

High School Start Times: How to Get Them on the Same Schedule as Adolescents' Biological Clocks

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In most high schools in North America, “the first bell” rings before 8 a.m. Thus, many adolescents are forced to wake up at 6:30 a.m., or even earlier. Once they are in class, these adolescents struggle to focus, and many a time to stay awake. In my senior year of high school, for example, I had to be in my first period class at 7:20 a.m., and so I had to leave my house at 6 a.m., when it was dark outside. During my first class, I found it hard to concentrate, even though it was my favorite subject, English. When the teacher spoke, all I heard was gibberish. Sometimes, I would even accidentally fall asleep. As a result of my behavior, I barely passed that class.

The situation described above is far too common among high schoolers who are forced to be in school early in the morning. Researchers, who for over 20 years have studied teen sleep, have confirmed this, as they have discovered that, due to the imposition of impractical high school start times, many teens are sleep deprived. Furthermore, they have discovered that adolescents' internal clocks conflict with high school start times. Convinced by this research, some schools have successfully delayed their start times. Aware of these schools' positive outcomes, some parents and educators have fought to have their high schools' schedules pushed back. This has led to an ongoing debate because, though they too are aware of the issues associated with early start times, other parents and teachers argue that such a delay would ultimately do more harm than good. It is clear that these competing views have no easy solution. Therefore, I will investigate whether or not delaying the high school schedule is the best solution. In order to accomplish this, I will do the following: discuss what a biological clock is and what role it plays in adolescents' sleep patterns; make prominent the effects of sleep deprivation; briefly mention the less effective solutions to the conflict between high school start time and adolescent sleep patterns; present both sides of the

argument over the solution to delay high school start times; include adolescents' opinions about the solution to delay high school start times; incorporate outcomes of schools that have delayed their start times; and then, finally, draw my own conclusion about whether or not the high school schedule should be delayed.

What is a Biological Clock and How does it Play a Role in Adolescent Sleep Patterns?

In the past, many an educator held both students and parents accountable for students falling asleep in class and their lack of focus. They blamed “parents for failing to enforce reasonable bedtimes” and students for being “lazy” (Lawton 1). However, studies have proven that adolescents have trouble staying awake in early classes because of their biological clocks, not lethargy or lack of parental discretion (1). Dr. Richard Simon, Jr., MD, in his essay on adolescent sleep, supports this notion. Housed in the hypothalamus, notes Dr. Simon, the “biological clock” is composed of 10,000 cells, which control when one sleeps (2). One usually feels awake when these cells are active; sleepy when they are not, he points out. Trouble going to sleep and sporadic interruptions of sleep indicate that the cells are active. On the other hand, trouble staying up without “stimulation” and trouble focusing indicate the cells are not active (2). In particular, teens' “biological clocks are on a sleep late, rise late mode,” or a “delayed phase preference,” which they have no control over, contends Mary A. Carskadon, who for 25 years has studied teen sleep (as cited in Lawton 2). This “delayed phase preference” makes it difficult for teens to go to bed at a reasonable hour, since it makes them feel awake at times when teens are supposed to be asleep. In fact, researchers have found adolescents' natural body clock typically keeps teens awake until at least 11 p.m.” (Kantrowitz and Springen 1). As a result, on school nights, six hours of sleep are all many a teen is left with, which is “out of sync” with high school start times, since “adolescents need at least 8 ¼ hours of sleep to function adequately, or 9 ¼ hours to maintain optimal alertness during the day” (Mecee 9). It should also be noted that no matter what time teens go to bed, many of their brains do not actually wake up before 8 a.m. (“Later Start Times” 1). Collectively, this makes evident that adolescents are, by no fault of their own, too tired to fully perform in such early classes, as their “internal clocks” prevent them from being awake at those times.

What are the Effects of Sleep Deprivation?

