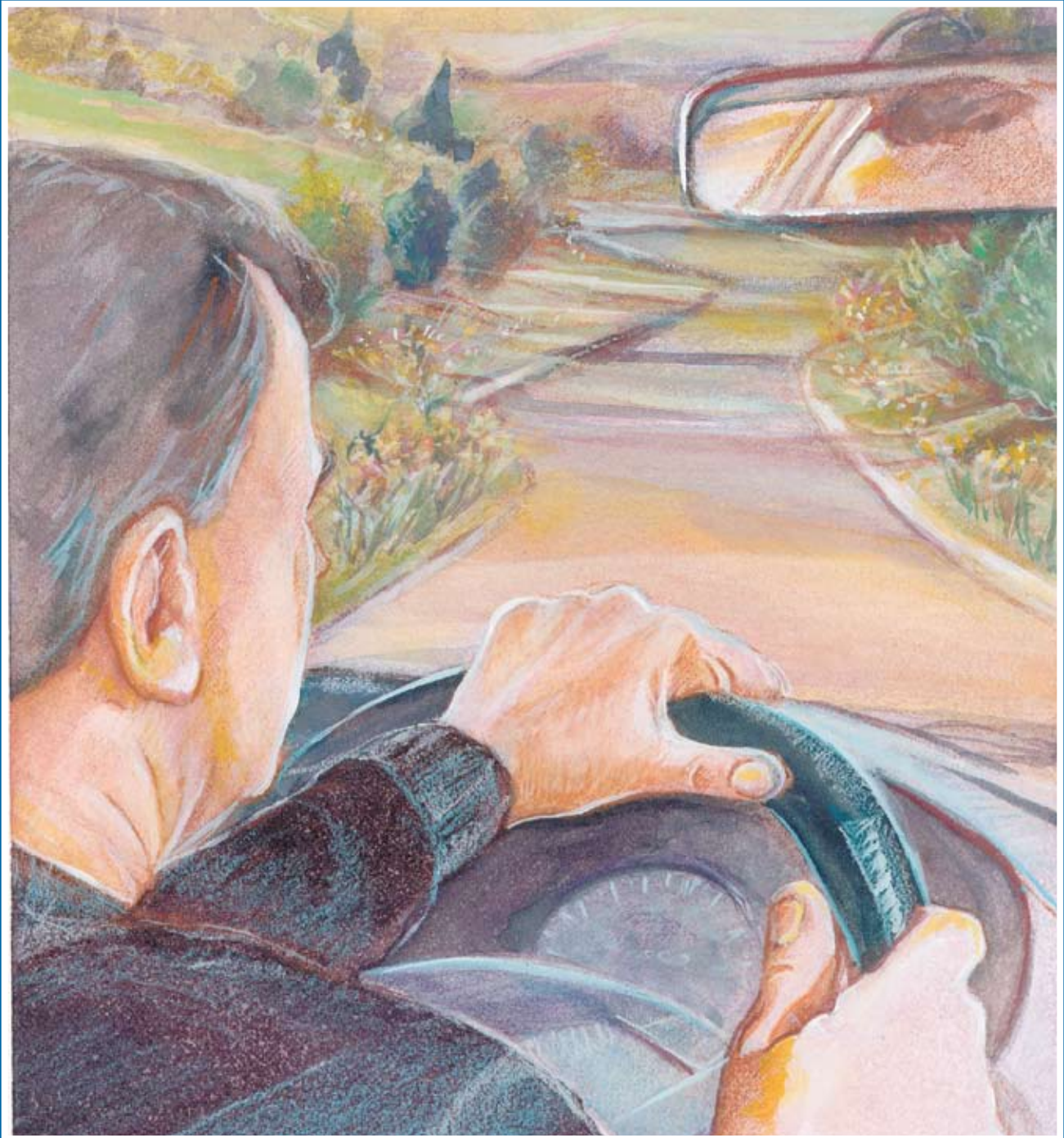


Prevent diabetes problems: Keep your eyes healthy



U.S. Department
of Health and
Human Services

NATIONAL INSTITUTES OF HEALTH

NIDDK NATIONAL INSTITUTE OF
DIABETES AND DIGESTIVE
AND KIDNEY DISEASES

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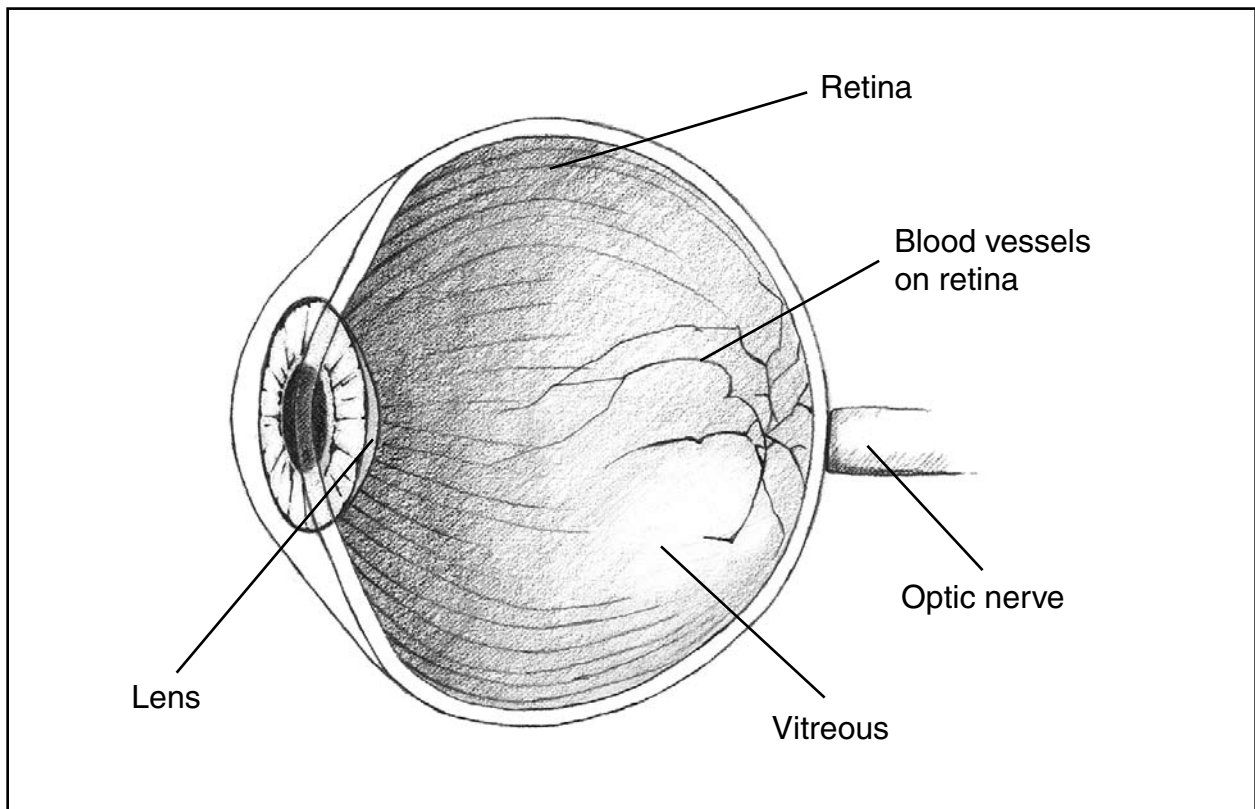
Contents

What are diabetes problems?	1
What should I do each day to stay healthy with diabetes?	2
What can I do to prevent diabetes eye problems?	3
How can diabetes hurt my eyes?	5
How can diabetes hurt the retinas of my eyes?	6
What happens as diabetes retina problems get worse?	7
What can I do about diabetes retina problems?.....	9
How do I know if I have retina damage from diabetes?.....	10
What other eye problems can happen to people with diabetes?	11
Pronunciation Guide.....	12
For More Information.....	13
More in the Series	16
Acknowledgments	17

What are diabetes problems?

Too much glucose in the blood for a long time can cause diabetes problems. This high blood glucose, also called blood sugar, can damage many parts of the body, such as the heart, blood vessels, eyes, and kidneys. Heart and blood vessel disease can lead to heart attacks and strokes. You can do a lot to prevent or slow down diabetes problems.

This booklet is about eye problems caused by diabetes. You will learn the things you can do each day and during each year to stay healthy and prevent diabetes problems.



High blood glucose can cause eye problems.

What should I do each day to stay healthy with diabetes?



Follow the healthy eating plan that you and your doctor or dietitian have worked out.



Be active a total of 30 minutes most days. Ask your doctor what activities are best for you.



Take your medicines as directed.



