




THE PROBLEM

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THE PROBLEM


- Let's first review a bit of information about poor sleep related to device use.
- I'm not going to drown you in research statistics.
- I'll share some basic information on this problem so that you have some context before we move into the reasons it's a problem and what to do about it.



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THE PROBLEM

- Blue light
 - Occurs naturally from the sun
 - Helps us regulate our circadian rhythms
 - Emitted from electronic devices in significant amounts and can disrupt sleep



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THE PROBLEM

- Sleep deprivation statistics (Ganzeley & Rosen, 2016):

- 75% of teens and young adults sleep with their phone next to their bed
- 89% of 18-24 year olds look at their phone within 15 minutes of waking up
- 74% look at their phone immediately upon opening their eyes



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THE PROBLEM

- Sleep deprivation statistics (Twenge, 2017):

- 57% more teens were sleep deprived in 2015 than in 1991.
- Between 2012 and 2015, 22% more teens failed to get 7 hours of sleep.



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THE PROBLEM

- Sleep deprivation statistics (Twenge, 2017):

- Teens who spend 3 or more hours a day on screens were 28% more likely to get less than 7 hours of sleep.
- Teens who visited social media sites every day were 19% more likely to not get adequate sleep.



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THE PROBLEM

- Sleep deprivation statistics (National Sleep Foundation, 2016):
 - 1,103 kids/adolescents studied for the impact of technology on sleep
 - 10% of teens, 19% of preteens, and 69% of children get 9 hours of sleep per night.
 - 56% of teens and 29% of preteens slept less than 7 hours per night.



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THE PROBLEM

- Sleep deprivation statistics (Cain & Gradisar, 2010):
 - 97% of teens had at least one device in their room at night
 - Those with ANY device in the room averaged 42-minutes less sleep per night.
 - Those with a smartphone in the room averaged 54-minutes less sleep per night.



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THE PROBLEM

- Unique impacts on sleep (Twenge, 2017):
 - Electronic devices and social media compared to books and TV
 - New media use between 2012 and 2015



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THE PROBLEM

- Impacts of too little sleep (Twenge, 2017):
 - Compromised thinking and reasoning
 - Susceptibility to illness
 - Weight gain
 - High blood pressure



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THE PROBLEM

- Impacts of too little sleep (Twenge, 2017):
 - More prone to depression and anxiety
 - Twice as likely to report higher levels of depressive symptoms
 - Teens who sleep less than 7-hours per night are 68% more likely to have at least one risk factor for suicide.



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THE PROBLEM

- Cognitive deficits
 - Impairs sustained attention (Ratcliff & Van Dongen, 2009)
 - Decline in brain volume (Sexton, Storsve, Walhovd, Johansen-Berg, & Fjell, 2014)



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THE PROBLEM

- Cognitive deficits (Edwards, Kamat, Tomfohr, Ancoli-Israel, & Dimsdale, 2014):
 - Just one night of poor sleep can lead to the following:
 - Less efficient filtering out of important information from junk
 - Inefficient visual tracking



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THE PROBLEM

- Cognitive deficits (Telzer, Fuligni, Lieberman, & Galvan, 2013):
 - Adolescents with poor sleep showed the following:
 - Less recruitment of prefrontal cortex during cognitive tasks
 - Reduced network communication between the prefrontal cortex and brain region that process rewarding experiences



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THE PROBLEM

- Cognitive deficits (Gruber, Cassoff, Frenette, Wiebe, & Carrier, 2012):
 - Sleep deprived children showed decreased cognitive control
 - Attention
 - Impulsivity
 - Frustration



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THE PROBLEM

- Cognitive deficits (Wade, 2012):
 - Sleep deprivation can affect memory, creativity, judgement, motivation, and being engaged in the classroom.



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THE PROBLEM

- Now that you have a little more context around the problem, let's explore the reasons we are seeing this problem in our kids.



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WHY IT'S A PROBLEM



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WHY IT'S A PROBLEM

- We will review the following 3 reasons for the poor sleep we are seeing in our kids:
 - Disrupted Circadian Rhythms
 - Light at Night
 - Blue light Signals Wake Time



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WHY IT'S A PROBLEM

- Disrupted circadian rhythm
 - What is it?
 - Unnaturally bright light disrupts sleep signal hormone, melatonin (Kohyama, 2009)
 - Low melatonin is linked to depression, inflammatory states, and alteration in hormone function, including growth hormone (Luboshitzky & Lavie, 1999)



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WHY IT'S A PROBLEM

- Disrupted circadian rhythm (Dunckley, 2015):
 - The body does not enter the deeper phases of the sleep cycle as often or as long as is healthy.
 - When restorative sleep is lacking, the brain does not function as well, muscle tension builds, and you feel tired the next day even if total sleep time was adequate.



