

# **You Snooze, You Lose! Tools for Adolescent Sleep Health**

**Karla Joyce, LCSW**  
Research Operations Coordinator

**Kelsey Bero, LPC**  
Behavioral Health Therapist III



# Learning Objectives

---

At the conclusion of this session, participants should be able to:

- 1. Explain the etiology of sleep and circadian rhythm in adolescents
- 2. Describe specific tools for addressing common adolescent sleep concerns
- 3. Implement basic sleep health strategies for improving mental health and overall wellness

# Sleep By The Numbers

How much sleep is enough?

The American Academy of Sleep Medicine recommends:

Children between 6–12 years should regularly sleep **9–12 hours** per 24 hours

Teenagers between the ages of 13–18 years should sleep **8–10 hours** per 24 hours.



# How Much Sleep Are Teens Getting?

## Sleep issues are common in teens!

- The Youth Risk Behavior Survey found that 72.7% of students reported an average of < 8 hours of sleep on school nights.
- Seniors were reported being the most sleep deprived with 75% reporting < 8 hours on school nights.



# Why Is Sleep So Important?

Sleep is vital for the overall health and well-being of children and adolescents (adults too!)

- Physical health and development
  - Brain function
- Mental health and well-being



# Physical Health & Development

- Sleep contributes to the effective functioning of virtually every system of the body.
- Significant physical growth and development happens during adolescence. This growth and development can be negatively impacted by a lack of sleep.





# Brain Function

- The adolescent brain faces many changes during a short period, combined with psychosocial and environmental factors.
- The amount and quality of sleep, as well as sleep consistency, appear to affect brain function in areas responsible for self-control, reward processing, emotional reactivity and learning.

# Mental Health

- Healthy sleep is linked to improved emotional functioning in teens, which can help manage anxiety, depression, and stress.
- Insufficient sleep is associated with depression and anxiety and increases emotional reactivity and impulsivity.





Insufficient or inadequate sleep is associated with a variety of negative health outcomes including:

- Increased risky behaviors
- Increased likelihood of injury
- Poor academic achievement
- Mental health disorders



## **Negative Health Outcomes: Risk Taking Behaviors**

---

Several studies have shown increased risky behaviors in high school teens consistently reporting less than 7 hour of sleep/night:

Drunk driving

Weapon carrying

Fighting

Suicidal thoughts and suicide attempts

Smoking

Alcohol use and binge drinking

Marijuana use

Sexual risk taking

Texting while driving

## Negative Health Outcomes:

### Accidents & Injuries

Sleepiness in adolescents and young adults contributes to motor vehicle accidents, the leading cause of mortality in these age groups. As well as contributing other types of injuries.

- Wheaton et al., summarized data from more than 50,000 US teenagers, and found that reports of five injury-related risk behaviors were associated with reported consistent school-night sleep length of 7 hours of less:
  - Infrequent bicycle helmet use
  - Infrequent seatbelt use
  - Riding with a drinking driver
  - Drinking and driving
  - Texting while driving

# Negative Health Outcomes:

# Academic Achievement



Cognitive function is impaired with consistent sleep restriction, which may impact academic performance.



Sleep restriction is associated with decreasing academic performance from middle school through college years.



Weeknight bedtime is strongly associated with GPA.

# Mental Health – Depression

- An estimated 5.0 million adolescents aged 12 to 17 in the United States had at least one major depressive episode. This number represented 20.1% of the U.S. population aged 12 to 17.
- The prevalence of major depressive episode was higher among adolescent females (29.2%) compared to males (11.5%).
- The prevalence of major depressive episode was highest among adolescents reporting two or more races (27.2%).



## **Mental Health – Depression**

- Research suggests that sleep plays an important role in the development, progression, and maintenance of depressive symptoms among children and adolescents.
- Chronic and persistent sleep issues heighten **future** risk for the development of mental health disorders, such as depression.



