

Do You Have Visual Contrast Sensitivity?

A normal eye test may not detect this common age-related condition

by Sandra Lamb, **AARP**, May 17, 2021



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En español | Acing the normal eye test with a 20/20 score — “perfect vision” — doesn't give you a true or complete assessment of how well you can see in the real world. Identifying those rows of black letters on the white background lets your eye doctor measure your visual acuity. “It's basically how small are the letters that you can see on the eye chart,” explains John Hovanesian, M.D., clinical spokesperson for the American Academy of Ophthalmology (AAO) and professor at UCLA. He adds, “What that type of measurement does not include is shades of gray.” So, even with a “perfect” visual acuity score, you may find that under specific environmental conditions, you can't accurately distinguish objects from their background.

This inability is called a lack of visual contrast sensitivity, which is usually not measured during your [routine eye exam](#).



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It's an extremely common condition associated with aging — about half of people 50 and older have it — and relatively harmless when it's mild. But sometimes vision quality can become poor enough to result in falls or car accidents. It can also be a sign of an underlying condition, such as glaucoma and diabetes, which can result in blindness. (To check for glaucoma and diabetes, AAO recommends a complete eye exam at age 40, and an annual eye exam for those 65 and older.)

Clues to a problem

You probably won't notice any symptoms of reduced contrast sensitivity at first, says Thomas Steinemann, M.D., AAO spokesperson and professor at MetroHealth Medical Center, because it happens so incrementally. Sometimes, he says, “It is not obvious or apparent until pointed out.”

But you may notice some early signs when you have difficulty with:

- [Driving at night](#), or in foggy, rainy or glare conditions, and accurately determining distances
- Reading things like a newspaper where the print contrast against the paper background is poor

- Distinguishing objects when they are similar in color to their background, like finding a black wallet in a black purse; determining when your coffee is near the top when pouring it into a black mug; or picking out black socks in a shadowy drawer
- Stepping off an unmarked curb or seeing steps clearly
- Distinguishing facial features

Most common causes

- [Dryness of the eyes](#), which results from changes in the chemistry of your tears as you age.
- Incorrect lenses that do not properly address your visual needs
- [Cataracts](#) that develop as the lens inside your eye becomes cloudy
- [Glaucoma](#), a progressive disease that damages your optic nerves
- [Macular degeneration](#), which is damage to the center of the retina, the macula, at the back of the eye
- [Diabetes](#), which causes damage to the blood vessels in the retina
- Optic neuropathies like infections, tumors, multiple sclerosis, aneurysms or other conditions that reduce blood flow to your optic nerves
- Eye trauma, resulting from an injury to your eyes
- Scarring that results in the healing process after [laser eye surgery](#) (LASIK, PRK or the repair of a retinal tear)

Getting tested

Contrast sensitivity is increasingly recognized as an essential factor in determining your quality of vision. So, to test the quality of your vision versus the quantity (testing done in the acuity eye examination with the standard Snellen chart), there are a number of tools available.

In most eye doctor's offices, your doctor will begin by asking a series of questions about the problems you are experiencing. Then he or she will perform a “glare test” (glare accentuates contrast sensitivity) by simply shining a bright light toward the eye while you are reading the Snellen chart. Even if you can read the chart with 20/20 accuracy in optimal light conditions, you may “glare down,” says Hovanesian, to 20/80 with light shining directly into your eye. Other tests include visual field testing, used most commonly for glaucoma, and ocular coherence tomography (OCT), used for evaluating structures in the eye microscopically, he explains.

Specific contrast sensitivity tests use letters, figures, lines, bars and dots in diminishing shades of gray to determine how well you can distinguish objects from their background. Some of the more common are the Pelli-Robson contrast sensitivity chart and the Mars Letter chart. Other tests use sine-wave grating targets.

Either a qualified optometrist or ophthalmologist can perform general glare tests, though most don't have more in-depth contrast sensitivity tests readily available.

Treatments

Since contrast sensitivity depends on the kind and levels of light entering the eye, controlling these elements, especially glaring light, with various kinds of lenses can improve your real-life vision. In some cases, Wavefront LASIK surgery can improve vision. And both Hovanesian and Steinemann emphasize the importance of [eating a healthy diet](#) with lots of leafy greens to promote overall eye health. [Dietary supplements](#) may help as well.

You and your eye doctor can determine which of the following [types of lens](#), or combinations, will best counteract your contrast sensitivity:

- Tinted lenses can moderate or modulate the amount and quality of light that enters your eyes. The darker the tint, the more light is being filtered out. A yellow filter on the glasses helps you see contrast better.
- Antireflective (AR) coatings can reduce glare.
- Variable photochromic lenses (darkens with increasing light) with AR coating can help achieve a balance of illumination and glare modulation under changing light conditions.
- Polarized lenses can eliminate reflected glare.
- Intraocular lenses can improve contrast sensitivity and decrease light irregularities.