

Shifting school start times so that teens get more sleep may be a great idea, but what's the science and public policy behind the proposed change?

FUSD has scheduled a series of meetings to discuss this topic at school sites in the community:

Community Meetings on Late Start Times:

Meetings are open to anyone from any attendance area.

The Parent Representative Advisory Assembly (PRAA) has been studying the latest research and gathering input from staff regarding later start times for high school students. These meetings are the next step in the process to gather input from parents and the community.

Dates/Times/Locations:

Thursday, May 14 @ 3:30 - 4:30 p.m. @ Mission High – Library (41717 Palm Ave.)

Friday, May 15 @ 3:30 - 4:30 p.m. @ American High – Theater (36300 Fremont Blvd.)

Monday, May 18 @ 7 - 8 p.m. @ Washington High – Cafeteria (38442 Fremont Blvd.)

Tuesday, May 26 @ 7:30 - 8:30 p.m. @ Irvington High -Valhalla (41800 Blacow Rd.)

Tuesday, June 2 @ 3:30 - 4:30 p.m. @ Kennedy High – Theater (39999 Blacow Rd.)

What do we think?

Changing school start times has the potential to profoundly improve teenagers mental and physical health, lower the number of stress related behaviors common in this community, boost achievement for all groups and possibly lower the “drop out” rate; but changing when kids go to school also changes when they are released which has far reaching effects within our community not only to family schedules and income, but to how kids interact with each other and sharply limiting their free time. We provide relevant articles and information from around the country, but encourage you to explore the options and decide how this affects your student.

More than 90 districts across the country have made the change to a late start for high school in the last ten years and results vary from district to district. Some Bay Area schools that start “late” (8 am or later”) are Logan High School, Irvington High School (Wednesday and Thursday), Moreau High School, Palo Alto High School (Wednesday and Thursday), Andrew P. Hill HS, Burlingame HS, and Pacific Collegiate HS.

The Preuss School on the UC SD campus starts at 8:55 am with late start Fridays starting after 10 am and primarily accepts low income students whose parents have never attended college. US News and World Report ranks them 8th of U.S. top public high schools.

Relevant Articles to Changing School Start Times (by topic):

Sports Schedules and Area Schools:

Information: Most FUSD High School sports teams are part of the Mission Valley Athletic League (MVAL), including James Logan High School in Union City which recently switched to a late start schedule (8:40 am – 3:30 pm). MVAL sports schedules have been adjusted to accommodate the needs of the Logan athletes. For example, Mission students in previous academic years had to leave early in sixth period to make it to meets at TAK but this year they miss little classroom instruction time for sports.

Science of Sleep and the Teenage Brain:

Video. “Matt’s Story: Rethinking School Start Times”. Healthy Sleep Changes in Sleep with Age. 2008. Harvard Medical School Sleep Division. May 12, 2009. <http://healthysleep.med.harvard.edu/healthy/science/variations/changes-in-sleep-with-age>

Great site explaining many sleep issues in children and their changing needs as they age from the standpoint of Harvard Medical School, the video illustrates the promise of changing school start times with a young 15 year old student in Needham, MA.

Falling Asleep in Class? Blame Biology by Madison Park, CNN.com

This article is a basic overview of why high school kids fall asleep in class, circadian rhythms and how they affect teens. <http://www.cnn.com/2008/HEALTH/12/12/sleep.teenagers.school/index.html>

Teens and Sleep an article from the National Sleep Foundation that outlines changing needs for sleep with teens. Website has a lot of good related information including articles on sleep and depression, sleep and ADHD and sleep and children. http://www.sleepfoundation.org/site/c.huIXKjM0Ix/b.2419127/k.94D5/Teens_and_Sleep.htm

Sleep and Achievement

Articles written for a wide range of readers:

Bronson, Po. "Snooze or Lose" from New York Magazine. Can a lack of sleep set you're your child's cognitive function?

According to this article sleep deprivation can set back children's IQ as much as lead exposure and every fifteen minutes helps. In surveys conducted by the National Sleep Foundation, 90 percent of American parents think their child is getting enough sleep. The kids themselves say otherwise...60 percent of high schoolers report extreme daytime sleepiness. In another study, a quarter admit their grades have dropped because of it. Over 25 percent fall asleep in class at least once a week.

