



How well *do* you see?

About Glaucoma

What is glaucoma?

Glaucoma is a progressive eye disease that damages the optic nerve.¹ Because the optic nerve transmits information from the eye to the brain,¹ glaucoma can result in a gradual, irreversible loss of vision and eventual blindness.² High eye pressure, or intraocular pressure (IOP), is often present and is the only modifiable risk factor for glaucoma.³ Primary open-angle glaucoma and narrow-angle glaucoma are the two main types of glaucoma.

- **Primary open-angle glaucoma:** Also called wide-angle glaucoma, this accounts for nearly 90% of all cases of glaucoma, and is often asymptomatic, so symptoms are undetected until an advanced stage.² During normal eye function, a clear fluid called aqueous flows constantly in and then out of the eye's anterior chamber - a space at the front of the eye.¹ The fluid nourishes nearby tissues and drains out through an opening called the angle where the cornea meets the iris.¹ At the base of the angle is the trabecular meshwork, which allows fluid to leave and drain from the anterior chamber.² If it drains too slowly, pressure can increase, potentially causing damage to the optic nerve.²
- **Narrow-angle glaucoma:** Also called acute or angle-closure glaucoma, this type is most common in people of Asian heritage and people who are far-sighted.² With this type of glaucoma, the angle between the iris and cornea is narrower than normal, making it difficult for the eye's fluid to drain, causing sudden buildup of pressure in the eye. Symptoms may include headaches, eye pain, nausea, rainbows around lights at night and blurred vision.

Other types of glaucoma are normal tension glaucoma, congenital glaucoma, secondary glaucoma, pigmentary glaucoma, pseudoexfoliative glaucoma, traumatic glaucoma, neovascular glaucoma and irido corneal endothelial syndrome.

What causes glaucoma?

Glaucoma typically causes increased IOP; however, even patients with a normal range of IOP can develop glaucoma. The exact cause of glaucoma is unknown. In addition to having increased IOP, other risk factors include:⁴

- **Age:** People over 60 are more likely to get glaucoma. For African-Americans, the increase in risk begins after age 40.



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- **Race:** African-Americans are significantly more likely to have glaucoma than Caucasians, and much more likely to suffer permanent vision loss as a result. People of Asian descent are at higher risk of angle-closure glaucoma.
- **Family history:** Having a family history of glaucoma increases the risk of developing the disease.
- **Medical conditions:** Some studies indicate diabetes may increase the risk of developing glaucoma, as do high blood pressure and heart disease.
- **Physical injuries to the eye:** Severe trauma, such as being hit in the eye, can cause damage to the drainage channel.
- **Other eye-related risk factors:** Eye anatomy, particularly reduced corneal thickness and optic nerve appearance, may indicate glaucoma risk. Conditions such as retinal detachment, eye tumors and eye inflammation may also induce glaucoma. Some studies suggest a high level of nearsightedness may also be a risk factor.
- **Corticosteroid use:** Using corticosteroids for a prolonged period of time can put some people at risk for secondary glaucoma.

What are the symptoms of glaucoma?

In the early to middle stages of primary open-angle glaucoma, there are usually no noticeable symptoms until irreversible damage has occurred. As much as 40% of vision can be lost without patients noticing. Narrow-angle glaucoma, however, can cause immediate symptoms.² If these symptoms are experienced, a patient needs to seek treatment immediately, as this is a medical emergency:

- Hazy vision
- Nausea or vomiting
- Pain in the eye
- Redness of the eye
- Blurred vision
- Seeing halos around lights
- Headaches

How is glaucoma diagnosed and treated?

Early diagnosis and treatment of glaucoma is critical to managing the disease. Glaucoma is detected through a comprehensive eye examination by an eye care professional (ECP). It's a condition that must be treated over the course of one's life, and high IOP must be managed every day. Treatment in the form of eye drops and/or surgery can help to lower a patient's IOP.⁵





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There is no cure for glaucoma and vision lost cannot be restored. Glaucoma cannot be prevented, but it can usually be controlled if diagnosed and the major risk factor (high IOP) is treated early.⁴ Medication or surgery can slow or prevent further vision loss.⁴ Because glaucoma can silently progress, compliance with eye medications and examinations are critical. An annual dilated eye examination is recommended for people at risk of glaucoma as a preventive measure.⁴ Depending on the condition, doctors may recommend more frequent examinations.⁴

1. National Eye Institute, Facts About Glaucoma. http://www.nei.nih.gov/health/glaucoma/glaucoma_facts.asp [Accessed July 17, 2014]
2. WebMD, Glaucoma and Your Eyes. <http://www.webmd.com/eye-health/glaucoma-eyes> [Accessed July 17, 2014]
3. Coleman, A., Kodjebacheva, G. Open Ophthalmol J. 2009; 3: 38-42. Risk Factors for Glaucoma Needing more Attention. 2009 Sept. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2759104/> [Accessed July 17, 2014]
4. American Academy of Ophthalmology, What is Glaucoma? <http://www.geteyesmart.org/eyesmart/diseases/glaucoma.cfm> [Accessed July 17, 2014]



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5. Glaucoma Research Foundation. Medication Guide. <http://www.glaucoma.org/treatment/medication-guide.php> [Accessed July 17, 2014]



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