

Editorial: The dark side of blue light

Anderson explains blue light's harmful effects

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Imagine it's a warm summer day, perfect for kids to play and run outside, people to walk their dogs and families to enjoy picnics. Instead, you see kids and teens sitting on their phones and adults doing work on their laptops. Whether outside or inside, on a phone, laptop, iPad or television, people are being exposed to an unhealthy amount of blue light. Blue light is a high-energy part of the visible light spectrum, originating from sources such as the sun, digital screens and LEDs. While there are some benefits from the sun's natural blue light, the artificial blue light from our devices has many harms. And while excessive exposure to blue light is unhealthy for all ages, it is particularly detrimental to students and young children. Excessive exposure to blue light can lead to poor physical and mental health. Because of this, we need to limit our exposure to blue light.

Some might argue that blue light is essential for regulating sleep-wake cycles, and they are half correct. Natural light, including blue light, keeps the body's circadian rhythm intact. However, kids' and teens' time on devices before bed causes their circadian rhythm to be off. This is because artificial blue light decreases the secretion of melatonin, which is a hormone produced by the brain in response to darkness, regulating the body's 24-hour sleep-wake cycle. PubMed Central conducted a study with 259 students aged 13-21 years old. In this study, 97 percent of students used some form of technology before sleep, causing them to wake up too early, wake up unrefreshed and experience daytime sleepiness. This lack of sleep is also linked to other problems like risk of obesity, depression, stroke, high blood pressure, heart disease and diabetes, all because kids and teens cannot put their devices down.

Beyond causing sleep issues, research has shown that blue light negatively affects the eyes. The main effect is known as Computer Vision Syndrome (CVS). CVS includes eyestrain, headaches, blurred vision, dry eyes and neck and shoulder pain. Almost all visible blue light passes through the cornea and lens and reaches the retina. The non-profit organization Prevent Blindness cites studies that suggest continued exposure to blue light over time could lead to damaged retinal cells. This can cause vision problems like age-related macular degeneration. While this can affect people of all ages, young children are more affected because their eyes are more sensitive to blue light. Until the ages of 14-15, children's eyes are not fully developed, and they are completely unprotected.

On the mental health side of things, blue light has been proven to cause learning difficulties and attitude problems, especially in young students. Children who spend more than two hours a day using screens have been shown to score lower on thinking and language tests, as stated by Block Blue Light. Students in preschool who also spend more than two hours a day on devices are at an almost eight times greater risk for attention deficit and hyperactivity disorder (ADHD). Excessive artificial blue light disrupts kids' and students' emotional well-being, making them more irritable, unmotivated and unable to cope with emotions.



Photo Illustration by Ashtyn Anderson

The primary solution to all these problems is for parents and teachers to reduce the time their kids and students spend on screens by physically taking their devices, setting a screen time limit and doing more work off devices. Parents can have their kids plug in their devices in the kitchen, living room, parents' room or even the hallway to prevent bedtime blue light exposure. They are also able to set a screen time limit on their kids' devices through "Screen Time" in settings. One way teachers can do more work off devices is by having more hands-on activities, paper worksheets or reading from a physical book. As kids get older, they can take charge of their own screen time at home, but if they are unwilling or unable to, they can wear blue light glasses. The most effective glasses are those with orange-tinted lenses, which are especially good at filtering out blue light. Although some people may not realize it, LED lights are another significant source of blue light. Therefore, replacing them with blue-light-free lights, especially in bedrooms, is an additional way to reduce the harm of blue light.

It is clear that students should reduce the amount of blue light they are exposed to, as it can cause sleep disturbances, eye damage and mental health issues. We can all be part of the solution by reducing our time behind screens. Now imagine what our world would look like if we reduced our exposure to blue light. People would be more curious, motivated, social, happy, healthy, in better moods and have better relationships. Blue light is not just changing how we sleep; it is changing our whole lives, so turn off whatever device you are reading this on and see how much better you feel when you are no longer feeling the brutal effects of blue light.