Aligning School Start Times for Adolescent Health:

The Case for Starting School Later

August 31, 2022 | 12:30-1:30 PM

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Speakers

Bert Mandelbaum, MD, FAAP

- Chair, Department of Pediatrics, Penn Medicine Princeton Health
- Chair, NJAAP Task Force on Adolescent Sleep and School Start Times
- School Physician for Montgomery, Hillsborough, North Brunswick, Chapin

Deborah Steinbaum, MD, MPH, FAAP

- Pediatrician, PediatriCare Associates
- Member, NJAAP Task Force on Adolescent Sleep and School Start Times
- Chair, Ridgewood, NJ Chapter of Start School Later

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Goals for Today's Talk

- Bring awareness of the health related issues regarding lack of sleep in adolescents
- Make the connections that the lack of sleep is in large part due to early school start times
- Motivate leaders to consider their values regarding education and mental health and to look at all opportunities to help achieve those values

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What Will We Review?

- **The Why:**

  - History of School Start Times
  - Science of Adolescent Brain and Sleep
  - Mental Health in Adolescents
  - Expert opinions, policy statements and evidence supporting delaying school start times

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Background Information

History, the Adolescent Brain and Incidence of Mental Health Issues

- **Early School Start Times were initiated in most districts to solve transportation problems**
  - Schools did not always start early - in the 1950's and 1960's start times were 8:30 - 9am
  - They progressively moved to earlier times from mid 1980's to early 2000s
  - There is no educational benefit to HS students from starting school early

- **Adolescents' brains are developing through age 25**
  - Adolescence is the second most critical time period for brain growth after infancy
  - Adolescents make more impulsive decisions when tired

- **Mental Health Issues in Adolescents have been on the rise and are increasingly impacting HS students**
  - Suicide attempt rates doubled from 2008 to 2017- seen both locally and nationally
  - Mental Health ER visits tripled comparing 2018 to 2008
  - *Post pandemic- 31% increase in 12-17 yos compared to 2019

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Background Information
Sleep

- **Sleep is Critical**
  - It is when the brain processes information
  - Adolescents need between 8-10 hours of sleep, usually 8.5 - 9.25 hours
  - 8 hours seems to be a critical tipping point
  - Average HS student gets b/w 6-7 hours of sleep, sometimes as little as 5 hours

- **Evidence that lack of sleep has significant deleterious effects on adolescents**
  - Impacts learning, mental health issues and safety (automobile accidents)
  - Increases risk of obesity, heart disease, growth suppression
  - Increases risk of impulsive behaviors, including substance abuse and sexual risk taking
  - Increases risk of sports injuries

- **Evidence that *increased* sleep has many positive effects on adolescents**
  - Improved attendance, grades, mood and sports performance
  - Decreased mental health issues, decreased absenteeism, decreased tardiness

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What Are The Issues Limiting Sleep in Adolescents?

- **<u>What Stops Students from Going to Sleep Early?</u>**
  - *Many Variables-*
    - Homework
    - Activities
    - Social Media
    - Poor Sleep Hygiene (inconsistent bed times, staying in room/bed while awake, using electronics/social media right before bed)

  - **BUT - in addition to this - almost all Adolescents have a Normal Physiologic Change in <u>*Circadian Rhythms*</u>**
    - Circadian rhythms help to regulate sleep and wake schedules
    - **Because of this shift in circadian rhythms, most students cannot fall asleep earlier than 10:30 pm/11:00!**

- **<u>What Makes Students Wake Up Early?</u>**
  - ***Only one reason -*** *School Start Times!*

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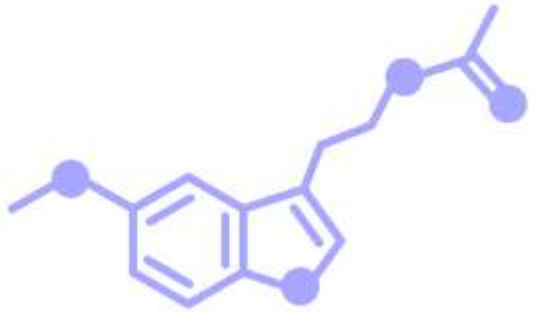
Understanding Adolescent Sleep Physiology and Circadian Rhythms

- **Melatonin**
  - Hormone released from the pineal gland in the brain
  - Purpose is to help regulate circadian rhythms and initiate and maintain sleep
  - Helps regulate reproduction cycles and breeding



- **Physiological delay in melatonin secretion in Adolescents**
  - Release from the brain starts at 10:30/11 pm
  - Continues well past sunrise
  - Occurs world-wide and is not a new phenomenon
  - Reverts back to a more typical adult circadian rhythm in 20s

- ***The Result: For teens, natural bedtimes are delayed:***
  - 2 hours for adolescent girls
  - 3 hours for adolescents boys

Teens' bodies naturally want to go sleep around 11 pm & wake up around 8 am!

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Why Do We Sleep?

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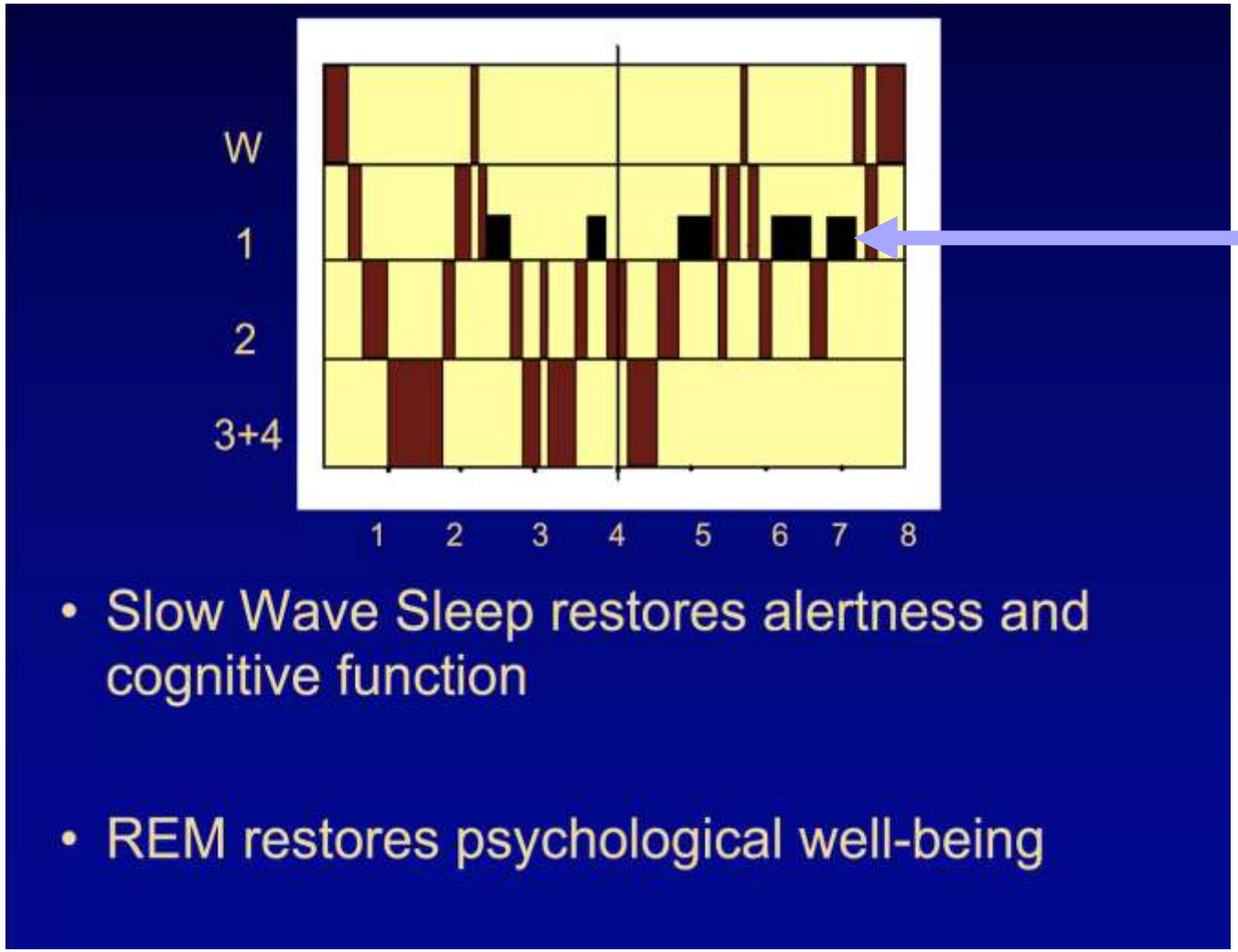

REM sleep are the black boxes-

Increase as the night goes on.

