



University of Pittsburgh  
Office of Child Development

*Children, Youth & Family*

# background

Report # 3

Adolescent Sleep Disorders

Fall 1997

## Up All Night

*Poor sleep habits come easily to adolescents and are hard to break. But if there's a will, there's a way.*

**S**lipping into a late-night routine that robs them of sleep is something that comes easily to adolescents. And the reason it does extends beyond an unwillingness to resist the tug of television or their blossoming social schedules.

Deciding their own bedtime is a major issue in the struggle for independence that is characteristic of the tumultuous adolescent years. But scientists now say there may be a biological tendency among adolescents to drift toward later bedtimes.

One thing is certain, sleep problems related to late-night schedules are becoming increasingly common among American adolescents, said Ronald E. Dahl, M.D., an Associate Professor of Psychiatry and Pediatrics at the University of Pittsburgh who specializes in sleep regulation and disorders. He estimates that about one-third of the children he sees clinically are adolescents with troubling late-night schedules.

"It's an incredibly common problem," he said. "The difficulty is quantifying it. If you set the threshold low and ask how many adolescents have trouble getting up in the morning, miss significant school, or fall asleep in school, it's very disturbing numbers."

The good news is that adolescent sleep schedules can, in most cases, be ratcheted back to more suitable hours. The bad news is that success requires abandoning a late-night lifestyle many adolescents simply refuse to sacrifice.

### Sleep's Importance

One of the most common problems related to sleep is not getting enough of it. Although the consequences of sleep deprivation vary among adolescents in type and severity, several general observations have been made.

- Those who routinely feel sleepy often find it hard to do something for abstract reasons. Their ability to direct attention toward reaching a goal suffers.
- Focused attention is more difficult to maintain for someone who is sleep-deprived. In fact, sleep deprivation tends to amplify or exacerbate symptoms similar to those associated with Attention Deficit Hyperactivity Disorder.
- It is more difficult for sleep-deprived adolescents to use abstract information to control emotions and impulses. "It sometimes adds an erratic element to emotional responses," Dr. Dahl said. "It's harder for them to control their emotions and behaviors according to things like social rules and long-term goals."

The relationship between sleep deprivation and these problems is not entirely clear. But the interface between the parts of the brain responsible for abstract processing and modulating emotions and impulses appear to be sensitive to the lack of sleep.

Recent research suggests lack of sleep interferes with the way parts of the brain work together. With a tired

adolescent, for example, it is more likely the impulse to join friends at a movie on Friday night would easily override any plans he or she had to work on that report due on Monday.

"I think that's why we tend to see emotional lability, easy frustration, problems controlling attention, as well as tiredness when people are sleep deprived," said Dr. Dahl.

### Preferring Late Hours

Adolescence is a particularly vulnerable time in terms of developing sleep problems.

First, there is evidence that the need for sleep increases around puberty during adolescence. It is a time when children typically seek more control over their own schedules as strive for greater independence. Their lives become more complicated. Part-time jobs, sports, hobbies, television, and the emergence of an active social life only add to an adolescent's inclination to stay up later.

Adolescents also tend to experience heightened daily anxieties and worries. These higher levels of stress heighten arousal. In turn, sleep – essentially, the turning off of awareness – becomes more difficult.

But research suggests that a sleep scheduled knocked-off-kilter may not entirely be the fault of stress, the quest for independence, or an over-booked social calendar. In fact, it may not be the result of a conscious decision on the

*(Continued on back)*

(Continued)

part of the adolescent at all. Puberty, a time of rapid emotional and biological change, appears to come into play.

### Circadian Clock

Sleep is intimately related to circadian rhythms, the physiological and behavioral rhythms associated with 24-hour cycle of the earth's rotation.

Among adolescents, a fundamental change in the circadian clock appears to occur at or near puberty. Now, in addition to all of the other reasons that make adolescents want to stay up late and sleep in longer, there is a biological component to deal with.

