

Glaucoma—The Basics

Glaucoma is a disease of the optic nerve, which transmits the images you see from the eye to the brain. The optic nerve is made up of many nerve fibers (like an electric cable with its numerous wires). Glaucoma damages nerve fibers, which can cause blind spots and vision loss.

Glaucoma has to do with the pressure inside the eye, known as **intraocular pressure (IOP)**. When the aqueous humor (a clear liquid that normally flows in and out of the eye) cannot drain properly, pressure builds up in the eye. The resulting increase in IOP can damage the optic nerve and lead to vision loss.

The most common form of glaucoma is **primary open-angle glaucoma**, in which the aqueous fluid is blocked from flowing back out of the eye at a normal rate through a tiny drainage system. Most people who develop primary open-angle glaucoma notice no symptoms until their vision is impaired.

Ocular hypertension is often a forerunner to actual open-angle glaucoma. When ocular pressure is above normal, the risk of developing glaucoma increases. Several risk factors will affect whether you will develop glaucoma, including the level of IOP, family history, and corneal thickness. If your risk is high, your ophthalmologist (Eye M.D.) may recommend treatment to lower your IOP to prevent future damage.

In **angle-closure glaucoma**, the iris (the colored part of the eye) may drop over and completely close off the drainage angle, abruptly blocking the flow of aqueous fluid and leading to increased IOP or optic nerve damage. In acute angle-closure glaucoma there is a sudden increase in IOP due to the buildup of aqueous fluid. This condition is considered an emergency because optic nerve damage and vision loss can occur within hours of the problem. Symptoms can include nausea, vomiting, seeing halos around lights, and eye pain.

Even some people with “normal” IOP can experience vision loss from glaucoma. This condition is called **normal-tension glaucoma**. In this type of glaucoma, the optic nerve is damaged even though the IOP is considered normal. Normal-tension glaucoma is not well understood, but lowering IOP has been shown to slow progression of this form of glaucoma.

Childhood glaucoma, which starts in infancy, childhood, or adolescence, is rare. Like primary open-angle glaucoma, there are few, if any, symptoms in the early stage. Blindness can result if it is left untreated. Like most types of glaucoma, childhood glaucoma may run in families. Signs of this disease include:

- clouding of the cornea (the clear front part of the eye);
- tearing; and
- an enlarged eye.

Your ophthalmologist may tell you that you are at risk for glaucoma if you have one or more risk factors, including having an elevated IOP, a family history of glaucoma, certain optic nerve conditions, are of a particular ethnic background, or are of advanced age. Regular examinations with your ophthalmologist are important if you are at risk for this condition.

The goal of glaucoma treatment is to lower your eye pressure to prevent or slow further vision loss. Your ophthalmologist will recommend treatment if the risk of vision loss is high. Treatment often consists of eyedrops but can include laser treatment or surgery to create a new drain in the eye. Glaucoma is a chronic disease that can be controlled but not cured. Ongoing monitoring (every three to six months) is needed to watch for changes. Ask your ophthalmologist if you have any questions about glaucoma or your treatment.