Sleeping 5-6 hours misses out on most of the REM sleep

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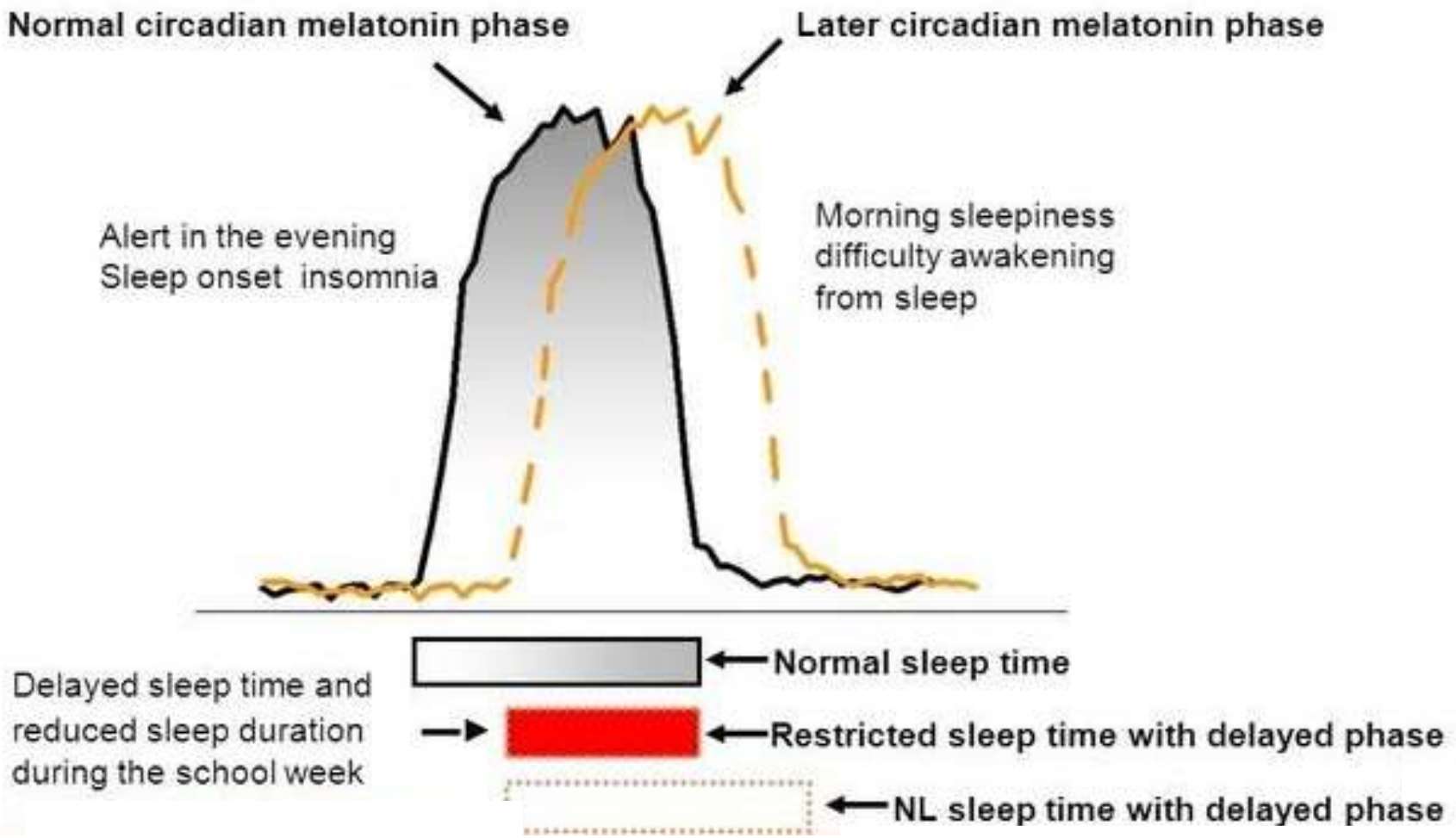
Adolescent Sleep-Wake Cycle



© 2006 American Academy of Sleep Medicine

Policy Statements-

ALL recommend school start times starting after 8:30am for adolescents

American Academy of Pediatrics (AAP) 2014: *"School Start Times for Adolescents"*

American Academy of Sleep Medicine (AASM) 2017: "Delaying Middle School and High School Start Times Promotes Student Health and Performance"

Centers for Disease Control and Prevention 2015

County Health Rankings and Roadmaps

National PTA 2017: Resolution on Healthy Sleep for Adolescents

National Association of School Nurses 2015

NJ Chapter, American Academy of Pediatrics 2019

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Evidence That Delaying School Start Times **Works**

- **Multiple studies show districts that delayed the school start times realized all the benefits that were expected:**
  - Improved grades, feeling of well-being
  - Decreased tardiness, accidents, mental health issues, substance abuse

- **Evidence supports the fact that teen sleep more when school start times delayed**
  - Almost exactly as much as the delay in school start times
  - ***School start times were delayed 25-60 min, and correspondingly, total sleep time increased from 25 to 77 min per weeknight***
  - Delayed school start times and adolescent sleep: A systematic review of the experimental evidence. Sleep Med Rev. 2016 Aug;28:86-95. Minges KE[1], Redeker NS[2]

- **Studies also support better teacher satisfaction and mood with delayed start times -** teachers were able to sleep more

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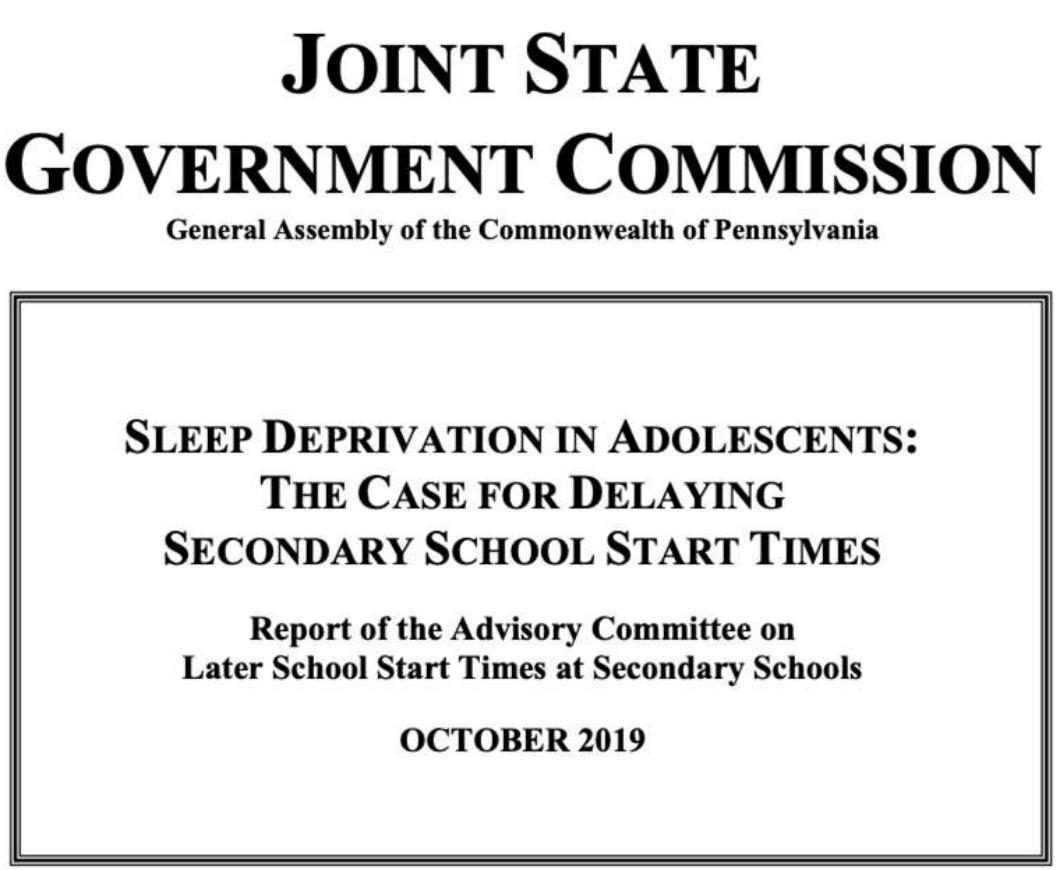

Findings:

- The Advisory Committee acknowledges the medical community consensus that **a public health crisis in the form of an epidemic of chronic sleep loss and daytime sleepiness in U.S. adolescent exists**.

- The Advisory Committee agrees that **the benefits of later school start times for secondary students are supported by robust research**.