# Mental Health - Depression

**Insufficient sleep among children and adolescents is associated with a variety of mental health issues:**

- Mood and risk of depression are correlated with sleep duration:
  - Self-reports of low mood, emotion regulation and self-harm increase with sleep restriction.
- The relationship between mood and sleep is complex and bidirectional. Poor mood and anxiety can worsen insomnia and vice versa.



# Mental Health – Anxiety

Anxiety is one of the most common mental health disorders that affect the youth population:

- An estimated 31% of U.S. adolescents meet criteria for a diagnosable anxiety disorder.
- Of adolescents with any anxiety disorder, an estimated 8.3% had severe impairment. (As outlined in the DSM-IV).
- The prevalence of any anxiety disorder among adolescents was higher for females (38.0%) than for males (26.1%).

# Mental Health - Anxiety

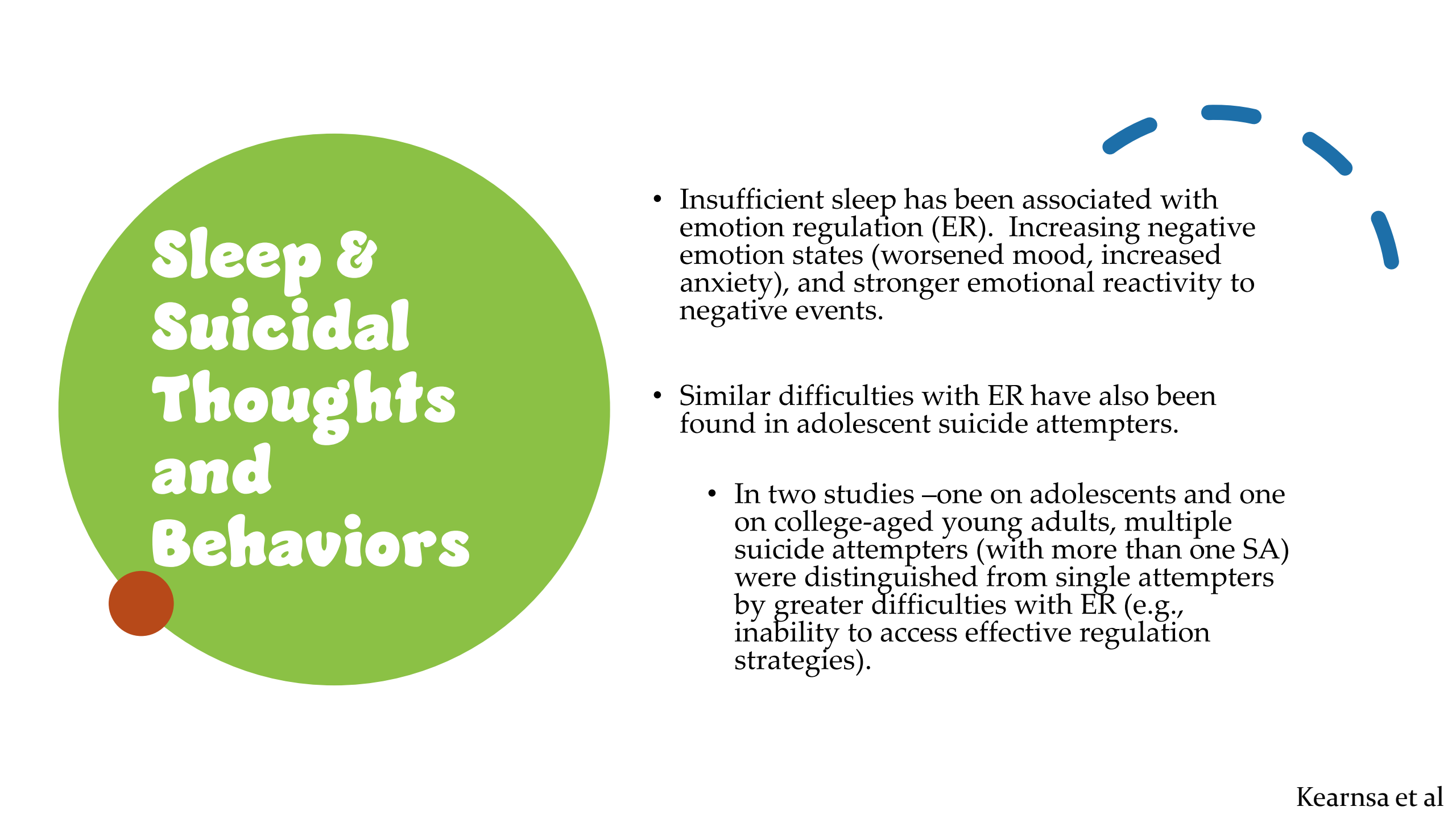


Sleep issues are commonly experienced among children and adolescents presenting with anxiety disorders:

- A study by Johnson et al., found that among participants with an anxiety disorder, approximately 25.6% met dx criteria for insomnia.
- Among teens with comorbid disorders (anxiety and insomnia), anxiety disorders preceded insomnia 73% of the time.

# Sleep & Non- Suicidal Self Injury

- NSSI is common among adolescents, with the age of onset reported to be between 12- and 14-years-old.
  - 17–18% in recent reviews of community samples
  - 40% or more reporting in clinical samples
- Research indicates that adolescents who sleep poorly report more health-risk behaviors including NSSI.



# Sleep & Suicidal Thoughts and Behaviors

- Insufficient sleep has been associated with emotion regulation (ER). Increasing negative emotion states (worsened mood, increased anxiety), and stronger emotional reactivity to negative events.
- Similar difficulties with ER have also been found in adolescent suicide attempters.
  - In two studies –one on adolescents and one on college-aged young adults, multiple suicide attempters (with more than one SA) were distinguished from single attempters by greater difficulties with ER (e.g., inability to access effective regulation strategies).





# **Why Is It Important To Address Sleep Concerns in Teens?**

Simply Put...

