



# Sight

From seeing a Technicolor sunset to steering your car home safely at night, eyes have an important job. Here's how to keep them healthy.

**BEHOLD THE EYES.** These small, spherical organs carry out one of the most precious and relied-upon senses, about an inch in diameter. Even modern technology can't design something that works so well with so little maintenance." that bit of upkeep, however, is crucial to the long-term health of your eyes. Simple practices can help protect them, keep your vision sharp, and prevent many sight-stealing diseases. Enlist the following strategies to see clearly for years to come.

## **Anatomy of an eye**

The cornea lies at the front of each eye, a rounded bulge that allows light inside. That light passes through the pupil, transparent space in the center of the colored iris. Behind the pupil is the lens, connected to the zonules (ligaments that tighten and slacken for focus). Light passes through the lens and hits the retina. The tissue at the back of the eye sends a message through the optic nerve to the brain.

### **From birth through your 30's**

When you are born, the lenses inside your eyes are generally crystal clear and flexible, and the zonules connected to them are strong. With age, the lenses become less flexible, and the zonules are not as effective. The shape of the eye is genetically determined, which may mean that you need corrective lenses. If your eyeballs are too long, you're nearsighted. If they are somewhat short, you're farsighted. Whenever you notice a change in your vision, schedule an appointment with an ophthalmologist or an optometrist.

### **40's**

The 40s is when a person begins to lose the ability to focus up close, called presbyopia. Thank those thicker, more rigid lenses and weaker zonules. The remedy? Reading glasses. (Don't feel bad – everyone needs them eventually.) How quickly you develop presbyopia depends on where your vision started. If you have always had perfect eyesight, you'll probably need reading glasses in your early 40s. Near-sighted people have an edge and often won't notice a change until their late 40s. If you're farsighted, you'll probably need corrective lenses in the late '30s—also, a time to schedule a comprehensive baseline eye exam. A doctor will test the pressure inside your eyes and look at the optic nerve to ensure they are intact.

### **The 50s and beyond**

These lenses have two prescriptions (they are now available in contact lenses, too). The

lenses continue to harden, and you may find you need stronger corrective lenses or even bifocals. You are also at greater risk of developing the following eye diseases.

**Cataracts.** These form when the lenses of the eyes become cloudy. More than 20 million Americans have cataracts, and everyone, if they live long enough, will develop them. Age is the number one culprit, says Carol L. Karp, a professor of clinical ophthalmology at the Boston Palmer Eye Institute, at the University Of Miami Miller School Of Medicine, in Florida. Smoking and sun exposure are also contributors.

**Glaucoma.** This disease affects more than 2 million people in the United States, and is associated with pressure building up in the eyes, resulting in damage to the optic nerves, says Emily Bedrick Graubart, an associate professor of ophthalmology at the Emory University School of Medicine, in Atlanta. Glaucoma causes peripheral –vision loss and can eventually lead to blindness. It's one of the most common reasons why adults lose their eyesight.

**Macular Degeneration.** Macular degeneration affects almost 2 million people in the United States and is the leading cause of vision loss in Caucasians over 65. If the macula (a part of the retina) deteriorates due to heredity or environmental factors, the central line of sight becomes impaired. Blurred vision is often the

first sign. Ultraviolet (UV) light can speed its development, as can smoking.

### **How to protect your vision**

Eat dark leafy greens. Spinach, kale, collard greens, and other deep-colored vegetables contain lutein and zeaxanthin, two carotenoids that “have been associated with reducing the risk of developing cataracts and macular degeneration,” says Graubart. Try to eat two servings a day – for example, a handful of spinach in your salad at lunch and a side of broccoli at dinner.

### **Enlist antioxidants.**

Foods such as berries, oranges, plums, and cherries help minimize free-radical damage caused by environmental factors (like sunlight and pollution) and can quicken the hardening of lenses and contribute to cataracts macular degeneration. Eat at least two servings a day – a cup of berries with your breakfast, say, and orange as an afternoon snack.

