

# Sleep and Teens – Why Nine Hours Matters.....And How to Move Them Towards It

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Our teens are busy. They're exploring their place in the world, they're experimenting with their independence and influence, and they're starting to discover the types of adults they want to become. And school. There's that too.

Even if they're fully charged from a full nine hours of sleep, this is a taxing load. Most of our teens though, are doing adolescence tired – and it's not their fault. Between their changing biology and the social expectations of adolescence, our teens are in a high-powered conflict between needing to fall asleep later when their bodies tell them, and needing to wake earlier to do, well, life.

## Why are our teens tired?

It's widely accepted that teens need nine hours of sleep each night, but two-thirds of high school students are getting less than seven hours. A two hours difference between actual and ideal might not seem like much, but countless studies have found that falling short of nine hours sleep has significant consequences for our teens, affecting them physically, emotionally, socially and academically.

**Here's the problem. During adolescence, the biological need to sleep becomes disrupted.** According to decades of study by Mary Carskadon, Professor of Psychiatry and Human Behaviour at Wareen Alpert Medical School of Brown University, **their biology is dictating a later sleep time, but early start times mean they are falling short of the nine hours.**

Melatonin, the sleep hormone that brings on feelings of sleepiness, is produced later in teens than in younger children. This means that teens won't even start to feel sleepy until about two hours later than younger children or adults. This wouldn't be a problem at all except for one thing – school. Late nights and early starts mean teens aren't able to complete the full nine hours of sleep they need to thrive.

It would be tempting to blame technology and social media for the late night starts to their pillow time, but even if we were to send every device to somewhere far away from them, it's very likely that they still wouldn't be getting to bed any earlier. **This because the delayed production of melatonin makes it more difficult for them to fall asleep before 11pm.** As Carskadon explains, 'The force behind the change that we see behaviorally is in the biology.'

**The lack of sleep isn't about not wanting to sleep, but about not wanting to sleep in the hours they are expected to. Teens stay up later and sleep less, but when they are allowed to sleep for longer, they do.** In fact, Carskadon found that when students were woken up after seven hours of sleep for a 7:20 start time at school, if they were allowed to go back to sleep at 8:30, they would. At the time when they would ordinarily have been learning or doing exams, their bodies wanted to sleep.

**'About half of them looked like they had a major sleep disorder – narcolepsy. At 8:30, half of the kids fell asleep in under a minute and went directly into REM sleep which means that their brains were set up in a very strong way to be asleep. When you are trying to teach and learn, it's a non-starter.'** Professor Mary Carskadon, Wareen Alpert Medical School of Brown University .

## **So does this mean devices don't deserve the smack down for keeping our teens from sleep?**

Screen time is still a major player in late bedtimes for our teens, but their biology is an even more powerful influence. [Research](#) has found that **9 to 15-year-olds who are in the earlier stages of puberty are especially sensitive to light at night compared to older teens and adults.** The light from devices suppresses the production of melatonin (the sleep hormone) by sending a message to the brain, via the retina, that it's not night-time yet. This compounds the changes that are already happening as part of adolescence which are sending them to sleep later.

# Sleep and teens. What happens when they don't get enough?

Technology, the biological changes of adolescence, and social factors (school start times, study) are creating a perfect storm of sleep-stealers during adolescence. An abundance of research has found that this is having a significant effect on teens in every way that's important. Here are some of the ways a lack of sleep can get in their way.

## **It messes with their emotions.**

Without sleep, [the brain loses its ability](#) to recognise the difference between neutral information and negative information. When this happens, people tend to have similar emotional responses to both neutral and negative information. This can fuel more negatively charged moods, as well as anxiety, depression and poor judgement. It can also tend to make teens more vulnerable to being negatively affected by information that they might shrug off if they weren't tired.

## **Increases the vulnerability to depression.**

[Research](#) has found that adolescents who go to bed after midnight are 24% more likely to become depressed. Those who sleep less than five hours a night are 71% more likely to become depressed and 48% more likely to think about suicide than those who get eight hours of sleep a night.

## **Losing one hour of sleep is like going back two years.**

According to research done by Dr Avi Sadeh at Tel Aviv University, losing one hour (of the nine hours) of sleep is equivalent to losing two years of cognitive maturation and development. What this means is that a sixth grader who loses one hour of sleep will perform like a fourth grader. Our brains work hard while we're asleep. One of the many things on its 'to do' list is to reinforce learning and memory. Losing sleep interferes with the ability to remember, solve problems, concentrate, think abstractly, and shift information from short-term to long-term memory – all of which will significantly disrupt cognitive function.

## **Increases reactivity to stress.**

A lack of sleep seems to disrupt a part of the neuroendocrine system that controls reactions to stress. Adolescents who don't get enough sleep show a [greater response to stress](#). Levels of cortisol (the stress hormone) are greater in tired teens during and after stress, meaning they have more intense reactions to stress, and they stay stressed for longer.

## **Increases impulsivity and risk taking, and lowers inhibitions.**

Research by Professor Mary Carskadon (as well as many others) has found that teens who get less than seven hours sleep are more likely to engage in reckless driving and unsafe sex. Again, this is due to the collision between the natural changes of adolescence, and the physiological effects of losing sleep. Teens are naturally more vulnerable to risky behaviour because their frontal lobes – the part of the brain involved in planning, thinking of consequences, and handbraking impulsive behaviour – are still developing. The vulnerability for risky behaviour is increased by a lack of sleep, because of the effect of poor sleep on inhibition, impulse control, and judgement.