Improving sleep health, decreasing sleepiness, and increasing sleep quality are important areas for intervention to improve overall adolescent health and well-being!



# Two Process Model of Sleep

---



# What controls our sleep?



Circadian Rhythm ~ “about a day”

We all have a biological clock that guides physical, mental, and behavioral changes following a 24-hour cycle.

Our behavior during the day helps us set our biological clock.

# What controls our sleep?



Homeostatic Process ~ “Sleep Juice”

Time spent awake and active helps build our  
SLEEP JUICE

Building up more sleep juice during the day helps us  
fall asleep at night!



# Circadian Rhythm & Teen Sleep

Teens experience a natural shift in their circadian system which can impact sleep:

- Marked by delayed sleep timing
- Partially due to changes during puberty
- Exacerbated by several external influences including, increased social opportunities, evening work schedules, exposure to evening light

# **Common Sleep Disorders In Teens**

**Delayed Sleep  
Wake Phase  
Disorder**

**Insomnia**

**Hypersomnolence**

# Delayed Sleep Wake Phase Disorder

A sleep disorder that affects the internal clock, known as circadian rhythm. Teens with this sleep disorder have sleep patterns that are delayed two hours or more from usual sleep patterns. They go to sleep later and wake later.

- Common in adolescence due to biological shift in circadian rhythm system at puberty. Compounded by social changes during adolescence.
- Teens with DSWD often experience insomnia, short sleep duration, poor sleep quality and daytime sleepiness.
- Prevalence: 7 and 16% of teens



# Insomnia

Difficulty initiating and maintaining or returning to sleep after an early morning awakening.

- Must be present 3 nights/week for 3 months or more
- Tends to be chronic: 88% of teens with a history of insomnia reporting current insomnia.
- Prevalence: 10-30% of school aged children and teens
  - More common in children than in teens

# Hypersomnolence

The DSM-5 defines hypersomnolence as “symptoms of excessive sleepiness associated with lapses into sleep, feeling unrefreshed despite adequate sleep time, and difficulty waking in the morning, which occur despite adequate night-time sleep.”

