Electronics and Sleep Disruption

Our students are now surrounded by electronic devices daily. From laptops for homework, phones for staying in touch with friends, TV programming, and with a whole variety of gaming options, there is hardly a break from these devices. When it comes to sleep, researchers have found that spending time with screens before bed leads to not only less sleep, but sleep that is less restful, and later bedtimes for children.[i] This means no screen time (computer, TV, phones or video games) at least thirty to forty-five minutes before bed. The blue light from the screen activates our visual cortex and stimulates the brain to wake up at the very time we are trying to fall asleep. This is particularly true for children as their eyes have larger pupils and more transparent lenses. That means your child is absorbing more blue light when looking at a screen before bed.[ii] While a person might fall asleep watching TV, this habit interferes with the deeper sleep states the President (pre-frontal cortex) needs for its nighttime work as well as for optimal functioning the next day.

Dr. Michael Rich, founder of the Center on Media and Child Health at Harvard Medical School, also points out how late-night electronics causes disruption in their Stage 4, REM sleep. This is the stage of sleep that takes the day's experiences in school and with friends and then decides what to take from short-term memory and transfer it to learning centers in the brain. Basically, this disruption means that "the cycle isn't complete with the learning centers."[iii]

Fortunately, for older students who do need to do on-line homework closer to bedtime, many new electronic products have tools for changing the screen's light spectrum from daytime blue light to softer, evening yellow light (some now have a red light setting as well). While an action game or movie will still activate the brain, the yellow or red light helps induce melatonin (our brain's natural sleep hormone) as the brain believes nighttime is approaching.[iv,v] This

blocking of electronic blue light was highlighted by team Cannondale at the 2016 Le Tour de France. They designed blue light blocking sunglasses for their riders to wear in the evening so that they could manage their social media without losing important sleep. One study involving female basketball players found that red-light illumination positively affected sleep quality and performance.[vi]

Limiting electronics, not only before bed, but also throughout the week, is important for Presidential functioning, emotional health, and social development. Remember, the brain works on repetition; we don't want to wire the need for constant electronic stimulation and dopamine cravings into a child's brain. As stated by Dr. Rich, "Boredom is where creativity and imagination take place."[vii] Sadly, electronic devices often fill that gap.

Tips for Managing Electronics at Night

1. Start with daily limits on electronic usage outside of required homework.
2. Follow the advice of no screen time 30 – 45 minutes prior to bedtime.
3. Utilize nighttime settings on devices.
4. No electronics in your child's bedroom after "lights out".
5. Use an alarm clock to wake up in the morning instead of a smart phone as devices should already be checked in to the charging station.
6. Most importantly, have a consistent bedtime and practice pre-bedtime rituals, which help soothe your child/teen emotionally and promote a good night's sleep for their overworked President.

[i] Joe Rubino, "Screens Have Big Effect on Kids' Sleep: CU Study Suggests Children's Eyes Absorb More Light," *The Denver Post*, November 2, 2017, accessed April 24, 2018, https://www.denverpost.com/2017/11/02/americas-youth-looking-screens-like-never-before-studies-show-their-sleep-is-suffering/.
[ii] Rubino, "Screens Have Big Effect on Kids' Sleep."
[iii] Michael Rich, interview by Nathan Heffel, August 1, 2018, "Worried About Your Kid's Smartphone Use? Start Them On A Flip Phone, Plus More Advice," *Colorado Matters*, Colorado Public Radio, https://www.cpr.org/news/story/worried-about-your-kids-smartphone-usage-start-them-on-flip-phones-and-more-advice.
[iv] Van der Heijden, Smits, Van Someren, Ridderinkhof, and Gunning, "Effect of Melatonin on Sleep."
[v] Mark Hyman, "How a Light Bulb Can Help You Sleep Better," *HuffPost*, November 8, 2013, https://www.huffingtonpost.com/dr-mark-hyman/light-sleep_b_4239765.html.
[vi] Jiexiu Zhao et al., "Red Light and the Sleep Quality and Endurance Performance of Chinese Female Basketball Players," *Journal of Athletic Training* 47, no. 6 (2012): 673-678. doi:10.4085/1062-6050-47.6.08.
[vii] Rich, "Worried About Your Kid's Smartphone Use? Start Them On A Flip Phone, Plus More Advice."