# AMERICAN OPTOMETRIC ASSOCIATION

# Eye Health Guidance for Screen Time

Today's technology may help enhance learning and provide entertainment; however our eyes were not designed to use computers and digital screens especially for long periods of time. The eye focusing and coordination requirements can make the eyes work too hard. While smartphones, tablets and computers are part of our work, home and school environments, the unique characteristics and high visual demands of computer and digital screen viewing make many individuals susceptible to the development of vision-related symptoms.

According to a 2022 survey by the American Optometric Association (AOA), the average gamer spends more than 8 hours a day on screens and has experienced various eye-related symptoms from gaming including eyestrain, headaches, dry eyes, and blurred vision. Many gamers are aware of the eye health implications of long-term screen usage, but less than half (46%) visit an eye care professional for a comprehensive eye exam every year.

Using technology has many benefits, but it should be used responsibly. With gaming and screen time on the rise, so is the risk of screen-related eye issues. The sooner you start prioritizing your eye health offline, the longer you can continue doing what you love online.

**What is Digital Eyestrain**

Prolonged use of handheld devices is contributing to an increase in Computer Vision Syndrome (CVS), also known as digital eyestrain. The AOA defines this as "the complex of eye and vision problems related to near work that are experienced during or related to computer use." Using computers and other electronic devices, such as laptops, tablets and smartphones, requires specific vision skills that place extra demands on the visual system and contribute to eye and vision discomfort. These skills include:

- Ocular motility – the ability of the eyes to coordinate movements to various positions.
- Accommodation – the ability of the eyes to focus clearly at various distances.
- Vergence – the ability to maintain single vision of objects at different distances by aiming the eyes in toward the nose (convergence) or out away from the nose (divergence).

CVS can cause dry eyes, headaches, neck and shoulder pain, blurry vision and eye discomfort. Symptoms tend to be temporary, but the longer you spend in front of a computer, the longer it takes for these symptoms to go away. The level of discomfort appears to increase with the amount of electronic device use.

The AOA found that those at greatest risk of experiencing symptoms of digital eyestrain are individuals who spend two or more continuous hours at a computer or using another electronic device every day. Uncorrected vision problems can increase the severity of symptoms.

**Causes of Digital Eyestrain**

In addition to the length of time you spend using a digital device, these symptoms may be caused by poor lighting, glare on a digital screen, improper viewing distances, poor seating posture, uncorrected vision problems, or a combination of these factors. Reading or looking at images on a digital screen is

different than a printed page. Often the words on the computer or handheld device are not clear or sharply defined, the level of contrast of the letters to the background is reduced, and the presence of glare and reflections on the screen may make viewing difficult.

**Diagnosing Digital Eyestrain**

A doctor of optometry can diagnose digital eyestrain through a comprehensive eye exam. Testing, with special emphasis on visual requirements at the computer or digital device working distance, may include:

- Patient history to determine any symptoms the patient is experiencing and the presence of any general health problems, medications taken or environmental factors that may be contributing to the symptoms related to computer use.
- Visual acuity measurements to assess the extent to which vision may be affected.
- A refraction to determine the appropriate lens power needed to compensate for any refractive errors (nearsightedness, farsightedness or astigmatism).
- Testing how the eyes focus and move together which is needed to obtain a clear, single image.

This testing is often done without the use of eye drops to determine how the eyes respond under normal seeing conditions, and with eye drops that temporarily keep the eyes from changing focus to reveal undiagnosed issues. Using the information obtained during the examination along with results of other tests, a doctor of optometry can determine the presence of CVS and advise appropriate treatment options.

**Ease the Strain**

Solutions to digital screen-related vision problems are varied. However, they can usually be alleviated by obtaining regular eye care and making changes in how the screen is viewed. The AOA recommends the following tips to help reduce the effects of digital eyestrain.

- **Rest your eyes:** Remember the 20-20-20 rule. At least every 20 minutes, take a 20-second break and view something 20 feet away. The AOA further recommends that users take a 15-minute break for every two hours they spend on their electronic devices.
- **Maintain comfortable viewing distance:** Use the zoom feature to see small print and details, rather than bringing the device closer to your eyes, which taxes the visual system.
    - At least 13 to 20 inches for smartphone, small tablet or laptop. Greater than 20 inches for full-size laptop or computer monitor.
- **Adjust the lighting:** Room lighting should be about the same as the brightness of the screen of an electronic device, not significantly brighter or dimmer.
- **Position yourself:** Sit with your back supported and your feet on the floor or on a foot stand. You can also stand at a properly adjusted standing desk. Keep the top of the screen no higher than eye level, with the screen angled away about 15 to 20 degrees.
- **Beat the glare:** Reduce the glare by adjusting device settings or using a glare filter to decrease the amount of light reflected from the screen. Windows or other light sources should not be directly visible when sitting in front of a computer monitor. If this happens, turn the desk or computer to prevent glare on the screen.

- **Remember to blink:** People tend to blink less frequently when viewing a computer screen or handheld device. Blinking is the eye's way of getting the moisture it needs on its surface. Remember to blink as a natural way to help prevent dryness and irritation.
- **Use eyedrops:** Many computer users, especially those who wear contact lenses, may benefit by using lubricating eyedrops to moisten their eyes. Ask your doctor of optometry to recommend the right eyedrop for you.
- **Ask about special computer lenses:** Reading and regular prescription glasses may not be the answer when viewing computer or handheld devices. Bifocals may not be adjusted for this distance or angle and therefore be inadequate. Your doctor of optometry can perform a CVS-specific eye examination to diagnose the reasons for CVS. After testing, your doctor may prescribe special computer lenses that help relax the eyes and deliver better viewing. Some of these glasses have multifocal lenses to help you quickly shift your focus between close, intermediate and far distances. An anti-glare coating can also be added to the lenses to improve vision. It's important to note, that computer glasses for reducing eye strain are not the same as blue light-blocking glasses.
- **Power down before you turn in:** Turn off your electronic devices at least one hour before bed.
- **Get annual eye exams:** Annual comprehensive eye exams by a doctor of optometry are essential to ensure healthy eyes and identifying the signs and symptoms associated with digital eyestrain and other vision problems. The earlier a vision problem is detected and treated, the more likely it is that treatment will be successful.

If you are spending several hours staring at digital screens and/or experiencing any symptoms, it is important to talk with your doctor of optometry about your digital habits and what solutions are available to help relieve strain. Try incorporating the AOA's tips into your daily routine, including modifying your home and work stations to support eye health.

For more information and to find a local AOA doctor near you, visit aoa.org/healthy-eyes.