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Note from the CSEN and IDEE

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DELAYING THE START OF CLASSES IN LOWER SECONDARY SCHOOLS A FRENCH EXPERIMENT

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Summary

After the age of 12, bedtimes become later as a result of a physiological delay in circadian phase. The use of screens in the evening contributes to this shift, but is not sufficient on its own to explain it. Due to early school start times, adolescents are chronically sleep deprived, even though sleep is known to be closely linked to cognitive performance and emotional regulation.

Research findings are consistent: delaying the start time of classes improves sleep duration and, as a result, students' wellbeing and academic outcomes. This measure is therefore now considered one of the most robust recommendations, based on data from sleep science, chronobiology, and developmental psychology, in the fields of public health and education policy.

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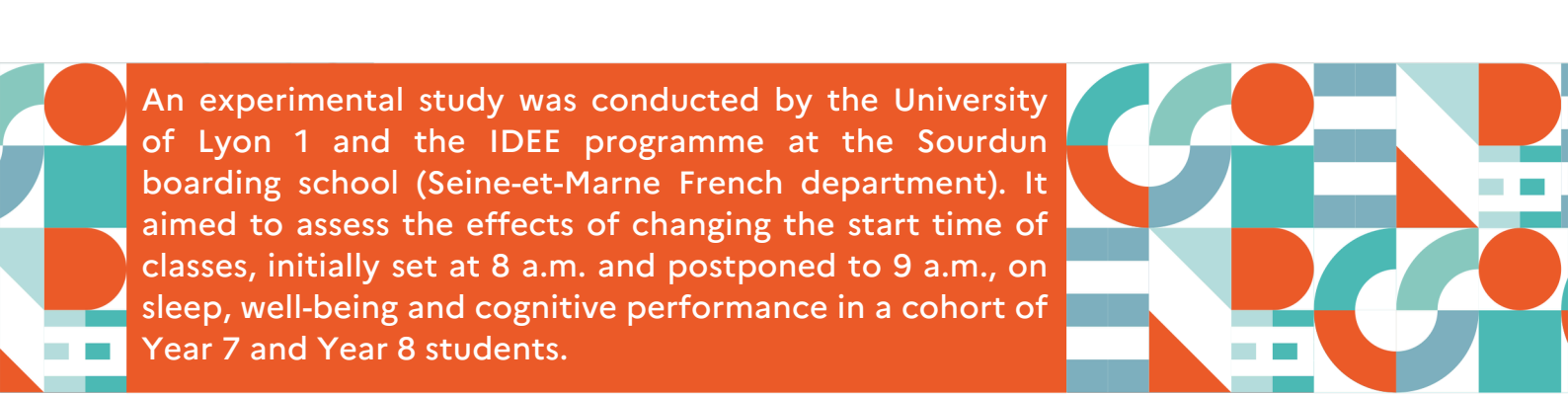
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An experimental study was conducted by the University of Lyon 1 and the IDEE programme at the Sourdun boarding school (Seine-et-Marne French department). It aimed to assess the effects of changing the start time of classes, initially set at 8 a.m. and postponed to 9 a.m., on sleep, well-being and cognitive performance in a cohort of Year 7 and Year 8 students.

Adolescent sleep

Later bedtimes due to a physiological phase delay

During puberty, due to hormonal changes and brain maturation, adolescents undergo a gradual transformation of their circadian rhythm, characterized by a physiological phase delay. This phenomenon results in a later secretion of melatonin, the hormone that regulates sleep, causing a natural delay in sleep onset, which increases during adolescence. At the same time, sleep needs remain high, with a recommended duration of 8 to 10 hours per night, making adolescents natural "late sleepers and late risers". These difficulties in falling asleep are also exacerbated by extracurricular activities and screen use in the evening.

Consequently, early school start times lead to chronic sleep debt, a phenomenon that has been widely documented in both international and national surveys.

For example, in France, nearly 40% of 15-year-olds sleep less than the recommended thresholds on school days.

The effects of classes start times

The consequences of sleep deprivation are numerous and affect mental health, cognition and behaviour. From an emotional perspective, lack of sleep increases vulnerability to anxiety and depressive disorders, and heightens the propensity for impulsive behaviour and risky conduct. Longitudinal studies have also shown a link between sleep deprivation and an increased risk of suicide. Cognitively, insufficient sleep impairs learning abilities, thereby compromising academic performance. It has also been shown that sleep-deprived adolescents face a greater risk of road accidents or injuries during sports activities.

Several international studies, particularly in the United States, have shown that **delaying the start time of classes leads to a significant increase in sleep duration, thereby improving many well-being and academic achievement indicators:** reduced anxiety, better emotional regulation, improved academic outcomes, and lower rates of absenteeism and disciplinary incidents. A recent meta-analysis confirmed that the benefits are even more pronounced when such policy is implemented systematically across an entire school or school district. Contrary to popular belief, these gains in sleep are not accompanied by later bedtimes. Several studies show that bedtimes remain relatively stable, while wake-ups time are delayed, allowing for longer sleep duration. This result is particularly relevant in educational settings where institutional rules structure and regulate bedtimes.

The experiment at the Sourdun "Excellence" Boarding school

Description

These studies, conducted on very large cohorts, do not allow for the collection of objective sleep measurements and do not include a control group. In this context, we conducted a new study in France, at the Sourdun boarding school (Seine-et-Marne), assessing the impact of changing the start time of classes, using a rigorous experimental protocol and objective sleep measurements.