Check your blood glucose every day. Each time you check your blood glucose, write the number in your record book.



Check your feet every day for cuts, blisters, sores, swelling, redness, or sore toenails.



Brush and floss your teeth every day.



Control your blood pressure and cholesterol.

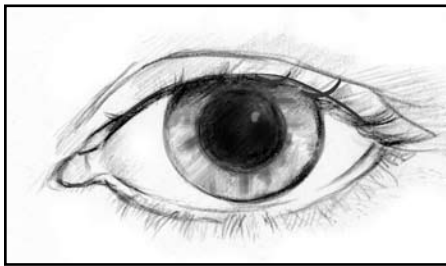


Don't smoke.

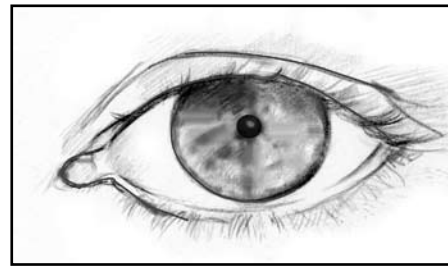
What can I do to prevent diabetes eye problems?

You can do a lot to prevent diabetes eye problems.

- Keep your blood glucose and blood pressure as close to normal as you can.
- Have an eye care professional examine your eyes once a year. Have this exam even if your vision is OK. The eye care professional will use drops to make the black part of your eyes—pupils—bigger. This process is called **dilating*** your pupil, which allows the eye care professional to see the back of your eye. Finding eye problems early and getting treatment right away will help prevent more serious problems later on.



Dilated eye.



Undilated eye.

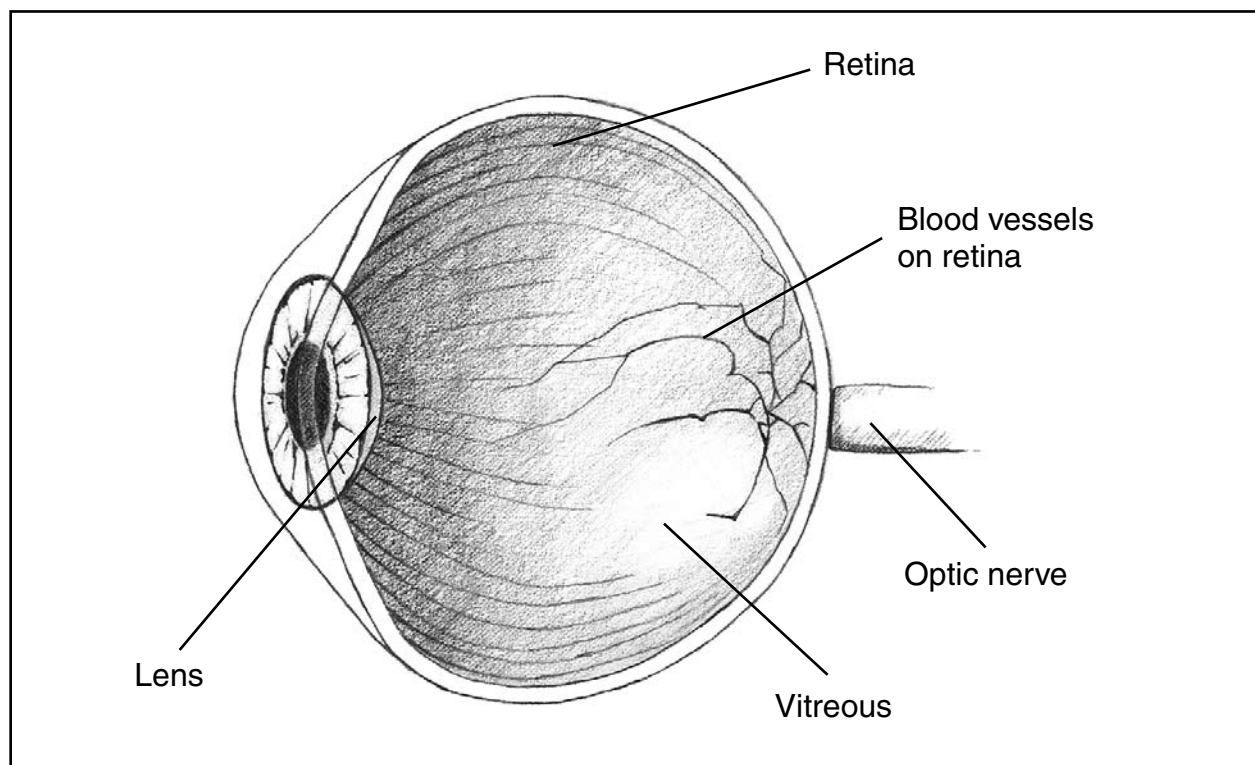
*See page 12 for tips on how to say the words in **bold** type.