It is generally thought that the older one gets, the less sleep one needs. Thus, it is often assumed that once children transition into adolescence, they require less sleep. Contrary to this myth, adolescents actually need more sleep, at least nine hours. However, because of the demands of after school jobs, sports, and early high school schedules, many teens do not achieve adequate rest (Mitru, Millrood, and Mateika 1). This leads to negative consequences, the most common of which is fatigue. Adolescents' cognitive abilities are also affected by a lack of sleep. According to Carskadon, delayed responses, "depression," decreased ability to focus, and "memory lapses," which "sleep experts often refer to as microsleep" (Mitru, Millrood, and Mateika 5) are common results of sleep deprivation (2). This explains why some teens are more likely to daydream in their first and second period classes. Furthermore, there is "growing evidence" that suggests that in severe cases, such a loss "may mimic the symptoms of attention deficit disorder," which makes teachers have to create more dynamic lessons to keep students' attention (Kantrowitz and Springen 2). A lack of sleep is also linked to behavior problems, lack of initiative, and poor "attendance" ("Adolescent Sleep"). This explains why it is so difficult to get tired students to interact in classroom activities (Mitru, Millrood, and Mateika 5). All together, these consequences often adversely affect teens' grades: Adolescents suffering from insufficient sleep have unsatisfactory grades, as indicated by a study (Carskadon 2).

How Can We Resolve The Conflict Between High School Start Times and Adolescents' Sleep Patterns?

The abundance of research on teens' sleep makes manifest the conflict between high school schedules and adolescents' sleep needs. Therefore, various solutions have been proposed to resolve this conflict. Joe Hardy, Assemblyman of Boulder City, Nevada, for instance, argues that the most effective solution is for parents to convince their teens not to stay up late on school nights (Vogel 1). Though one group of researchers also offers only one solution, theirs is more practical than the preceding one. Sleep researchers at Northwestern University, in conjunction with high school students and parents from Evanston, Ill, after conducting a study on the effect of high school start times on students' performance, discovered that students did better in later classes (2). As a result, these researchers suggest that teachers do not administer major exams early in the day. (This is clearly a great suggestion, but it

would resolve only one segment of the major conflict with early start times.) However, as they know that there is no easy one-step solution to this problem, other adolescent sleep researchers have formulated various strategies to resolve this issue. One is to inform both adolescents and adults about teens' sleep needs. Thus, they suggest that lessons on adolescent sleep be taught in secondary school health or science classes (Wolfson and Carskadon 8). They also recommend that sessions on teen sleep are given for adults, including parents, educators, school administrators, and even school nurses (8). Further, since they not only want to inform teens about healthy sleep habits, but also want adolescents to maintain healthy sleeping habits, these scientists suggest that teens reduce the amount of time spent on homework each night, as well as the amount of hours teens work after school at both volunteer and paid jobs (8). And though they know it is a controversial solution, these researchers propose that school administrators switch primary school start times with secondary school start times, since young children's internal clocks are set on a "rise early mode" (as qtd. in Millicent 3).

Of all the previously mentioned solutions, it is clear that only some are realistic (I will explain why in the conclusion). What seems to be the best solution, however, has divided both parents and educators alike. As a solution to the conflict with high school start times, some parents and educators have proposed that the high school day be delayed, while others argue that, though in theory such a change may seem beneficial, actually putting it into effect will inadvertently interfere with other areas, such as after-school activities, part-time jobs, practice, and even the community. They even express some financial concerns.

The parents that oppose such a delay feel that the early schedule is convenient for both their work schedules and their children's and that changing the start time would obligate them to change their schedules as well. Robert Turner, a parent, says his daughter, Rebecca, has time to do her homework and to help out at a primary school as a result of the early schedule (Tobin 3). What may interfere with parents' schedules, however, is having to take their children to school later and pick them up later (de Vise 2). Educators and school officials similarly argue that a delay would cause them to alter other schedules, such as sports practice and transportation. Coaches, for instance, contend that a change in the high school schedule will force them to change the schedule of practice and after-school games, which would lead to chaos. In other words, "coaches typically don't want practice times and game schedules to be disrupted" (Wolfson and Carskadon 1). A potential problem that coaches predict is being scheduled to play a team that has come from a school district that has not delayed its schedule (Zielbauer 1). Members

of the Department of Education, however, fear a financial burden. These members claim that changing the bus schedules would be one of the most difficult measures to be taken, since doing so would cost money. “[One] issue is the added expense of busing the high school students at times that overlap with the start times of middle and elementary school” (qtd. in Zielbauer 2). On another note, however, some school administrators have not yet made a decision concerning school start times because they see altering the school schedule as “risky behavior,” since such a change may anger the opposition, which may cause them to lose their jobs as school officials (Wahlstrom 3). Thus, this indicates that some school administrators may be in favor of a delay, but are more concerned about keeping their own jobs.

