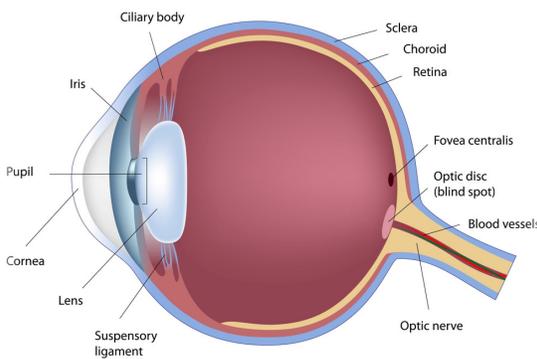


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# Glaucoma

ACCORDING TO THE WORLD HEALTH ORGANIZATION, GLAUCOMA IS THE SECOND LEADING CAUSE OF BLINDNESS IN THE WORLD.

Human Eye Anatomy



## THE OPTIC NERVE

The optic nerve is a bundle of more than 1 million fibers, which connects the retina to the brain. This is the part of the eye that carries visual information from the eye to the brain. The optic nerve is located at the very back of the eye.

Glaucoma is a disease in which damage to the optic nerve leads to progressive, irreversible vision loss. According to Glaucoma.org, glaucoma is the second leading cause of blindness. Glaucoma is a group of diseases consisting of Primary Open-Angle Glaucoma, Angle-Closure Glaucoma and Normal-Tension Glaucoma.

The most common, Primary open-angle glaucoma, affects about three million Americans. This disease is hereditary and happens when the eye's drainage canals become clogged over a period of time. The clogged canal causes the inner eye pressure, intraocular pressure or IOP, to rise due to the correct amount of fluid not being able to drain from the eye. Most people do not have any warning signs or symptoms of the disease. If left untreated, open-angle glaucoma can cause a gradual loss of vision. If caught and treated, the disease usually responds well to medication.

Angle-Closure Glaucoma, also known as acute glaucoma or narrow angle glaucoma, is less common and differs greatly from open-angle glaucoma, in that the eye pressure usually rises very quickly when the drainage canal becomes blocked and/or covered completely. Those individuals that have closed-angle glaucoma have an iris that is not as wide and open as it should be, causing the iris to bunch up over the drainage canal when the pupil enlarges too much or too quickly. Symptoms of this disease include: headaches, nausea, rainbows around lights, eye pain and blurred vision. Laser or conventional surgery is used to treat angle-closure glaucoma, which helps to unblock the drainage canal.

Normal-Tension Glaucoma, also known as low-tension or normal-pressure glaucoma, occurs when the optic nerve is damaged, but the eye pressure does not spike. Ophthalmologists are uncertain why some individuals who have a damaged optic nerve do not have abnormal eye pressure levels. Those at risk for normal-tension glaucoma are individuals with a family history of the disease, those with Japanese ancestry, and patients with a history of systemic heart disease.

## CONTACT INFORMATION

ProAct, Inc.  
6333 Route 298, Suite 210  
East Syracuse, NY 13057

Syracuse, Newark, Orlando, Houston,  
Chicago, New York, Minneapolis



According to the Glaucoma Foundation:  
Glaucoma accounts for over 10 million  
visits to physicians each year.

## DETECTION

There is no cure for glaucoma, and vision loss from the disease cannot be restored. Therefore, getting tested for the disease is extremely important. Glaucoma is detected through a comprehensive dilated eye exam that includes the following:

- Visual Acuity Test – measures how well you see at various distances
- Visual Field Test – measures your peripheral (side) vision
- Dilated Eye Exam – examination of the retina and optic nerve for signs of damage
- Tonometry - measures pressure inside the eye
- Pachymetry – measures the thickness of the cornea

## TREATMENT

Early diagnosis of glaucoma is extremely important, especially in the instances of open-angle glaucoma. Immediate treatment in the early stages can delay progress of the disease. Treatments for the disease include: medications, laser trabeculoplasty, conventional surgery or a combination of treatments. These remedies can save the remaining vision, but do not improve loss of sight.

**ALPHA AGONISTS:** Decrease production of fluid and increase drainage

- Alphagan (Brimonidine Tartrate)
- Iopidine (Apraclonidine)

**BETA BLOCKERS:** Decrease production of intraocular fluid

- Timoptic-XE, Istalol, Timolol (Timolol Maleate)
- Betoptic (Betaxolol)
- Betimol (Timolol Hemihydrate)

**CARBONIC ANHYDRASE INHIBITORS:** Reduce eye pressure by decreasing the production of intraocular fluid.

- Azopt (Brinzolamide)
- Trusopt (Dorzolamide)
- Diamox Sequels (Acetazolamide)

**CHOLINERGIC:** Reduce eye pressure by increasing the drainage of intraocular fluid through the trabecular meshwork. Cholinergics can be used alone or combined with other glaucoma medications.

- Iopto Carpine (Pilocarpine)
- Iopto Carbachol (Carbachol)

**COMBINED MEDICATIONS**

- Combigan (Brimonidine Tartrate & Timolol): Beta blocker and Alpha agonist
- Cosopt (Dorzolamide & Timolol Maleate): Beta blocker and Carbonic Anhydrase inhibitor
- Simbrinza (Brinzolamide/Brimonidine Tartrate): Carbonic Anhydrase inhibitor and Alpha agonist

**PROSTAGLANDIN ANALOGS:** Increase the outflow of intraocular fluid from the eye. These medications are known to change the color of the iris.

- Travatan (Travaprost)
- Lumigan (Bimatoprost)
- Xalatan (Latanoprost)