

# Diabetes and Blindness

BY REBECA SCHILLER

**T**he good news on diabetes: the rate of newly diagnosed cases has fallen, according to the U.S. Centers of Disease Control and Prevention (CDC). However, the number of Americans with diabetes remains high, with more than 29 million people with the disease, the CDC says. Add to this figure another 86 million with pre-diabetes, a condition that increases the risk of Type 2 diabetes.

One of the many complications of the disease is diabetic retinopathy, a leading cause of blindness among adults in this country. In a study conducted earlier this year by the American Academy of Ophthalmology, the prevalence rate for retinopathy for adults with diabetes is 28.5%, or 4.2 million people. By 2020, the academy projects that 6 million people will be diagnosed with diabetic retinopathy.

Diabetic retinopathy can affect individuals diagnosed with Type 1 or Type 2 diabetes. According to Dr. Joshua Miller, medical director of diabetes care at Stony Brook Medicine, Type 1 diabetes is an autoimmune condition that damages the pancreas, preventing them from producing insulin. In Type 2 diabetes, the body produces insulin but muscles and tissues become resistant to it. As the pancreas makes more insulin and the body becomes even more resistant, blood sugar levels become elevated.

There are two types of diabetic retinopathy: non-proliferative diabetic retinopathy (NPDR) and proliferative diabetic retinopathy (PDR).

The early stages of the disease are asymptomatic, but as it progresses, the blood vessels in the retina are weakened. Micro aneurysms—tiny bulges in the vessels—may leak fluid into the retina that can lead to swelling of the macula. As the disease advances to the more severe PDR, circulation problems deprive oxygen to the retina. The body, in its attempt to heal itself, forms new blood vessels, known as vascular endothelial growth factor (VEGF). However, these fragile vessels can begin to grow in the retina and into the gel-like fluid that fills the eye. The new blood vessels also may leak blood into the vitreous, which can cloud vision.

Medical experts say PDR can cause significant vision loss and even blindness from damage to the retina and the optic nerve. Dr. David Rosenthal, an endocrinologist at Nassau University



Medical Center says the best way to prevent diabetic retinopathy “is to keep the blood sugar normal or as close to normal as possible.”

## Treatments

Because the early stages of the disease show no symptoms, medical experts recommend patients have an annual eye examination where the eyes are dilated and the pupil is enlarged so that the entire retina can be examined.

According to Dr. Meenakshi Gupta, an ophthalmologist at New York Eye and Ear Infirmary in Mount Sinai, “The first thing we focus on, in terms of treatment, is making sure you are medically well-treated. That’s the foundation of everything. You have to have your blood sugar, blood pressure, and your lipids all under control. A lot of this is done, in concert, with the primary physician, either the primary care provider or the endocrinologists.”

Gupta says laser treatment is often recommended for patients who have developed PDR. With this procedure, laser sparks are applied to the retina in areas of poor blood supply, she says. This helps control the development of abnormal vessels that can lead to scar tissue and bleeding. “The laser treatment has shown to significantly reduce the complications that are associated with PDR,” said Gupta.

An alternative treatment is intravitreal injections into the eye. The medication inhibits VEGF or the formation of fragile blood vessels.

Focal laser is another treatment used to seal leaking blood vessels and minimize swelling near the macula.

Gupta says patients with hemorrhaging in the eye may need vitrectomy surgery if the blood doesn’t go away



on its own. “During the surgery, the gel in the eye is removed and laser treatment is applied,” she says. “The reason we have to do this is because often the blood prohibits the treatment with laser. If somebody is bleeding, it means they have a lot of these abnormal blood vessels, and we need to stop the formation,” says Gupta.

**November is Diabetic Eye Disease Month, and medical experts recommend these preventative steps for patients with the potential to develop the disease:**

- Get a dilated eye exam once a year.
- Make sure all medical reports are forwarded to both primary care doctor and to the endocrinologist to discuss the next steps in treatment.

**It’s important for individuals to make diabetes prevention a priority if they’re overweight or have a family history of the disease, says Virginia Peragallo-Dittko, executive director of the Diabetes and Obesity Institute at Winthrop-University Hospital.**

**For Type 2 diabetes, losing weight not only will lower blood sugar levels but will also increase sensitivity to insulin. The Mayo Clinic recommends the following lifestyle changes:**

- Eat a healthy, low-fat diet.
- Exercise for at least 30 minutes, five or more days per week.