



Research to Prevent Blindness

Advances in Eye Research: Glaucoma

Glaucoma refers to a group of diseases in which the cells and fibers of the optic nerve are damaged, affecting the transmission of visual signals from the eye to the brain. Types of glaucoma include open-angle, angle-closure, low-tension, normal-tension, congenital and secondary.

The condition is usually progressive, so vision loss gets worse over time. At first, there are no detectable symptoms. The brain can compensate for some loss of peripheral vision, or side vision, so you may not be aware of blind areas. Eventually, vision continues to narrow.

Glaucoma can lead to blindness, but rarely does when diagnosed and treated early. According to recent estimates, 2.7 million Americans have glaucoma, and millions more may have the disease and not know it.

Physicians and scientists previously believed that damage from glaucoma was mainly due to increased pressure within the eye, known as intraocular pressure. Medications and conventional or laser surgeries are typically used to reduce the build-up of fluid and lower pressure. These treatments often slow, but may not completely halt, the progression of the disease.

However, experts now understand that there is a wide range of vulnerability of the optic nerve to intraocular pressure, though the reasons for this aren't completely known. In fact, many people can develop glaucoma despite having a normal intraocular pressure, and others can continue to progress even when the intraocular pressure is lowered into a normal range. Moreover, some people with high intraocular pressure may never develop glaucoma.

Risk Factors

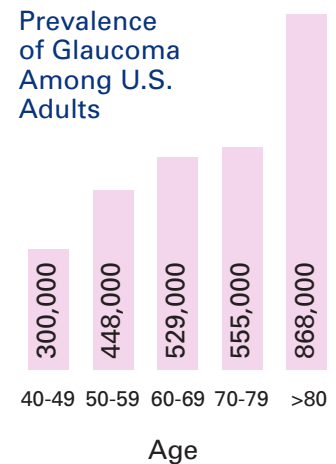
There are several risk factors other than high intraocular pressure for glaucoma, including a family history of the disease. Studies supported by Research to Prevent Blindness (RPB) continue to investigate the most effective ways to address these risk factors and discover new mechanisms that may make an individual's optic nerve more or less susceptible to glaucoma.

- Diabetes, nearsightedness and hypothyroidism, or underactive thyroid, can increase your risk of glaucoma. Work with your doctor to ensure that these conditions are effectively treated.
- People of African-American or Hispanic heritage have a higher risk of the condition, and may benefit from more frequent eye exams.
- People age 35 and older have a higher risk.

Discuss your glaucoma risk factors with an eye care professional. Regular eye exams are important for maintaining eye health, especially if you are experiencing a loss of peripheral vision.

Glaucoma testing is recommended every two to four years before age 40; every one to three years between ages 40 and 54; every one to two years between ages 55 and 64; and every six to 12 months after age 65. Patients at higher risk should be tested every year or two after age 35.

Prevalence of Glaucoma Among U.S. Adults



Source: Prevent Blindness America

A comprehensive glaucoma exam includes tonometry to test inner eye pressure, ophthalmoscopy to review the shape and color of the optic nerve, perimetry to test the field of vision, gonioscopy to view the angle in the eye where the iris meets the cornea and pachymetry to measure the thickness of the cornea.

Undetected vision loss from glaucoma can make driving dangerous.

Recent Strides by Researchers:

- Suggested that the eye's lens may protect the front portion of the eye, where glaucoma begins, from oxygen damage that could lead to the disease.
- Identified that routine glaucoma screening of African Americans could reduce the risk of blindness in this high-risk group.
- Advanced innovative medical and surgical treatments, and identified glaucoma-causing gene mutations.



NORMAL VISION



ADVANCED GLAUCOMA

Hope Through Research

RPB's mission is to preserve and restore vision by supporting research to develop methods to prevent, treat and cure all conditions that damage and destroy sight.

Risk of Blindness from Glaucoma Drops by Half

Researchers reviewed the medical records of patients diagnosed with glaucoma between 1965 and 1980 and compared them with those diagnosed between 1981 and 2000. They found that while a similar number of people were diagnosed, the likelihood of going blind dropped by one half, from 25.8 percent to 13.6 percent. Though there is more work to be done to better diagnose and treat this condition, it's likely that early diagnosis and awareness of glaucoma has led to the preservation of vision for many people.

Laser Surgery More Effective Than Medication for Certain Patients

Studies have demonstrated that nearly one-third of all people with glaucoma are not able to take their eye drop medications regularly, due to forgetfulness, cost, side effects, difficulty with using the eye drops and other reasons. Even though medications and surgery are both effective treatment options for the condition, laser surgery may be the better choice for these patients.

Invest in Your Vision

You can join RPB in supporting critical research in the fight against vision loss by sending your tax-deductible donation to the address shown below or online at www.rpbusa.org. RPB is a public 501(c)(3) foundation.



Research to Prevent Blindness

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Since 1960, RPB has led a research effort to preserve vision and restore sight, supporting nearly every major development in the treatment of blinding disorders.