Despite all of these concerns, some parents and teachers still want to push back the high school schedule. The main reasons for this is so that students obtain more rest and thus perform to their maximum potential in classes. Because teens are sleep deprived due to the obligations of early high school schedules, parents, educators, and sleep researchers feel that teens cannot function at their best academically. A lawyer and parent, Eileen Powers, expresses this sentiment: “My children go out of the door as zombies. I know that they are not performing to the best of their abilities because they are exhausted” (de Vise 1). Parents are not alone in their observations of student sluggishness early in the morning. Teachers have noticed this behavior as well, and they too feel that students’ sleepiness hinders the learning process. Harvey Munford, a Las Vegas assemblyman and retired teacher, points out that “in [his] experience, during the first period and part of the second there is a lack of performance level and alertness” (Vogel 1). Another teacher, in Fairfax County, Catherine Colglazier also notices students’ “down time,” which she attributes to students’ inability to be fully awake early in the morning. Therefore, she argues that students should not have to be in school before 8 a.m. because they cannot fully concentrate at that time (Maloney-Dunn 2). “We shouldn’t make them come to school so early. It’s ludicrous to think they can focus to deconstruct a complex poem [...] or take a math test at 7:15a.m.” (2). James Maas, Cornell University psychology professor, also contends that partially asleep teens cannot learn (3). Therefore, he thinks that forcing students to attend early classes does not benefit students, but rather squanders schools’ funds (3). Carskadon’s research on teen sleep confirms that students indeed cannot concentrate in early morning classes. This is because early start times are on different rhythms than students’ “natural clocks” (Zielbauer 2).

How Do Students Feel About The Solution to Delay High School Start Times?

Though many students have not explicitly stated how they feel about early start times, based on their comments on how the early high school schedule affects them, one may infer that many students would prefer to commence the school day later. Once student, Monique Padang, a high school senior, complains that neither she nor her fellow classmates can concentrate in early classes. Padang admits that she is usually half asleep in early classes (Zielbauer 2). She says, however, that if the school day began earlier, she and her classmates would comprehend the lesson better (2). She goes on to point out that most students in her school are more alert when teachers attend staff meetings because students do not have to be at school until 10 a.m. on those days (2). Another high school student, Leroy Medina, though he is one of the few teens who actually goes to bed before 11 p.m., notices other students’ reactions to the early schedule. Each day Medina observes how students have to be almost begged to answer the teachers’ questions. He has even witnessed how aggressive students tend to be in early classes. One time, Medina remembers, the teacher told the students to be more alert, and the students responded, “Shut up and leave me alone” (3). The early schedule affects another student so badly that some days she does not go to school. Because the early start time exhausts her, Rachel Schulte, a junior, is frequently absent from school, approximately twice each week, she admits (3).

What Are The Outcomes of Schools That Have Delayed Their Start Times?

Since 1996, prompted by adolescent sleep research, various school districts have been delaying their schedules. Most of the districts that pushed back their start times reported and improvement in students’ grades, attendance, concentration levels, and a decrease in students’ tiredness. Thus, many teachers and parents alike saw this change as beneficial, while others were still displeased with the new schedule.

Convinced that sleep deprivation is indeed harmful to students’ academic performance, The Minnesota Medical Association, eleven years ago, insisted that Minnesota superintendents push back their high schools’ schedules (Lawton 2). Finally, in 1996, the Edina Minnesota school district pioneered a change in the high school schedule (2), changing its high schools’ schedule from 7:20 to 8:40 a.m. (Mitru, Millrood, and Mateika 7). Prior to this delay, parents predicted that

adjusting the start times would interfere with after-school sports and transportation (Spinks 2). However, 92% of these parents changed their minds, favoring the delay, twelve months after it was actually put into effect. The school district was also pleased with the delay, because it caused the rate at which their students were absent and late to decrease significantly (Lawton 3). On the other hand, teachers liked the delay because it benefited both them and the students. A majority of teachers were content with the adjustment, stating that the later schedule caused students to be more attentive (Kubow, Wahlstrom, and Bemis 2). These educators also cited an improvement in students' concentration, and a major decline in the amount of naps students took in class as reasons why they favored the delay (2). A minority of teachers, however, detested the new schedule, claiming that it caused a conflict between the schedules of after-school sports practice and afternoon classes. Some educators complained that the later schedule caused their last period classes and after-school sports schedules to overlap, causing teachers to have to let the students that are part of sports teams to leave early for games and practice (Zielbauer 9). Another educator has the same issue with the delay: "Now, I lose one-half of my International Baccalaureate class in the fall to sports' start times" (qtd. in Mitru, Millrood, and Mateika 9). Surprisingly, a coach and teacher shared a similar concern. This educator and coach became concerned after having to allow several of his students that were part of the sports teams to leave class early more than ten times to participate in track meets (9). He and other teachers felt that dismissing students from class to take part in athletics contradicted their roles as educators (9).

