CBS News:

What Too Much Screen Time Does To Your Eyes

By Bianca Seidman
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As people of all ages are spending more hours focused on digital screens, their eyes are getting an exhausting endurance workout.

Eye strain from hours of screen time can result in eye irritation, dryness, fatigue or blurred vision, and such problems are increasingly common, according to a new report.

"Some of us are using these things for up to nine hours a day. Your eye muscles have to focus at that near range and that can be fatiguing," Dr. Christopher Starr, an associate professor of ophthalmology at Weill Cornell Medical College in New York, told CBS "This Morning."

"You can imagine if you were at the gym and you held a dumbbell, your bicep would be extremely sore nine hours later.... Same thing for your eyes, you have to take breaks to relieve those muscles," he said.

A vast majority of American adults surveyed -- 93 percent -- spends two hours or more per day in front of some sort of screen, from televisions to computers to smartphones to e-readers, according to the report by The Vision Council, an advocacy group for optical manufacturers and distributors. Sixty-one percent said they spend five or more hours and 30 percent said they look at screens more than nine hours per day. The group surveyed more than 9,700 U.S. adults.

The range of media devices the respondents were using was broad. Sixty-nine percent of people reported used smartphones, 58 percent used laptops, 52 percent used a desktop computer and 43 percent used a tablet or e-reader. Seventy-seven percent said they watched television.

Most digital screens are backlit and emit blue light, or high-energy visible (HEV) light wavelengths, which the group said can cause irritation and possibly long-term damage to the retina. Blue light is also known to suppress the sleep hormone melatonin, causing an artificial feeling of wakefulness and disrupting sleep patterns, which can add to eye strain.

Dryness, caused by reduced blinking while staring at screens, is also a common factor in digital eye strain. A person's blink rate -- normally about 15-20 times per minute -- can decrease by up to half when people are fixated on what they're viewing on a screen.

"When you're not blinking, and you're staring and your eyes are wide open, tears evaporate very quickly," Starr said. "You get dry spots, blurred vision, it can cause redness, pain, and over the course of the day it just worsens and worsens."

Just like other muscles in the body, the eyes need a varied "workout" and some respite from prolonged strain.

"What we recommend to reduce this -- what's called computer vision syndrome -- is to follow something called the 20-20-20 rule," said Starr. "Every 20 minutes that you're on a computer or a mobile device, look away from the computer at an object at 20 feet away or further for 20 seconds or more. And that will let those eye muscles relax."

Anti-reflective lenses on eyeglasses or filters for screens can also help absorb some of the blue light and limit how much reaches the retina and into the central nerve of the eye.

People with myopia, or nearsightedness, and other vision issues like hyperopia, astigmatism and presbyopia, may be at increased risk for digital eye strain. The National Eye Institute says that myopia has become much more common in recent generations. More than 34 million Americans have myopia, projected to reach 40 million by 2030.

In addition to taking breaks from focus on digital screens and using eyewear, doctors recommend adjusting light exposure to help with eye strain, both indoors and outdoors.

Contrary to popular opinion, more indoor light may actually be worse for reading, when it's on a screen. Too much light competing with the device's light creates glare. And a bright, white background is also worse than a cooler, gray tone.

Getting enough outdoor light is also critical to helping eye muscles develop and stay healthy.

Though the highest reports of eye strain are from the groups who likely use the screens for work the most -- Millennials and Generation X -- children are also a concern. The report says more than 23 percent of kids use digital screens more than three hours a day.

"One of the newest studies I've seen actually shows that the kids -- when you're doing all this reading and using computers, you're indoors," said Starr. "There's some evidence that you need some natural light, for the eye's maturity and if you don't have that natural light, the eyes might get longer and more near-sighted."

"The computers aren't going anywhere, mobile devices aren't going anywhere, " he added. "They're very useful, obviously.... We're not saying don't use them, we're saying when you do use them, use them wisely and smartly."