- Ask your eye care professional to check for signs of **cataracts** and **glaucoma**. See page 11 to learn more about cataracts and glaucoma.
- If you are planning to get pregnant soon, ask your doctor if you should have an eye exam.
- If you are pregnant and have diabetes, see an eye care professional during your first 3 months of pregnancy.
- Don't smoke.

How can diabetes hurt my eyes?

High blood glucose and high blood pressure from diabetes can hurt four parts of your eye:

- **Retina.** The retina is the lining at the back of the eye. The retina's job is to sense light coming into the eye.
- **Vitreous.** The vitreous is a jelly-like fluid that fills the back of the eye.
- **Lens.** The lens is at the front of the eye. The lens focuses light on the retina.
- **Optic nerve.** The optic nerve is the eye's main nerve to the brain.



A side view of the eye.

How can diabetes hurt the retinas of my eyes?

Retina damage happens slowly. Your retinas have tiny blood vessels that are easy to damage. Having high blood glucose and high blood pressure for a long time can damage these tiny blood vessels.

First, these tiny blood vessels swell and weaken. Some blood vessels then become clogged and do not let enough blood through. At first, you might not have any loss of sight from these changes. Have a dilated eye exam once a year even if your sight seems fine.

One of your eyes may be damaged more than the other. Or both eyes may have the same amount of damage.

Diabetic **retinopathy** is the medical term for the most common diabetes eye problem.

What happens as diabetes retina problems get worse?

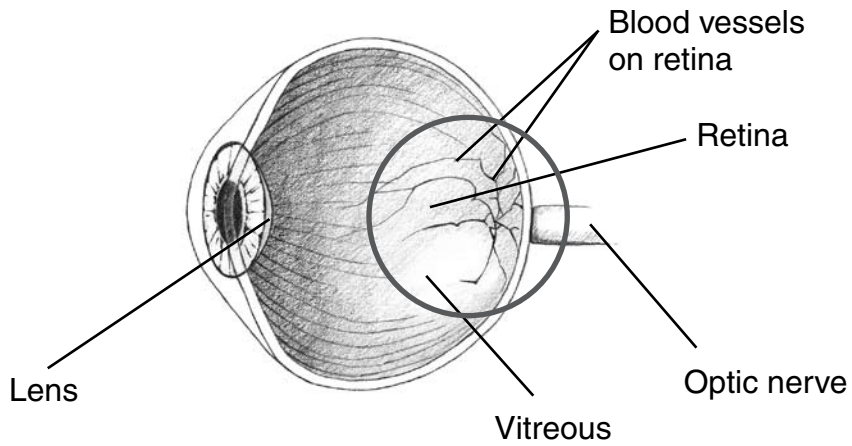
As diabetes retina problems get worse, new blood vessels grow. These new blood vessels are weak. They break easily and leak blood into the vitreous of your eye. The leaking blood keeps light from reaching the retina.

You may see floating spots or almost total darkness. Sometimes the blood will clear out by itself. But you might need surgery to remove it.

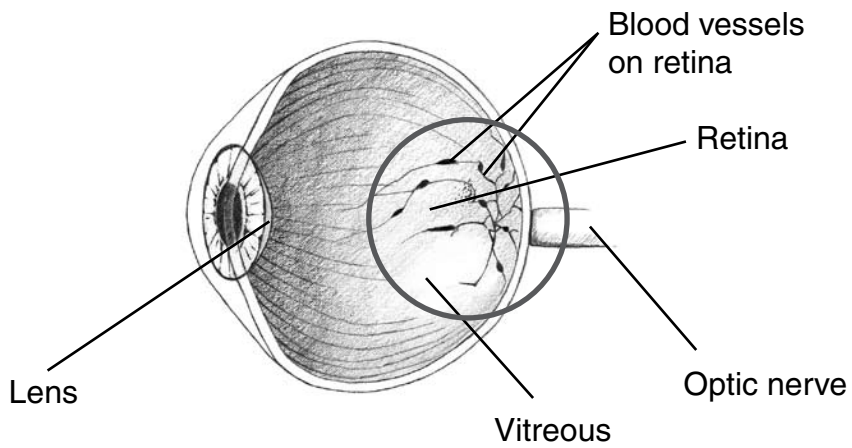
Over the years, the swollen and weak blood vessels can form scar tissue and pull the retina away from the back of the eye. If the retina becomes detached, you may see floating spots or flashing lights.

