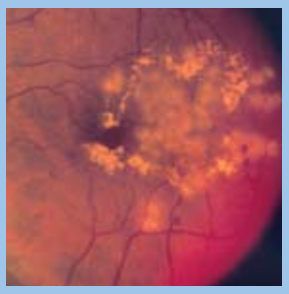
DIABETES RESEARCH & WELLNESS FOUNDATION®

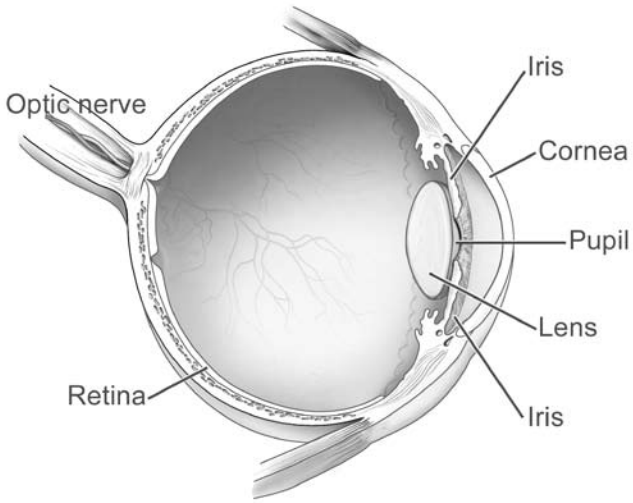




The facts about **DIABETIC RETINOPATHY**

The Eye

The eye is like a camera: The light enters the eye through the clear cornea that forms part of the outer wall of the eye. The wall of the eye, called the sclera, is white in color and is covered by a thin tissue—the conjunctiva. The amount of light entering the eye is altered with a change in size of the pupil opening (an opening in the colored iris—usually blue, green, or brown), behind which the light is focused by a clear lens. The light then passes behind the lens through a clear jellylike substance called the vitreous; the light, after passing through the vitreous, is absorbed by a film of millions of nerves called the retina that lines the inside back part of the eye. The millions of nerves that comprise the retina all connect to a single cable of nerves—the optic nerve—that exit through a small opening in the back of the eye. The optic nerve carries the electrical message to the brain, where the perception of "seeing" occurs. Two separate sets of blood vessels nourish different parts of the retina: the choroidal blood vessels and the retinal blood vessels.



Retinal Hemorrhage

A vitreous hemorrhage occurs if a blood vessel at the back of the eye ruptures and the cavity between the retina and the lens fills with blood. If this occurs you will notice a sudden mass of "floaters" in the eye and rapid clouding of your vision (not just blurring). If this happens you should seek urgent advice from an ophthalmologist.

Usually a hemorrhage is left to re-absorb of its own accord, but if it is not doing so there is an operation that can be performed to remove the vitreous (the jelly in the back of the eye) along with the hemorrhage. This isn't as bad as it sounds and involves smaller wounds than a cataract operation. Once the hemorrhage has cleared you will almost certainly need laser treatment.

Yearly Eye Exam

A person with diabetes needs to have a dilated eye exam on a yearly basis since there are no symptoms of diabetic eye disease — diabetic retinopathy.

Photographic Tests

In some eye care centers the backs of the eyes are monitored by photographs, either as a baseline screening or in addition to a doctor looking at the back of the eye. There is also a special photographic test that is sometimes needed—a fluorescein angiogram. For this test you sit in front of a camera where dye is injected into your arm and a rapid series of pictures are taken. The dye is inert; it won't do anything to you but it will make your skin look a bit yellow for 24 hours, and your urine will be dark during that time as the dye passes out of your system. The dye outlines the blood vessels at the back of the eye, making it easier to decide whether laser treatment is needed.

Non-Proliferative Retinopathy

If the retinal blood vessels are damaged over time by high blood glucose levels, fluids may leak into this space causing a condition known as retinal edema. Fatty substances (lipid exudates) may also leak into this space—blocking the blood vessels, resulting in retinal ischemia. This may disturb the manner in which the light reaches or is interpreted by the nerves, causing a condition known as non-proliferative diabetic retinopathy to develop. Treatment of this condition by the retinal specialist using laser therapy has proven to be successful in slowing down this disease process. **It is for this reason that a yearly dilated eye exam is so important, in order to identify this condition and treat it in the beginning stages.** No symptoms or visual changes are noted with non-proliferative retinopathy; it is only through the viewing of the blood vessels in the eye that an individual can be diagnosed.

