

Our mission is to improve the quality of life for those who are visually impaired through awareness, resources and solutions

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Blue Light, Computers, LED Lights & Eye Damage

With the growing use of computers, tablets, smart phones, televisions and LED and fluorescent lighting, our eyes are exposed to increasing levels of blue light. While there is evidence that blue light can damage our eyes, how much blue light is too much?

The biggest source of blue light, by far, comes from the sun. Sunlight consists of visible light, infrared light and ultraviolet light.

- ◆ Ultraviolet C or (UVC) range, which spans a range of 100 to 280 nm. Due to atmospheric absorption, very little of this light reaches the earth.
- ◆ Ultraviolet B or (UVB) range spans 280 to 315 nm. This part of the spectrum is required for the production of vitamin C but also causes sunburns.
- ◆ Ultraviolet A or (UVA) spans 315 to 400 nm. This part of the spectrum causes damage to DNA and can cause skin cancer.
- ◆ Infrared light range spans 700-1,000,000M
- ◆ Visible range or light spans 380 to 780 nm. This is the part of light that is visible to the eye.

WHAT IS BLUE LIGHT?



Blue light is of the visible light spectrum with high energy wavelengths between 400-495 nm. The wavelengths between 415nm and 455nm are the most damaging. These high energy short wavelengths can reach the retina and can cause damage and are linked to the development of Age Related Macular Degeneration (AMD). Our eyes, skin and hair contain a pigment called melanin that helps absorb the harmful UV and blue light rays.

Higher amounts of melanin give greater protection, but as we age we lose melanin. By age 65 half of this protection is gone making our eyes more susceptible to diseases such as macular degeneration.

However, not all blue light is bad. The blue-turquoise light range, from 465 nm to 495 nm, is essential to our vision and our wellbeing. This wave length of light controls our Circadian wake/sleep cycle, boosts our mood, helps with cognition and keeps us alert. These wavelengths of light also control the function of our pupils, thereby regulating the amount of light that reaches the inside of our eyes.

How do we protect our eyes when by 2020 nearly 90% of all lighting will be LED and the use of computers is increasing? More research is needed to determine the safety of long-term and consistent exposure to blue light. Many optical companies are now producing lenses that reduce the harmful wavelengths of light reaching the eye. The challenge is to block the bad blue wavelengths of light without blocking the good blue-turquoise range. Many of ViewFinder's patients feel that these protective lenses are very comfortable to wear in their computer glasses as well as their routine glasses. Also, many tablets and smart phones now have a feature that can block much of the blue light. This may not only protect your eyes, it may help you sleep more soundly.



It is important to keep in mind that blue light is only one of the risk factors for the development of retinal disease. The main risk factors are age, genetics, smoking and poor nutrition. These risk factors are well documented.

Visit us on the web at www.ViewFinderLowVision.com

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