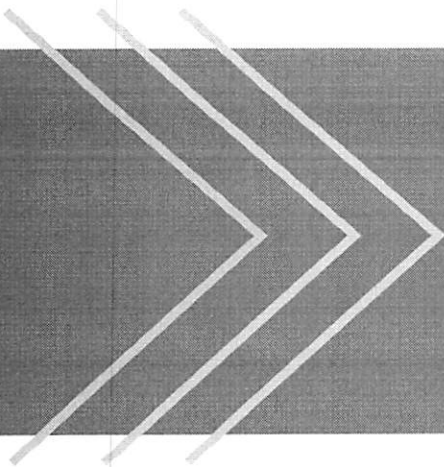# Is Screen Time Hurting My Eyes?

By Julianne Hale

Digital devices have revolutionized the way we live our lives, but they can also take a toll on our eyes.

Remember when you had to print directions *before* you left the house? Or when you had to actually place an envelope in the mailbox? There's no doubt technology has made our everyday tasks easier. And yet, adding computers and handheld devices into our daily lives has a few downsides. One of them is overexposure to blue light.

Blue Light 101

The visible light spectrum is divided into six color ranges – red, orange, yellow, green, blue, and violet – and each color has a different energy and wavelength. Whereas light rays on the red spectrum have longer wavelengths and less energy, light rays on the blue spectrum have shorter wavelengths and more energy. Sunlight is the main source of blue light, but it is also emitted from fluorescent lights and LED screens of all types (think: computers, laptops, televisions, handheld devices).

In recent years as our lives have become more and more dependent on technology, our exposure to blue light has soared. As many as 95% of Americans spend two or more hours in front of a screen each day, and nearly one-third of us spend nine or more hours in front of a screen, according to a study conducted by The Vision Council. Unfortunately, the human eye isn't designed to stare at a computer monitor for hours on end. The eye is not very good at blocking blue light, so virtually all visible blue light passes through the cornea and lens and reaches the retina.

Dr. Char DeCroos
Ophthalmologist,
Southeastern Retina Associates

How Blue Light Affects Our Eyes

The most common consequence of overexposure to blue light is digital eye strain, or eye discomfort caused by two or more hours of screen time. An estimated 65% of Americans experience digital eye strain. In fact, the condition has usurped carpal-tunnel syndrome as the top computer-related physical complaint in the U.S.

Prolonged periods spent in front of a screen tend to exacerbate symptoms. "Symptoms range from eye dryness, eye watering, eye redness, and eyelid twitching to more generalized symptoms like physical fatigue and decreased focus," says Dr. Char DeCroos, ophthalmologist with Southeastern Retina Associates.

Overexposure to blue light can also compound pre-existing eye conditions like dry eye syndrome, a common condition as we age. "Dryness is particularly common among adults 40 and over who are required to work at a computer," says Dr. Dennis Matzkin, ophthalmologist with Allied Eye.
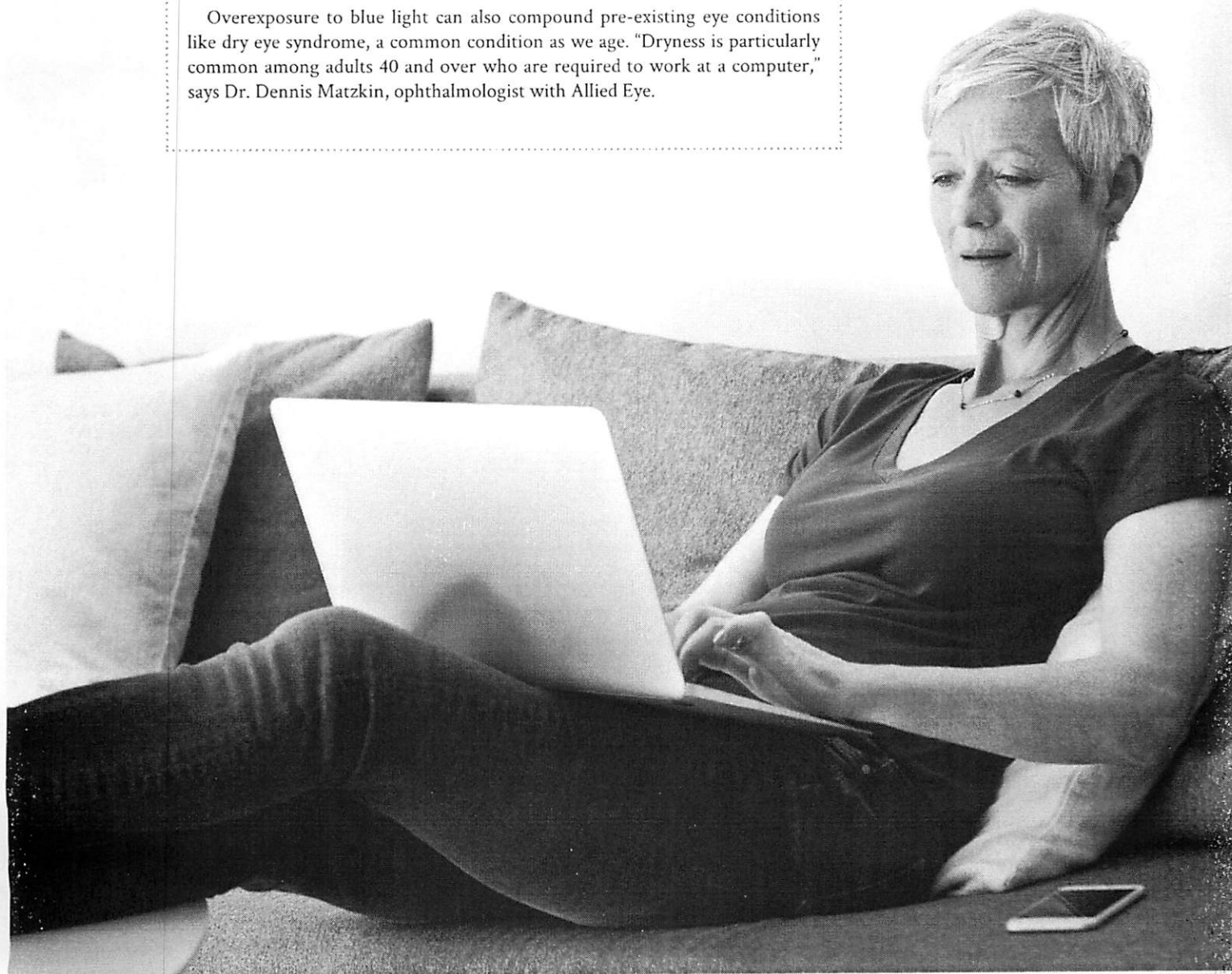
Can blue light exposure cause lasting damage?