Every study done shows a similar connection between sleep and school grades—from a study of second- and third-graders in Chappaqua to a study of eighth-graders in Chicago. The correlations really spike in high school, because that's when there's a steep drop-off in kids' sleep. Dr. Kyla Wahlstrom of the University of Minnesota surveyed more than 7,000 high schoolers in Minnesota about their sleep habits and grades. Teens who received A's averaged about fifteen more minutes sleep than the B students, who in turn averaged eleven more minutes than the C's, and the C's had ten more minutes than the D's. Wahlstrom's data was an almost perfect replication of results from an earlier study of more than 3,000 Rhode Island high schoolers by Brown's Mary Carskadon. <http://nymag.com/news/features/38951/>

This article discusses studies that examined grades, SAT scores, and the connections between today's teens and their sleep deprivation and the rise of teenage obesity and ADHD. It would be ironic if our saving money and shifting school times earlier 25 years ago has cost us millions of dollars in the health costs related to obesity and lack of focus in the classroom. – Mkreeger Mission: SOS

Studies written for scientists:

"Sleep and the teenager."

Link and Ancoli-Israel. Sleep Research 1995 UC SD and VMAC

150 high school students (56 boys and 94 girls; mean age = 16.2 years, range = 15-18 years), enrolled in either biology, physiology or physics classes, participated in this project.

Students who have higher GPAs sleep more at night and are less sleepy during the day than students with lower GPAs. One interpretation of these results is that students who get more sleep have higher GPAs because of their ability to be more alert and pay more attention during class. When students are allowed to sleep as much as they want (i.e., non-school days), they tend to go to bed at a later time, wake up later in the morning and sleep longer. These sleep pattern suggests a delayed sleep phase syndrome with sleep deprivation during the week. These results are in agreement with other studies which have also shown that many teenagers suffer from delayed sleep phase syndrome.

**“Time in bed, quality of sleep and school functioning of children”.
Meijer, Habekothé and Wittenboer. “**

Findings indicate that while being a well rested student does not show correlation with being able to concentrate in class in this study, the well rested students did display **higher achievement motivation; they were also less bored and more open to teacher’s influence.** MEIJER AM, HABEKOTHE HT, VAN DEN WITTENBOER GL. Journal of Sleep Research 2000; 9(2):145-53.

Sleep Deprivation and Health

Boseley, Sarah. “Suicide risk higher for people who have trouble sleeping”.

Recent studies in the US, Poland and Italy have found a link between sleep problems and suicide. "People with two or more sleep symptoms were 2.6 times more likely to report a suicide attempt than those without any insomnia complaints," said the study's leader, Dr Marcin Wojnar, research fellow at the department of psychiatry at the University of Michigan and associate professor of psychiatry at the Medical University of Warsaw, in Poland. More research needs to be done to determine if sleep problems make suicide more likely to occur, but it suggests that if sleep problems are addressed it may make suicide less likely to occur. [Guardian.co.uk](http://www.guardian.co.uk). April 1, 2009. Guardian News and Media Limited. May 12, 2009. <http://www.guardian.co.uk/society/2009/apr/01/sleep-problems-suicide>.

“Sleep, Safety, Drugs, Teen Pregnancy and Other Reasons to Change School Start Times” Diana Zuckerman for the National Research Center for Women and Families

The same impaired judgment that can cause car accidents can also result in making bad choices. Teens are easily swayed by peer pressure, and lack of sleep makes them even less able to "just say no" or think ahead about negative consequences. This can result in all kinds of problem behaviors. The fact that high schools end early and many teens are unsupervised from approximately 2:30 until 5:30 p.m. (even later in many suburbs) also creates the opportunity to make bad choices. Ask your local police department when teens are getting in trouble, and they will inevitably talk about the unsupervised after school hours. <http://www.center4research.org/children3.html>

School start times, the Achievement Gap and “Dropping Out”

“The Silent Epidemic: Perspectives of High School Drop Outs”, by Bridgeland, Dilulio and Morison 2006