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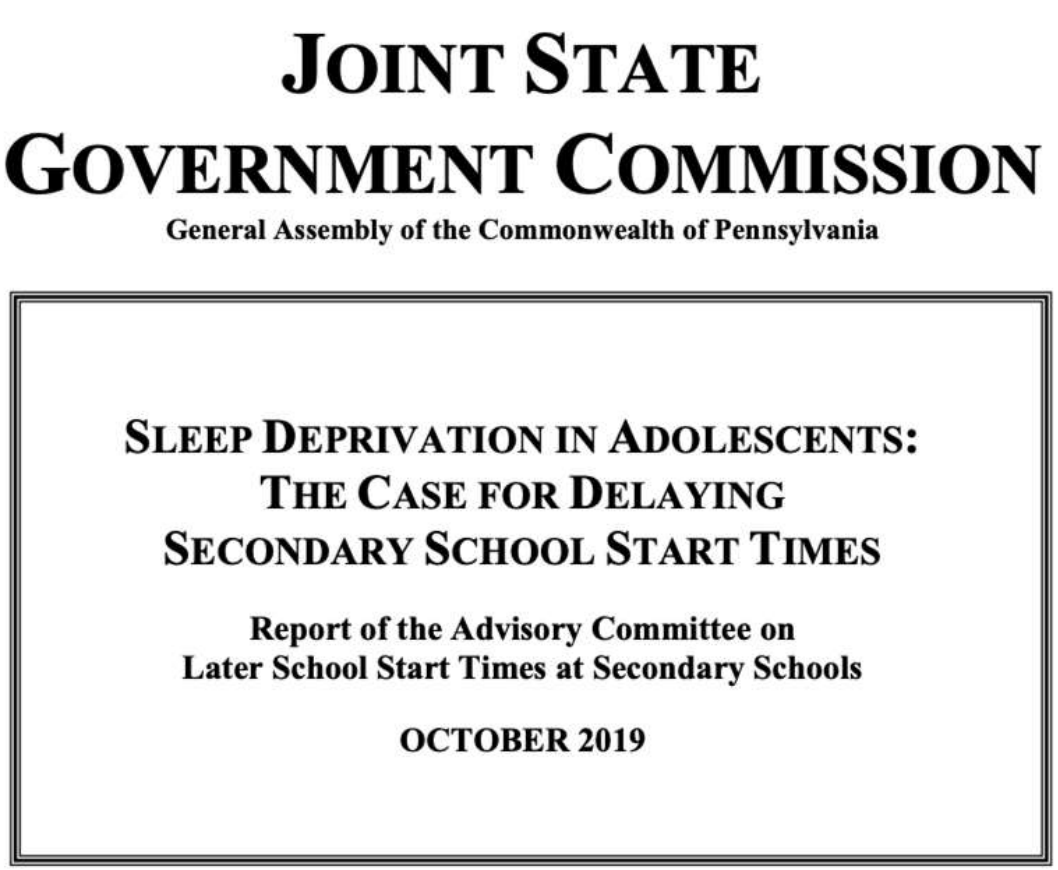

Recommendations:

- The Advisory Committee realizes that **biologically-driven changes in adolescent sleep patterns are beyond the control of adolescents, their parents, or their teachers. Adapting the daily schedule of adolescents to recognize and accommodate their sleep needs** is a potentially manageable response and **can be accomplished by establishing later secondary school start times.**

- The Advisory Committee recognizes that **establishing later school starts times has the potential to positively impact the epidemic of sleep deprivation**, but also recognizes that there are other factors that contribute to the problem. Therefore, appropriate **education and support for healthy sleep habits** is also recommended to strengthen and sustain those benefits.

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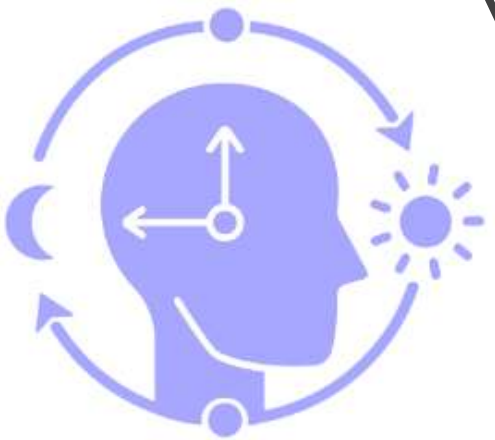
Are Mental Health Issues Impacted by Sleep?



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THE OFFICIAL NEWSMAGAZINE OF THE AMERICAN ACADEMY OF PEDIATRICS

AAP News

Latest News • Oct. 19, 2021 • www.aapnews.org

AAP, AACAP, CHA declare national emergency in children's mental health

The AAP, American Academy of Child and Adolescent Psychiatry (AACAP) and Children's Hospital Association have declared a national emergency in children's mental health, citing the serious toll of the COVID-19 pandemic on top of existing challenges.

They are urging policymakers to take action swiftly to address the crisis.

"Young people have endured so much throughout this pandemic and while much of the attention is often placed on its physical health consequences, we cannot overlook the escalating mental health crisis facing our patients," AAP President Lee Savio Beers, M.D., FAAP, said in a statement. "Today's declaration is an urgent call to policymakers at all levels of government — we must treat this mental health crisis like the emergency it is."

Before the pandemic, rates of childhood mental health concerns and suicide had been rising steadily for at least a decade. By 2018, suicide was the second leading cause of death for youths ages 10-24 years.

The pandemic then brought on physical isolation, ongoing uncertainty, fear and grief. Centers for Disease Control and Prevention researchers quantified that toll in several reports. They found between March and October 2020, emergency department visits for mental health emergencies rose by 24% for children ages 5-11 years and 31% for children ages 12-17 years. In addition, emergency department visits for suspected suicide attempts increased nearly 51% among girls ages 12-17 years in early 2021 compared to the same period in 2019.

Daytime sleepiness predicts future suicidal behavior: a longitudinal study of adolescents

FREE

Xianchen Liu ✉, Zhen-Zhen Liu, Ze-Ying Wang, Yanyun Yang, Bao-Peng Liu, Cun-Xian Jia ✉

Sleep, Volume 42, Issue 2, February 2019, zsy225, https://doi.org/10.1093/sleep/zsy225

Published: 16 November 2018 **Article history** ▾

Results

The incidence rates of ST, SP, and SA at 1 year follow-up were 6.0%, 2.1%, and 1.6%, respectively. The incidence rates of ST and SP significantly increased with elevated daytime sleepiness score at baseline. After adjusting for adolescent and family covariates including sleep-related variables (i.e. insomnia, nighttime sleep duration, and snoring), a daytime sleepiness score ≥ median at baseline was significantly associated with increased risk of ST (OR = 1.55, 95%CI = 1.02–2.35) and SP (OR = 2.60, 95%CI = 1.22–5.53).

Conclusions

Daytime sleepiness appears to be a significant predictor of subsequent suicidal behaviors in adolescents. These findings emphasize the importance of assessing and intervening daytime sleepiness for preventing suicide in adolescents.

Sleep Health
Volume 5, Issue 2, April 2019, Pages 175-179

Relationships between sleep duration and adolescent depression: a conceptual replication

AT Berger MPH [a], KL Wahlstrom PhD [b], R Widome PhD, MHS [a]

Results

In both analyses, greater sleep duration was associated with lower odds ($P < .0001$) of all 6 indicators of depressive mood. Five of the 6 sleep duration point estimates from the START Study and 4 of the 6 wake-up time point estimates fell within the 95% confidence intervals from the previous analysis. However, the associations between wake-up time and outcomes differed between the 2 studies' analyses.

Conclusion

Our findings add strength to the evidence supporting an association between short sleep duration and depression. This issue deserves attention from school districts given the current epidemic of short sleep duration among youth and the potential impact school scheduling can have on teen sleep.

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Associations of Longitudinal Sleep Trajectories With Risky Sexual Behavior During Late Adolescence - June 3, 2019

American Psychological Association
Society for HEALTH PSYCHOLOGY
Health Psychology

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0278-6133/19/$12.00
http://dx.doi.org/10.1037/hea0000753

Associations of Longitudinal Sleep Trajectories With Risky Sexual Behavior During Late Adolescence

Wendy M. Troxel
RAND Corporation, Pittsburgh, Pennsylvania

Anthony Rodriguez, Rachana Seelam, and Joan S. Tucker
RAND Corporation, Santa Monica, California

Regina A. Shih
RAND Corporation, Arlington, Virginia

Elizabeth J. D'Amico
RAND Corporation, Santa Monica, California

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Associations of Longitudinal Sleep Trajectories With Risky Sexual Behavior During Late Adolescence- June 3, 2019

In summary, current findings add to the growing literature suggesting a potential role of sleep disturbances in contributing to adolescent risk-taking behaviors, including, in this case, sexual risk-taking.