- Prevalence: 11.7% of teens
- More prevalent in females vs. males
- Teens 15-16 y/o reporting the highest rates

# BEARS Sleep Screening Tool

---

## BEARS Sleep Screening Tool

	Preschool (2-5 years)	School-aged (6-12 years)	Adolescent (13-18 years)
<i>B</i> edtime problems	Does your child have any problems going to bed? Falling asleep?	Does your child have any problems at bedtime? (P) Do you have any problems going to bed? (C)	Do you have any problems falling asleep at bedtime? (C)
<i>E</i> xcessive daytime sleepiness	Does your child seem over tired or sleepy a lot during the day?	Does your child have difficulty waking in the morning, seem sleepy during the day or take naps? (P) Do you feel tired a lot? (C)	Do you feel sleepy a lot during the day? in school? while driving? (C)
<i>A</i> wakenings during the night	Does she still take Naps? Does your child wake up a lot at night?	Does your child seem to wake up a lot at night? Any sleepwalking or nightmares? (P) Do you wake up a lot at night? Have trouble getting back to sleep? (C)	Do you wake up a lot at night?  Have trouble getting back to sleep? (C)
<i>R</i> egularity and duration of sleep	Does your child have a regular bedtime and wake time? What are they?	What time does your child go to bed and get up on school days? weekends? Do you think s/he is getting enough sleep? (P)	What time do you usually go to bed on school nights?  Weekends? How much sleep do you usually get? (C)
<i>S</i> leep-disordered Breathing	Does your child snore a lot or have difficulty breathing at night?	Does your child have loud or nightly snoring or any breathing difficulties at night? (P)	Does your teenager snore loudly or or nightly? (P)

---

*B* bedtime problems; *E* excessive daytime sleepiness; *A* awakenings during the night; *R* regularity and duration of sleep; *S* sleep-disordered breathing; *P* Parent; *C* Child

Reprinted from Owens and Dalzell [1]. Copyright © 2005, with permission from Elsevier.

# Throughout treatment...

---

**CASE FORMULATION** → clear understanding of what contributes to the teen's sleep problems

---

**SLEEP EDUCATION** → empowers the teen to understand how sleep “works” to encourage positive and helpful behavioral changes

---

**BEHAVIORAL CHANGE & MOTIVATION** → using motivational interviewing + behavioral change strategies to enhance autonomy and willingness to implement lasting changes


---

**GOAL SETTING** → realistic, objective goals to measure weekly progress (“home projects”) and overall treatment effectiveness


---

## Your Sleep Toolbox

- Establishing regular sleep-wake times
  - Learning a wind-down routine
  - Learning a wake-up routine
  - Improving daytime functioning
- 
- Correcting unhelpful sleep-related beliefs
  - Improving sleep efficiency
  - Reducing time in bed
  - Dealing with delayed or advance phase
  - Reducing sleep-related worry/vigilance



## Establishing regular sleep-wake times

- 
- Consider set schedules – family routines and school start times are common challenges
  - Start with the IDEAL sleep window and then work to adjust in 15-30 minutes increments



# Learning a wind-down routine

## **Discuss:**

What is your bedtime routine?

How might you relax your body and mind for sleep leading up to bedtime?

What gets in the way of getting to bed?

## **In the 30-60 minutes before bed...**

- Create a cool, comfy environment
- Enjoy relaxing activities
- Stay in dim light or darkness
- Turn off electronic devices

# Learning a wake-up routine

## **Discuss:**

What time do you usually wake up?

What gets in the way of getting out of bed?