According to research done by the Bill and Melinda Gates Foundation, attendance patterns are a strong predictor of dropping out and changing school start times has a direct impact on tardiness and truancy patterns, then can changing school start times help close the achievement gap? In this paper drop out rates are examined and students described a pattern of refusing to wake up, missing school, skipping class, and taking three hour lunches – and each absence made them less willing to go back. These students had long periods of absences and were sometimes referred to the truant officer, only to be brought back to the same environment that led them to become disengaged. In our survey, 59 to 65

percent of respondents missed class often the year they dropped out and 33 to 45 percent missed class often the year before they dropped out. Consistent with national data, absenteeism is the most common indicator of overall student engagement and a significant predictor of dropping out. (pages 7-

8) <http://www.civicenterprises.net/pdfs/thesilentepidemic3-06.pdf>

High Schools Starting Later to Help Sleepy Teens by [Michelle Trudeau](#)

NPR story that details benefits of early start including a lower drop-out rate. What's happening when school starts later? Students reported less depression when there was a later starting time and teachers reported that students were more alert and ready for learning. Parents reported that their children were easier to live with because their emotions were more regulated." Additionally, Wahlstrom found a decrease in the number of students who were dropping out of school or moving from school to school. <http://www.npr.org/templates/story/story.php?storyId=6896471>

Sleep and Public Safety

Danner, F. and Phillips, B. "Adolescent sleep, school start times, and teen motor vehicle crashes"

In a study designed to assess the effects of delayed high-school start times on sleep and motor vehicle crashes the authors found that when average hours of nightly sleep increased and catch-up sleep on weekends decreased, then average crash rates for teen drivers in the study dropped. In the study county in the 2 years after the change in school start times, motor accidents dropped 16.5%, compared with the 2 years prior to the change, whereas teen crash rates for the rest of the state increased 7.8% over the same time period. CONCLUSIONS: Later school start times may both increase the sleep of adolescents and decrease their risk of motor vehicle crashes. <http://www.sciencedaily.com/releases/2008/12/081215074351.htm>

Nagourney, Eric. "Patterns: More Sleep, Fewer Student Car Accidents"

The same study in a NY Times article, the data does not show a causal relationship but in the two years they have been checking car crashes in that area following the change in school start times, accidents went down by 12% the first year and 16% the second. In the rest of the state, car accidents rose by 8% during the same period of time. <http://www.nytimes.com/2008/12/23/health/23patt.html>

"Sleep, Performance and Public Safety" from the Healthy Sleep Website Harvard Medical Center

Scientific research is revealing, for example, how sleep loss, and even poor-quality sleep, can lead to an increase in errors at the workplace, decreased productivity, and accidents that cost both lives and resources. The National Highway Traffic Safety Administration estimates that 100,000 police-reported crashes are the direct result of driver fatigue each year, and they consider this a conservative estimate. More recent data suggests that the true number is likely much higher. The Institute of Medicine estimates—based on recent high quality naturalistic and

epidemiologic studies—that drowsy driving is responsible for fully 20 percent of all motor vehicle crashes. Sleep deprivation played crucial roles in both the Challenger disaster and the Exxon Valdez spill, in these two cases alone causing millions of dollars of damage, the loss of brilliant well loved astronauts and with an incalculable cost to the environment. <http://healthysleep.med.harvard.edu/healthy/matters/consequences/sleep-performance-and-public-safety>

“Adolescent Sleep Needs and Patterns” A Research Report and Resource Guide put out by the National Sleep Foundation in 2000

A good overall report of many sleep related issues for teens especially public safety, student learning and late start times for high schools. This report touches on all the issues involved in start times including transportation, meal preparation for public schools, sports and day care issues. Since this report, further research has revealed a firmer connection between learning, student achievement in all areas and sleep. http://www.sleepfoundation.org/atf/cf/%7BF6BF2668-A1B4-4FE8-8D1A-A5D39340D9CB%7D/sleep_and_teens_report1.pdf

“Sleep and Adolescents”, by Peg Dawson, National Association of School Psychologists (NASP)

