Glaucoma

What is Glaucoma?

Glaucoma is a group of disorders that damage the eye’s optic nerve, resulting in vision loss or blindness. In most cases, the nerve damage is caused by increased pressure inside the eye.

In healthy eyes, fluid is continually produced and drained. However, if the eye produces too much fluid or the drainage canals do not work correctly, the fluid can build up in the eye. As a result, nerve fibers in the optic nerve are destroyed, leading to vision loss. Patients with glaucoma typically lose peripheral vision first. If not treated promptly, this can progress to central vision loss and blindness.

Forms of Glaucoma

- **Primary open-angle glaucoma (POAG)**, also called primary or chronic glaucoma, accounts for 90 percent of all glaucoma cases. This type of glaucoma is hereditary and happens when the drainage canals (called the trabecular meshwork) become clogged. POAG develops gradually, often with no early warning signs.

- **Acute and chronic angle-closure glaucomas** happen when the iris blocks the drainage opening. Acute angle-closure glaucoma is a medical emergency. It happens when the eye pressure rises very quickly, causing eye pain, headaches, halos around lights, dilated pupils, vision loss, red eyes, and nausea and vomiting. If symptoms persist, the condition can become chronic.

- **Normal-tension glaucoma** occurs when the optic nerve is damaged, even though the eye pressure is not very high. It is unclear why the optic nerves in some people become damaged, even though they have near-normal pressure levels.

- **Congenital glaucoma** occurs in babies when there is incorrect or incomplete development of the eye’s drainage canals during the prenatal period. This is a rare condition that may be inherited. Microsurgery can often correct the structural defects. Other cases are treated with medication and surgery.

Other, less common forms include secondary glaucoma, pigmentary glaucoma, neovascular glaucoma, traumatic glaucoma, uveitic glaucoma, irido corneal endothelial syndrome, pseudoexfoliation syndrome, and anterior segment dysgenesis syndromes.

Once vision is lost from glaucoma, it cannot be restored. Therefore, prompt diagnosis and careful monitoring is essential.
Causes and Risk Factors

The exact cause of optic nerve damage from glaucoma is still unclear. Although glaucoma is much more common in older adults, it can develop at any age. You may have an increased risk if you:

- Are older than 60 years
- Have a family history of glaucoma
- Have diabetes
- Are of African, Hispanic, or Asian descent
- Have a history of eye injuries or have had multiple eye surgeries for chronic eye conditions
- Are very nearsighted or farsighted

Symptoms

In most cases, glaucoma develops slowly. It typically affects peripheral vision first, but symptoms may go unnoticed for several years because visual acuity is maintained until late in the disease. In the advanced stage of the disease, you may notice blind spots in your central vision. Without proper treatment, glaucoma can lead to blindness.

However, with regular eye exams, early detection, and treatment, vision loss can often be prevented or minimized.

Diagnosis

During a glaucoma exam, your ophthalmologist will:

- Take your medical and family histories
- Measure your eye pressure
- Inspect your eye’s drainage angle
- Examine your optic nerve for damage
- Test your peripheral vision
- Take a picture or computer measurement of your optic nerve
- Measure the thickness of your cornea

Genetic testing may be recommended if you or a family member develop the disease before age 50. Among its many benefits, genetic testing can be used to diagnose disease, improve the accuracy of a patient’s prognosis, identify gene mutations that could be passed on to children, and help guide genetic counseling.
Treatment

If you are diagnosed with glaucoma, your doctor will develop a treatment plan that aims to lower your eye pressure. It is important to have your eye doctor check your pressure regularly so that he or she can prescribe proper treatment and prevent further vision loss.

Many patients are able to manage their glaucoma with prescription eye drops, such as prostaglandin analogs, beta blockers, alpha agonists, carbonic anhydrase inhibitors, and combination therapies. However, if medications are unsuccessful, surgery may be necessary to improve fluid drainage or reduce fluid production.

7 Habits that may Prevent or Slow Progression of Glaucoma

1) **Eat lots of leafy green vegetables**
   Leafy greens are loaded with nitrate, which your body converts to nitric oxide. Nitric oxide helps maintain optimal blood flow and potentially keeps eye pressure low. Eating two salads a day with romaine and leafy greens can lead to a 60 percent reduction in developing paracentral glaucoma.

2) **Protect your eyes from the sun—and start young**
   When you're out in the sun, wear sunglasses that protect you from 99 to 100 percent of both UVA and UVB light. These UV rays could lead to clogged drainage canals, dialing up pressure in the eye. Less eye exposure to the sun will likely result in fewer cataracts and will help prevent exfoliation glaucoma.

3) **Keep your teeth clean**
   Brush your teeth twice a day and make regular visits to your dentist to keep both your teeth and your eyes in top shape. Recent tooth loss from periodontal disease may be linked to primary open-angle glaucoma.

4) **Get your blood sugar in check**
   If your blood sugar is borderline, take steps to get it under control with diet and exercise. People with higher blood sugar levels tend to have higher eye pressures, which is a contributor to the development of glaucoma.
5) Exercise in moderation
Exercise moderately to lower your eye pressure and improve your overall health. But some data suggest that exercising to exhaustion and some inversion postures in yoga may be bad for glaucoma.

6) If you have a family history of glaucoma, get checked early and often
Find out if glaucoma runs in your family. If it does, you should have a comprehensive dilated eye exam every one to two years.

7) Maintain a healthy body weight
Patients with a very high body mass index (BMI) have higher pressure in their eyes, and those with a really low BMI are at risk for primary open-angle glaucoma, as pressure around the brain is low and pushes the optic nerve inward.