- **Refrain from snoozing**
- **Increase activity**
- **Shower or wash with cold water**
- **Expose yourself to sunlight or bright light**
  
- **Upbeat music**
- **Phone a friend**

# Improving daytime functioning



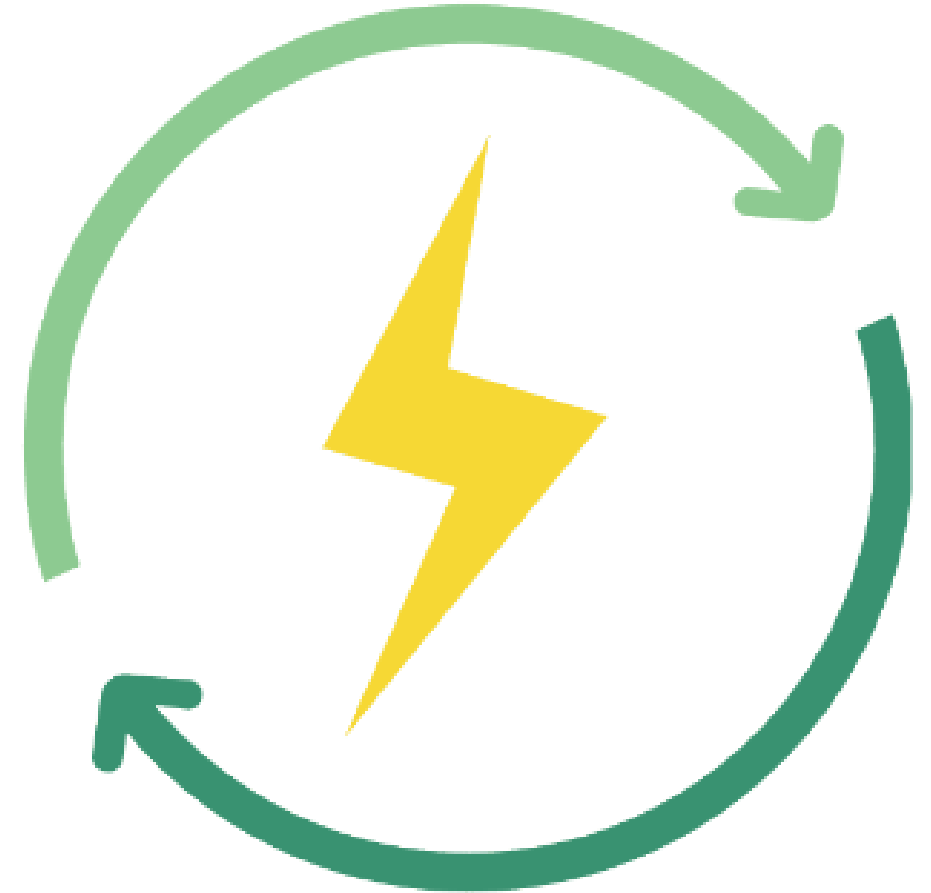
Taking naps during the day (in teens, most commonly after school) can decrease amount of sleep juice available to fall asleep at bedtime



Providing education on how to stay awake and active during the day can help teens avoid napping, improve daytime energy, and increase sleep juice through being more active during the daytime

# Generating Energy

- Most people think that they have a fixed amount of energy that declines when they're active. They think that the only way to get more energy is by napping or having down time.
- Actually, when we are more active, we feel more energized
- What kinds of activities might help you generate energy?



# Let's Practice!

1. Rate your energy on a scale of 1-10. (1=completely exhausted, 10=completely energized)
2. Engage in the energy generating activity with the group! (on the next slide...)
3. Then, you will rate your energy on a scale of 1-10 again.

## Energy Generation Activity

What is the activity?

Rate your energy before the activity \_\_\_\_\_  
(1 = completely exhausted, 10 = completely energized)

Rate your energy after the activity \_\_\_\_\_  
(1 = completely exhausted, 10 = completely energized)



**REFLECT:** What was it like to do this activity - before, during, and after?

What thoughts came up when you were doing this activity?

What feelings, emotions, or bodily sensations did you notice?

