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LATER START TIMES FOR HIGH SCHOOL STUDENTS

Since 1996, [Kyla Wahlstrom](#) and her research team at the [Center for Applied Research and Educational Improvement \(CAREI\)](#) have led the way in the study of later start times for high school students, beginning with their study of the impact of later start times on educational achievement in two different districts.

Two Minneapolis-area school districts decided to shift secondary school start times to 8:30 a.m. or later based on emerging medical research showing adolescents have a natural sleep pattern that leads to a late-to-bed, late-to-rise cycle. Medical researchers found this cycle is part of the maturation of the endocrine system. From the onset of puberty until late teen years, the brain chemical melatonin, which is responsible for sleepiness, is secreted from approximately 11 p.m. until approximately 8 a.m., nine hours later. This secretion is based on human circadian rhythms and is rather fixed. In other words, typical youth are not able to fall asleep much before 11 p.m. and their brains will remain in sleep mode until about 8 a.m., regardless of what time they go to bed.


How sleep impacts education

These adolescent sleep patterns can have profound consequences for education. With classes in most high schools in the United States starting at around 7:15 a.m., high school students tend to rise at about 5:45 or 6 a.m. in order to get ready and catch the bus. It's no wonder that 20 percent of students sleep during their first two hours of school, when their brains and bodies are still in a biological sleep mode. The loss of adequate sleep each night also results in a "sleep debt" for most teens. Teens who are sleep-deprived or functioning with a sleep debt are shown to be more likely to experience symptoms such as depression, difficulty relating to peers and parents, and are more likely to use alcohol and other drugs.

What the research shows

Data collected from the two Minneapolis-area school district—Edina, a suburban district who changed their high school start time from 7:20 to 8:30, and the Minneapolis Public Schools, who changed their start time from 7:15 to 8:40—provided Wahlstrom and her colleagues information regarding the work, sleep, and school habits of over 7,000 secondary students, over 3,000 teachers, and interview data from over 750 parents

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about their preferences and beliefs about the starting time of school.

The study has laid the groundwork for similar changes in other school districts, supplying concrete results of putting the research into practice.

For example, initially Edina parents were concerned about the effect of later starts on such logistical issues as busing, athletics, and child care for younger students. But at the end of the first year of implementation, 92 percent of respondents on a survey for Edina high school parents indicated that they preferred the later start times.

Additional data from the study done in Minneapolis schools showed that there was a significant reduction in school dropout rates, less depression, and students reported earning higher grades.

This research has had a major impact nationally. Wahlstrom receives numerous inquiries on a daily basis from teachers, superintendents, parents, and school nurses from every state in the nation requesting more information about the findings of their research and how they can use that research to change policies in their districts.

What others say about the School Start Time Study

According to **Pat Britz**, program director for the National Sleep Foundation in Washington, D.C., "The study has been vital to our efforts in educating school districts and leaders who are pursuing changing their school start times. It represents the research school officials, parents, teachers, and other interested parties use to support their advocacy efforts. It is the only long-range systematic study that shows that changing to later start times is beneficial to students and schools. We receive calls on a regular basis and have maintained a database of schools considering this change. As part of our package of materials we send out, we always include the CAREI study and also refer people to the website. It has been used in numerous presentations, studies, and discussions."

Carol Johnson, superintendent of Minneapolis Public Schools, says, "The Center for Applied Research and Educational Improvement led by Dr. Kyla Wahlstrom is a wonderful example of how the research community can effectively partner with school districts to demonstrate how specific practices contribute to attendance, engagement, and ultimately, student performance. We have received feedback from many families and staff affirming our decision to use this data to reorganize school times, and the data has resulted in many other districts in the state and around the country changing start times to better match students' learning rhythms with the school's instructional program."

Marilyn Conner, administrative consultant to the Mesa County Valley School District 51 in Grand Junction, Colo., points to the research done at the University of Minnesota as pivotal in the decision to change school start times in that district. "As the executive director for middle schools from 1996–2000, and again as the assistant superintendent from 2000–December 2001, I found the CAREI report extremely useful. This report was the basis for the investigation by the Mesa County Valley School District Board of Education to begin to alter arrival times in our schools. Our school district will continue to utilize this report and its results."

Why this research matters

The School Start Time Study effectively reveals that high school students can benefit from later school start times. While the concept that teenagers have a distinctly different sleep

pattern was first recognized by medical research findings, it is only through examination of actual cases where these findings were used as a basis to change school policies that educators can understand the ramifications of making such a change. The case studies done by Wahlstrom and her colleagues provide research-based information for school districts across the United States who are now seeking to make informed decisions for their own communities.

June 2002

CAREI report

School start time study (1998-2001)

In the news

Teen car crashes tied to early classes, [MSNBC story](#), June 2010

High schools starting later to help sleepy teens, [NPR story](#), January 2007

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