

Artificial light from digital devices lessens sleep quality

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There's no doubt we love our digital devices at all hours, including after the sun goes down. Who hasn't snuggled up with a smart phone, tablet or watched their flat screen TV from the comfort of bed? A new study by

researchers at the University of Houston College of Optometry, published in *Ophthalmic & Physiological Optics*, found that blue light emitted from those devices could contribute to the high prevalence of reported sleep dysfunction.

Study participants, ages 17-42, wore short wavelength-blocking glasses three hours before bedtime for two weeks, while still performing their nightly digital routine. Results showed about a 58 percent increase in their nighttime melatonin levels, the chemical that signals your body that it's time to sleep. Those levels are even higher than increases from over-the-counter melatonin supplements, according to Dr. Lisa Ostrin, the UH College of Optometry assistant professor who lead the study.

"The most important takeaway is that blue [light](#) at night time really does decrease sleep quality. Sleep is very important for the regeneration of many functions in our body," Ostrin said.

Wearing activity and sleep monitors 24 hours a day, the 22 [study participants](#) also reported sleeping better, falling asleep faster, and even increased their [sleep duration](#) by 24 minutes a night, according to Ostrin.

The largest source of blue light is sunlight, but it's also found in most LED-based devices. Blue light boosts alertness and regulates our internal body clock, or circadian rhythm, that tells our bodies when to sleep. This artificial light activates photoreceptors called intrinsically photosensitive retinal ganglion cells (ipRGCs), which suppresses melatonin.

Ostrin recommends limiting screen time, applying screen filters, wearing computer glasses that block blue light, or use anti-reflective lenses to offset the effects of artificial light at nighttime. Some devices even include night mode settings that limit [blue light](#) exposure.

"By using blue blocking glasses we are decreasing input to the

photoreceptors, so we can improve sleep and still continue to use our devices. That's nice, because we can still be productive at night," Ostrin said.

According to the most recent findings from the National Sleep Foundation's Sleep Health Index, while three quarters of Americans are satisfied with their sleep over the past week, more than four in ten Americans reported that their daily activities were significantly impacted by poor or insufficient sleep at least once during the past seven days.

More information: Lisa A. Ostrin et al. Attenuation of short wavelengths alters sleep and the ipRGC pupil response, *Ophthalmic and Physiological Optics* (2017). [DOI: 10.1111/opo.12385](https://doi.org/10.1111/opo.12385)

Provided by University of Houston

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