Understanding
Glaucoma

National Glaucoma Research

What is Glaucoma?

Glaucoma is not just one disease, but a group of eye diseases that damage the optic nerve—the bundle of nerve fibers that carries information from the eye to the brain.

More than 60 million people around the globe have glaucoma. In the United States, an estimated 3 million people have the disease, but as many as half of them may not even know it.

The most common types of glaucoma often have no symptoms until irreversible damage to the eye has already occurred and vision loss has begun. That's why glaucoma is sometimes called the "sneak thief of sight," and why regular screening and early detection are so important in glaucoma.

Glaucoma often has no symptons until persons begin to lose their peripheral vision.

How Glaucoma Damages Vision

Most forms of glaucoma are characterized by high intraocular pressure (IOP), which is the fluid pressure inside the eye.

IOP is maintained at normal levels when some of the circulating fluid (aqueous humor) produced by the eye is able to leave the eye through its built-in drainage pathway. Then the aqueous humor flows out through a spongy tissue at the front of the eye called the trabecular meshwork, into a drainage canal.

In the more common forms of glaucoma, fluid cannot flow effectively through the trabecular meshwork, causing an increase in IOP. This compresses the back of the eye and is associated with damage to the optic nerve, leading to vision loss.

There are additional types of glaucoma where optic nerve damage may occur even with normal IOP.

Types of Glaucoma & Risk Factors

Some of the risk factors for glaucoma, such as, eye pressure and the condition of your cornea and optic nerve, are things you won't know unless you've seen an eye doctor. That's why it's important to get comprehensive dilated eye exams on a regular basis, starting at the right age for your risk category.

However, there are some general risk factors to keep in mind for each type of glaucoma.

Open-Angle Glaucoma

This is the most common form of glaucoma, occurring in 70-90 percent of people with the disease. Open-angle glaucoma has few or no symptoms until peripheral (side) vision loss has already begun.

Strong Risk Factors for Open-Angle Glaucoma

- High eye pressure
- Family history of glaucoma (increases risk by four to nine times)
- Age 40 and older for African Americans
- Age 60 and older for the general population, and particularly for Hispanic/Latinos

Other possible risk factors include high myopia (severe nearsightedness), diabetes, eye surgery or injury, high blood pressure, and use of corticosteroids (for example; eye drops, pills, inhalers, and creams).

Angle-Closure Glaucoma

This is the second most common type of glaucoma. A largely inherited disorder, it's caused by a too-narrow angle in the passageway where aqueous fluid would normally flow. Risk factors include age 40 and older, family history of glaucoma, farsightedness, eye injury or surgery, and East Asian and Inuit ethnicity.

Chronic Angle-Closure Glaucoma can progress slowly and can damage the eye with no apparent symptoms.

Acute Angle-Closure Glaucoma occurs suddenly when the flow of aqueous humor between the iris and the lens is blocked. This is a rare medical emergency, with symptoms that include severe pain, nausea/vomiting, and blurred vision with a rainbow halo around lights. It must be treated immediately or blindness could result in one or two days.

Normal-Tension Glaucoma

This type of glaucoma often has no symptoms until loss of peripheral vision has already started. Risk factors include cardiovascular disease, family history of glaucoma, low eye pressure, and Japanese ethnicity.

