



# Diagnosis of Glaucoma

Several tests can help your eye doctor detect glaucoma. Individuals at high risk for glaucoma should have a dilated pupil eye examination at least every two years.

Tests involved in the diagnosis of glaucoma include:

- **Tonometry** measures the pressure inside the eye. The following are examples of tonometers:

One is the *air puff, or noncontact tonometer*, that emits a puff of air. The eye's resistance to the air indicates the eye pressure. Another is the *applanation tonometer* which actually touches the eye's surface after your doctor has placed drops in both your eyes to numb them. The applanation tonometer measures the amount of pressure necessary to flatten the cornea. The applanation tonometer is the most sensitive. But, the patient must have a clear, regularly-shaped, cornea in order for the applanation tonometer to function properly. Finally, the *electronic indentation method* uses a digital pen-like instrument to measure pressure. This also requires that the instrument make contact with the cornea after anesthetic drops have been applied to the eyes.

- **Pupil dilation** involves the use of special drops that temporarily enlarge the pupil so that the eye doctor can obtain a better view of the inside of the eye.
- **Visual field testing** measures the entire area that can be seen when the eye is looking forward. This documents straight-ahead (central) and/or side (peripheral) vision. This test measures the dimmest light that can be seen at each spot tested. The test requires the patient to respond to the appearance of light by pressing a button every time a flash of light is perceived.
- **Visual acuity** measures how well you see at various distances. While seated 20 feet away from an eye chart, the patient is asked to read standardized visual charts with each eye. The test will be performed with and without corrective lenses.

- **Pachymetry** involves using an ultrasonic wave instrument to help determine the thickness of the cornea. This test can help your doctor better evaluate your eye pressure readings.
- **Ophthalmoscopy** allows the eye doctor to examine the interior of the eye by looking through the pupil with a special instrument. It is helpful in detecting damage to the optic nerve that is due to the effects of glaucoma.
- **Gonioscopy** allows the doctor to view the front part of the eye (anterior chamber) to determine if the iris is closer to the back of the cornea than usual. This test can help diagnose closed-angle glaucoma.
- **Optic nerve imaging** helps the eye doctor document how the optic nerve changes over time. Scanning laser polarimetry (GDx), confocal scanning laser ophthalmoscopy (Heidelberg Retinal Tomograph or HRT II), and optical coherence tomography (OCT) are all examples of optic nerve imaging techniques. All three imaging techniques are painless and non-invasive. The patient's eye doctor will make the determination as to which method(s) to use.

---

Some of the information in this fact sheet was obtained from the National Eye Institute and the National Library of Medicine. The above information should not in any way substitute for the advice of a qualified health care professional and is not intended to constitute medical advice. For further information, contact National Glaucoma Research, a program of the American Health Assistance Foundation, at 22512 Gateway Center Drive, Clarksburg, Maryland 20871, call 1-800-437-2423, or visit our website at [www.ahaf.org](http://www.ahaf.org).

Spring 2007