



Frequently Asked Questions About Late Start

Adolescents require 8.5 to 9.5 hours of sleep per night for optimum health, and early school start times prevent teens from obtaining sufficient sleep.

During puberty adolescents experience a later shift in their sleep cycle due to a later release of the sleep hormone melatonin and due to changes in the sleep 'drive'. Both forces result in bio-chemical and developmentally appropriate later sleep times for teens, which then results in chronic sleep loss when teens are forced to wake at biologically inappropriate times. Sleep experts recommend natural sleep times of 11pm to 8am for adolescents - yet many middle and high school students must wake in the 5 or 6 o'clock hour to catch buses or walk to school.

The American Academy of Pediatrics, the Centers for Disease Control, the National Association of School Nurses, and the Society of Pediatric Nurses recommend middle and high school start times after 8:30am.

1. Who supports later school start times for adolescents?

Answer: Myriad professional groups have endorsed healthy school start times. Below are just a few entities (with links to the position statement or press coverage) who have spoken clearly on the issue:

[The Education Commission of the States](#)
[The American Academy of Pediatrics](#)
[The National Association of School Nurses](#)
[The Society of Pediatric Nurses](#)
[The Centers for Disease Control](#)
[The American Thoracic Society](#)

[The National Education Association](#)
[U.S. Secretary of Education Arne Duncan](#)
[The American Academy of Child and Adolescent Psychiatry](#)
[The National Sleep Foundation](#)
[The Lloyd Society \(Juvenile Justice Group\)](#)

2. What are the effects of not getting enough sleep?

Answer: Chronic sleep deprivation is associated with a host of medical, mental health, safety, and behavioral issues. Below is a mere sampling of some of the research:

- Suicide ([Bernert and Joiner, 2007](#))
- Depression and anxiety (Bates, 2002; [Chorney et al, 2008](#); Gibson et al, 2006; Kahn, 2006)
- Multiple Sclerosis ([Hedstrom et al, 2011](#))
- Obesity (Mitchell et al, 2013; [Must and Parisi, 2009](#); Taheri et al, 2004)
- Increased insulin resistance ([Mathews et al, 2012](#))
- Poorer dietary choices (Hale, 2013)
- Increased automobile accidents (Danner and Phillips, 2008; NCSDR, 1997; [Wahlstrom, 2014](#))
- Increased risk-taking: violence, drug use, sexual activities, unsafe behaviors ([O'Brien, 2005](#))
- Increased sports injuries ([Milewski et al, 2012](#))
- Poorer academic performance, grade failure (Kahn et al, 1989; [Wahlstrom, 2014](#))
- Increased disparity, wider achievement gap ([Buckhalt, 2011](#); Jacob and Rockoff, 2011)



- Poorer attention and problem solving (Gibson et al, 2006; Kilgore et al, 2007)
- Increased bullying and violence on school property ([Hildenbrand et al, 2013](#))
- Increased teen pedestrian accidents ([Davis et al, 2013](#))

3. Why are different times for elementary and middle/high schools proposed?

Answer: During puberty two phenomenon occur which shift the adolescent sleep and wake times to later than children and adults: melatonin is secreted later in the evening, and the sleep drive is extended. These temporary changes are the reason adolescents biologically cannot adapt well to early wake times, which results in chronic sleep loss and related health and safety concerns. Research consistently points to 8:30am as the earliest that school should start for adolescents, in fact many experts recommend 9am or later.

Elementary-age children are biologically programmed to be awake and alert earlier than teens, and thus some schools familiar with the research choose to start elementary earlier. However any earlier than 8am risks having children walking to school in the dark.

4. What is the earliest recommended bus pick-up time?

Answer: Safety experts agree that no child of any age should walk to school or stand by the road in the dark. Every year, deaths of children and teens struck by vehicles in the dark raise concerns about the risks of bus stops before civil twilight. Nationally, the “civil twilight” is 7:30am. Any bus pick-up time before 7am is not beneficial to student sleep needs at any age. Rural communities have greater struggles with early pick up times if students have great distances to travel to their schools. Suburban communities throughout the United States have found creative ways to schedule busing that doesn’t negatively impact healthy start times. Public transit, flipped busing for elementary and high schools, and regional busing contracts have all proven effective and economically viable.

5. Why is a regional approach critical for change?

Answer: Local school districts are organized in ways that limit the ability of local school boards to modify their own schedules independent of regional change. For example, communities that send students to regional Centers of Technology (e.g., Biddeford, Sanford, or Westbrook vocational schools) are legally required to conform to a regional school calendar schedule.

While isolated change has occurred, school districts who want to independently act on the research and delay start (and possibly end) times without coordination with neighboring school boards can create logistical problems in regards to transportation and extracurricular scheduling. Whether the actual significance of these logistical problems is real or merely perceived, they are often enough to deter schools from looking closer at healthy start times.

By coordinating with local communities on minimum bus pick up and school day start times, each community will determine how to best organize their school schedules within the parameters set. Think of it as similar to nutritional guidelines that set the minimum standards for health, but allows for local control and choices within the evidence-based guidelines.



6. Should schools still have ‘zero period’ classes or hold extra-curricular meetings before school?

Answer: While such practices are not encouraged by sleep experts, some communities in other states have met family/parent schedule needs by organizing special tutoring time with before school-care programs. For student athletes, early rising that impedes the recommended 8.5-9.5 hours of sleep is not recommended.