The epidemic nature of insufficient sleep among adolescents has been well documented. Findings further demonstrate the persistence of insufficient sleep across the adolescent years.

Multipronged strategies that consider both individual/family-level interventions, including increased parental monitoring/rule-setting around bedtimes and use of technology, as well as policy-levers, such as delaying school start times, are needed to reduce the epidemic of teen sleep problems and mitigate the impact of sleep problems on risk-taking behaviors, including sexual risk-taking

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610 Self-Reported Sleep and Circadian Characteristics Predict Future Substance Use: A Longitudinal Analysis from the NCANDA Study

Brant Hasler, Jessica Graves, Meredith Wallace, Stephanie Claudatos, Fiona Baker, Duncan Clark

Sleep, Volume 44, Issue Supplement_2, May 2021, Page A240,
https://doi.org/10.1093/sleep/zsab072.608
Published: 03 May 2021

Results

With regard to cannabis use, greater eveningness and shorter weekday sleep duration predicted an increased risk for additional days of cannabis use the following year, while greater eveningness and later weekend midsleep predicted a greater likelihood of any cannabis use the following year. With regard to alcohol binge severity, greater eveningness, greater daytime sleepiness, and shorter sleep duration (weekday and weekend) all predicted an increased risk for more severe alcohol bingeing the following year. Post-hoc stratified analyses indicated that some of these associations may differ between high school-age and college-age participants.

Conclusion

Our findings extend prior work, indicating that eveningness and later sleep timing, as well as shorter sleep duration, especially on weekdays, are risk factors for future cannabis use and alcohol misuse. These results underscore a need for greater attention to sleep characteristics as potential risk factors for substance use in adolescents and young adults and may inform future areas of intervention.

Are Physical Health Issues Impacted by Sleep?

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Ted Talk, 2019

Matt Walker: Why We Sleep?

- **Lack of sleep is carcinogenic**
- **Direct relationship with mortality**

- *Does an hour of sleep really make a difference?*
  - 24% **increase** in heart attacks the day after daylight savings time in the Spring.
  - 21% **decrease** in heart attacks the day after daylight savings time in the Fall

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Is Learning Impacted by Sleep?

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Educational Performance And Sleep

Original article

Multi-Night Sleep Restriction Impairs Long-Term Retention of Factual Knowledge in Adolescents

James N. Cousins Ph.D., Kian F. Wong, Michael W.L. Chee M.B.B.S.

Show more

https://doi.org/10.1016/j.jadohealth.2019.04.030

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How does this impact this achievement gap?

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July 18, 2022

U.S. Children Aged 9 to 13 Sleep Average of 7.45 Hours/Night

Sleep times shorter for Black versus White children, children from lower-income families, older children, children with higher BMI

MONDAY, July 18, 2022 (HealthDay News) -- Children aged 9 to 13 years in the United States sleep an average of 7.45 hours/day, according to a study published online July 18 in the *Proceedings of the National Academy of Sciences*.

Natasha T. Giddens, M.D., from the National Institute on Alcohol Abuse and Alcoholism at the National Institutes of Health in Bethesda, Maryland, and colleagues compared total sleep time using a week of actigraphy data among 4,207 American children aged 9 to 13 years of different racial/ethnic and income groups. The effects of neighborhood deprivation, experience of discrimination, parents' age at child's birth, body mass index (BMI), and time the child fell asleep on sleep times were examined.

The researchers found that for the sample, the daily total sleep time was 7.45 hours; significant predictors of total sleep time included race/ethnicity, income, sex, age, and BMI. Less sleep was reported among Black versus White children (~34 minutes), children from lower- versus high-income families (~16 minutes), boys versus girls (~7 minutes), and older versus younger children (~32 minutes); this was mostly due to later sleep times. Shorter sleep times were also seen for children with higher BMI.

Am J Public Health. 2018 May; 108(5): 599–600.
Published online 2018 May. doi: 10.2105/AJPH.2018.304381
PMCID: PMC5888077
PMID: 29617594

Embracing the School Start Later Movement: Adolescent Sleep Deprivation as a Public Health and Social Justice Problem

Lauren Hale, PhD✉ and Wendy Troxel, PhD

Healthy school start times address the first social justice goal of health improvement for the entire population, as shown by the clear and consistent evidence presented earlier. Moreover, it is an effective and scalable strategy. Rather than treating sleep deprivation as an individual problematic behavior, systemic delays in school start times address the root causes of poor sleep health for the current and future adolescent populations.

Healthy school start times also address the second social justice goal regarding fair treatment of the disadvantaged. Given strong evidence of racial/ethnic and socioeconomic disparities in adolescent sleep, early school start times may be particularly disadvantageous for vulnerable youths. A study from North Carolina found that later middle school start times were associated with a two percentile point gain in math test scores, with bigger gains among those at the lower end of the socioeconomic spectrum.7 Furthermore, delayed school start times are associated with increases in attendance and better graduation rates.5 Thus, later start times may be an important and cost-effective strategy to minimize the achievement gap and improve outcomes for socioeconomically disadvantaged students.

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What about sleep and athletic performance?

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"More and more, sleep is being recognized as the most obvious, accessible and natural performance enhancer in the NFL - the kind of secret weapon that players have always dreamed about."
- *Sports Illustrated*

"SLEEP IS THE MOST POTENT PERFORMANCE-ENHANCING ACTIVITY THAT WE KNOW OF."
- *Jeffrey Kahn, Sports Performance Scientist*

Optimal skill learning in athletes is dependent on quality sleep within the first 24 hours after training because that is when the human brain learns. It's practice, with sleep, that makes perfect.
- *Role of sleep in performance and recovery of athletes: a review article*

THE EFFECTS OF MORE SLEEP ON ATHLETIC PERFORMANCE

BASKETBALL PLAYERS: improved foul shot accuracy by 9%, 3-point shot accuracy by 9.2%, court sprint time by .7 seconds

SWIMMERS: improved 15-meter sprint times by .51 seconds (8%), reaction time off starting blocks by .15 seconds (17%). American records broken

BASEBALL PLAYERS: faster reaction times by 122ms (a fastball takes 400ms) and decreased fatigue by 40%

TENNIS PLAYERS: improved hitting accuracy by 42% and sprint times by 8%

FOOTBALL PLAYERS: improved 40-yard dash and 20-yard shuffle times by .1 seconds,[5] field-goal accuracy by 20%. Fewer mental errors by 50%

After sleep education, 100% of **STUDENT ATHLETES** got more sleep and 89% experienced improved athletic performance

ALL: One night of sleep improves motor-learning task speed by 20% and accuracy by 39%

sleep for success
A local 501(c)(3) non-profit founded by Westport moms
For more details and study references for this info-graphic, please visit
www.sleepforsuccesswestport.com

10TH GRADE STUDENTS: significantly improved reaction time with 1 day/week later school start time

4th – 6th GRADE STUDENTS: significantly improved reaction time and memory tests with 35 more minutes of sleep

THE EFFECTS OF LESS SLEEP ON ATHLETIC PERFORMANCE

ALL: student athletes sleeping < 8 hours = ~70% more likely to get injured

ALL: Sleep duration = strongest predictor of injury (not practice hours, # sports played, strength training, gender, or coaching style)

ALL: Sleeping 6 hours/night lowers reaction time by 18%

TENNIS PLAYERS: significantly decreased serving accuracy after one night of less sleep. Caffeine did not change result

BASKETBALL: significantly decreased shooting accuracy and fewer points scored, rebounds, steals, and blocks significantly increased # of technical fouls

TRACK AND FIELD: significantly decreased reaction times, increased false starts and lapses in attention

WEIGHT-LIFTERS: lifted significantly less weight during biceps curl, bench press, leg press, and dead lift

BASEBALL: 7 yrs. of data showed visiting team's sleep loss due to travel resulted in home team scoring 1.24 more runs

YOUNG ADULTS: ~ 5 hours of sleep/night for 2 nights = a 3X increase in lapses of attention and reaction times

ADULTS: 19 hours awake = decrease in reaction time & eye-hand coordination similar to performance when well rested but legally intoxicated

ALL: sleeping 4 hours/night for 6 nights = ~ 35% decrease in glucose metabolism, which is similar to patients with type-2 diabetes

"I really can't say it enough. I don't think people really pay enough attention to how important sleep is." - *Michael Phelps*

