

## **THE IMPACT OF EARLY SCHOOL START TIMES ON TEENS by Debbie Moore (condensed)**

### **Sleep Research in the 1970s discovered**

- Circadian rhythm, an internal mechanism that controls the sleep/wake cycle, is common to all humans
- Found that sleep is necessary for tissue growth and repair, emotional control, learning, and the regulation of metabolism

### **Effects of Sleep Loss**

- Memory deficits, impaired performance and alertness, irritability, anxiety and depression, decreased socialization and humor, hyper-sexuality, decreased ability to handle complex tasks, unintended sleep, increased likelihood of stimulants (tobacco, caffeine, alcohol)  
National Sleep Foundation, 2009, Carskadon, 1990

### **Adolescent Sleep Cycle**

- Sleep research discovered adolescents have a biologically different sleep/wake pattern than pre-adolescents and older adults
- 8.5 to 9.25 hours of sleep is required each night for optimum health
- Melatonin production in teens begins at 11 PM and continues until 8 AM
- Teen's brain may be more sensitive to light changes in evening Carskadon, 1995, 1998; National Sleep Foundation, 2009, 2012
- Waking a teen at 7:00 AM is comparable to 4:00 AM in an adult
- International studies conducted produced same results. (Carskadon 1979; National Sleep Foundation, 2009; Wahlstrom, 2003)

### **First long-term study measuring impact of later start times of high school on academic achievement University of Minnesota Study, Dr. Kyla Wahlstrom, Center for Applied Research and Educational Improvement (CAREI)**

- Edina, suburban district and Minneapolis Public Schools moved start times from 7:30 to 8:30 AM
- Studied work, sleep, and school habits of 12,000 secondary students, over 3,000 teachers, and interview data from 750 parents for 5 years (1997-2001)

#### **CAREI Findings (2001)**

- Reduction in dropout rates, less depression, fewer disciplinary referrals, improved attendance, improved academic performance, fewer tardies, less sleeping in class, homework completed in less time due to alertness & efficiency, increased total sleep, 92% of parents preferred later times after one year despite earlier concerns of busing, athletics, child care

#### **CAREI 2nd Study (2014)**

- First study to examine multiple schools across U.S. Eight public high schools, three states, 9000 students, three year study funded by CDC
- Switching to later start time confirmed previous study results
  - \* Increased standardized tests scores in math, English, science and social studies.
  - \* Less caffeine consumption.
  - \* 70% reduction of teen car crashes in Jackson Hole, Wyoming.

### **U.S. Air Force Study**

- First year cadets (6,000 over 4 years), same classes and same standardized tests, cadets with classes starting before 8:00 AM performed worse not only on their first period class, but in all of their courses (Carroll, 2011)

### **Early Start Times and the Disadvantaged**

- Wake County, North Carolina study (2011) Indicated that disadvantaged students benefit from a later start time at a rate roughly twice as much as their peers. The positive affects persisted all through high school. (Edwards)
- Concluded that among disadvantaged students, early class performance was reduced by an amount equivalent to having a highly ineffective teacher.

### **Teens and Auto Accidents, Fayette County, Kentucky, two-year study,**

- 1998 crash rates dropped 16.5% when high school start time went from 7:30 am to 8:30 am. – Auto accidents of teens in the rest of state increased 7.8%, comparable decrease of 24.3% (Danner and Phillips, 2008)
- Virginia, 2007-2008 study of two similar, neighboring districts – 41% higher crash rates in Virginia Beach than in Chesapeake, Virginia where classes started 75 minutes later. (Vorona, 2010)

### **National Highway Traffic Safety Administration**

- 100,000 traffic accidents each year due to drowsiness & fatigue.
- Young drivers cause ½ of these crashes.

### **What the Experts are Saying**

- A teacher can be delivering the “most stimulating, interesting lecture to sleep deprived kids whose overwhelming drive to sleep replaces any chance of alertness, memory or understanding.” Dr. James Maas, Dept. of Psychology, Cornell
- “Given that the primary focus of education is to maximize human potential, then a new task before us is to ensure that the conditions in which learning takes place address the very biology of our learners.” Dr. Mary Carskadon, Brown University School of Medicine

***With decades of adolescent sleep research, why would any school district continue with high school start times in the 7'clock hour?***

**Excuse 1: Rising Early Teaches Teens Responsibility**

- Teen brains are still developing. The developing front cortex is responsible for judgment and reasoning. Asking teenagers to deprive themselves of sleep to “prepare” for the real world is like asking toddlers to skip their naps to prepare for 5th grade.
- Duke University banned all classes before 8:30 AM in 2009.
- At Texas A & M, only 5% of all class sections begin at 8 AM.

**Excuse 2: Later Start Times will negatively affect students with part-time jobs.**

- For optimal academic performance, high school students should not work more than 15 hours per week.
- In districts across the country that moved their start times later, employers did not seem to care if students started an hour later.
- The increase of earning potential and quality of life down the road by completing high school outweighs part-time work during high school (Brookings Institute)

**Excuse 3: It's Too Expensive to Change**

- Brookings Institute 2011 Hamilton Project: Delaying school start times as one of the three most potentially cost-effective ways to boost academic achievement. Economists estimated a 9 to 1 cost ratio benefit.
- Cost to delay bus routes or flip existing sequence of tiered bus system is minimal.

**Excuse 4: Later school hours will negatively affect extracurricular activities**

- Daytime sleepiness negatively impacts performance
- American Academy of Pediatrics (2012) reported that adolescent athletes that sleep 8 hours or more each night were 68% less likely to be injured regardless of amount of participation, number of sports engaged in, strength training, private coaching, etc.
- There is no correlation between early start times and great extra-curricular programs.
- The vast majority of students will make their future living through academic abilities not sports and other extracurriculars.

**Excuse 5: Teens need early dismissal time to supervise younger siblings**

- California study (2006): Kids ages 12-17 left unsupervised 3 or more days a week -twice as likely to engage in criminal activity -3 times more likely to smoke pot
- Current later start times for elementary results in children dropped off unattended at school in the 7 o'clock hour
- Until the work day and the school day are parallel, childcare will always be needed.

**Excuse 6: It is safer to start high schools first instead of elementary schools**

- It is unsafe for 15-year-old girls to stand on dark corners alone at 6:15 am.
- It is unsafe to send new, sleep-deprived teen drivers out onto roads.
- Age does nothing to make pedestrians more visible to drivers.

**Excuse 7: If we start school later, teens will just go to bed later**

- Follow up studies of districts that have changed to later start times across the country indicate that students went to bed at the same time each night.
- University of Minnesota landmark study showed that ½ hour later start time resulted in full hour of extra sleep each night for Minneapolis students.

**Summary - Concerns**

- Part-time jobs, community babysitting, bus scheduling, parental preference are all concerns fueled by a fear of change.
- None of these concerns use “education” in their justification for early start times.
- No research exists that indicates early school times are beneficial to student well being.

## **SUMMARY**

- Adolescent sleep deprivation is a widespread chronic health problem.
- Decades of research by sleep scientists, educators, health-care providers, & mental health experts have irrefutably proven that early school start times create a public health issue for all adolescents.
- While it is tempting to blame parents and electronic entertainment, much of teen preference is driven by biology. (Carrell, 2011)
- School districts around the country have proven that later school start times are possible.
- Research indicates that when school start times are changed, communities adjust accordingly. (Wahlstrom, 2003)
- Start times must promote learning rather than interfering with it.