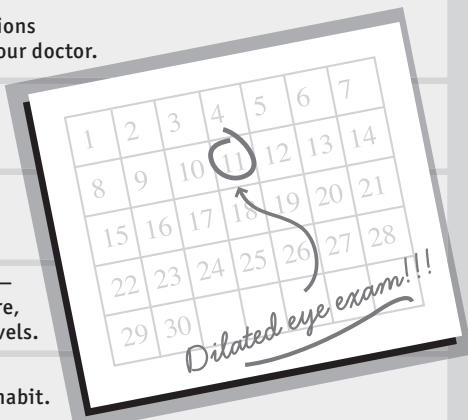
Add more physical activity to your daily routine.

**C**

Control your ABCs—A1C, blood pressure, and cholesterol levels.

**K**

Kick the smoking habit.



- Diabetic retinopathy has no warning signs.
- Get a dilated eye exam at least once a year.
- Keep TRACK of your diabetes:

**T:** Take your medications as prescribed by your doctor.

**R:** Reach and maintain a healthy weight.

**A:** Add more physical activity to your daily routine.

**C:** Control your ABCs—A1C, blood pressure, and cholesterol levels.

**K:** Kick the smoking habit.

Make Your Vision  
a Health Priority.

[www.nei.nih.gov](http://www.nei.nih.gov)





National  
Eye  
Institute

NATIONAL INSTITUTES OF HEALTH

NIH Publication No. 2642  
Revised 12/05