

If you have any questions about your eyes or your treatment, talk to your ophthalmologist.

Summary

Glaucoma is a disease that can damage the eye's optic nerve. When the optic nerve is damaged, it can cause blindness.

Ophthalmologists treat glaucoma with medicine and surgery. Because glaucoma has no symptoms, it is important to see your ophthalmologist regularly, who will check for eye and vision changes.

If you have any questions about your eyes or your vision, speak with your ophthalmologist. They are committed to protecting your sight.

Glaucoma is a silent thief of sight.

Glaucoma has no symptoms in its early stages. In fact, half the people with glaucoma do not know they have it! Having regular eye exams can help your ophthalmologist find this disease before you lose vision. Your ophthalmologist can tell you how often you should be examined.

Your role in glaucoma treatment

Treating glaucoma successfully is a team effort between you and your doctor. Your ophthalmologist will prescribe your glaucoma treatment. It is up to you to follow your doctor's instructions and use your eye drops.

Once you are taking medications for glaucoma, your ophthalmologist will want to see you regularly. You can expect to visit your ophthalmologist about every 3 to 6 months. However, this can vary depending on your treatment needs.

It is usually hidden under the upper eyelid and cannot be seen. Aqueous humor will be able to drain out of the eye through the flap and into the bleb. In the bleb, the fluid is absorbed by tissue around your eye, lowering eye pressure.

- **Glaucoma drainage devices.** Your ophthalmologist may implant a tiny drainage tube in your eye. It sends the fluid to a collection area (called a reservoir). Your eye surgeon creates this reservoir beneath the conjunctiva (the thin membrane that covers the inside of your eyelids and white part of your eye). The fluid is then absorbed into nearby blood vessels.

- **Cataract surgery.** For some people with narrow angles, removing the eye's natural lens can lower eye pressure. With narrow angles, the iris and the cornea are too close together. This can cover (block) the eye's drainage channel. Removing the eye's lens with cataract surgery creates more space for fluid to leave the eye.

usually done in the ophthalmologist's office or an outpatient surgery center.

- **Trabeculoplasty.** This surgery is for people who have open-angle glaucoma, and can be used instead of or in addition to medications. The eye surgeon uses a laser to make the drainage angle work better. That way fluid flows out properly and eye pressure is reduced.

- **Iridotomy.** This is for people who have angle-closure glaucoma. The ophthalmologist uses a laser to create a tiny hole in the iris. This hole helps fluid flow to the drainage angle.

Operating room surgery. Some glaucoma surgery is done in an operating room. It creates a new drainage channel for the aqueous humor to leave the eye.

- **Trabeculectomy.** This is where your eye surgeon creates a tiny flap in the sclera (white of your eye). He or she will also create a bubble (like a pocket) in the conjunctiva called a filtration bleb.

- changes in breathing (especially if you have asthma or breathing problems)
- dry mouth
- blurred vision
- eyelash growth
- changes in your eye color, the skin around your eyes or eyelid appearance.

All medications can have side effects. Some drugs can cause problems when taken with other medications. It is important to give your doctor a list of every medicine you take regularly. Be sure to talk with your ophthalmologist if you think you may have side effects from glaucoma medicine.

Never change or stop taking your glaucoma medications without talking to your ophthalmologist. If you are about to run out of your medication, ask your ophthalmologist if you should have your prescription refilled.

Laser surgery. There are two main types of laser surgery to treat glaucoma. They help aqueous drain from the eye. These procedures are

How is glaucoma treated?

Glaucoma damage is permanent—it cannot be reversed. But medicine and surgery help to stop further damage. To treat glaucoma, your ophthalmologist may use one or more of the following treatments.

Medication. Glaucoma is usually controlled with eye drop medicine. Used every day, these eye drops lower eye pressure. Some do this by reducing the amount of aqueous fluid the eye makes. Others reduce pressure by helping fluid flow better through the drainage angle.

Glaucoma medications can help you keep your vision, but they may also produce side effects. Some eye drops may cause:

- a stinging or itching sensation
- red eyes or red skin around the eyes
- changes in your pulse and heartbeat
- changes in your energy level

The American Academy of Ophthalmology is the world's largest association of eye physicians and surgeons. A global community of 32,000 medical doctors, we protect sight and empower lives by setting the standards for ophthalmic education and advocating for our patients and the public. For more information, visit www.aao.org.

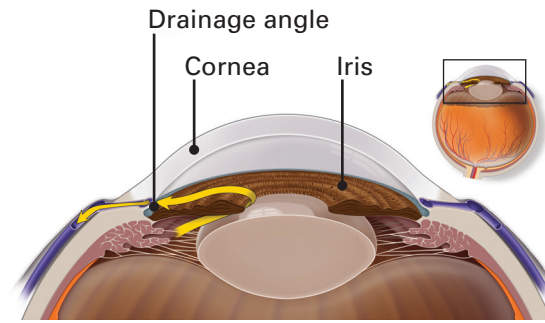
COMPLIMENTS OF:

Watch a glaucoma video from the American Academy of Ophthalmology's EyeSmart program at aao.org/glaucoma-link.

