

Self-luminous Devices and Melatonin Suppression in Adolescents

In 2012, the LRC published a study that changed the way people think about using “self-luminous devices” such as tablets, laptops and e-readers at night. The study found that light from tablets can affect evening melatonin and, therefore, delay sleep.

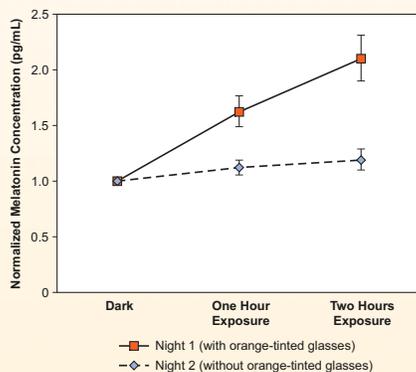


“dark” control condition since they remove short-wavelength light that suppresses melatonin production. Each participant wore a Daysimeter—a device that measures circadian light.

Results show that one hour of exposure to light from self-luminous devices suppressed melatonin by approximately 23

percent, and two hours of exposure suppressed melatonin by approximately 38 percent. While the measured light exposure was about the same, the melatonin suppression in the present study was much higher than that observed in previous studies conducted at the LRC (3 percent after one hour of use and 22 percent after two hours of use). These results suggest that adolescents are more sensitive than adults to light from self-luminous devices.

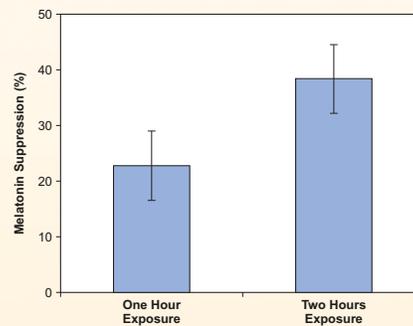
For the study, 20 adolescents (aged 15-17 years) participated in a two-night study. During the first evening, participants viewed self-luminous devices (computers, tablets, e-readers, televisions, and mobile phones) through orange-tinted glasses that filter out short-wavelength light. During the second evening, they viewed the same self-luminous devices without orange-tinted glasses. The orange-tinted glasses served as a



Normalized mean \pm standard error of the mean (SEM) of the melatonin concentrations at three exposure conditions for Nights 1 and 2.

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It is recommended that adolescents either turn off self-luminous devices approximately two hours prior to desired bedtimes or filter out/dim down self-luminous devices in the evening.



Mean \pm standard error of the mean (SEM) of melatonin suppression after one hour and two hours of self-luminous device use without orange-tinted glasses.

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Citation

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