## **Interference with puberty.**

The changes that happen during puberty are triggered by changes in the brain. These parts of the brain that control puberty become active during deep sleep. [Research](#) in children aged 9-15 found that most of the release of the hormone that triggers ovulation in girls, and stimulates the production of testosterone in boys, is preceded by deep sleep.

## **Impairs ability to read facial expressions.**

Facial expressions communicate the important parts of a conversation that are unspoken, such as intent, meaning, emotion, mood. [Research](#) from the University of California – Berkeley found that a brain lacking in sleep, struggles to tell the difference between threatening faces and friendly faces. When teens (or any of us) are tired, they are more likely to overestimate threat and interpret all faces as threatening, even friendly or neutral ones. This can cause trouble for friendships and contribute to arguments, aggression, and social isolation.

## **Increases likelihood of a bad mood.**

It's no secret that a lack of sleep can make any of us cranky and intolerant. And intolerable. We've all been there. [Research](#) has confirmed that a lack of sleep increases sadness and anger. It also makes it more difficult to balance our emotions, and makes a bad mood the next day more likely.

## **Reduces performance in sport and athletics.**

Research has repeatedly showed that tired teens have impaired reaction time, vigilance, and alertness. A lack of sleep also makes injuries more likely. Research by the American Academy of Pediatrics has found that adolescents in grades 7-12 who sleep more than eight hours each night are 68% less likely to be injured than their peers who sleep less.

## More vulnerable to illness.

Colds, flu, and gastroenteritis are more common in adolescents who lack sleep. Longer sleep seems to [protect teens from absences due to illness](#). Sleep deprivation can interfere significantly with their ability to do the things that are important to them – the game on the weekend, the exam, the performance, or the recital.

# For teens (and the rest of us) knowing sleep is important, doesn't always mean 'enough sleep' will happen. What then?

Knowing what's good for us is one thing. Actually doing it is another. To be honest, that's not a teen thing, it's a human thing. It can be wildly difficult to influence teen behaviour, particularly as one of the main developmental goals of adolescence is to explore their independence. But difficult doesn't mean impossible. Their minds are curious and open and wonderful – and because of their drive towards independence, they might not necessarily embrace our views of the way they should do things, but there are some things we can do to gently steer them in the right direction.

### 1. Set a bedtime that will get them 9 hours.

Telling teens how important sleep is won't necessarily persuade them to hit the pillow earlier, but [research](#) has found that 70% of teens will go to bed at a time set by their parents.

### 2. Start small.

Encourage your teen to stick to a consistent bedtime that gives them nine hours of sleep, just for one week – only a week. See if they feel better or perform better after that. After a week (hopefully!) they'll be able to see for themselves that nine hours can make a beautiful difference.

### 3. Consistency matters with bedtime.

As much as possible, try to facilitate a consistent bedtime. This is important to set their natural sleep-wake cycle. If their bedtime changes too much from day to day, it will interrupt their natural cycle, making it more difficult for them to fall asleep and wake up at times that are healthier for them.

### 4. Try to let them sleep time around their natural rhythm.

Some adolescents will be night owls and some will be early birds. If you have a night owl, they're likely to be more alert later in the day. If you can, try to organise mornings so they can sleep in as late as possible. This might mean encouraging them to get organised the night before, or avoiding early morning starts when they can, so they can wake up as late as possible the next day. This isn't always doable, but whenever it can be done, it will make a difference.

If you have an early bird, try to avoid encouraging them to stay up late studying or doing homework. They'll be more alert and engaged in the mornings than they would be late at night, and if they force themselves to stay up late, it will push against their natural sleep/wake cycle.

### **5. Switch off devices off at least 30 minutes before bed.**

Because the light from devices delays production of melatonin, the hormone that makes us feel sleepy, encourage your teen to switch off devices at least 30 minutes before bed.

### **6. And get those devices out of the room.**

[Recent research](#) has found that one in five adolescents aged 12-15 always wake up during the night to use social media. One-third wake up at least once a week during the night to use social media. Waking up to look at devices interrupts the sleep cycle enough, but there's also the effect of exposure to the light from their devices. Not surprisingly, teens who wake up to use social media, or who don't have a regular waking time in the morning, are around three times as likely to report being constantly tired at school. They also report being significantly less happy than their peers. Think about having a rule that means all devices have to be put somewhere out of the room before your teen settles down to sleep.

### **7. Let the sun in.**

As soon as your adolescent wakes up, let as much natural light into the room. This will let the brain know that it's morning and that it's time to switch on. The longer this is delayed, the longer it will be for the 'sleep' part of the cycle to kick in at the end of the day.

## **And finally ...**

There's no doubt that to be the best they can be, all adolescents need at least nine hours of sleep each night, but most of them are falling short and putting themselves in sleep debt. It can be tempting to blame this on their late night behaviours – social media, study etc – but their biology is the more powerful force. Their bodies just aren't ready for sleep when the rest of us are ready to settle for the night. This wouldn't matter if they were able to sleep in, but school or extracurricular start times mean they are often woken up at a time when their bodies have the physiological drive to be asleep.

Sleep is like a healing, cleansing, strengthening super-elixir for the brain. Anything we can do to support our teens in getting the peaceful zzz's their adolescent brains and bodies crave, will go a long way towards strengthening them, both in the short-term and in the years to come