More research is needed to provide a definitive answer, but researchers have found *some* evidence that repeated exposure to blue light can induce oxidative injury in retinal cells. A 2014 article published in the *Review of Optometry* suggested chronic exposure to blue light could accumulate and potentially lead to **macular degeneration.** However, more investigation is needed to establish a definitive causal relationship between long-term exposure to blue light and vision loss.

Macular degeneration occurs when the small central portion of the retina, known as the macula, deteriorates. It is the leading cause of severe vision loss in people over age 60.
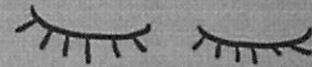
Beyond tiring your eyes, using your smartphone at night can do serious damage to your sleep cycle. Studies show exposure to blue light at night suppresses the production of melatonin, a hormone critical for healthy sleep patterns. Keep your sleep patterns in check by charging your smartphone in another room, or at the very least, at a station far away from your bed. If reading helps you wind down, try an old-fashioned book or magazine or use a digital reading device that doesn't emit blue light.

Protecting Your Eyes

Here are six simple actions you can take to reduce symptoms of digital eye strain and dryness.

Dr. Dennis Matzkin
Ophthalmologist,
Allied Eye

Make an appointment.

Have you been wearing the same glasses for the past four or five years? Do you squint when you try to read your screen? It might be time to make an appointment with your eye doctor. "Symptoms of digital eye strain can often be alleviated with the proper prescription," says Dr. Matzkin. "The right correction will make focusing on the screen more comfortable."

Making sure your prescription is up-to-date is critical to maintaining eye health. "You want to make sure your symptoms aren't due to a more serious eye condition," says Dr. DeCroos. "An eye care specialist can quickly determine this at your examination."

Consider specialized eyewear.

Vision technology is always improving, including specialized computer eyewear. Your eye doctor can add anti-reflective lenses and helpful coatings to your glasses to help reduce your exposure to blue light. "For patients who wear bifocals, I also recommend getting a second pair designed for computer distance," says Dr. Matzkin.

Set up an eye-friendly workspace.

If you work in front of a computer for several hours each day, consider making adjustments to your workspace. Your screen should be an arm's length away from your eyes and tilted back slightly to avoid glare. Look out for glare from florescent lights or even a window. Your screen should also be the brightest thing in the room, so be sure to check your brightness setting.

Adjust your phone settings.

Do you have to bring your phone three inches from your face to read texts? For optimal eye health, handheld devices should be approximately 16 inches away. If you are straining to see your screen, try adjusting the settings. Most computers and hand-held devices make it very easy to adjust font size.

Don't forget to blink.

Blinking keeps our eyes healthy by providing moisture. Most people blink approximately 18 times per minute, but this rate is cut in half when we use computers or smartphones. If you spend a lot of time in front of a screen, take a couple blinks every minute or so to compensate. Put a reminder on your computer that says "blink!" if you think you'll forget.

Take breaks.

If you spend extended time in front of a computer, take deliberate breaks. Experts suggest following the 20-20-20 rule: for every 20 minutes that you work at a screen, look up and focus on an object 20 feet away for at least 20 seconds. This may take some concerted effort – but it's worth it to protect your vision! **HS**