

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. The shapes are primarily triangles and polygons, creating a dynamic, layered effect. The central text is positioned within a white, trapezoidal area that is part of this layered design.

Delaying School Start Times for Middle & High School Students

Concerns from the BCSD Survey



- ❖ "If it ain't broke don't fix it."
- ❖ "It's always been this way. It will always be this way"
- ❖ "Teenagers...should just get off their phones"
- ❖ "If school started later, people would just go to bed later and their productivity would not increase"
- ❖ "I need more sleep... but leave enough time for sports and clubs after school."
- ❖ "We won't have enough time for homework..."
- ❖ "Students who are coming late will always come late - no matter what time we start."
- ❖ "It would be difficult to establish a schedule at my job."
- ❖ Parent: "I have always liked that my older kids could be home to get the younger ones off the bus."
- ❖ "When will I have time to eat with my family?"

“If it ain’t broke, don’t fix it.”

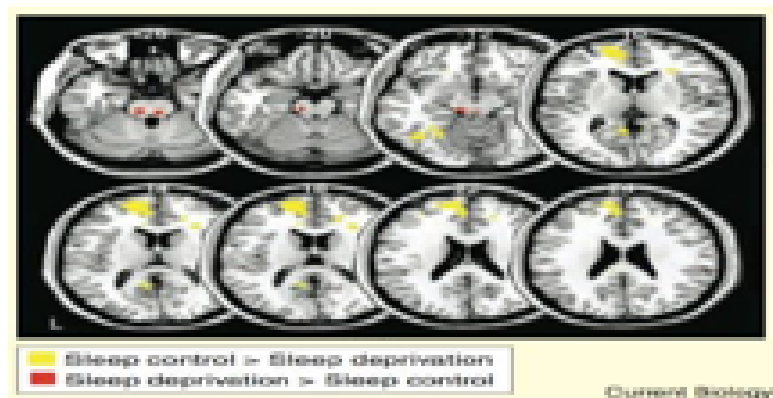
- ▶ Unfortunately, it is broken:
 - ▶ Teens need 8-11 hours of sleep per night
 - ▶ The typical adolescent gets only 6.75 hours of sleep on school nights
- ▶ Chronic sleep loss has many adverse consequences:
 - ▶ Higher risk of car crashes (sleepy driving is like drunk driving)
 - ▶ More depression & suicidal ideation
 - ▶ Higher chance of sports injuries
 - ▶ More drug use and risk-taking
 - ▶ Poorer attention and academic performance
 - ▶ More obesity, diabetes, heart disease

Sleep loss/ problems impact the “emotion centers” of the brain :

- Degree of emotional response
- Control of emotions
- Sleep as “overnight therapy”

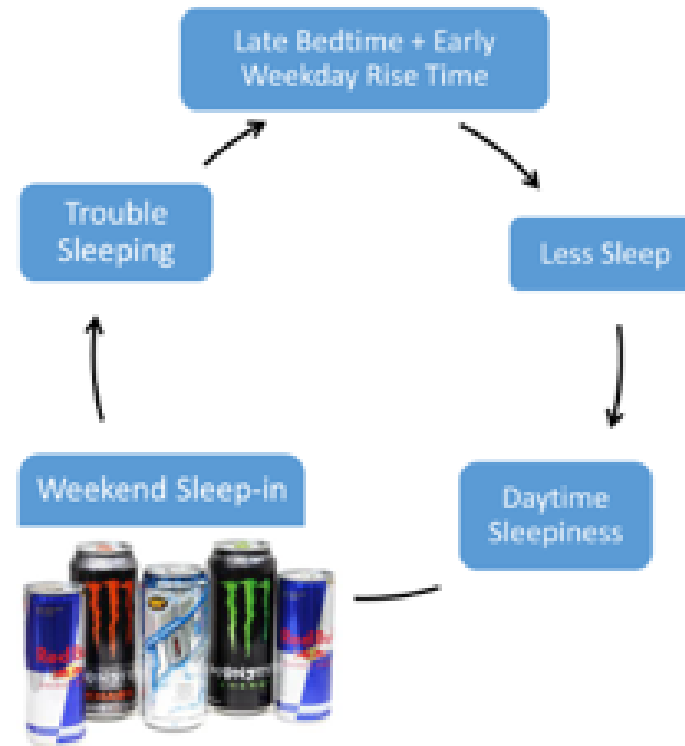
Sleep loss/ problems impacts reward-related decision making:

- Perceived less negative consequences, take greater risks
- impulsivity



van der Helm & Walker, 2009; Gujar et al., 2011; Franzen et al; 2009; Hasler et al., 2012

- 18-30% of teens use energy drinks (Terry-McElrath et al; 2014; Troxel et al; 2016)
- Daytime sleepiness is a major reason for using caffeine/energy drinks (Calamaro et al., 2009)
- Use of energy drinks is associated with increased risk of risky behaviors (Arria et al., 2010; Miller, 2008a; SAMHSA, 2013)



“A Generation of Tired but Wired Youth”

“It’s always been this way. It will always be this way”

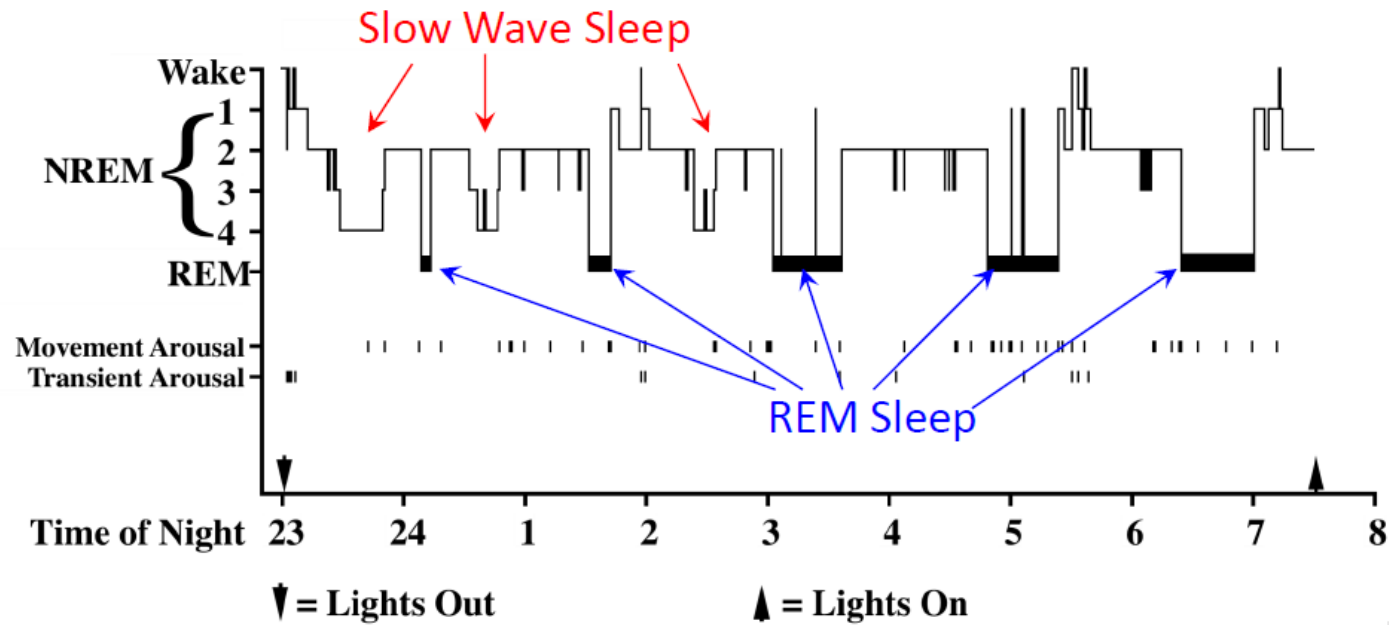
- ▶ It hasn’t always been this way:
- ▶ Historically, American schools (and places of work) started around 9 am.
- ▶ In the 1970s & 1980s school start times were made earlier for various reasons:
 - ▶ Tight economic conditions
 - ▶ Suburban sprawl
 - ▶ Trend toward larger, more distant schools instead of neighborhood schools
 - ▶ Need for cycling of buses
- ▶ There are schools around the country that start later.

“Teenagers...should just get off their phones”

- ▶ There are behavioral sleep habits in our control that can improve sleep:
 - ▶ Don't have a computer/TV/videogame console in the bedroom
 - ▶ Turn off your smart phone or other device at a reasonable time
 - ▶ Limit your time on social media, communicating with your friends
 - ▶ Make sure your bedroom is dark and quiet
 - ▶ Go to sleep at the same time every night (including weekends!)
 - ▶ Eliminate day time naps
- ▶ These efforts are crucial but not sufficient!

An Exemplary Night of sleep...in a well-slept teen.

