

Study: Light from backlit electronics suppresses melatonin release

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Reading from backlit electronics like tablets and iPhones is now common, but does it affect sleep?

The portability of tablets and smart phones makes them virtually irresistible for surfing the web or playing Angry Birds in bed. However, results from a recent [study](#) published in *Applied Ergonomics* suggest that using these electronics before bed might prevent a good night's sleep.

The backlit screens of electronics such as tablets and smart phones emit shortwave light in order to produce the vivid white backgrounds present in many websites and applications. Earlier studies showed that prolonged exposure (5 hours) to short-wavelength light from backlit computer screens suppresses the release of melatonin by the pineal gland. Normally, melatonin is released when humans and other mammals are in the dark, and it helps to regulate the sleep-wake cycle (this is why travelers sometimes take melatonin to try to get over jet lag). The authors of this study wanted to know if a shorter exposure (2 hours) to light from a tablet computer before bed could also inhibit melatonin production (and presumably disrupt sleep, although this was not tested).

The researchers assigned participants to one of three groups: a group wearing glasses with blue LEDs (a positive control that should definitely decrease melatonin release), a group wearing orange-tinted glasses (a negative control because the tint blocks short-wavelength light from reaching the eyes), and a group without special glasses (the tablet-only test group). The participants used iPads with the full brightness setting for 2 hours. Researchers collected saliva from the participants before the study began and after 1 and 2 hours of tablet use. While they saw a significant suppression (48%) in melatonin in the saliva of the positive control group at 1 hour (as compared to the negative control group wearing the orange glasses), the levels of melatonin from the tablet-only test group were not significantly suppressed (7%). However, after 2 hours of using the tablets, the test group did show a significant suppression of melatonin (23%).

These results suggest that using full-intensity backlit screens before bed can suppress melatonin release. What can you do about this? Besides wearing stylish orange glasses to bed, you can dim your screen or use [f.lux](#), a free program that adapts your screen's light intensity to the time of day.

Is this necessary? Unfortunately, this study did not examine how this level of melatonin suppression impacted the length or quality of the participants' sleep. This could be an interesting follow-up study—especially if it includes participants of different ages, as melatonin production may be delayed in [teenagers](#) and is known to [decrease with age](#). Another important consideration: Using electronics before bed can create sleep problems independent of light activation because many of the things that people do on their tablets are inherently stimulating (playing a game,

using social media, reading an e-mail). This is not a phenomenon unique to the electronic age, however, as anyone who's stayed awake reading a particularly mesmerizing book (or journal article) can attest.