Why teenagers need more sleep

Allowing adolescents to lie in has benefits for health, education and the economy



A Rand report argues that delaying the start of school to 8.30am or later for adolescents could bring a $140bn benefit to the US economy over 15 years © Alamy

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In the UK, the clocks go back by one hour on Sunday to mark the end of British Summer Time. Experts have been weighing up a more permanent time shift in our daily schedules, particularly for tired teenagers who struggle with early school starts.

The rethink on teen slumber is largely due to the emerging science on circadian rhythms. The genetics associated with body clocks earned [this year’s Nobel Prize](https://www.ft.com/content/ea3f8684-a753-11e7-93c5-648314d2c72c) for physiology or medicine. The timing of release of the sleep hormone melatonin is thought to change with age: during adolescence, secretion begins late at night and continues until about 8am. The sleep rhythm of a teenager can lag an adult by two to three hours.

A [report](https://www.rand.org/pubs/research_reports/RR2109.html) by the Rand Corporation argues that, for adolescents, delaying the start of school to 8.30am or later could bring a $140bn benefit to the US economy over 15 years. Some US school days start as early as 7am.

The gains, which amount to a dividend of $9.3bn a year, arise mainly from two predicted pay-offs: improved academic performance, which increases the likelihood of graduation and future work; and a reduction in car crashes, which means more students make it into the future labour supply.

Marco Hafner, a Rand economist, says the gains could be even higher because the calculation of benefits were on the conservative side. The input to the macroeconomic simulation did not factor in other phenomena, such as the risks of suicide and obesity that are believed to be exacerbated by sleep deprivation.

Rand, which used data from 47 US states, concluded that teenage sleep deprivation should be regarded as an economic problem with a possible solution. The financial rewards, it says, would quickly outweigh any associated costs of fixing it, such as rescheduling bus routes or extending after-school clubs.

There have been concerns about “insufficient sleep” among adolescents – the recommendation is between eight and 10 hours per night – for some time in the US.

In 2014, the [American Academy of Paediatrics](http://pediatrics.aappublications.org/content/early/2014/08/19/peds.2014-1697) published a policy statement recognising “insufficient sleep in adolescents as an important public health issue that significantly affects the health and safety, as well as the academic success, of our nation’s middle and high school students”.

Trials of delayed school start times have shown benefits such as increased sleep (children seem to go to bed at the same time but wake later), increased alertness, higher attendance and better mood. This led the academy to give its unequivocal backing for change.

Last month, however, a bill designed to enact such a change faltered in California. The bill, which has the backing of the [Start School Later](http://www.startschoollater.net/) movement, a lobby group of parents, health professionals and policymakers, is likely to resurface in January. Many schools in other states have already acted.

All the evidence points to teen sleeping patterns being a [consequence of biology](https://theconversation.com/why-teen-brains-need-a-later-school-start-time-65308), not attitude, according to Kyla Wahlstrom, an educational policy specialist at the University of Minnesota, who has studied this issue since 1996.

Delayed start times, Dr Wahlstrom says, have immediate and noticeable impacts, such as a reduced rate of teenage car crashes. [One county](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2603528/) in Kentucky saw the number of teenage crashes fall by 16 per cent in the two years after school starts were delayed by an hour, a reduction attributed to the drivers being more alert. The crash rate rose by 8 per cent across the state as a whole.

As well as the AAP, the American Medical Association and the Centers for Disease Control in the US, support such a change. About 250 US schools are thought to have redesigned their schedules to accommodate the recommendations.

A similar debate has been stirring in the UK. In 2015, Paul Kelley, a professor at the Sleep and Circadian Neuroscience Institute at Oxford university, [suggested](https://www.theguardian.com/science/2015/sep/08/start-school-later-11am-students-sleep) that 16-year-olds should start no earlier than 10am. For 18-year-olds, an 11am start is preferable. Early starts, he says, mean pupils are usually performing suboptimally.

Not everyone concurs: scientists at the universities of Surrey and Harvard dispute that delayed starts will lead to teenagers getting more sleep. One unintended consequence, for example, might be students being exposed to artificial light for longer because of later bedtimes.

Based on mathematical modelling, [this contrary study](https://www.sciencedaily.com/releases/2017/03/170328083210.htm)suggested that turning down the lights in the evening would allow teenagers to get more sleep without the need for a change to the school day. The time that students spend on their mobile phones and other devices also crops up regularly as a complicating factor in teenage sleep studies.

Nevertheless, one London head of an independent school has chosen to push back the start of the day for sixth-formers to 9.30am. Explaining his decision in an article for the [Times Educational Supplement](https://www.tes.com/news/school-news/breaking-views/why-it-makes-perfect-sense-allow-teenagers-a-lie-and-a-later-start), Jonathan Taylor pointed out that the 9-to-5 mode of working was disappearing anyhow. He criticised educators who clung to an early start out of “a misguided notion of traditional self-discipline . . . is it really more worthy to learn maths at 8.30am than 5pm?”

Attendance and punctuality, Mr Taylor enthused, had improved – and the teenagers made for jollier company. Heaven knows, we could all do with happier teens.

*The writer is a science commentator*