

Managing Your Blue Light

The Concerns for Sleep Patterns and Eye Health

As technology evolves, people are growing more accustomed to a digital lifestyle. Devices such as smartphones, tablets, Light Emitting Diode (LED) monitors and flat screen televisions have become part of daily life. According to the American Optometric Association 2015 Eye-Q®



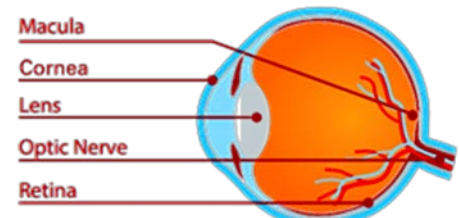
survey, 62% of respondents spent five-plus hours on a digital device each day, while 14% reported spending at least 10 hours. Digital screen technology has advanced dramatically over the years. Many of today's electronic devices use LED back-light technology to help enhance screen brightness and clarity. These LEDs emit very strong blue light waves.

Blue Light Concerns

Recent research suggests that the use of light-emitting electronic devices – tablets, some e-readers, smart phones, and laptops – in the hours before bedtime can negatively impact overall health, alertness, and the circadian clock. That clock links the daily rhythm of your sleep to external environmental cues.

Using certain e-reading devices before bed "prolongs the time it takes to fall asleep, delays the circadian clock, suppresses levels of the sleep-promoting hormone melatonin, reduces the amount and delays the timing of Rapid Eye Movement (REM) sleep, and reduces alertness the following morning," according to a study in the *Proceedings of the National Academy of Science Journal*.

Add to that the risk of permanent eye damage. Although more research is needed, many eye care providers are concerned that the added blue light exposure from computer screens, smartphones and other digital devices might increase the risk of macular degeneration later in life. Our eyes' natural filters do not provide sufficient protection against blue light. Nearly all visible blue light passes through the cornea and lens, ultimately reaching the retina. This retina exposure is important because laboratory studies have shown too much exposure to blue light can damage light-sensitive cells in the retina, causing changes that resemble those of macular degeneration which can lead to permanent vision loss.



www.preventblindness.org/blue-light-and-your-eyes

Another consequence of blue light is digital eyestrain. Blue light waves are among the shortest, highest energy wavelengths in the visible light spectrum. Because they are shorter, the "Blue" or High Energy Visible (HEV) wavelengths flicker more easily than longer, weaker

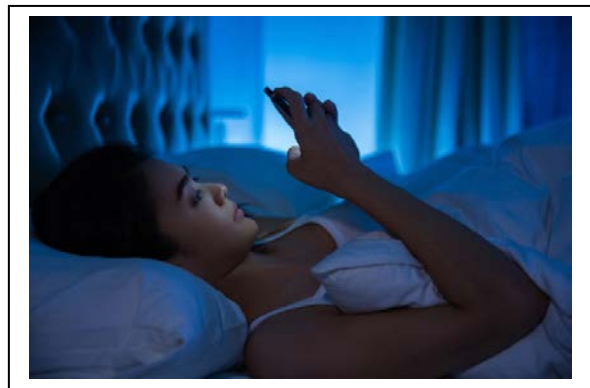
wavelengths. This kind of flickering creates a glare that can reduce visual contrast and affect sharpness and clarity.

Blue light flickering and resulting glare may be one of the reasons for eyestrain, headaches, physical and mental fatigue caused by many hours sitting in front of a computer screen or other electronic devices.

Protect Your Eyes

The American Optometric Association offers the following guidelines to protect your eyes and monitor digital screen usage while at home or work.

- **Power down:** Turn your digital devices off at least one hour before bed.
- **Unplug with the 20-20-20 rule:** When you are using any device or computer, make a conscious effort every day to take a 20-second break and look away from the screen. Do that every 20 minutes and view something 20 feet away.
- **Step back:** Maintain a comfortable working distance from your digital device by using the zoom feature to see small print and details, rather than bringing the device closer to your eyes.
- **Adjust your device to fit your needs:** Reduce glare by adjusting device settings or using a glare filter to decrease the amount of blue light reflected from the screen. Change your digital device background color from bright white to cool gray to reduce eye strain.
- **Anti-Reflective Coating:** This technology is engineered to reduce digital eye strain using filter coatings which block blue light and help reduce eye fatigue.
- **Computer glasses:** These glasses optimize the visual experience of working on a computer while reducing glare, increasing contrast and maximizing what you see to make computer work easier on the eyes.
- **Regular Eye Health:** Visit a doctor of optometry for a comprehensive eye exam to detect and address vision problems.



Sources

American Optometric Association, 2015 American Eye-Q ® Survey Questions and Responses

<http://www.aoa.org/newsroom/most-americans-experience-digital-eye-strain-from-overexposure-to-computers-according-to-survey>

Put Your Digital Devices to Bed Early: Optometrists Caution Overexposure to Blue Light May Cause Health Issues

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