

Diabetic Retinopathy

(Also Called 'Diabetic Eye Disease')

Diabetic retinopathy is an eye condition that can affect patients with diabetes. It occurs as a result of prolonged high blood glucose (blood sugar). Persistently elevated blood glucose can damage the blood vessels in the back of the eye, preventing the retina from receiving the proper nutrition it needs to maintain good vision.

The retina is a light-sensitive nerve tissue that lines the back of the eye. As light entering the eye hits the retina, it converts the light rays into electrical impulses that travel along the optic nerve to the brain. The brain then combines images sent from both eyes to interpret them as a single, three-dimensional image. This allows us to perceive depth and distance. Without a properly functioning retina, the eye cannot communicate with the brain.

Diabetic retinopathy occurs when diabetes damages the tiny blood vessels in the retina. In the early stages of the disease, (called non-proliferative retinopathy), there may be no symptoms at all, but there will be visible changes in the retina that your eye doctor can see. As the blood vessels are damaged further, they begin to leak fluid which distorts vision. In the more advanced stage, (called proliferative retinopathy), fragile new blood vessels grow in the retina and in the vitreous humor (a clear gel that fills the eye). If these are not untreated, these blood vessels may bleed and severely cloud vision, or may scar and contract, detaching the retina.

Anyone with diabetes (either Type I or Type II) is at risk of developing diabetic retinopathy. The factors that affect risk include the type of diabetes, how often his or her blood glucose fluctuates, how well-controlled the sugars are, and how long a person has had diabetes.

The National Eye Institute estimates that 40%-45% of all Americans with diabetes are affected by diabetic retinopathy, and 24,000 of these people lose their vision each year.

What happens if diabetic retinopathy is not treated?

If proliferative diabetic retinopathy is not treated, it will continue to progress. The abnormal new blood vessels can scar and contract, pulling the retina off of the back of the eye. This is called a retinal detachment. A retinal detachment can cause permanent blindness if left untreated.

Diabetic retinopathy can also result in macular edema. The macula is the central part of the retina that allows us to see details. When fluid from damaged blood vessels leaks into the macula, it can swell and make vision blurry.

What are the symptoms of diabetic retinopathy?

There are often no early signs of diabetic retinopathy, and sight may not be affected until the condition is advanced. Sometimes the only signs that something is wrong are the loss of central vision when reading or driving, distortion of color vision, and blurred vision. The abnormal new blood vessels may also tear and bleed into the gel in the back of the eye causing very cloudy vision. This is called a **vitreous hemorrhage**. It is very important to have an eye exam each year if you are diabetic, and immediately if you experience any change in vision.

How is diabetic retinopathy diagnosed?

An ophthalmologist can detect diabetic retinopathy by conducting a thorough eye exam. At least once a year you should be dilated, so that your doctor can look for any of the changes associated with diabetic retinopathy.

How is diabetic retinopathy treated?

With early signs of diabetic retinopathy that are not affecting vision, no treatment may be necessary other than better control of the patient's blood glucose levels and more frequent check-ups. In more advanced cases, laser surgery may be necessary prevent significant vision loss associated with diabetic retinopathy.

A procedure called laser photocoagulation can be performed to seal or destroy growing or leaking blood vessels in the retina. Although the

procedure is not painful, laser surgery may lower a person's night vision and ability to see color.

In some people with diabetic retinopathy, the blood that leaks from blood vessels in the retina may also leak into the vitreous humor, clouding vision. A surgical procedure called a vitrectomy can be used to remove the blood that has leaked into this part of the eye.

If diabetic retinopathy is diagnosed in a timely manner, almost 90% of people with late-stage, or proliferative retinopathy, can be saved from blindness.

Can diabetic retinopathy be prevented?

Yes. The best way to prevent or slow down the development of diabetic retinopathy is by keeping your blood glucose controlled. You can help protect your sight by having your eyes checked at least once a year by an ophthalmologist. Women who have diabetes and become pregnant should have a comprehensive eye exam during the first trimester and close follow-up with an ophthalmologist during pregnancy (this does not apply to women with gestational diabetes only).