Influenced by the impact of the later schedule on the Minnesota school district, the Minneapolis school district pushed back its start time in 1997. Extensive studies of the results of this change showed mainly positive results. The Center for Applied Research and Educational Improvement (CAREI) discovered lower rates of absenteeism, student depression, an increase in concentration (Start Times Debate 1). CAREI also noticed a shift in teachers' perceptions of start times. Approximately 90% of Minnesota's high school teachers thought that 8:30 a.m. or earlier was the best high school start time (Mitru, Millrood, and Mateika 9). However, after their school districts' start time was changed, about 60% of educators found the new schedule was better, since it led to a decrease in student tiredness and lack of focus in early classes (9). The students, however, had varying opinions about the delay. Though many students were thrilled by the adjustment, others were frustrated by it. Those that were disturbed by the change argued that the later schedule at times affected their employment opportunities

and their job schedules (Kubow, Wahlstrom, and Bemis 3). These students also complained that their time to do homework was decreased, and that they were exhausted as a result of their sports practice, which now had to take place at unconventional hours (3). On the other hand, the students that favored the delay stated that the later schedule allowed them to get more sleep, which allowed them to be more alert and focused in class. Concentrating in class is less difficult, said one student, because the new start time is more in sync with her typical sleep times (as qtd. in Mitru, Millrood, and Mateika 8). Another student, who admitted that before the change he used to doze off in class several times a week, said that he now seldom falls asleep in class (8).

What are the Implications of this Research?

In conducting this research, I have discovered that there is undoubtedly a conflict between adolescents' sleep patterns and high school start times. Thus, in this portion of the paper, I will analyze the solutions to this conflict and then choose which one I think is the most effective. The solution to teach parents, students, educators, and administrators about adolescent sleep is a great idea, but it is not sensible. This is evidenced by the fact that many school administrators and teachers are already sentient of teen sleep patterns and still the conflict has not been resolved. On the other hand, the solution to switch the start time of high school with that of elementary school is practical, but still presents an ethical issue. Teen sleep researchers have confirmed that younger children can handle such a change because younger children's internal clocks are on a "rise early mode." However, pushing off the early schedule on younger children only because they can endure it is unfair to the children. On another note, convincing teens to set earlier bedtimes is ludicrous. It has already been scientifically proven that most teens cannot control what time they go to bed and that many of them cannot fall asleep until 11 p.m.

It is obvious that only one of the previously mentioned solutions is feasible. Therefore, contrary to what some parents and teachers believe, I am convinced that the best solution is to push back the start times. This is because those who oppose the delay mainly cite minor issues, such as interference in students' after-school sports practice, part-time jobs, and transportation schedules (this is a valid concern, since it concerns financial matters). The outcomes of schools that have delayed their start times strongly indicate that adjusting the schedule would indeed corrupt after-school athletics and jobs. However, that should not be a factor in deciding whether or not the schedule should be adjusted,

since the main purpose of going to school is to learn, not play sports. However, these same outcomes have also proved highly beneficial to students, teachers, and parents, as indicated by a survey. After actually having their schools' schedules altered, many parents and teachers who opposed the delay changed their opinions. This is because many of them noticed the positive results. Teachers noticed students' level of alertness, concentration, and attendance increased, while their rates of lateness, and napping in class declined. Further, a majority of the students who were mainly affected by the change supported their teachers' comments: Students stated that they were no longer tired in class, which allowed them to focus, and that they were seldom tardy. Some researchers as well as school officials also think that the change played a substantial role in improving students' grades. These results, along with teen sleep research, make manifest that delaying the school bell is the best solution to alleviate the conflict (I say alleviate because, as I have stated earlier, no one solution will completely resolve a conflict) because it will ultimately improve students' academic performance, which should be the paramount goal of both school administrators and parents.

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