### **Take a multivitamin**

A National Eye Institute study showed that supplements with antioxidant vitamins C and E, beta-carotene, and the minerals copper and zinc slowed the progression of advanced macular degeneration in high-risk patients. And a recent article in the Archives of Internal Medicines concluded that vitamins B6 and B12 and folic acid might also help. Still, other studies suggest that vitamins may delay the onset of cataracts.” Take a multivitamin with minerals every day as a god preventative

step,” Graubart says. (If you have a family history of macular degeneration or cataracts, your eye doctor may suggest further supplements.)

### **Get your omega-3s.**

You’ve heard that they’re good for your heart, but “evidence suggests omega-3 fatty acids found in certain fish, such as salmon, halibut, and tuna, can help maintain the eyes’ protective tear film, minimize dry eyes, and even prevent cataracts,” says Ruth D. Williams M.D., a spokesperson for the American Academy of Ophthalmology. Eat two to three servings a week, or consider taking a fish-oil supplement every day. Also, cut down on red meat: a recent study showed that high consumption levels might increase the risk of macular degeneration.

### **Crunch on Carrots, too.**

These crisp vegetables and other orange offerings, like pumpkin and butternut squash, contain beta-carotene and carotenoids that may help keep eyes healthy.

### **Swear by sunglasses**

UV light is a significant player in the hardening of the lenses and the development of cataracts and macular degeneration. In fact, “one thing shown to impede cataract formation is UV protection,” says Koury. That means it’s important to wear sunglasses with dark lenses that filter out 100 percent of UV rays (the label should indicate this) whenever you’re outside. Koury also tells patients to put on a hat. “all

glasses allow some light in through the tops and the sides, “she says. “it bounces off your cheeks and right into your eyes.” Choose one that has a brim of at least four inches.

### **Elevate your heart rate**

Some studies have indicated that aerobic exercise can decrease the pressure inside the eyes, helping reduce the risk for glaucoma. Aim for three 30 minutes workouts a week – walking, jogging, using a cardio machine, or taking a class at the gym.

### **Computers and your eyes**

All computers exacerbate dryness (as can TVs). Use preservative-free artificial tears to help keep your eyes comfortable.

### **Eye Q’s**

**Q.** Whom should I see for my eye exam, an ophthalmologist or an optometrist?

**A.** Either. An ophthalmologist is a doctor of medicine (M.D.), which means they went to medical school and had an internship and a residency in ophthalmology. An optometrist is a doctor of optometry (O.D.) and has completed four years of optometry school. Both can give comprehensive eye examinations and prescribe glasses and contacts. But only an ophthalmologist can perform surgery.

**Q.** How often should I have my eyes examined?

**A.** A child should have the first screening, generally done by a pediatrician, anywhere from birth to age one. A second screening should be done at age three and another before the child starts school. Most importantly, experts recommend having a comprehensive examination at 40. If you start to notice changes in your vision, see a doctor, regardless of your age.

**Q.** Do I need my eyes dilated during an exam?

**A.** probably. It’s the typical way a doctor can see deep inside the eyes to ensure that the optic nerves are healthy and check the retinas. However, some ophthalmologists use a machine to see into the eye without dilating. Schedule an appointment later in the day, when outdoor light isn’t too bright, and you can avoid reading and computer work.

**Q.** Why do my eyes start stinging when I’m tired?

**A.** The most likely culprit is dryness. When your eyes have been open for many hours, their surfaces dry out. And if you’ve been watching TV or using a computer, the problem can occur even more quickly, since when you look intently at something, you blink less and lubricate your eyes less. Also, as you age, your ability to produce tears decreases. When your eyes are dry, they can’t flush irritants from the surfaces, so they may sting or feel scratchy. The solution: Use preservative-free artificial

tears when you feel that burning sensation. (They're safe to use with contacts.)

**Q.** What are little squiggles I see?

**A.** they are called floaters. Each eye has a jelly-like substance called the vitreous humor. It's crystal clear and firm when you are young, but as you age, it liquefies. Floaters are tiny clumps of this jelly that casts shadows on the retina.