7. Won't later start times interfere in extra-curricular activities?

Answer: Later morning start times have the potential to reduce sports injuries and reduce the amount of time spent on homework – thus protecting student-athletes and providing additional opportunities for community and extra-curricular involvement. Among schools around the country who have adopted later start times, extra-curricular activity participation remains largely unchanged and Athletics Directors report that the logistics work out better than anticipated.

Research conducted by Milewski et al (2012) showed a 68% increase in sports injuries among adolescents who obtained less than 8 hours of sleep compared to their peers who obtain more than 8 hours per night. These results are not surprising considering that chronic sleep deprivation is associated with decreased reaction time, decreased attention, and poorer peripheral vision. Students who obtain more sleep spend less time on homework, which is also not surprising considering the cognitive effects of sleep deprivation.

Later school day start times do not necessarily need to translate to great changes in school-day end times, however considering that a large portion of teen sexual activity and drug use occurs during the un-supervised hours after school, many health and safety experts (as well as parents) are not opposed to later school day end times. It is also important to note that event scheduling between schools will be easier if changes are enacted regionally.

8. Won't teens just stay up later if school starts later?

Answer: No. Given the later shift in circadian rhythm that occurs during puberty, a teen's bedtime is dictated by biology whereas his/her wake time is dictated by the alarm clock.

Adolescent sleep deprivation is driven in large part by early wake times. In myriad studies of adolescents in schools where later school start times were enacted, adolescent bedtimes remained largely unchanged and total sleep time increased in relation to the later start to the school day.

9. Question: Are other communities looking to change their school start times?

Answer: Yes, and here are some activities to date:

- Westbrook, Topsham and Brunswick have already changed their school start times.
- South Portland, Scarborough, Biddeford, Old Orchard Beach, Yarmouth and Freeport are now considering later start times for the coming year.



10. Does it cost anything to move school start times?

Answer: Not necessarily – it depends on how schools choose to alter bus schedules. Many schools have adopted changes at no cost or with cost-savings. Other schools have chosen to purchase more buses as part of their plan. The strategies are as varied as the school districts, and if costs are incurred the price tag is minimal when compared to the cost of decreased enrollment, reduced learning, preventable auto accidents, school violence, bullying, compromised health, and depression – all of which are associated with chronic sleep deprivation.

Economists writing for the *Brookings Institution's Hamilton Project* estimated increased future earnings for students in middle and high schools who move to one hour later to be an additional \$17,500 per student in 2011 dollars. These economists compare the possible costs of purchasing more buses or practice field lights in order to accommodate later start times, and they estimate a conservative benefit-to-cost ratio of 9-1 for any dollar spent in moving start times one hour later. Experts point out that schools do not ignore nutritional guidelines, health codes, asbestos or mold due to cost, and nor should they ignore unhealthy school start times.

11. What is the liability of school boards that fail to act on public health issues that impact students?

Answers: While several states, including Maine, have/are introducing statewide legislation, at this point there is no national or state legislation that mandates school districts change their start time to after 8:30am. However, in recent months there have been discussions of potential litigation against school boards in Mid-Atlantic States where school boards have failed to act after years of “studying” the issue.

Of most importance is the recognition that school start times are a public health and safety issue. Public health and safety mandates that protect children are considered essential components of society. Child labor laws, child safety seat regulations, graduated driving licenses, minimum age requirements to purchase tobacco and alcohol, and school nutritional guidelines are merely a few examples of the ways in which we protect children and promote public health through legislation.

12. Isn't it the parents' responsibility to make sure kids get enough sleep? Don't we need to prepare teens for the real world? Isn't this coddling teens? I got up early and I was ok.

Answers: Parents and teens are responsible for healthy bedtimes, and schools are responsible for healthy wake times. The changes in sleep that occur during puberty are temporary, and end in the mid-twenties - in fact many colleges are altering their schedules, including Duke University which banned courses before 8:30am due to the research. Once puberty is complete the young adult is better able to rise early in the morning if needed. Regarding ‘early school start times were good enough for me’ - the current early school start times are a relatively more recent phenomenon – occurring when schools starting adding multiple bus tiers approximately 20 years ago – before experts recognized the shift in sleep cycle that occurs during puberty.



Suggested Reading (all fully available online):

‘Still Sleepless in America: The Paradox of Local Control in Education’, August 2015, Education and Health: <http://sheu.org.uk/x/eh332ss.pdf>

Education Commission of the States Policy Brief ‘Later Education Start Times for Adolescents: Time for Change’: <http://www.ecs.org/clearinghouse/01/12/19/11219.pdf>

‘Examining the Impact of Later High School Start Times on the Health and Academic Performance of High School Students: A Multi-Site Study’ (February 2014), Center for Applied Research and Educational Improvement, University of Minnesota:
<http://conservancy.umn.edu/handle/11299/162769>

‘Organizing Schools to Improve Student Achievement’, Brookings Institution Hamilton Project Report, 2011:
http://www.hamiltonproject.org/papers/organizing_schools_to_improve_student_achievement_start_times_grade_co/

‘Raising Awareness of Sleep as a Healthy Behavior’, August 2013, in the CDC publication Preventing Chronic Disease, available at the CDC website: www.cdc.gov/pcd/issues/2013

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