Four lower secondary school classes - with classes starting at 8 a.m. every two Year 7 classes and two Year 8 day of the week. At the time, the classes, representing a total of 86 average sleep duration was 7 hours and 20 minutes per night, placing boarding students, were included in this project. All were given an students below international actimeter, a wristband device that recommendations. Questionnaires continuously records activity and sleep, enabling an accurate administered, along with assessment of their sleep-wake standardised cognitive tests rhythms over a one-week period. measuring impulsivity. At the start of The first measurements were taken in the November period, following the October, during a period in which all autumn break, two of the four pupils followed the same timetable, classes were randomly assigned to



benefit from a modified timetable, with classes starting at 9 a.m. The end of the school day remained unchanged, with adjustments made using the non-instructional hours. In March, all the initial measurements were repeated, allowing for a detailed comparison between the two groups.

The experiment's impacts

The results highlight several significant effects. First, more than 90% of students had sleep debt in the initial assessment. As expected, this debt increased between October and March among students in the group that retained an 8 a.m. start time, as puberty set in. Conversely, however, sleep debt was significantly reduced among those who benefited from the shift to a 9 o'clock start time. The average sleep gain observed in this group was 25 minutes. Nearly two-thirds of students starting school at 9 a.m. increased their sleep duration, and one-third reached the recommended threshold of eight hours per night. The study also demonstrated that postponing the start of classes was not accompanied by a later sleep onset. This finding can be partly attributed to the boarding

school setting, where lights out is enforced, but thanks to the precision of the actimeters, the measurements specifically captured sleep onset, rather than merely the reported or required bedtimes.

Although a 25-minute increase in sleep duration may seem modest, it is physiologically significant, and the positive effects of delayed start times are evident across emotional and cognitive dimensions. Anxiety scores on standardised scales improved in 64% of students in the 9:00 am group, while they worsened in 62% of those in the 8:00 am group. Results from the impulsivity tests point in the same direction: scores deteriorated in 62% of students in the control group, whereas 72% of the 9am group achieved stable or better scores. These findings are consistent with the results obtained on large-scale international studies and formally demonstrate the benefits of shifting school start times.

Despite these results, resistance to such changes persists. Common arguments put forward are the risk of encouraging laziness among

teenagers, the complexity of school transportation and timetable management, and fears of later bedtimes. However, U.S. studies conducted among 50,000 teenagers enrolled within a single school district have shown that schools do not encounter any major obstacle to implementing this change and that, after four years of experimentation, none of them wish to revert to the old system. Lisa Meltzer, the researcher behind these studies, highlighted that this measure also had a positive impact on the sleep and fatigue levels of parents and teachers.

It should be remembered that the shift in circadian rhythm during adolescence is a transient phenomenon that tends to disappear at the end of puberty. Adapting school schedules to this developmental need does not therefore lead to a lasting change in social norms, but is a temporary, targeted measure grounded in well-established biological mechanisms.

What are the consequences?

Changing the start times of classes is one of the most effective interventions for improving the duration and quality of sleep among adolescents. However, this measure alone is not sufficient. Family support plays a decisive role, particularly in regulating bedtimes. Sleep education and the promotion of healthy behaviours are also essential. With this in mind, the scientific community eagerly awaits the publication of the interministerial directive on sleep, announced as part of the 2023 National Health Strategy, and the discussions that will take place during the Citizens' Convention on Children's and Adolescents' times. It is now urgent to recognise sleep as a fundamental need, in the same way as physical activity or nutrition, and to integrate it into prevention policies from early childhood onwards.

This finding is all the more pressing given that epidemiological data show that half of mental health disorders emerge before the age of 18, and a third before the age of 14.5.

The Sourdun study provides robust and contextualised data to inform forthcoming policy decisions. The objective isn't to decree a radical reform of school start times, but to progressively experiment with changes that take local constraints into account – adaptations that are feasible and that public authorities should support and encourage. In the context of the forthcoming Citizens' Convention on children's time, announced by the President of the Republic, it would seem particularly appropriate to give a significant consideration to the voices of adolescents themselves.

The implementation of effective behaviours also requires a good understanding of sleep. The importance of sleep is currently insufficiently addressed in curricula or teacher training, even though health promotion is one of the missions of the national education system. The CSEN therefore recommends strengthening sleep education at all levels of schooling, including lower and upper secondary schools and vocational tracks, where the risk of accidents related to sleep deprivation during technical tasks is particularly high.





KEY TAKEAWAYS

- ▶ During adolescence, bedtime is later due to a physiological circadian phase delay.
- ▶ Teenagers are chronically sleep deprived as a result of early school start times. Screen use in the evening also contributes to delay sleep onset.
- ▶ Sleep duration is closely linked to academic performance as well as behavioural and emotional regulation. Sleep deprivation does not need to be severe to cause disorders.
- ▶ Studies confirm that changing school start times improves sleep duration and many indicators related to well-being and academic achievement.
- ▶ Raising teenagers' awareness of their biological rhythms may also prove more effective than simply limiting the amount of time they spend in front of screens.

RECOMMENDATIONS

- ▶ A large-scale review could be undertaken to delay the start of classes (for example, by reducing the number of non-instructional periods during the day).
- ▶ The CSEN also recommends strengthening sleep education, including initial and ongoing interdisciplinary training at all educational levels.

To go further

[Mieux dormir pour mieux apprendre](#). Summary of research and recommendations by the CSEN (2022)

[Fred, explique-moi... Comment le sommeil nous aide à mieux apprendre ?](#) Video

[CSEN international conference « Mieux dormir pour mieux apprendre »](#) (March 2022)

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