Other types of glaucoma include congenital (an inherited condition affecting infants born with angle-closure defects), juvenile (open-angle glaucoma affecting children and young adults), and secondary (resulting from some other medical condition in the eye or body).
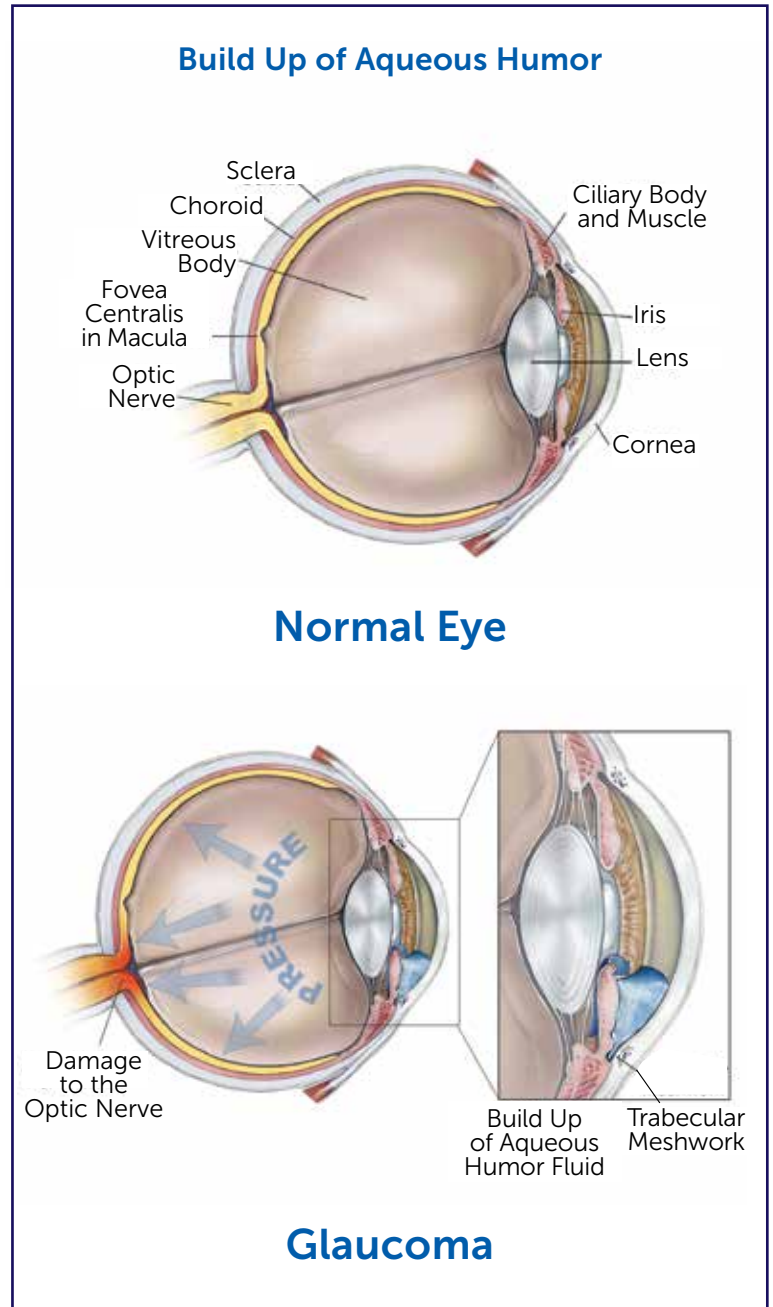
Build Up of Aqueous Humor

Sclera
Choroid
Vitreous Body
Fovea Centralis in Macula
Optic Nerve
Ciliary Body and Muscle
Iris
Lens
Cornea

Normal Eye

PRESSURE

Damage to the Optic Nerve

Build Up of Aqueous Humor Fluid
Trabecular Meshwork

Glaucoma

Illustration by Bob Morreale, provided courtesy of BrightFocus Foundation.

Tips for Lowering Your Risk

- Nourish the eyes with a healthy diet, especially dark leafy greens.

- Maintain healthy weight, blood pressure, and cholesterol levels.

- Don't smoke.

- Limit caffeine.

- Exercise.

- Wear sunglasses and hats outdoors.

- Get comprehensive, dilated eye exams, as recommended by your eye doctor, beginning at the right age for your risk category (for example, beginning at age 40 if you are African American).

How is Glaucoma Diagnosed and Treated?

- Comprehensive, dilated eye exams and optic nerve imaging (pictures) help doctors monitor the health of the optic nerve and other parts of the eye over time.

- Glaucoma is often treated with pressure-lowering eye drops, and sometimes with laser or surgical procedures to reopen eye drainage pathways.

- Sometimes surgery may be used to implant a device, such as a tube or shunt, into the eye to create a new drainage channel.

After Diagnosis: Essential Questions to Ask Your Eye Doctor

☐ What kind of glaucoma do I have?

☐ Can you show me how to properly use my eye drops?

☐ What kind of side effects could result from my glaucoma medications?

☐ Are you aware of any new information or research concerning glaucoma?

☐ How often do I need a comprehensive eye exam?

☐ Should I participate in a clinical trial?

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