How does DR cause vision loss?

Blood vessels damaged from diabetic retinopathy can cause vision loss in two ways:

Fragile, abnormal blood vessels can develop and leak blood into the center of the eye, blurring vision. This is proliferative retinopathy and is the fourth and most advanced stage of the disease.

Fluid can leak into the center of the macula, the part of the eye where sharp, straight-ahead vision occurs. The fluid makes the macula swell, blurring vision. This condition is called macular edema. It can occur at any stage of diabetic retinopathy, although it is more likely to occur as the disease progresses. About half of the people with proliferative retinopathy also have macular edema.

What increases your risk of developing DR?

Your risk for DR depends on two things: how long you have had diabetes and whether or not you have kept good control of your blood sugar. One can control some risk factors that may increase the chances of developing (DR). These risk factors include pregnancy, high blood sugar, high blood pressure, delayed diagnosis and treatment and smoking.

All people with diabetes—both type 1 and type 2—are at risk. That’s why everyone with diabetes should get a comprehensive dilated eye exam at least once a year. The longer someone has diabetes, the more likely he or she will get diabetic retinopathy.

During pregnancy, diabetic retinopathy may be a problem for women with diabetes. To protect vision, every pregnant woman with diabetes should have a comprehensive dilated eye exam as soon as possible. Your doctor may recommend additional exams during your pregnancy.

How is diabetic retinopathy treated?

Laser surgery is most times suggested for people diagnosed with advanced Proliferative Diabetic Retinopathy (PDR) and advanced forms of Non—Proliferative Diabetic Retinopathy (NPDR). Multiple laser treatments over extended periods are sometimes necessary. Laser surgery does not cure DR, but it may help stabilize your vision and prevent any further vision loss.

During the first three stages of diabetic retinopathy, no treatment is needed, unless you have macular edema. To prevent progression of diabetic retinopathy, people with diabetes should control their levels of blood sugar, blood pressure, and blood cholesterol.

Proliferative retinopathy is treated with laser surgery. This procedure is called scatter laser treatment. Scatter laser treatment helps to shrink the abnormal blood vessels. Your doctor places 1,000 to 2,000 laser burns in the areas of the retina away from the macula, causing the abnormal blood vessels to shrink. Because a high number of laser burns are necessary, two or more sessions are usually required to complete treatment. Though you may notice some loss of your side vision, scatter laser treatment can save the rest of your sight. Scatter laser treatment may slightly reduce your color vision and night vision.

Scatter laser treatment works better before the fragile, new blood vessels have started to bleed. That is why it is important to have regular, comprehensive dilated eye exams. Even if bleeding has started, scatter laser treatment may still be possible, depending on the amount of bleeding.

If the bleeding is severe, you may need a surgical procedure called a vitrectomy. During a vitrectomy, blood is removed from the center of your eye.
What is Diabetic Retinopathy (DR)?

Diabetic Retinopathy (DR) is the most common of the three diabetic eye diseases (Cataract, Glaucoma and Diabetic Retinopathy) and is a leading cause of blindness in adults worldwide. DR is caused by changes in the blood vessels of the retina.

In some cases with DR, blood vessels may swell and leak fluid, while in other cases, abnormal new blood vessels grow on the surface of the retina. The retina is the light-sensitive tissue at the back of the eye. A healthy retina is necessary for good vision.

If you have DR, you may not notice changes to your vision at first. However, DR can get worse overtime and lead to vision loss. DR usually affects both eyes.

The four stages of DR?

Mild Non-proliferative Retinopathy: At the earliest stage, there are small areas of balloon-like swelling in the retina's tiny blood vessels.

Moderate Non-proliferative Retinopathy: As the disease progresses, some blood vessels that nourish the retina are blocked.

Severe Non-proliferative Retinopathy: Many more blood vessels are blocked, depriving several areas of the retina with blood supply. These areas of the retina send signals to the body to grow new blood vessels for nourishment.

Proliferative Retinopathy: At this advanced stage, the signals sent by the retina for nourishment trigger the growth of new blood vessels. This condition is called proliferative retinopathy. These new blood vessels are abnormal and fragile. They grow along the retina and along the surface of the clear, vitreous gel that fills the inside of the eye. By themselves, these blood vessels do not cause symptoms or vision loss. However, they have thin, fragile walls. If they leak blood, severe vision loss and even blindness can result.

Symptoms

A person can have DR for a long time without noticing the symptoms. Symptoms of typical retinopathy do not become noticeable until significant damage has occurred and complications have developed. Symptoms of DR and its complications may include:

- Blurred/Double/Distorted Vision
- Floaters or spots in your vision
- Partial or total loss of vision
- Shadow in vision
- Pain, pressure or constant redness of the eye.

Causes

High blood sugar levels may damage blood vessels throughout the body, leading to reduced blood flow. When these changes impact the blood vessels in the eyes, DR may occur.

In the early stage of DR, tiny blood vessels in the eye weaken and develop small bulges that may burst and leak into the retina. Subsequently, new fragile vessels develop on the surface of the retina. These blood vessels may break and bleed into the eye, blurring vision and causing scar tissue to form.

Detection

Diabetic retinopathy can be detected during a comprehensive eye exam that includes:

1. **Visual acuity test.** This eye chart test measures how well you see at various distances.
2. **Dilated eye exam.** Drops are placed in your eyes to widen, or dilate, the pupils. This allows the eye care professional to see more of the inside of your eyes to check for signs of the disease. Your eye care professional uses a special magnifying lens to examine your retina and optic nerve for signs of damage and other eye problems. After the exam, your close-up vision may remain blurred for several hours.
3. **Tonometry.** An instrument measures the pressure inside the eye. Numbing drops may be applied to your eye for this test.

Your eye care professional checks your retina for early signs of the disease, including:

- Leaking blood vessels, Retinal swelling (macular edema), Pale, fatty deposits on the retina--signs of leaking blood vessels, Damaged nerve tissue, Any changes to the blood vessels.