CYCLE OF SLEEP IN A NORMAL TEENAGER



ADOLESCENT SLEEP, HEALTH,
AND SCHOOL START TIMES
THE NATIONAL CONFERENCE

Daniel J. Buysse, MD

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“If school started later, people would just go to bed later and their productivity would not increase”

Middle School Start Times and Sleep



Method:

- N = 205 7th & 8th graders from early (7:15 am) and late (8:37 am) start public Worcester, MA schools; 18% low income families
- Self-reported sleep habits and transcript grades assessed fall & spring

Key Results:

- School L sleeping 51 min. longer on school nights due to getting up 71 min. later.
- 36% at School L reported they obtained 9+ hours sleep on school nights vs. 18% at School E.
- School L reported significantly less daytime sleepiness.
- School E tardy 4 X more often than at School L.
- 8th graders at School E had significantly lower grades than School L.

(Wolfson et al., '07)

Teen Sleep Cycle

- ▶ The times for feeling sleepy and waking are typically biologically delayed in adolescents due to delayed melatonin secretion, slower accumulation of sleep debt, and less sensitivity to circadian rhythm modulators (such as light cues)
- ▶ Teens' natural sleep time is 11 pm to 8 am. This is later than any other time in their life, compared to younger children and adults.
- ▶ The crucial REM sleep happens later in the duration of sleep, which gets cut off in teens when their alarms are going off at 5, 6, 7 AM.
- ▶ Findings from a University of Minnesota study demonstrated students getting an extra hour of sleep each night even after 4 years into the school start time change.

“I need more sleep... but leave enough time for sports and clubs after school.”

- ▶ All of the extracurricular activities that are offered currently will be offered if school start times are changed, but students will be more alert to partake in them!
- ▶ Activities will not be shifted from after school to before school as this would defeat the purpose of the change.

How Does It Impact This Year's Athletic Schedule?

Athletic Team Number of Early (15 minutes) Dismissals High School

| | | | |
|-------------------|---|---------------------|---|
| Football | 0 | Swimming | 0 |
| JV Football | 0 | Wrestling | 0 |
| Freshman Football | 0 | Indoor Track | 0 |
| Girls Soccer | 0 | Baseball | 3 |
| Boys Soccer | 0 | First Team Baseball | 0 |
| Volleyball | 1 | Softball | 0 |
| Golf | 0 | Boys Lacrosse | 0 |
| Field Hockey | 1 | Girls Lacrosse | 1 |
| Cross County | 2 | Boys Tennis | 6 |
| Boys Basketball | 0 | Girls Tennis | 5 |
| Girls Basketball | 0 | Girls Outdoor Track | 4 |
| Boys Ice Hockey | 1 | Boys Outdoor Track | 3 |
| Girls Ice Hockey | 1 | | |

Total: 28 (420 minutes)

Total Yearly Instructional Minutes: 55,640

Percent Missed: .754%

Biddleford High School, Maine
(made change 2016-17)

If I offered a medicine that would decrease the risk of injury, improve academic and sports performance, and allow maximal normal growth, with the side effects of a lower risk of obesity and improved mood in your teen – all for free – who wouldn't come get that pill? We have access to that medicine right now: adequate sleep for teens!

- Lucien R. Ouellette, MD, Sports Medicine Pediatrician

<http://www.pressherald.com/2015/10/21/maine-voices-nine-hours-of-sleep-can-be-a-game-changer-for-student-athletes/>

“When will I have time to eat with my family?”

Impact on Schedule

Comparison of Neighboring High School vs. New Times for Biddeford High School

A later start time results in 5 more hours of sleep per week during hours that are proven to be better for concentration and time management.

| EARLY START TIME | | LATER START TIME |
|----------------------------|-------|----------------------------|
| Rise and shine | 6:00 | Sleep |
| Be at the Bus Stop | 6:45 | Sleep |
| | 7:00 | Rise and shine |
| Arrive at school | 7:30 | |
| Period 1 begins | 7:45 | Be at Bus Stop |
| School | 8:30 | Arrive at School |
| School | 8:45 | Period 1 begins |
| School | 12:30 | School |
| School ends 2:15 | 2:00 | School |
| Sports Practice begins | 3:00 | School ends 3:15 |
| | | |
| Sports | 4:00 | Sports Practice Begins |
| Sports | 4:30 | Sports |
| Sports practice ends | 5:00 | Sports |
| | | |
| | 6:00 | Sports practice ends |
| Dinner with family | 6:30 | Dinner with family |
| | 7:00 | |
| Bed time = 7 hrs. of sleep | 11:00 | Bed time = 8 hrs. of sleep |

“We won’t have enough time for homework...”