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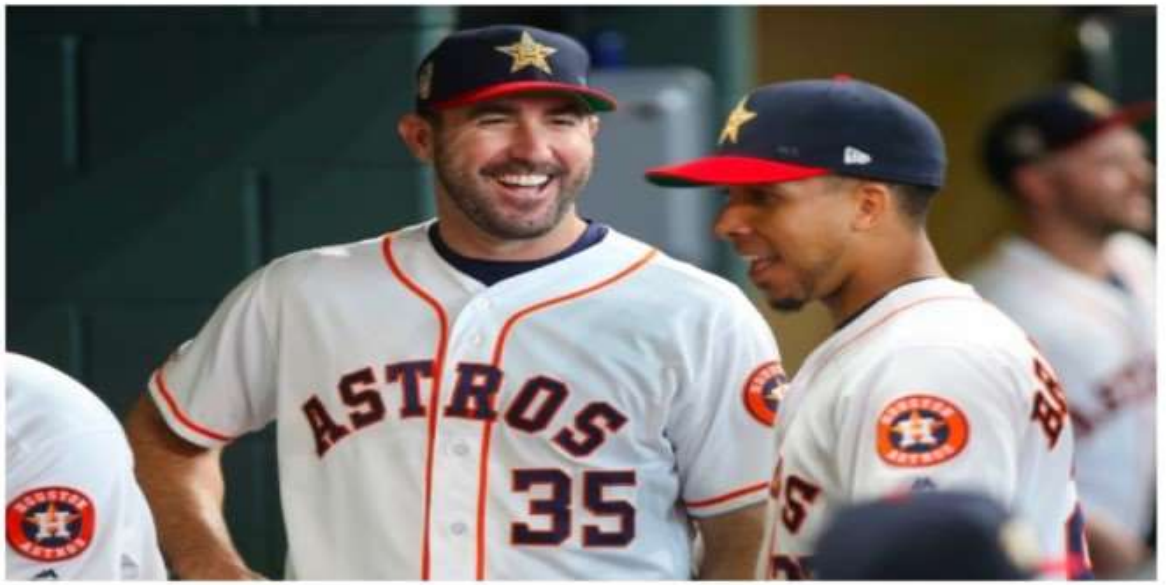
Sleep Even Helps Professional Athletes

Justin Verlander: The Astros' Ace and Sleep Guru



Justin Verlander, left, said he aims for 10 hours of sleep each night.
Troy Taormina/USA Today Sports, via Reuters

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What About Teen Auto Accidents?

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New study finds association between later school start times and decrease in teen-related car crashes

The study analyzed car accidents in teens in Fairfax County for two years.

By **ABC News**

February 19, 2020, 1:59 PM • 4 min read

New study reveals quality sleep helps prevent heart diseases

ABC News' Chief Medical Correspondent Dr. Jennifer Ashton discusses the major takeaways from the new study.

MediaNews Group via Getty Images, FILE

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June 11, 2021 | 2 min read

SAVE

Later school start times linked to fewer car crashes involving teens

By Janel Miller

ADD TOPIC TO EMAIL ALERTS

+ Source/Disclosures

Delaying school start times by slightly more than an hour led to fewer instances of teenagers driving while drowsy and fewer motor vehicle accidents involving younger drivers, researchers reported at SLEEP.

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Stanford Summit on Adolescent Sleep and School Start Times

January 2021

Stanford MEDICINE

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Summary of Evidence - January 2022

Contents lists available at ScienceDirect

Sleep Health

Journal of the National Sleep Foundation

journal homepage: sleephealthjournal.org

Adolescent sleep health and school start times: Setting the research agenda for California and beyond. A research summit summary

Terra D. Ziporyn, PhD[a,*], Judith A. Owens, MD, MPH[b], Kyla L. Wahlstrom, PhD[c], Amy R. Wolfson, PhD[d], Wendy M. Troxel, PhD[e], Jared M. Saletin, PhD[f], Sonia L. Rubens, PhD[g], Rafael Pelayo, MD, FAASM[h], Phyllis A. Payne, MPH[a], Lauren Hale, PhD[i], Irena Keller, PhD[j], Mary A. Carskadon, PhD[f]

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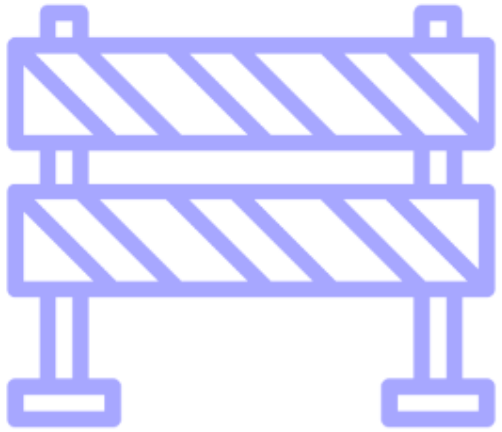
What are the Obstacles Preventing Schools From Doing This?



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Obstacles to changing middle school/ high school start times

Transportation- increased buses/bus drivers if decreasing routes- Financial Implications

Sports- coordinating competitions, practices and games starting later, daylight/lighting issues

Teacher/parent schedules

After school activities/impact on other stakeholders (rec leagues)

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Transportation

- This was the driver for most schools initial changing of school start times
- Potential solutions require analysis of transportation schedules

- **<u>Issues with Transportation</u>**
  - Decreasing routes means more buses and bus drivers
  - Already a bus driver shortage
  - DOT rules for bus drivers create a shortage and drive up the price
  - More buses in the 8:30am time period creates more traffic

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Transportation

Successful school districts have:

- Examined and tightened bus routes, shaving off time (30-40 minutes for a route, instead of an hour)
- Repurposed bus drivers for out of district routes instead of contracting those out
- Found funding to increase buses/bus drivers, going from triple tier back to double tier busing
- Swapped middle and HS start times, with middle school starting close to 8 and HS starting near 8:30am— *no cost to this swap

Consider Hiring a Transportation Consultant

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High School Sports

- Sports are important for many reasons; want to ensure the ability to encourage and continue sports participation

- Multiple things to consider:
  - Practices
  - Discrepancy between school end times with competing schools:
    - Home Games
    - Away Games
  - Missed class time at end of day

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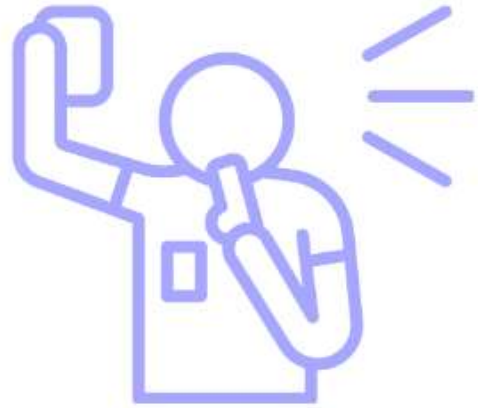
HS School Sports With a Delayed HS Start Time

- **Practices** - can become more efficient- can get them to start later and end earlier. Do not need more than 90 minutes for practice. Give coaches and students more time in their day.



- Can get games to run in parallel instead of sequentially
  - Request more officials available
- **Home games-** usually not impacted
- **Away games**- Might be pushed back but often can be accommodated
- **Communicate** - Discuss with other ADs in advance

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HS School Sports And Missed Classes

- **Create an Option 2 program-** allowing HS sports to count as physical education time
- **Create rotating schedule** so students not always missing the same class-
  - Princeton rotates its 4 morning and 4 afternoon classes on a daily basis
- **Have gym as last class -** Radnor has “Fitness for Athletes” Class
- **Shorten school day** by decreasing home room time and time between classes (Radnor) -
  - delaying school start by 55 minutes but only delaying the end of the day by 37 minutes (18 minutes saved)

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Managing HS School Sports With a Delayed HS Start Time

The goal is to improve athletic performance and decrease athletic injuries:

Remember - Athletes who get more rest have less injuries, quicker recoveries and better performance!

