

# EYE EXAMINATIONS: WHAT TO EXPECT

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## Eye Examinations: What To Expect

During an eye appointment, several types of eye tests may be performed. In addition to a complete eye examination, based on your likely diagnosis, your doctor may want to order one of the following special tests.

- **Applanation tonometry:** A test that helps doctors diagnose glaucoma by measuring the amount of pressure needed to flatten a portion of the cornea. This is done by placing a small amount of fluorescein dye in the eye. This dye stains the front of the eye and allows a better examination by the doctor. The patient is then given a local anesthetic in the form of drops and the pressure is measured using a tonometer.
- **Corneal topography:** During this procedure, a computer and imaging system are used to create a “map” of the curvature of the cornea. The computer analysis will show any distortions of the cornea (e.g., scarring), as well as conditions such as astigmatism. This test is used to screen patients before they have refractive surgery. It also can be used before contact lens fittings and corneal transplants and for patients with other corneal problems.
- **Fundus photography and optical coherence tomography (OCT):** These imaging tests are used to evaluate structures in the eye such as the retina and optic nerve. The pupil is usually (but not always) dilated first (see below). A camera is used to obtain digital images (photos), or a computerized low-power imaging scanning system is used to obtain thousands of images in a few seconds (OCT). Image patterns can be used to diagnose and/or follow various retinal, optic nerve, and corneal conditions.
- **Fluorescein angiography:** This is a test to evaluate the blood circulation in the retina. It is useful in helping to diagnose diabetic retinopathy, macular degeneration, and other conditions. During this test, fluorescein dye is injected into a vein in the arm. The dye quickly travels to the blood vessels inside the eye. Once the dye reaches the eye, a specialized camera is used to photograph the fluorescein as it circulates through the blood vessels in the back of the eye. This will allow the doctor to diagnose any circulation problems, swelling, leaking, or abnormal blood vessels.
- **Pupillary dilation test:** During this procedure, the examiner places special drops in the eye, causing the pupil to dilate (expand). By dilating the pupils, your doctor can examine your retina better for any signs of disease.
- **Refraction test:** This test measures your ability to see objects at specific distances. It is often done by having the patient look at a chart at a fixed distance, usually 20 feet away. The patient tries to read the chart while looking through a special instrument known as a phoropter. The phoropter moves lenses of different strengths into place for the patient to look through. This test is useful in helping to diagnose presbyopia, hyperopia, myopia, and astigmatism, and provides measurements for eyeglass prescriptions.

- **Slit-lamp exam:** A test that looks at the front of the eye by shining a beam of light shaped like a small slit on the eye. The eye doctor may also dilate your pupils while performing this exam. The test can be used to help diagnose various conditions such as cataracts, retinal detachment, macular degeneration, injuries to the cornea, and presbyopia.
- **Tonometry:** This is a procedure to help diagnose and follow glaucoma. In tonometry, a small, smooth instrument known as a tonometer is lowered onto the surface of the eye in order to measure the pressure in the eye.
- **Ultrasound:** An ultrasound uses sound waves to provide a picture of the eye's internal structure. It is useful in evaluating ocular tumors and in examining the retina when it is being obscured by cataracts or a hemorrhage. This test is given as part of preoperative evaluation for cataract surgery, when it is used to measure the length of the eye and to help select the intraocular lens implant power.
- **Visual acuity testing:** A test of your visual acuity, or ability to see sharply and clearly at near and far distances, will be performed. Various tests can be used to determine the visual acuity of infants, children, and adults. These are fairly simple and can be performed by an ophthalmologist, optometrist, technician, or nurse. One common type of test used for children who cannot yet read is the Random E's Visual Acuity Test. The patient is asked to identify the direction that the letter "E" opens to by holding out fingers to mimic the letter "E." This test is safe, there are no risks involved, and it works just as well as most other tests.
- **Visual field test:** A test to measure peripheral (side) vision. In this test, you will stare at an object in the center of your line of vision (either the doctor's eyes, on a screen, or using a computer program). As you are looking at the object, you will be asked to note when you see an object appearing or moving into your peripheral vision. This test is most commonly done to diagnose and follow glaucoma.

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