You may feel as if a curtain has been pulled over part of what you are looking at. A detached retina can cause loss of sight or blindness if you don't take care of it right away.

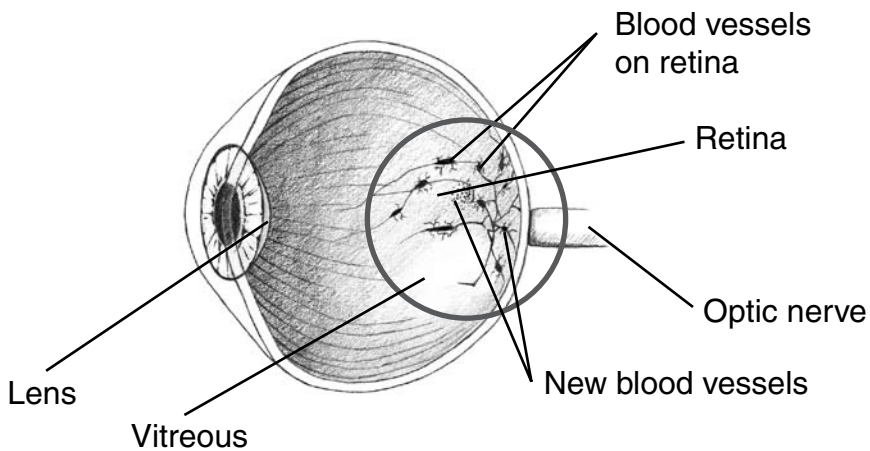
Call your eye care professional right away if you are having any vision problems or if you have had a sudden change in your vision.



A retina without any damage.



A retina with some diabetes damage.



A retina with a lot of diabetes damage.

What can I do about diabetes retina problems?

Keep your blood glucose and blood pressure as close to normal as you can.

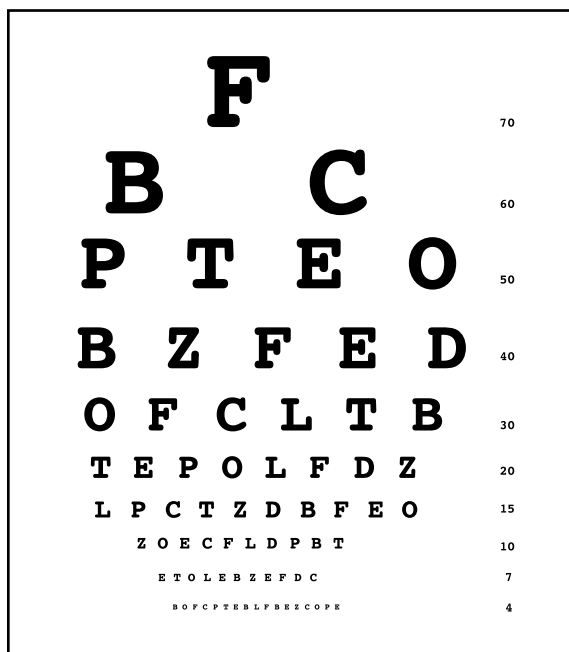
Your eye care professional may suggest laser treatment, which is when a light beam is aimed into the retina of the damaged eye. The beam closes off leaking blood vessels. It may stop blood and fluid from leaking into the vitreous. Laser treatment may slow the loss of sight.

If a lot of blood has leaked into your vitreous and your sight is poor, your eye care professional might suggest you have surgery called a **vitrectomy**. A vitrectomy removes blood and fluid from the vitreous of your eye. Then clean fluid is put back into the eye. The surgery can make your eyesight better.

How do I know if I have retina damage from diabetes?

You may not have any signs of diabetes retina damage, or you may have one or more signs:

- blurry or double vision
- rings, flashing lights, or blank spots
- dark or floating spots
- pain or pressure in one or both of your eyes
- trouble seeing things out of the corners of your eyes



Normal vision



Blurry vision

If you have retina damage from diabetes, you may have blurry or double vision.

