

## Summary of Research related to start times and student achievement

- **Examining the Impact of Later High School Start Times on the Health and Academic Performance of High School Students**

<http://conservancy.umn.edu/bitstream/11299/162769/1/Impact%20of%20Later%20Start%20Time%20Final%20Report.pdf>

“The results from this three-year research study, conducted with over 9,000 students in eight public high schools in three states, reveal that high schools that start at 8:30 AM or later allow for more than 60% of students to obtain at least eight hours of sleep per school night. Teens getting less than eight hours of sleep reported significantly higher depression symptoms, greater use of caffeine, and are at greater risk for making poor choices for substance use. Academic performance outcomes, including grades earned in core subject areas of math, English, science and social studies, plus performance on state and national achievement tests, attendance rates and reduced tardiness show significantly positive improvement with the later start times of 8:35 AM or later. Finally, the number of car crashes for teen drivers from 16 to 18 years of age was significantly reduced by 70% when a school shifted start times from 7:35 AM to 8:55 AM.”

- **The Brookings Institution study (2011)**

[http://www.brookings.edu/~media/research/files/papers/2011/9/organization%20jacob%20rockoff/092011\\_organize\\_jacob\\_rockoff\\_paper.pdf](http://www.brookings.edu/~media/research/files/papers/2011/9/organization%20jacob%20rockoff/092011_organize_jacob_rockoff_paper.pdf)

Aligning bell times with students natural sleep schedules is one **of the most cost effective changes a school can make to improve academic performance**. This study **advocates moving to later start times to increase student performance**. From their recent report, “In this paper, we describe three organizational reforms that recent evidence suggests have the potential to increase K–12 student performance: Adjust school start times for students in middle schools (Grades 6 to 8) and high schools (Grades 9 to 12). **Early school start times reduce performance among disadvantaged students by an amount equivalent to having a highly ineffective teacher. In school districts with greater flexibility to adjust start times, starting school even an hour later can boost performance at low cost.**”

**Later start times is a highly cost effective way to improve academic outcomes. The benefits exceed the costs.**

- **In a study based on data from Wake County, North Carolina, significant gains were seen that reduced the achievement gap.**

<http://educationnext.org/do-schools-begin-tooearly>

Lowest scoring students and students on free and reduced lunch saw the greatest gains in academic performance. There was a 2.2 % improvement in math scores and a 1.5% improvement in reading after moving to a later start time. The effect on math scores accounted for approximately 14% of the black-white test score gap and 40% of the gap between those eligible and not eligible for free lunch. **The effect of later starts on lower-scoring students in both math and reading was approximately twice that of higher-scoring students.**

- **Poverty and poor sleep are linked**

<http://www.ncbi.nlm.nih.gov/pubmed/17855122>

“**Insufficient sleep in children from low SES negatively affects them to greater degree than it does more advantaged children.** This view is consistent with the idea that when multiple health disparities associated with low SES are present, any single additional stressor has a greater effect (Carter-Pokras & Baquet, 2002). The hypothesis does not imply that sleep is *the* explanation for the gap. Sleep is part of a multisystem dynamic, **but if it can be shown to account for any significant part of relations between SES and school performance.**”

- **Scott E. Carrell et al. A's from Zzzz's? The Causal Effect of School Start Time on the Academic Achievement of Adolescents. October 2010. Includes findings from US Airforce Study**

<http://www.econ.ucdavis.edu/faculty/scarrell/sleep.pdf>

“**Our results show that starting the school day later in the morning has a significant positive effect on student academic achievement.** We find that when a student is randomly assigned to a first period course starting prior to 8 a.m., they perform significantly worse in all their courses taken on that day compared to students who are not assigned to a first period course. Importantly, we find that this negative effect diminishes the later the school day begins. We verify that the negative start time effect is not solely driven by worse performance in the first period class. Hence, our results show that student achievement suffers from earlier start times in not only courses taken during the early morning hours, but also throughout the entire day.”