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Teacher/Parent Schedules

- Educate stakeholders regarding scientific rationale for change and perceived benefit to adolescent education and well being
- Include all stakeholders in planning
- Plan for implementation giving teachers and families time to adjust their personal lives to new schedules
- Make accommodations for teachers if needed in year 1 with flex time being first or last period if requested and available

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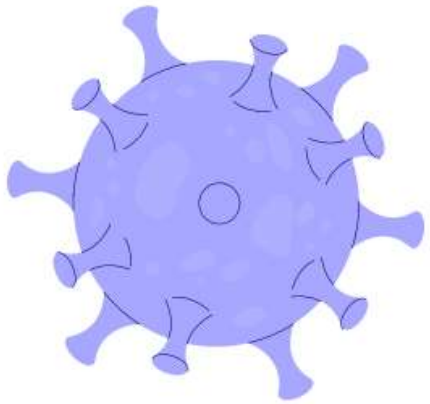
What Did We Learn About School Start Times During the Covid-19 Pandemic



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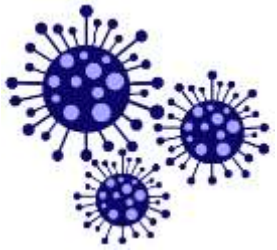
Lessons Learned About School Start Times During The Covid-19 Pandemic



- Schools have the capacity to make drastic changes quickly
- Virtual schedules shifted to a more reasonable start time in most districts where school started earlier than 8am
  - Once transportation was not an issue, most districts realized there was no benefit to starting early
  - Students had the benefit of later time and no need for transportation
  - This often equated to at least an hour or more of extra sleep
  - Adolescent, parent and educators report seeing noticeable difference in both mood and attention

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Sleep Med. 2020 Dec; 76: 33–35.
Published online 2020 Sep 22. doi: 10.1016/j.sleep.2020.09.015
PMCID: PMC7508172
PMID: 33070000

The impact of COVID-19 related school shutdown on sleep in adolescents: a natural experiment

Reut Gruber,[a,b,*] Sujata Saha,[c] Gail Somerville,[b,d] Johanne Boursier,[c] and Merrill S. Wise[e]

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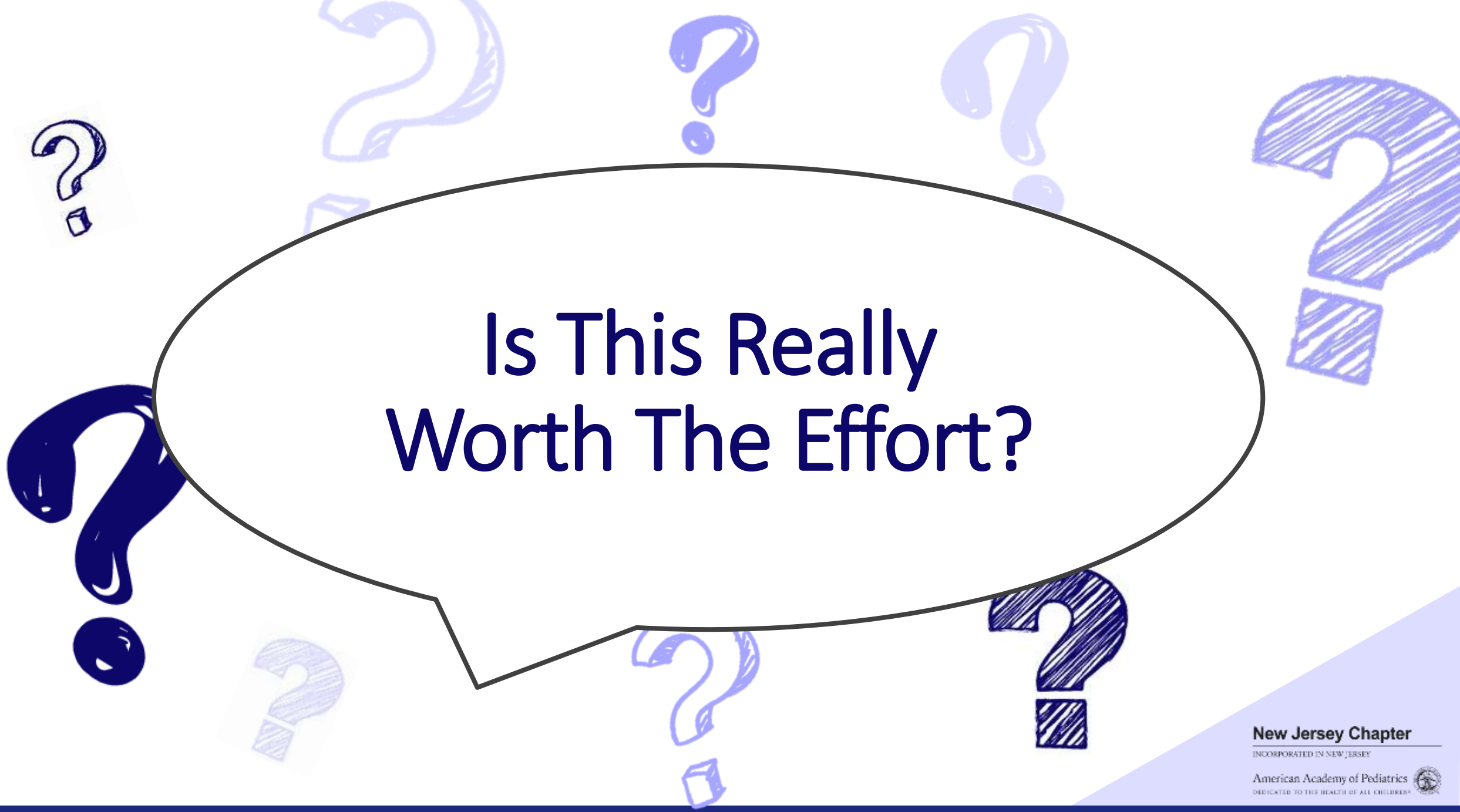
Results

The "natural experiment" caused by the shutdown of schools due to the COVID-19 pandemic led to a 2-h shift in the sleep of typically developing adolescents, longer sleep duration, improved sleep quality, and less daytime sleepiness compared to those experienced under the regular school-time schedule.

Discussion

These findings are consistent with previous studies showing that delaying high school start times could be an effective way to extend sleep duration, improve sleep quality, reduce daytime sleepiness and lower adolescents' stress during the school year. As many countries look for ways to reduce the number of interactions between students in schools so that physical distancing is feasible, following teens' delayed sleep biology could offer an affordable solution. For example, staggering arrival times by delaying school start time for older adolescents compared with younger adolescents can reduce the total number of students attending school at the same time. This strategy offers a practical means to reduce school density and the number of interactions between students which are needed to reduce the potential transmission of COVID-19 in schools, while improving adolescents sleep health.

Keywords: Adolescents, COVID-19, School Start Time, Sleep Health



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We Chose Our Roles To Help Children

- 3 things in the control of educators regarding health of students:

1. Educate students and families on benefits of sleep/mental health education
2. Recognize early and refer students with potential mental health issues
3. **Create policies that can improve health and education**

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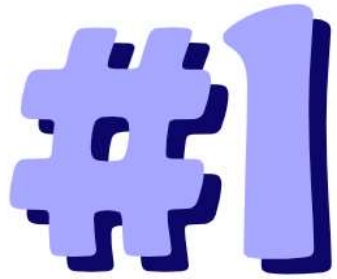
Prioritize Goals

- **Health, well being and education of students should always be the first priority**



- Needs of the adults, although important, should be a secondary issue

- We can fix the issue of school time and attempt to minimize any secondary concerns from all the other stakeholders

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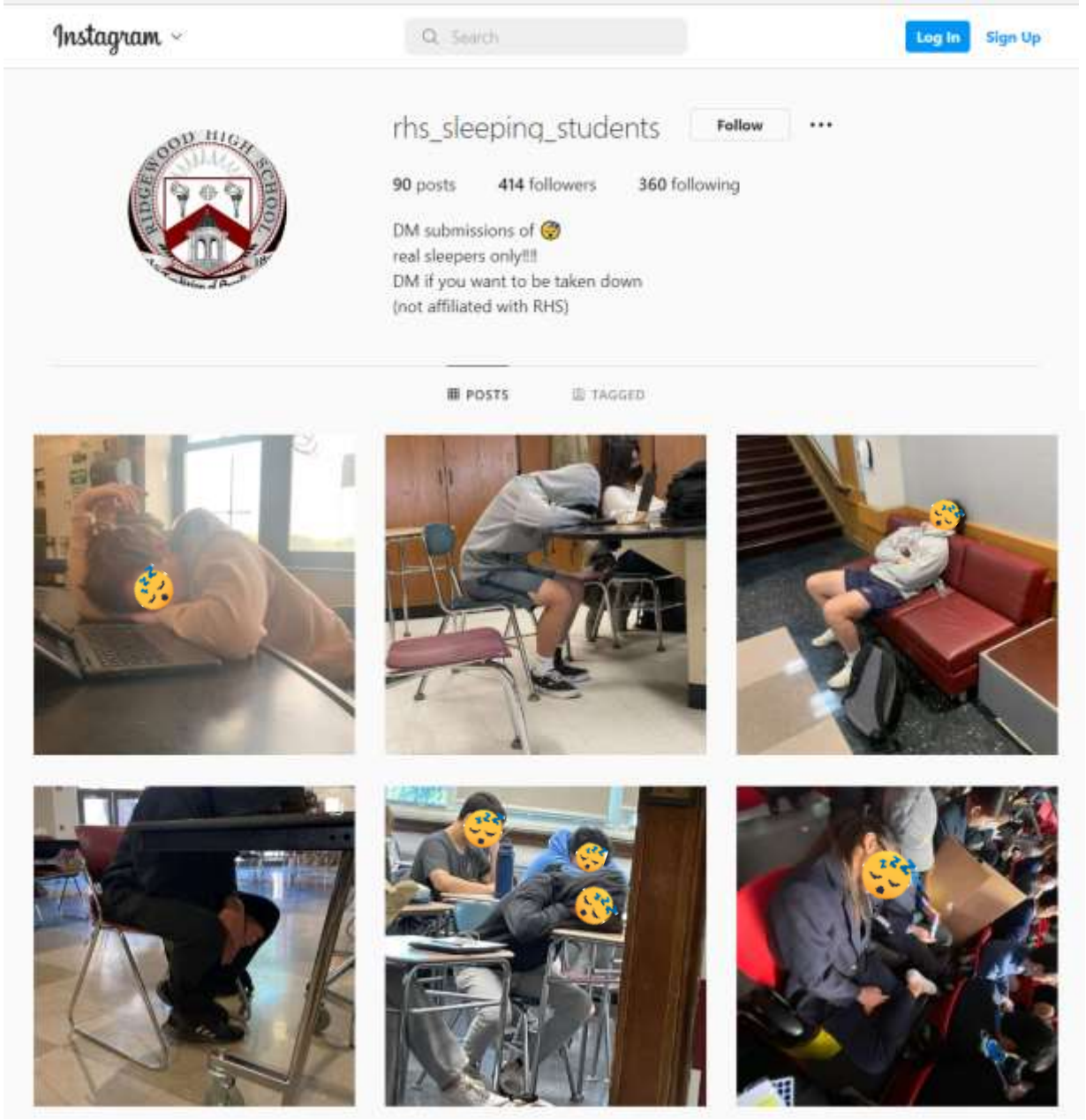