The circadian clock is sensitive and, once set, it can be very stubborn. For many adolescents, a late-night sleep schedule can be very difficult to break and they end up getting stuck in a jet-lag-like syndrome in which sleep and their schedules are pulling in different directions.

### Resetting The Clock

Because the circadian clock is stubborn to change, successful attempts at resetting it are introduced gradually and consistently. One method is to very gradually move an adolescent's wake-up time earlier. But forcing the circadian clock backward is difficult, like pushing a chain as opposed to pulling it. Usually, this method works only if the adolescent's schedule is slightly off.

For those with more serious late-night habits, delaying their bedtimes and wake-up times by three-hour intervals is often easier and more successful. "For most of the kids, it's easier to go around the clock backwards," said Dr. Dahl. "But when you start describing how this works, their families look at you like you're crazy."

Over a six day period, an adolescent's bedtime and wake-up time

is delayed until it swings around the clock to a suitable schedule. Take, for example, an adolescent boy who is stuck in a sleep schedule that has him going to bed at 3 a.m. and not being able to get up for school. He wants a healthier schedule, one that means going to bed at 9 p.m. Usually, lying in bed at 9 p.m. won't work. His clock is too far off for him to fall asleep. So,

worries aside before going to bed. Adolescents must also adhere to their new schedules on the weekends and during holidays.

But improving the sleep habits of adolescents over the long term hinges on another factor – their value of sleep. On their list of priorities, sleep must

---

*Resetting the circadian clock is an effective way of reestablishing a healthy sleep schedule. But, ultimately, long-term success depends on the value an adolescent places on getting enough sleep.*

---

he decides to undergo treatment. On the first day of treatment, his bedtime is moved to 6 a.m. On the second day of treatment, his bedtime is moved to 9 a.m. On the third day, he goes to bed at noon, and so on, until his bedtime travels around the clock to 9 p.m. That bedtime will stick, if he stays on schedule.

Advantages of this approach include the fact that adolescents who like to stay up late like the idea of delaying their bedtimes, so they are more likely to buy into the treatment regimen. The treatment cycle is also compatible with their circadian rhythm. And when they go to bed, they're tired.

Part of the treatment includes instruction on the elements of good sleep hygiene, such as the importance of healthy sleep-wake habits, not watching television at bedtime, going to sleep in a quiet, dark environment, and trying to put their

rank above socializing, above their activities, and above their work schedules.

And when attempts to reform an adolescent's sleep schedule fail, it's most often due to his or her low regard for sleep.

"Our society, particularly young people, don't value sleep," Dr. Dahl said. "There's something macho about getting by on less sleep. There's something lazy about getting sleep or needing sleep. It's part of our culture.

"I've talked to so many adolescents where it is not negotiable. They're not willing to give up their late night activities. When you bring that up, they look at you like there's something wrong with you."

~

---

## references

*This article is based on the following report:*

Adolescent sleep problems: For night owls, turning back the clock is difficult, but not impossible (1996). Developments, University of Pittsburgh Office of Child Development, June 1996, 10, No. 2, 3-4.

Dr. Ronald Dahl can be reached by contacting Craig Dunhoff at the University of Pittsburgh Medical Center News Bureau, (412) 624-2607.

---

*Children, Youth & Family background* is published by the University of Pittsburgh Office of Child Development, a program of the University Center for Social and Urban Research. Report are based on available research and provided as overviews of topics important to children and families.

**Co-Directors:** Christina J. Groark, PhD.; Robert B. McCall, PhD. **Associate Directors:** Carl N. Johnson, PhD.; Marks S. Strauss

**Editor:** Robert B. McCall, PhD.; **Writer:** Jeffery Fraser (412) 731-6641; Fraser53@msn.com

Office of Child Development, University of Pittsburgh, 2017 Cathedral of Learning, Pittsburgh, PA 15235; fax: (412) 624-1187