How Does Digital Eye Strain Come Into Play?
With an increase in digital technology, there has been an increase in blue light exposure. In turn, many individuals suffer from the physical eye discomfort after screen use for longer than two hours at a time, also known as digital eye strain.

The following age groups state they use digital devices for more than two hours per day:

- 0 years old
- 5 years old
- 10 years old
- 15 years old
- 20 years old
- 25 years old
- 30 years old
- 35 years old

Eye Strain, Dry Eyes, Headache, Blurred Vision, Neck and Shoulder Pain

68.5 percent of Americans report they have not discussed their digital device usage with their eyecare provider, and 73.5 percent reported they did not know eyewear can be used to protect the eyes from the short- and long-term effects of digital eye strain, as well as blue light exposure.

More than 87 percent of Americans report using digital devices for more than two hours per day, and 52.2 percent report using two digital devices simultaneously.

What Can Be Done to Reduce Exposure to Blue Light?
Eyewear is available with lenses featuring blue light-filtering capabilities — that reduce the negative effects of blue light — as well as anti-reflective or anti-glare properties. This technology can help minimize the negative effects blue light has on the body’s circadian rhythm, which can hinder a good night’s sleep. This technology also reduces the symptoms of digital eye strain.

However, individuals don’t have to sacrifice style for function when it comes to eyewear. These specialized lenses can be incorporated into virtually any pair of frames, so individuals can choose eyewear that complements their personal look, while meeting their eye health needs.

The Vision Council recommends individuals and their children visit a local eyecare provider to discuss their digital habits and what eyewear solutions are available to relieve the symptoms of digital eye strain and reduce exposure to blue light.

What Is the Impact?
Americans report experiencing the following symptoms of digital eye strain:

- 31% Eye Strain
- 22% Dry Eyes
- 22.6% Headache
- 22.1% Blurred Vision
- 30.1% Neck and Shoulder Pain

Americans are becoming increasingly digitized, with more of our daily tasks moving online. For example:

- 55 percent use a smartphone as an alarm clock
- 49.4 percent use a smartphone to check the weather
- 73 percent use a computer to do research
- 50.4 percent use a computer to go shopping
- 48.7 percent use a computer to find a recipe

The following age groups state they use digital devices for more than two hours per day:

- 91.6% of those ages 18 to 39
- 88.6% of those ages 40 to 59
- 78.5% of those ages 60 and up

Effect on Children
76.5 percent of Americans report their child(ren) gets more than two hours of screen time per day. And 55.6 percent report their child(ren) experiences one of the following after being exposed to more than two hours of screen time:

- Headaches
- Neck/shoulder pain
- Eye strain, dry or irritated eyes
- Reduced attention span
- Poor behavior
- Irritability

While 78.3 percent of parents are somewhat or very concerned about the impact of digital devices on their child(ren), only 29.1 percent report taking their child(ren) for an annual eye exam as part of back-to-school preparation.

How does blue light affect the eyes?
Blue light, also known as high energy visible (HEV) light, is a type of light with short wavelengths emitting a higher energy. Blue light penetrates deep into the eye, so exposure may result in:

- Damage to the retina exposing the eye to hidden spikes in intensity
- Long-term vision problems such as age-related macular degeneration (AMD) and cataracts
- Suppressing the natural release of melatonin, disrupting sleep

Aside from sunlight, digital screens — like those of TVs, computers/laptops, smart phones and tablets — are the most common source of individuals’ blue light exposure.

UV
BLUE LIGHT (HEV)
NON-VISIBLE
VISIBLE

What is BLUE LIGHT?

More than 80 percent of Americans report using digital devices in the hour before going to sleep, which has been shown to disrupt sleep patterns by increasing alertness to the brain.

Effect of Blue Light on the Body
The following information is adapted from “Blue Light: Vision, Sleep, and Chronobiology” by S. Jay Frey, M.D., and “Science of Blue Light” by Aaron F. Bastani, M.D., and Jeffrey A. Liebman, M.D.

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What are the effects of blue light on the body?
Blue light affects the body in several ways:

- **Visual system:** Blue light exposure can lead to damage to the retina, which is responsible for vision.
- **Sleep:** Blue light exposure can disrupt the body’s natural circadian rhythm, making it harder to fall asleep and stay asleep.
- **Mood and energy:** Blue light can affect the production of melatonin, a hormone that regulates sleep and mood.
- **Cataracts and AMD:** Long-term exposure to blue light can contribute to age-related macular degeneration (AMD) and cataracts.

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- 15 years old
- 20 years old
- 25 years old
- 30 years old
- 35 years old

How many Americans use digital devices for more than two hours per day?

- 87 percent

What percent of Americans use two digital devices simultaneously?

- 52.2 percent

What percent of parents are somewhat or very concerned about the impact of digital devices on their child(ren)?

- 78.3 percent

What percent of parents report taking their child(ren) for an annual eye exam as part of back-to-school preparation?

- 29.1 percent