Good overview of the effects of sleep on the school community and a discussion of the issues. This is written for school counselors and administrators so it has a public policy focus as well as covering best practices from the medical community (written in Jan 2005). Actions and policies of school administrators can have a significant effect on the well-being of sleep deprived students. Mitigating the effects of sleep problems has implications not only for school performance in the near term but also for students’ long-term health and quality of life. Given the pressures of the “No Child Left Behind Act” (NCLB) and the imperative to improve student outcomes, school administrators can make a profound changes in their communities through a better understanding of sleep and the effects of sleep deprivation on mental health and school functioning in teenagers. <http://www.nasponline.org/resources/principals/Sleep%20Disorders%20WEB.pdf>

Sleep and Mission HS students Results from the 2007 SOS Survey

Mission HS students had the lowest number of average sleep hours per weeknight of any school ever surveyed by Stanford University’s Stressed Out Student Research Group (now Challenge Success). Average hours slept by seniors was less than 6 hours per night (female seniors had an average of 5.6 hours of sleep per night), and for grades 9-11 the average was between 6 and 7 hours. There is a strong correlation between extreme stress and lack of sleep, about half of students surveyed reported difficulties with sleep, experiencing exhaustion, and difficulty falling asleep – all symptoms of sleep debt and sleep disruptions with profound implications for health and well-being.

School Start Times Shifts in Other Districts Results in the Press

“It's About Time (and Sleep): Making the Case for Starting School Later” by Ellen Delision for Education World

Edina's superintendent asked Kyla L. Wahlstrom, a researcher at the University of Minnesota, to study the impact of the time change on the school population. Even the researchers were not prepared for the overwhelming support they found for the time shift. "We went in with 'tough eyes,' ready to report what was not working well," Wahlstrom told Education World. "But overall, the change was incredibly positive. Teachers were unanimously happy; they had more alert learners. Parents said their kids were easier to live with because they were more rested. And administrators said the whole temperament of the building calmed down; there were fewer discipline referrals. "Kids said they were feeling more in charge of their learning: they were more awake, less depressed, and not falling asleep in school." To accommodate the high school time change, elementary school starting times shifted to 8:30 a.m. and 9:20 a.m. Before and after-school day care is provided for younger students. Arguments against starting later -- that kids simply would go to bed later rather than get more sleep and after-school activities would be decimated -- have not panned out, said Nelson and Wahlstrom. "Coaches considered this the death knell for athletics," said Wahlstrom. "But there was no negative impact on participation or the success rate." Few students reported staying up later, she added. http://www.educationworld.com/a_admin/admin/admin314.shtml

Transportation Schedules and Buses:

FUSD currently has more than 31,000 students, almost 2000 receive bus transportation, and 1000 of these are secondary students (3%). The school buses are 90-passenger buses and rarely run at full capacity. For some students they need to catch the bus an hour to an hour and a half before school begins. *Notes from FUSD Financial Advisory Meeting, Sept 08, 2008*

Question: *FUSD is considering cancelling bus service to many students as an option for meeting budget restraints, would changing start times make it possible to keep buses running by finding more financially efficient and still safe school bus routes?*

Traffic and Residential Neighborhoods:

Neighborhood schools while convenient for families, also create a need for staggered student delivery in order to maintain individual safety and keep traffic congestion to a minimum for all residents in those neighborhoods. At this time there is at least 25 minutes between bells ringing at neighboring high schools, junior high schools and elementary schools in the Fremont Unified School District.

- How would this schedule change under the proposed plan?

- What would be the financial result of the “flipped” schedules in transportation costs and crossing guards?
- How many days in the year would students be waiting in the dark for school buses and how many students would be affected by these changes?

Leading Sleep Researchers

- William C Dement, Stanford University <http://www.stanford.edu/group/adolescent.ctr/Research/dement.html>
- Mary Carskadon, Brown University <http://www.lifespan.org/services/childhealth/research/team/carskadon.htm>
 - http://research.brown.edu/myresearch/Mary_Carskadon
 - Carskadon, “When Worlds Collide: Adolescent Need for Sleep Versus Societal Demand” <http://www.nksd.net/parents/StartTimes/When%20World%20Collide.pdf>
 - “Inside the Teen Brain” featuring Mary Carskadon on PBS/ Frontline <http://www.pbs.org/wgbh/pages/frontline/shows/teenbrain/interviews/carskadon.html>