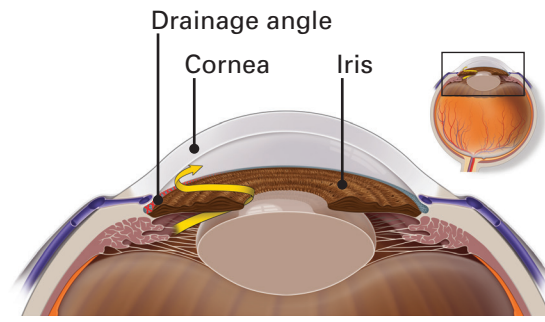
©2023 American Academy of Ophthalmology
051189-10 Academy reviewed 03/23 978-1-61525-512-2

What is glaucoma?

Glaucoma is a disease that damages your eye's **optic nerve**. It usually happens when fluid builds up in the front part of your eye. That extra fluid increases the pressure in your eye, damaging the optic nerve.



In a healthy eye, fluid leaves the eye through the drainage angle, keeping pressure stable.



If the drainage angle is blocked, fluid cannot flow out of the eye, causing pressure to increase.

Glaucoma is a leading cause of blindness for people over 60 years old. But blindness from glaucoma can often be prevented with early treatment.

What causes glaucoma?

Your eye constantly makes **aqueous humor**. As new aqueous flows into your eye, the same amount should

drain out. The fluid drains out through an area called the **drainage angle**. This process keeps pressure in the eye (called intraocular pressure or IOP) stable. But if the drainage angle is not working properly, fluid builds up. Pressure inside the eye rises, damaging the optic nerve.

The optic nerve is made of more than a million tiny nerve fibers. It is like an electric cable made up of many small wires. As these nerve fibers die, you will develop blind spots in your vision. You may not notice these blind spots until most of your optic nerve fibers have died. If all of the fibers die, you will become blind.

Types of glaucoma

There are two major types of glaucoma.

Open-angle glaucoma. This is the most common type of glaucoma. It happens gradually, where the eye does not drain fluid as well as it should (like a clogged drain). As a result, eye pressure builds and starts to damage the optic nerve. This type

of glaucoma is painless and causes no vision changes at first.

Some people can have optic nerves that are sensitive to normal eye pressure. This means their risk of getting glaucoma is higher than normal. Regular eye exams are important to find early signs of damage to their optic nerve.

Angle-closure glaucoma (also called "closed-angle glaucoma" or "narrow-angle glaucoma"). This type happens when someone's **iris** is very close to the drainage angle in their eye. The iris can end up blocking the drainage angle. You can think of it like a piece of paper sliding over a sink drain. When the drainage angle gets completely blocked, eye pressure rises very quickly. This is called an acute attack. It is a true eye emergency, and you should call your ophthalmologist right away or you might go blind.

Here are the signs of an acute angle-closure glaucoma attack:

- Your vision is suddenly blurry
- You have severe eye pain

- You have a headache
- You feel sick to your stomach (nausea)
- You throw up (vomit)
- You see rainbow-colored rings or halos around lights

Many people with angle-closure glaucoma develop it slowly. This is called chronic angle-closure glaucoma. There are no symptoms at first, so they don't know they have it until the damage is severe or they have an attack.

Angle-closure glaucoma can cause blindness if not treated right away.

Normal tension glaucoma. People with "normal tension glaucoma" have eye pressure that is within normal ranges, but show signs of glaucoma, such as blind spots in their field of vision and optic nerve damage.

Glaucoma suspects. Some people have no signs of damage but have higher than normal eye pressure (called ocular hypertension). These patients are considered "glaucoma suspects" and have a higher risk of eventually developing glaucoma.

Who is at risk for glaucoma?

Some people have a higher than normal risk of getting glaucoma. This includes people who:

- are over age 40
- have family members with glaucoma
- are of African, Hispanic or Asian heritage
- have high eye pressure
- are farsighted or nearsighted
- have had an eye injury
- use long-term steroid medications
- have corneas that are thin in the center
- have thinning of the optic nerve
- have diabetes, high blood pressure, migraines, poor blood circulation or other health problems affecting the whole body

Talk with an ophthalmologist about your risk for getting glaucoma. People with more than one of these risk factors have an even higher risk of glaucoma.



Visual field testing is used to monitor peripheral, or side, vision

How is glaucoma diagnosed?

The only sure way to diagnose glaucoma is with a complete eye exam. A glaucoma screening that only checks eye pressure is not enough to find glaucoma.

During a glaucoma exam, your ophthalmologist will:

- measure your eye pressure
- inspect your eye's drainage angle
- examine your optic nerve for damage
- test your peripheral (side) vision
- take a picture or computer measurement of your optic nerve
- measure the thickness of your cornea