Proliferative Retinopathy

In patients who develop a significant number of blood vessel blockages and consequent retinal ischemia, a substance in the eye that encourages the growth of new blood vessels is released. However, these new blood vessels do not grow properly; and the new blood vessels that grow are delicate and fragile. They may actually break and leak blood into the vitreous and prevent the focused image from reaching the retina—seriously compromising vision. In addition, the abnormal blood vessels may be accompanied by scar tissue that can distort the retina and cause a retinal detachment, in which the retina is pulled away from the back of the eye. Individuals may see floating spots or darkness, as the light cannot reach the retina. This condition is known as proliferative retinopathy. It was proven almost thirty years ago that laser surgery, using pan-retinal photocoagulation, can cause the abnormally growing new blood vessels (neovascularization) to wither away and prevent serious damage—particularly if the laser treatment is applied at the earliest stages of the condition.

Laser Treatment

Laser treatment is simply a means of putting a very controlled burn on the back of the eye. The patient sits at a slit lamp—a special microscope with a light attached that allows the doctor to examine your eye under high magnification. The physician places a drop of local anesthetic in the eye and a special contact lens is inserted that keeps the eyelid propped open and allows the doctor to see the blood vessels in the back of the eye. The laser projects bright flashes of light that burn the targeted blood vessels. This procedure is not usually painful. The residual effect of the bright flashes may last for some time. Some find they can see again within half an hour, but for others it may take the rest of the day. Sometimes the eye aches a little if significant laser treatments have been applied.

The burns only affect the retina and are used to seal off leaking blood vessels if there are exudates gathering at the macula, or to destroy a percentage of the retina if new vessels are growing so that the healthy areas of the retina can survive. Because diabetes is progressive, more blood vessels may start to leak or become blocked off with time and further treatments may be necessary.

Long-term Complications

Most of the diabetic problems in the eyes can be treated to keep useful vision, but if the macula is affected it may cause damage in a way that laser does not help—so vision loss is a possibility. The patient's central vision might be lost but they may continue to have peripheral vision. With reasonable peripheral vision individuals can maintain their independence. It is important that you keep good control of your diabetes and have regular eye exams to protect your vision.

Good control of your diabetes may help prevent the onset of retinal changes, and the yearly eye exam ensures that most problems can be treated at an early stage.

RESOURCES:

National Eye Institute (NEI)

20/20 Vision Place
Bethesda, MD 20892-3655
301-496-5248 Fax: (301) 402-1065
Email: 2020@nei.nih.gov
Internet: www.nei.nih.gov

National Diabetes Information Clearinghouse

1 Information Way
Bethesda, MD 20892-3560
Phone: 1-800-860-8747
Fax: 703-738-4929
Email: ndic@info.niddk.nih.gov
http://www.nei.nih.gov/health/

To Find An Ophthalmologist:

American Academy of Ophthalmology, http://www.aao.org/eyemd_disclaimer.cfm

For more information about diabetes contact DRWF's helpline at 800-941-4635, or logon to our website at www.diabeteswellness.net. Other brochures available: Your Feet and Diabetes, What is Diabetes, Illness and Diabetes, Injections, Periodontal Disease and Diabetes, Prediabetes, Erectile Dysfunction

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www.diabeteswellness.net • www.diabeteslocal.org
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An Organization for People Who Live with Diabetes Every Day.

The mission of **Diabetes Research & Wellness Foundation** (DRWF) is to help find the cure for diabetes, and until that goal is achieved, to provide the care and self-management skills needed to combat the life-threatening complications of this terrible disease.

Thank you for your confidence in the programs and services that the Diabetes Research & Wellness Foundation® provides to the community.
Please designate us in the Combined Federal Campaign & United Way.
Combined Federal Campaign #11629 • United Way #8588