Longstanding Q: To Sleep or To Study?

Longitudinal study: examined nightly variations adolescents' study & sleep time associated with academic problems the next day.

Participants (N = 535, 9th grade) completed daily diaries for 14 days in 9th, 10th, and 12th grades.

(Gillen-O'Neel, Huynh, & Fuligni, 2013)

- **Results:** Regardless of how much student studies each day, if sacrifice sleep time to study more than usual, more difficulties:
 - understanding class material taught
 - struggles on assignment/test next day
- Since adolescents increasingly likely to sacrifice **sleep time VS. studying**, negative dynamic increasingly prevalent over time.
- **WARNING:** Must underscore that findings do not suggest that it is problematic for YOU to spend more time studying overall.

“Students who are coming late will always come late - no matter what time we start.”

School Start Times and Academic Performance

- Early research: Minneapolis–St. Paul (Minnesota):
 - Minneapolis & several suburban districts shifted to later bell times for high schools (starting in 1997-98), but St. Paul and other suburban districts maintained early schedules.
- Wahlstrom examined (2002: Minneapolis) (2014: 8 US High Schools, 3 states, 9,000 students) pre/post change.
- Results:
 - **Attendance rates increased (inconsistent)**
 - **Tardiness decreased (over 50% less)**
 - **Grades (GPA) improved (core courses: Social Studies, Science, Math, English)**

Late Start Effects on Teachers

- 52% saw fewer students falling asleep in class
- Allows teachers time for better planning across subject areas
- Less than 1 in 5 teachers indicate middle and high school students are ready for learning before 8 AM
- Both elementary and secondary teachers note schedule changes affect their personal lives, but most say the benefits to students is worth it.

Kyla L. Wahlstrom, Ph.D
University of Minnesota

Other Scheduling Concerns



“It would be difficult to establish a schedule at my job.”

- ▶ In some communities that have made school start times later, local employers were surveyed about how the new school schedule would impact them. The majority were able to adjust their schedules either because their clientele were students and/or their busy time was when adults left work (which is later than when the students got of school).
- ▶ A similar query could be made to employers of Brighton students.

“I have always liked that my older kids could be home to get the younger ones off the bus.”

- ▶ Each family makes arrangements for their members every school year, and each family’s situation is unique.
- ▶ Time will be given for parents to make schedule changes, set aside money in childcare FSAs, make arrangements for child care.
- ▶ There are many quality child care facilities in Brighton to which children can be bused, and they accommodate the BCSD school schedule whenever it changes.
- ▶ Currently, some families have to make before school child care arrangements, that may not be needed if school start times change.
- ▶ While older students may no longer be able to care for their younger siblings, the health and well-being of the older students will improve. And when the younger siblings get older, they will benefit from getting more sleep as well!

Many scientific & medical organizations agree...

- ▶ American Academy of Pediatrics (AAP)
- ▶ American Medical Association (AMA)
- ▶ Centers for Disease Control & Prevention (CDC)
- ▶ American Psychological Association
- ▶ American Academy of Sleep Medicine

Twenty Years' Worth of Data

- Over 2,000 articles examining adolescent sleep, late start, health/safety, psycho-social issues

Middle and high schools
should start at 8:30 AM or
later

Edina, MN middle and high schools changed start time to 8:30 AM in 1996

Results

- Invited the Center for Applied Research and Educational Improvement at the University of Minnesota to do research on impact of the late start time
 - Found academic gains
 - Less tired students
 - First hour attentive students – teachers supported it
 - Less litter in building
 - Parents found students more pleasant at home in the morning
 - Less disciplinary referrals
 - Other benefits
- Principals describe...
 - Less agitation in passing times
 - Fewer lunchroom incidents
 - Quieter “tone” to the entire building

Quotes - Edina

- “One of the most significant decisions I have made in my career for the good of students was to facilitate the change of the start time to a later time”
- “If I were to have changed back to the old times I would have received the wrath of the high school students – they could not believe the difference in their personal and school lives”
- “Other districts followed and made accommodations to our schedule”
- “If we believe that our job is to do what is best for students then this is a no brainer”
- “ I am still amazed at the resistance of adults to the research and decision to start high school later”

Jeremy Ray, Superintendent of Schools
Biddeford School Department
Dayton School Department
Maine

Measurements -- Six Months Later

- Decrease in Middle School tardiness by 52 %
- Decrease in Middle School Absenteeism 39%
- Decrease in High School Absenteeism 26%
- Morning visits to school nurse down by half, including early morning visits, fewer medications being administered and fewer students being sent home.
- Decrease in Period 1 Failures 20%
- Increase in the percent of students eating at breakfast at school
- Staff report students are more alert in their classrooms
- The majority (75%) of students surveyed report they are going to bed at a reasonable hour and getting over 8 hours of sleep.
- Visible decrease in students consuming caffeinated drinks in morning

The Data Tell the Story...