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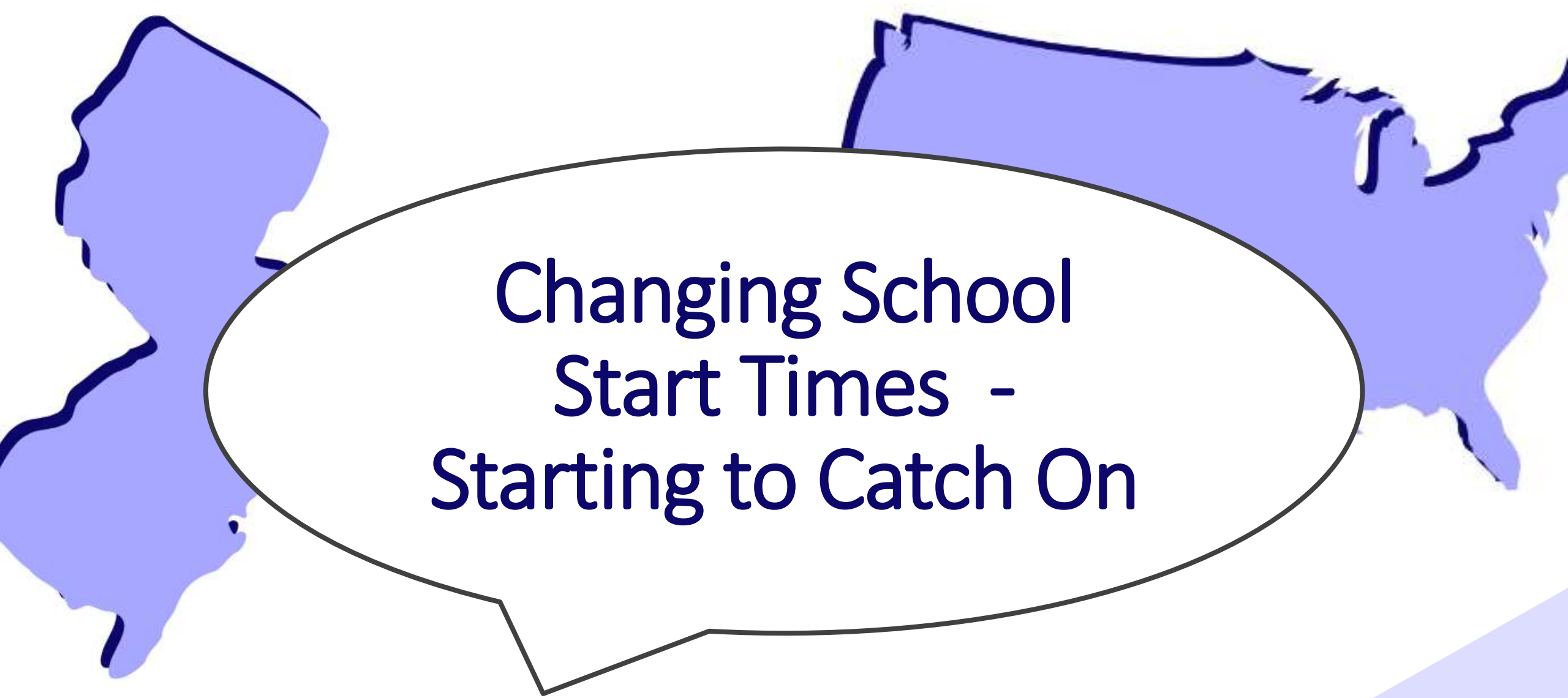

Changing School Start Times - Starting to Catch On

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RETHINKING SCHOOL START TIMES

Why is Millburn School District exploring changing start times?

Expert Recommendations

The American Academy of Pediatrics & American Academy of Sleep Medicine advise:

- Adolescents should get around 8.5 to 9.5 hours of sleep per night
- Research supports that adolescents are naturally inclined to go to bed later and sleep later in the morning
- Middle and high schools should aim to start no earlier than 8:30 am

Millburn is taking this first step toward an ultimate move to an 8:30 start time, especially as the state moves in this direction.

Teens often need more sleep than they get

- Statistics from MHS students from the 2018 Challenge Success survey:
- Average sleep on a typical school night: 6.4 hours
- Recommended number of hours of sleep: 9 hours
- Students getting 9 hrs. or more of sleep: 2.1%
- 62.7% report stress due to lack of sleep

Sleep can affect academic performance

- Later school start times & more sleep can improve students' attention, reduce sleepiness, and decrease the likelihood of students falling asleep in class.
- The brain consolidates learning and memory during sleep
- Students' test scores and grades generally increase when schools start later.

Sleep impacts on health and behavior

- More sleep can reduce rates of depression and anxiety.
- Schools with later start times have seen reduced tardiness, sleeping in class, and car crash rates
- Other improvements include improved attendance, graduation rates, and standardized test scores

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MTPS Pre-Covid School Schedules

SCHOOL	START	END
High School	7:45AM	2:37 PM
Middle School	7:40 AM	2:30 PM
Elementary/K-4	8:35 AM	3:00 PM
Washington	8:40 AM	3:05 PM

2020-2021 School Schedules

MHS

START: 8:00 AM
END: 2:50 PM

MMS

START: 8:00 AM
END: 2:50 PM

Elementary

K-4
START: 8:50 AM
END: 3:15 PM
GRADE 5 - WASHINGTON
START: 8:55AM
END: 3:20 PM

Logistical Considerations

There are a number of logistical considerations that the school district and community have examined before making a decision to change start times. These include the scheduling of afterschool activities and athletics, transportation routes and bus schedules, staff schedules, and family needs surrounding child care.

Athletics & Extracurriculars

- Later start time may benefit student athletes, as more sleep boosts athletic performance.
- HS athletes will miss fewer classes at the end of the day (for away games) with an 8 am start (vs. 8:15 or 8:30)
- There may be challenges in coordinating schedules within our athletics conference until the state mandates a universal start time.

Transportation

- Bus routes are shared (tiered) between secondary and elementary schools. Buses need at least a half-hour between the MS/HS runs and elementary runs in the AM & PM.
- To accommodate the bus runs, the elementary schools must start either a half-hour earlier (7:20 am) or later (8:50 am) than the 8 am MS/HS start time. The later start time was preferable to avoid young students waiting for buses in the dark before 7 am.

Child Care

- AlphaBest & SAM, will continue to provide AM & PM before school and after school care at our elementary schools.
- They will be adjusting their programs and times to coordinate with the new school schedules and family needs.

