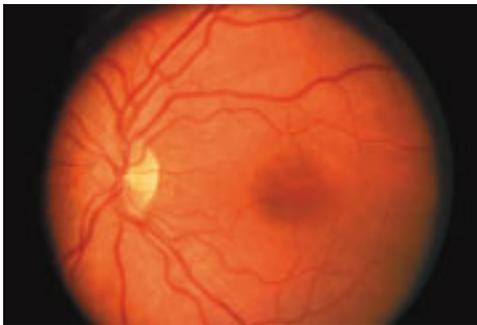
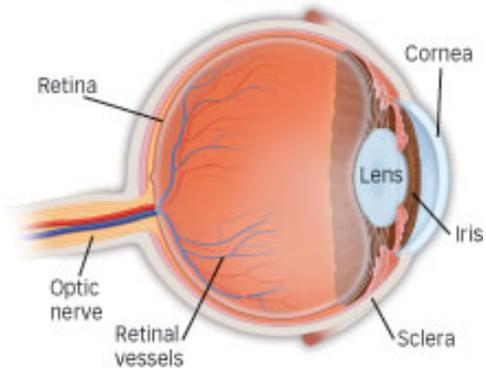


Diabetic Retinopathy

Diabetic retinopathy, the most common diabetic eye disease, occurs when blood vessels in the retina change. Sometimes these vessels swell and leak fluid or even close off completely. In other cases, abnormal new blood vessels grow on the surface of the retina.

The **retina** is a thin layer of light-sensitive tissue that lines the back of the eye. Light rays are focused onto the retina, where they are transmitted to the brain and interpreted as the images you see. The macula is a very small area at the center of the retina. It is the macula that is responsible for your pinpoint vision, allowing you to read, sew or recognize a face. The surrounding part of the retina, called the peripheral retina, is responsible for your side—or peripheral—vision. Diabetic retinopathy usually affects both eyes. People who have diabetic retinopathy often don't notice changes in their vision in the disease's early stages. But as it progresses, diabetic retinopathy usually causes vision loss that in many cases cannot be reversed.



A normal Retina



A Retina showing signs of Diabetic Retinopathy

Diabetic eye problems

There are two types of diabetic retinopathy:

Background or nonproliferative diabetic retinopathy (NPDR)-

Nonproliferative diabetic retinopathy (NPDR) is the earliest stage of diabetic retinopathy. With this condition, damaged blood vessels in the retina begin to leak extra fluid and small amounts of blood into the eye. Sometimes, deposits of cholesterol or other fats from the blood may leak into the retina.

NPDR can cause changes in the eye, including:

Microaneurysms: small bulges in blood vessels of the retina that often leak fluid.

Retinal hemorrhages: tiny spots of blood that leak into the retina.

Hard exudates: deposits of cholesterol or other fats from the blood that have leaked into the retina.

Macular edema: swelling or thickening of the macula caused by fluid leaking from the retina's blood vessels. The macula doesn't function properly when it is swollen. Macular edema is the most common cause of vision loss in diabetes.

Macular ischemia: small blood vessels (capillaries) close. Your vision blurs because the macula no longer receives enough blood to work properly.

Many people with diabetes have mild NPDR, which usually does not affect their vision. However, if their vision is affected, it is the result of macular edema and macular ischemia.

Proliferative diabetic retinopathy (PDR)

Proliferative diabetic retinopathy (**PDR**) mainly occurs when many of the blood vessels in the retina close, preventing enough blood flow. In an attempt to supply blood to the area where the original vessels closed, the retina responds by growing new blood vessels. This is called neovascularization. However, these new blood vessels are abnormal and do not supply the retina with proper blood flow. The new vessels are also often accompanied by scar tissue that may cause the retina to wrinkle or detach.

PDR may cause more severe vision loss than **NPDR** because it can affect both central and peripheral vision. **PDR** affects vision in the following ways:

Vitreous hemorrhage: delicate new blood vessels bleed into the vitreous — the gel in the center of the eye — preventing light rays from reaching the retina. If the vitreous hemorrhage is small, you may see a few new, dark floaters. A very large hemorrhage might block out all vision, allowing you to perceive only light and dark. Vitreous hemorrhage alone does not cause permanent vision loss. When the blood clears, your vision may return to its former level unless the macula has been damaged.

Traction retinal detachment: scar tissue from neovascularization shrinks, causing the retina to wrinkle and pull from its normal position. Macular wrinkling can distort your vision. More severe vision loss can occur if the macula or large areas of the retina are detached.

Neovascular glaucoma: if a number of retinal vessels are closed, neovascularization can occur in the iris (the colored part of the eye). In this condition, the new blood vessels may block the normal flow of fluid out of the eye. Pressure builds up in the eye, a particularly severe condition that causes damage to the optic nerve.

What you need to keep in mind:

As diabetic eye problems are left untreated, proliferative diabetic retinopathy (**PDR**) can develop. Blocked blood vessels from ischemia can lead to the growth of new abnormal blood vessels on the retina (called neovascularization) which can damage the retina by causing wrinkling or retinal detachment.

Neovascularization can even lead to glaucoma, damage to the optic nerve that carries images from your eye to your brain.

Maintaining strict control of blood sugar and blood pressure, as well as having regular diabetic retinopathy screenings by your eye care professional, are keys to preventing diabetic retinopathy and vision loss.

Controlling blood sugar can also help to prevent the development of cataracts, as diabetes is a risk factor for cataracts.



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