Outcomes are:

- Statistically significant
- Affecting all socio-economic groups
- Persistent over time

“While implementing a delayed school start time can be an emotional and potentially stressful issue for school districts, families, and members of the community, the health benefits for adolescents far outweigh any potential negative consequences.”

- William E. Kobler, MD, American Medical Association

Sources

- ▶ Adolescent Sleep and School Start Times Conference, Washington DC, April 27-28, 2017
- ▶ “School Start Times for Adolescents, American Academy of Pediatrics”
<http://pediatrics.aappublications.org/content/pediatrics/early/2014/08/19/peds.2014-1697.full.pdf>
- ▶ “Let Them Sleep: AAP Recommends Delaying Start Times of Middle and High Schools to Combat Teen Sleep Deprivation” <https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/let-them-sleep-aap-recommends-delaying-start-times-of-middle-and-high-schools-to-combat-teen-sleep-deprivation.aspx>
- ▶ “AMA Supports Delayed School Start Times to Improve Adolescent Wellness” <https://www.ama-assn.org/ama-supports-delayed-school-start-times-improve-adolescent-wellness>
- ▶ “2014 literature search showing significant evidence that early starts have serious negative impacts on students. Later Education Start Times in Adolescence: Time for Change.” By Paul Kelley and Clark Lee <http://www.ecs.org/clearinghouse/01/12/19/11219.pdf>
- ▶ “Changes in Sleep With Age”
<http://healthysleep.med.harvard.edu/healthy/science/variations/changes-in-sleep-with-age>
- ▶ <http://www.pressherald.com/2015/10/21/maine-voices-nine-hours-of-sleep-can-be-a-game-changer-for-student-athletes/>

Delayed school start time efforts

- ▶ February 2014 report about a three-year study by the University of Minnesota, funded mainly by the Centers for Disease Control and Prevention finds: there are empirically-based positive outcomes for adolescents whenever the start time of their high school is moved to a later time—with the starting time of 8:30 AM or later clearly showing the most positive results. <http://www.ccsdschools.com/Community/documents/ImpactofLaterStartTime.pdf>
- ▶ Data from Wake County, NC's middle schools suggesting that delaying start times may be a cost-effective method of increasing student performance by Finley Edwards. Economics of Education Review, Volume 31, Issue 6 (December), 2012, pp 970-983. Early to Rise? The Effect of Daily Start Times on Academic Performance.
- ▶ 2016 article that teens are more sleep-deprived than adults and need later school start times. <http://www.nytimes.com/2016/03/29/upshot/schools-are-slow-to-learn-that-sleep-deprivation-hits-teenagers-hardest.html?mwrsm=Email>
- ▶ 2016 Boston Globe article: Suburban Boston school district superintendents collaborating on delaying school start times. <https://www.bostonglobe.com/metro/2016/03/29/suburban-boston-superintendents-group-favors-later-high-school-start-time/8BdOOOrfP03XP0CpuLxbchl/story.html>
- ▶ <http://www.nbcnewyork.com/news/national-international/School-Start-Times-Impact-Adolescent-Sleep-Quality-320926701.html>
- ▶ 2015 Education Week article regarding school districts' difficulties implementing later school start times, despite evidence showing it's best for teens. <http://www.edweek.org/ew/articles/2015/09/23/teens-need-more-sleep-but-districts-struggle.html>
- ▶ Ithaca, NY Central School District make school start times later starting in the 2006-07 school year. <http://old.icsd.k12.ny.us/redistricting/startend.html>
- ▶ Maryland State Department of Education and Maryland Department of Health and Mental Hygiene's recommendation to encourage the Maryland State Board of Education to advise local school systems of the benefits of later start time policies and encourage them to conduct feasibility studies regarding the implementation of school starting times of 8 a.m. or later. http://www.startschoollater.net/uploads/9/7/9/6/9796500/maryland_dhmv_school_start_time_report_123114.pdf