# References

- Harvey, Allison G. & Buysse, Daniel J. (2017). *Treating Sleep Problems: A Transdiagnostic Approach*. New York, NY: Guilford Press.
- Ree, M., & Harvey, A. G. (2004). Insomnia. In J. Bennett-Levy, G. Butler, M. Fennell, A. Hackman, M. Mueller, & D. Westbrook (Eds.), *Oxford Guide to Behavioural Home projects in Cognitive Therapy* (pp. 287-305). Oxford: Oxford University Press.
- Crowley SJ, Cain SW, Burns AC, Acebo C, Carskadon MA. Increased Sensitivity of the Circadian System to Light in Early/Mid-Puberty. *J Clin Endocrinol Metab*. 2015 Nov;100 (11): 467-73.
- Hagenauer MH, PerrymanJI, Lee TM, Carskadon MA. Adolescent changes in homeostatic and circadian regulation of sleep. *Dev. Neurosci*. 2009; 31(4): 276-84.
- Crowley SJ, Cain SW, Burns AC, Acebo C, Carskadon MA. Increased Sensitivity of the Circadian System to Light in Early/Mid-Puberty. *J Clin Endocrinol Metab*. 2015 Nov;100(11):4067-73.
- Asarnow LD, Mirchandaney R. Sleep and Mood Disorders Among Youth. *Child Adolesc Psychiatr Clin N Am*. 2021 Jan;30(1):251-268.
- Kolla BP, He JP, Mansukhani MP, Kotagal S, Frye MA, Merikangas KR. Prevalence and Correlates of Hypersomnolence Symptoms in US Teens. *J Am Acad Child Adolesc Psychiatry*. 2019 Jul;58(7):712-720.
- Meldrum RC, Restivo E. The behavioral and health consequences of sleep deprivation among U.S. high school students: relative deprivation matters. *Preventive medicine*. 2014; 63:24–28.
- Meldrum RC, Restivo E. The behavioral and health consequences of sleep deprivation among U.S. high school students: relative deprivation matters. *Prev Med*. 2014 Jun;63:24-8.
- Hysing, M., Harvey, A. G., Linton, S. J., Askeland, K. G., & Sivertsen, B. (2016). Sleep and academic performance in later adolescence: Results from a large population-based study. *Journal of Sleep Research*, 25(3), 318–324.
- Palmer CA, Alfano CA, Bower JL. Adolescent sleep patterns are associated with the selection of positive and negative emotional situations. *J Sleep Res*. 2020 Dec;29(6):
- Palagini L, Hertenstein E, Riemann D. Sleep, Insomnia and Mental Health. *Journal of Sleep Research.*, vol. 31, no. 4, 2022.



# References

- Brown WJ, Wilkerson AK, Boyd SJ, Dewey D, Mesa F, Bunnell BE. A review of sleep disturbance in children and adolescents with anxiety. *J Sleep Res.* 2018 Jun;27(3):e12635.
- Johnson, E., Thomas Roth, T., Breslau, N. The association of insomnia with anxiety disorders and depression: Exploration of the direction of risk. *Journal of Psychiatric Research* 40 (2006) 700–708.
- Zetterqvist M. The DSM-5 diagnosis of nonsuicidal self-injury disorder: a review of the empirical literature. *Child Adolesc Psychiatry Ment Health.* 2015 Sep 28;9:31.
- Kearns JC, Coppersmith DDL, Santee AC, Insel C, Pigeon WR, Glenn CR. Sleep problems and suicide risk in youth: A systematic review, developmental framework, and implications for hospital treatment. *Gen Hosp Psychiatry.* 2020 Mar-Apr;63:141-151
- Owens, J. A., & Dalzell, V. (2005). Use of the “BEARS” sleep screening tool in a pediatric residents’ community clinic: a pilot study. *Sleep Medicine*, 6 (1), 63–69.
- <https://www.nimh.nih.gov/health/statistics/any-anxiety-disorder>
- <https://www.cdc.gov/healthyschools/features/students-sleep.htm>
- <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>
- <https://www.thensf.org/the-critical-connection-between-teens-sleep-and-mental-health>