More information: https://www.millburn.org/apps/pages/start_times

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Chatham's Time Change

For several years now, our Board of Education and district administration have researched and discussed the issues surrounding the daily start-times of our schools. Specifically, we have analyzed the impact that an early start to the school day has on adolescent high schoolers. As a result of these discussions and presentations, and an evaluation of the evidence regarding the lack of sleep in our students and the impact that has on their emotional, academic, and physical well-being, we will institute new daily schedules at all of our schools for the 2022/2023 school year. The school days will be:

- PK - 3 Schools: 8:55 am - 3:25 pm
- Lafayette: 9:00 am - 3:30 pm
- CMS: 7:55 am - 2:30 pm
- CHS: 8:20 am - 3:00 pm

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Legislative Efforts

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California SB 328 Became Law in October 2019

- Began with a letter to the editor which was read by Sen. Portantino
- The law says all public middle schools start no earlier than 8 am and high schools start no earlier than 8:30 am by 2022
- Allows for earlier voluntary activities/zero period
- Honors prior collective bargaining agreements
- Allows an exception for rural districts
- Opposed in part by proponents of “local control”

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New Jersey State Legislators Coughlin & Gopal Propose Later School Start Time for NJ High Schools to Boost Teen Mental Health

March 25, 2022, 10:47 am | in

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New Jersey State Legislators Coughlin & Gopal Propose Later School Start Time for NJ High Schools to Boost Teen Mental Health

(TRENTON) – New Jersey's education system continues to rank best in the nation, but following two incredibly tough pandemic years the national picture for child mental health is worsening to the detriment of students and their educational outcomes.

Beginning the work of addressing this national youth mental health crisis, Assembly Speaker Craig J. Coughlin and Senator Vin Gopal introduced legislation Thursday, which proposes to push statewide high school start times in New Jersey to no earlier than 8.30 a.m. beginning in the 2024-2025 school year.

"When students are well-rested and eat nutritious meals they're better prepared to succeed in school," said Coughlin (D-Middlesex). "Overwhelmingly the research and success stories out of other states' school districts show that the benefits of later start times to students' holistic well-being, in terms of both mental health and academic performance, easily outweigh the costs."

Biological rhythms naturally induce teenagers to get to bed later, so when first period starts too early it puts more pressure on the sleep process and can worsen sleep quality. Deepening the link between sleep and mental health, a recent study found that teens starting school before 8:30 a.m. can be at particular risk of experiencing depression and anxiety.

"Sleep is fundamental to students' mental and physical well-being," said Senator Vin Gopal (D-Monmouth). "Ensuring students are getting enough rest is an important first step toward addressing the alarming rise in student mental health issues we're seeing in New Jersey."

"The New Jersey Chapter of the American Academy of Pediatrics (NJAAP) enthusiastically supports this bill sponsored by Speaker Coughlin and Senator Gopal, which encourages later school start times for high schools in New Jersey," said Jeanne Craft, MD, FAAP, President of the New Jersey Chapter of American Academy of Pediatrics. "Research demonstrates that later school start times for adolescents contribute to better academic performance, quality of life, mental health and school attendance."

NJAAP's Task Force on Adolescent Sleep & School Start Times, led by Dr. Bert Mandelbaum, has long advocated for later start times and has been working to educate about the importance of improved adolescent sleep and mental health.

Education

N.J. high schools would start later in the day under top Democrat's bill. Murphy is open to it.

Updated: Mar. 26, 2022, 10:49 p.m. | Published: Mar. 25, 2022, 4:43 p.m.

Students board a bus in Lakewood in 2019. Patti Sapone | NJ Advance Media

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What Steps Can We Take?

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“Teens face an incredibly challenging world. Together, school leaders and parents have the responsibility to create the best possible conditions for them in which to grow and thrive. **Implementing later high school start times is a significant change that positively affects their health, safety, and learning. If we have that will, we can find the way**. “

Later start time for teens improves grades, mood, and safety Kyla L. Wahlstrom August 14, 2017

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"TO DO NOTHING IS REALLY TO DO HARM."—JUDITH OWENS, M.D., M.P.H., Director, Center for Pediatric Sleep Disorders, Associate Professor of Neurology, Boston Children's Hospital, lead author, American Academy of Pediatrics, Policy Statement, ***School Start Times for Adolescents***. (Park, ***School Should Start Later So Teens Can Sleep, Urge Doctors*** (Aug. 25, 2014) Time.)

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Establishing a time before which schools should not begin mandated instruction is as fundamental as requiring schools to turn on the heat when the temperature falls below a certain level. Local districts would still set their own hours; they need only meet the minimum 'no earlier than' start time that's proven to be essential to students' well-being. It's time for an evidence-based, sound policy discussion that prioritizes student health and achievement. Teaching adolescents at a time they cannot effectively learn is an ineffective use of public funds and undermines our children's health and their chances for success today and in the future." – California State Sen. Anthony Portantino, about his bill to "Start the School Day Later"

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NJAAP Task Force on Adolescent Sleep & School Start Times

- **Website:** https://njaap.org/start-times/

- **Position Statement:** https://njaap.org/wp-content/uploads/2020/05/Task-Force-Position-Statement-Final-5.5.20.pdf

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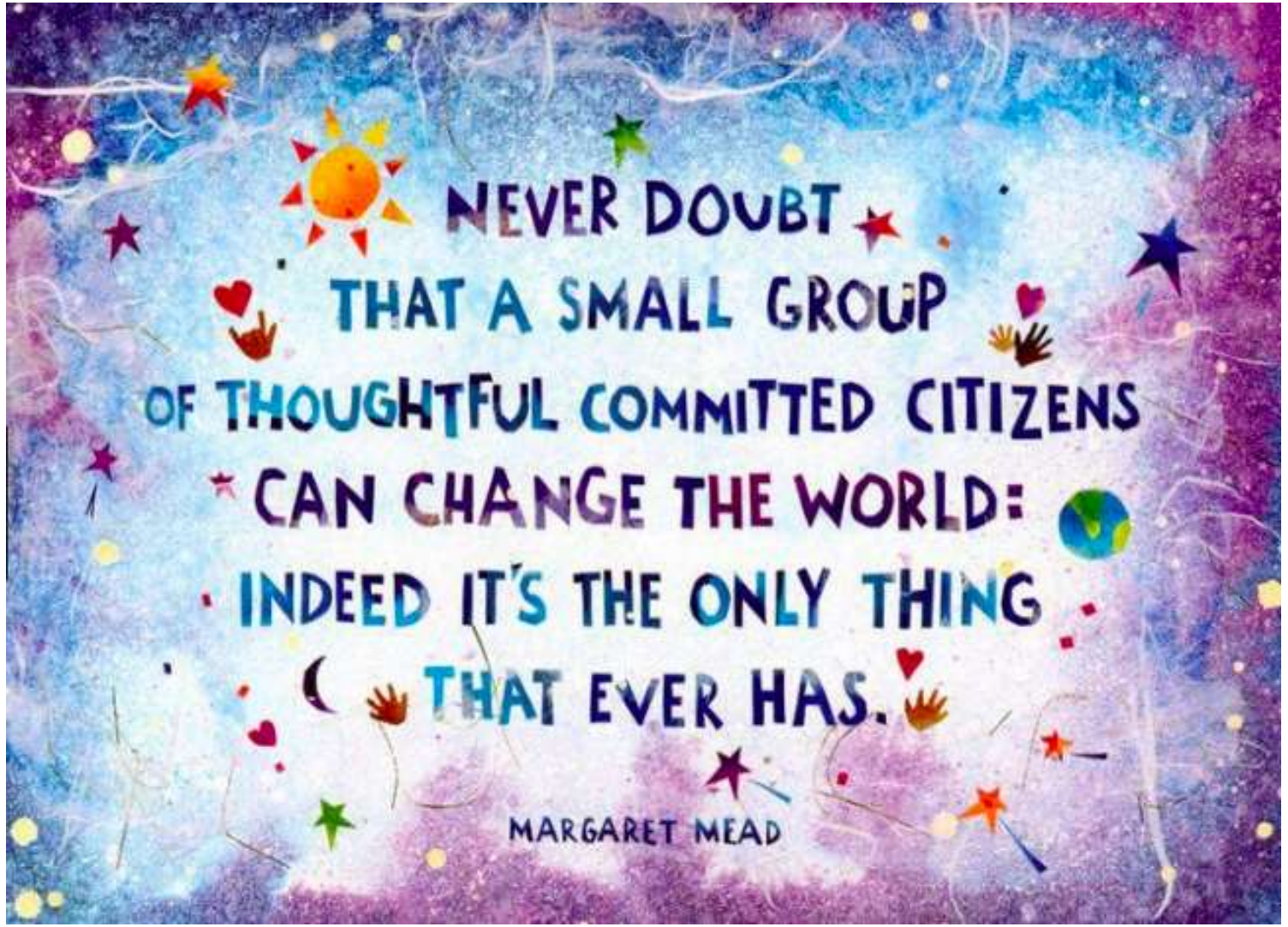

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Stay Tuned for Part Two!

Join us in late September for a panel discussion with school administrators who will share innovative strategies they implemented for healthy school hours!

Announcement To Follow

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