# Sleep, Learning and Mental Health in Teens 

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## Tonight's Storyline:

- Basics of sleep and circadian physiology
- How are students really sleeping?
- How sleeps impact your student's day in terms of both learning and health
- Finish up with creating an individual sleep plan for your teen


## Sleep Physiology:

REM sleep -

- Brainwaves most similar to waking, body paralyzed
- Important for memory consolidation and emotional control

NonREM sleep -

- Slow brainwaves, growth hormone secreted
- Important for physical repair and learning

Cycles -

- Every 90 to 120 minutes


## Circadian Rhythms:

- 24 hour variation in physiology
- Temperature, cortisol, melatonin
- Controlled by the SCN deep in the brain
- Entrained primarily by first daily light exposure
- Light in pm shifts rhythm later


## How are Students <br> Sleeping?

## 71\% of parents think their child "gets sufficientrsteerleep is a

 $41 \%$ of middle school students get the recommended $8.5-9.5$ hours nightly

(NSF, 2006)

- Centers for Disease Control


# Can a person actually sleep more than he/she needs to? 

No.


## How Sleep Impacts Your Teens' Day

## Academic Performance:

- 1 hour sleep deprivation in $6^{\text {th }}$ grader causes $4^{\text {th }}$ grade performance on cognitive tests (Sadeh, 2003)
- Grades strongly correlate with sleep in high school students (Wahlstrom, 2014)
- A students 15 mins more sleep than those with B's
- B students 11 mins more than those with C's
- Chicago high school study of $1^{\text {st }}$ period vs. afternoon (Cortes, 2010)
- absences more common in $1^{\text {st }}$ period
- lower grades and test scores in $1^{\text {st }}$ period
- end of year standardized tests correlated with period that subject was
studied


## Weekend "Catch up" Hurts Academic Performance:

- Shifts body clock later, creating a jetlag effect by Monday morning. Negatively impacts academics. (Bergin \& Bergin, 2009)
- Students who sleep >2 hours later on weekends get lower grades (Wolfson \& Carskadon, 1998)
- Class rank in college freshmen decreases as the variability in their nightly sleep increases (Payne, 2013 Teen Sleep Conference)


## Sports \& Extracurriculars:

- Sports injuries decreased $68 \%$ among those who slept >8 hours vs. sleep deprived students (Milewski 2012 AAP conference)
- 19 yo Stanford basketball players, sleep extension of additional 110 mins improved (Cheri, 2011)
- Timed sprint
- shooting accuracy, with free throw by 9\%
- Ratings of physical \& mental well-being during play
- Teen pedestrian actions are more risky when acutely sleep deprived ( 4 hours) than when well rested ( 8.5 hours). (Davis, 2013)


## Mental Health:

- Emotional intelligence is impacted by sleep
- Sleep deprived teens (<8 hours) increase high risk behaviors by $50 \%$ (O'Brien 2005), including:
- tobacco
- alcohol
- marijuana
- sexual activity
- Teens with ADHD have higher rates of sleep apnea and restless legs syndrome


## Mental Health:

- Increase in serious suicidal thoughts with insufficient sleep (Lee, 2012)
- Insomnia symptoms associated with self-injury (Bandel, 2018)
* $11 \%$ decrease in suicide plans for every 1 hr increase in sleep duration (Chiu 2018)
- $95 \%$ of LGBTQ youth report difficulty sleeping
* At schools with LGBTQ alliances sleep is better


# Create an Optimal Sleep Plan 

## Optimal Sleep Plan

1. Get 8-10 hours of sleep every night
2. School night: scheduled bed and wake time
3. Days off: bed and wake time within same hour
4. Dark in evening
5. Wind down time
6. Make your bedroom ideal for sleep

Would you be willing to do the Optimal Sleep Plan for 10 days, to see how it would help your student?

## Resources:

- Children's Hospital Sleep Disorders Center
- Pediatric Sleep Specialist at Swedish Sleep Center
- Behavioralsleep.org for a specialist


# Questions and Discussion 

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