What other eye problems can happen to people with diabetes?

You can get two other eye problems—cataracts and glaucoma. People without diabetes can get these eye problems, too. But people with diabetes get these problems more often and at a younger age.

- A cataract is a cloud over the lens of your eye, which is usually clear. The lens focuses light onto the retina. A cataract makes everything you look at seem cloudy. You need surgery to remove the cataract. During surgery your lens is taken out and a plastic lens, like a contact lens, is put in. The plastic lens stays in your eye all the time. Cataract surgery helps you see clearly again.
- Glaucoma starts from pressure building up in the eye. Over time, this pressure damages your eye's main nerve—the optic nerve. The damage first causes you to lose sight from the sides of your eyes. Treating glaucoma is usually simple. Your eye care professional will give you special drops to use every day to lower the pressure in your eyes. Or your eye care professional may want you to have laser surgery.

Pronunciation Guide

cataracts (KAT-uh-rakts)

dilating (DY-layt-eeng)

glaucoma (glaw-KOH-muh)

lens (lenz)

optic nerve (AHP-tik) (nerv)

retina (RET-ih-nuh)

retinopathy (RET-ih-NOP-uh-thee)

vitrectomy (vih-TREK-tuh-mee)

vitreous (VIT-ree-uhss)

For More Information

Eye Care Professionals (ophthalmologists, optometrists)

To find an eye care professional near you, ask your doctor for a recommendation, contact a nearby hospital or medical school, or call a state or county association of ophthalmologists or optometrists.

See the American Academy of Ophthalmology website at www.aao.org and use the “Find an Eye M.D.” service.

See the American Optometric Association website at www.aoa.org and click on “Find an Optometrist” or call 1-800-365-2219.

Diabetes Teachers (nurses, dietitians, pharmacists, and other health professionals)

To find a diabetes teacher near you, call the American Association of Diabetes Educators toll-free at 1-800-TEAMUP4 (832-6874), or look on the Internet at www.diabeteseducator.org and click on “Find a Diabetes Educator.”

Dietitians

To find a dietitian near you, contact the American Dietetic Association at *www.eatright.org* and click on “Find a Nutrition Professional.”

Government

The National Eye Institute (NEI) is part of the National Institutes of Health. To learn more about eye problems, write or call the NEI, 2020 Vision Place, Bethesda, MD 20892–3655, 301–496–5248; or see *www.nei.nih.gov* on the Internet.

To get more information about taking care of diabetes, contact

National Diabetes Information Clearinghouse

1 Information Way

Bethesda, MD 20892–3560

Phone: 1–800–860–8747

TTY: 1–866–569–1162

Fax: 703–738–4929

Email: ndic@info.niddk.nih.gov

Internet: www.diabetes.niddk.nih.gov

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TTY: 1–866–569–1162

Fax: 703–738–4929

Email: ndep@mail.nih.gov

Internet: www.ndep.nih.gov

American Diabetes Association

1701 North Beauregard Street

Alexandria, VA 22311

Phone: 1–800–DIABETES (342–2383)

Internet: www.diabetes.org

Juvenile Diabetes Research Foundation International

120 Wall Street

New York, NY 10005–4001

Phone: 1–800–533–CURE (2873)

Internet: www.jdrf.org

More in the Series

The “Prevent Diabetes Problems” Series has seven booklets that can help you learn more about how to prevent diabetes problems.



For free single copies of these booklets, write, call, fax, or email the

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1 Information Way
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Fax: 703–738–4929
Email: ndic@info.niddk.nih.gov

These booklets are also available at www.diabetes.niddk.nih.gov on the Internet.

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The National Diabetes Information Clearinghouse (NDIC) is a service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The NIDDK is part of the National Institutes of Health of the U.S. Department of Health and Human Services. Established in 1978, the Clearinghouse provides information about diabetes to people with diabetes and to their families, health care professionals, and the public. The NDIC answers inquiries, develops and distributes publications, and works closely with professional and patient organizations and Government agencies to coordinate resources about diabetes.

Publications produced by the Clearinghouse are carefully reviewed by both NIDDK scientists and outside experts.

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This booklet is also available at www.diabetes.niddk.nih.gov.

This publication may contain information about medications. When prepared, this publication included the most current information available. For updates or for questions about any medications, contact the U.S. Food and Drug Administration toll-free at 1-888-INFO-FDA (463-6332) or visit www.fda.gov. Consult your doctor for more information.



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