**Q.** Can two brown-eyed parents have a blue-eyed child?

**A.** Yes. The amount of melanin in the irises determines eye color. Many genes control how much melanin develops. "because eye color isn't dependent on one gene, it's possible for two people with brown eyes to have a baby with blue eyes or two parents with blue eyes to have a brown-eyed child," says Graubart. Many babies are born with blue eyes, as the genes responsible for iris pigmentation haven't yet kicked in. The eyes darken if the genes tell the irises to produce more melanin.

### **Accidents can happen**

Approximately 1 million eye-related injuries occur in the United States each year. To shield yourself:

1. Keep a pair of protective glasses around the house.
2. Look for a pair labeled ANSI 87.1, which indicates they meet safety criteria from the American National Institute.

3. Wear them when you tackle a DIY project, hammer a nail, perform a metal-on-metal task (like cutting wire with shears), or work with chemicals (like lighter fluid).

### **Things you can do at the computer to reduce eye strain:**

The correct position of the monitor helps reduce exposure to awkward postures and overhead glare, preventing excessive fatigue, eye strain, and neck and back pain.

Consider the following issues to help improve your computer workstation:

- Viewing distance
- Viewing angle (height and side-to-side)
- Viewing time
- Viewing clarity

### **Viewing Distance**

Viewing too far distances can cause a strain to see small text. Monitors placed too close or too far away may cause the body to assume awkward postures leading to eyestrain. The result is stress on the back because forward flexion of the torso eliminates the benefits of the backrest.

Viewing distances that are too short may cause your eyes to work harder to focus (convergence problems) and require you to sit in awkward postures. For instance, you may tilt your head backward or push your chair away

from the screen, causing you to type with outstretched arms.

Sit at a comfortable distance from the monitor where you can easily read all text with your head and torso in an upright posture and your back supported by the chair. Generally, the preferred viewing distance is between 24 and 30 inches (50 and 100 cm) from the eye to the front surface of the computer screen and 18-24 inches for the laptop.

### **Viewing Angle**

Working with your head and neck turned to the side for a prolonged period loads neck muscles unevenly and increased fatigue and pain.

Position your computer monitor directly in front of you, so your head, neck, and torso face forward when viewing the screen. If you work primarily from printed material, place the monitor slightly to the side and keep the printed material directly in front. Keep printed materials and monitors as close as possible to each other.

A display screen that is too high or low will cause you to work with your head, neck, shoulders, and even your back in awkward postures.

Bifocal users typically view the monitor through the bottom portion of their lenses, causing neck extension and fatigue of the muscles that support the head.

The simple solution is to lower the monitor (below the recommended height for non-bifocal users). Afterward, other adjustments might need consideration, such as: tilting the monitor screen up toward you. Raise the chair height until you can view the monitor without tilting your head back. You may have to raise the keyboard and use a footrest.

Use a pair of single-vision lenses with a focal length designed for computer work, eliminating the need to look through the bottom portion of the lens.

### **Viewing Time**

Viewing the monitor for long periods can cause eye fatigue and dryness.

Rest your eyes periodically by focusing on objects farther away (for example, a clock on a wall 20 feet away). Stop, look out, and blink regularly to moisten the eyes. Also, alternating duties provide periods of rest for the eyes.

### **Viewing Clarity**

Monitors tilted significantly either toward or away from the operator may distort objects on the screen, making them difficult to read. Also, when the monitor is tilted back, overhead lights might glare on the monitor—resulting in eyestrain and sitting in awkward postures to avoid eye glare.

Tilt the monitor, so it is perpendicular to your line of sight, usually by tilting the screen no

more than 10 to 20 degrees. A temporary solution involves tilting the monitor back slightly by placing a book under the front edge. Monitor support surfaces should allow the user to modify viewing distances and tilt and rotation angles.

Computer monitors should be periodically cleaned and dusted. Dust accumulation can reduce contrast and degrade viewing conditions.

Hopefully, these helpful tips will improve the comfort of your workstation.

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