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WHY IT'S A PROBLEM

- Disrupted circadian rhythm (Cajochen et al., 2011):
 - Studies show that exposure to screens at night:
 - Delays sleep onset
 - Suppresses REM sleep
 - Prevents body temperature from dropping to supportive levels



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WHY IT'S A PROBLEM

- Light at night (Carskadon, 2011):
 - Has effects on sleep, mood and cognition
 - Associated with poor memory, irritability and impaired school or work performance



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WHY IT'S A PROBLEM

- Light at night (Paddock, 2010):
 - 2010 study showed that over 50% of children who used electronic media at night suffered from:
 - Sleep problems at night
 - Mood and cognitive problems during the day



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WHY IT'S A PROBLEM

- Light at night (Oshima et al., 2012):
 - Other studies have linked light at night to:
 - Depression
 - Suicidality
 - Low serotonin levels



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WHY IT'S A PROBLEM

- Light at night (Higuchi, Motohashi, Liu, Ahara, & Kaneko, 2002):
 - Other studies have linked light at night to:
 - Higher nighttime core temperature and heart rate, and lower melatonin levels
 - Markers associated with poor sleep and high stress



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WHY IT'S A PROBLEM

- Blue light signals wake time
 - Much stronger when looking at a small screen held close to the face (Sparks, 2013)
 - Screen time within 1-hour before bed is related to fewer nightly hours of sleep and poorer sleep quality (Hale & Guan, 2015)



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WHY IT'S A PROBLEM

- Blue light signals wake time (Adams & Kisler, 2013)
 - 47% of college students awoken at night to answer text
 - 40% of college students awoken at night to answer calls
 - Resulting in 46-minutes less nightly sleep



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WHY IT'S A PROBLEM

- Blue light signals wake time (Gazzaley & Rosen, 2016):
 - Poorer executive functioning predicts both more smartphone use and poorer sleep quality.
 - Anxiety about missing out predicts more smartphone use and more nighttime awakening, both leading to poorer sleep.
 - Negative spiral that disrupts mental functioning, including memory



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WHY IT'S A PROBLEM

- So a quick recap, we reviewed these 3 reasons for the poor sleep we are seeing in our kids:
 - Disrupted Circadian Rhythms
 - Light at Night
 - Blue Light Signals Wake Time



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WHAT TO DO ABOUT IT

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WHAT TO DO ABOUT IT


- This section covers major concepts for improving sleep
- It is not intended to be prescriptive
- It is intended to provide guidance toward your own personal strategies



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WHAT TO DO ABOUT IT

- We will review the following 4 ways to improve your child's sleep:
 - No Interactive Devices in the Bedroom at Night
 - Start Off the Morning Right
 - How to Handle Resistance
 - Establish a Bedtime Routine



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WHAT TO DO ABOUT IT

- No devices in the bedroom at night
 - Applies to everyone in the household
 - Designate an area in your home where phones go for the night
 - Lock them up if necessary



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WHAT TO DO ABOUT IT

- No interactive devices in the bedroom at night
 - Set a routine for when interactive devices to go to sleep
 - 6 p.m. for younger kids
 - 8 p.m. for adults and older children



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WHAT TO DO ABOUT IT

- Start off the morning right
 - Set a firm time for when your child can have his or her phone back
 - Don't let them just grab it as soon as they wake up
 - Use the phone privilege as a reward for completing a morning routine, such as making their bed, exercising for ten minutes, and eating breakfast.



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WHAT TO DO ABOUT IT

- How to handle resistance
 - Be in the boat with your child by honoring the evening/morning routine
 - Reiterate the importance of sleep on physical and mental health
 - Educate them about the affects of blue light



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WHAT TO DO ABOUT IT

- Establish a Bedtime Routine
 - Help your child establish a bedtime routine that does not involve a device.
 - Engage in the same routine every night.
 - Encourage self-soothing activities that prepare your child for sleep.



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WHAT TO DO ABOUT IT

- Just a quick recap, we reviewed these 4 ways of improving sleep:
 - No Interactive Devices in the Bedroom at Night
 - Start Off the Morning Right
 - How to Handle Resistance
 - Establish a Bedtime Routine



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