

## WELLNESS UPDATE 2003, #6

### TEENAGERS AND SLEEP

**Teenagers need a minimum of 9 hours of sleep a night, yet the average teen gets about six - 7 hours a night!** Many believe this “sleep debt” can be made up on weekends by sleeping in late. Not so says the research. Your body and brain do not adjust to lack of sleep and sleep is not an option, it’s a need.

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Approximately every 90-minutes during sleep, the brain goes through four stages of sleep, from light sleep to deep sleep. The most important stage is Rapid Eye Movement (REM) sleep, also called “the dream stage.” As you sleep, your brain spends more and more time in REM sleep, from about 10 minutes during the first 90-minute cycle to more than an hour after about 8-9 hours of sleep. REM sleep is important to learning and memory. By getting inadequate sleep during the week and sleeping in on weekends the total number of hours slept in a week may be similar to sleeping an extra hour every night, but the quality of sleep is not the same.

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Everyone’s internal biological clock (circadian rhythm) tells them when to sleep and when to wake up. During the teen years, the body’s internal biological clock tells one to fall asleep and wake up later than it does for most pre-teens and adults. The reason for the change seems to be a hormone called melatonin. Melatonin is a sleep-related hormone that helps one fall asleep. During the teen years melatonin is released at a different time of day than it is for pre-teens and adults, changing the sleep-wake cycle. As a result of this change, even if teenagers went to bed earlier, they probably wouldn’t be able to go to sleep because their body isn’t telling them they’re tired.

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If one falls asleep within 10-minutes of going to bed, they are probably not getting enough sleep on a regular basis. The first sign of sleep deprivation is the inability to control emotions, specifically anger. Anxiety, worry, frustration and perceived stress levels are all higher as a result of lack of sleep. When given physically demanding tasks to complete, individuals who are not fully rested perceive the task to be much harder than those who are fully rested.

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Sleep deprivation inhibits memory, creativity and logical thinking skills. All of which make learning more difficult. Sleep deprivation also shortens attention span, impairs decision making skills, decreases self confidence, coordination and ability to concentrate. During sleep the brain sorts, prioritizes and files information. Without adequate sleep, the information remains unorganized and more difficult for the brain to process. Sleep deprived athletes take more time to process and utilize information related to athletic skills. All this means it's harder for sleep deprived athletes to focus mentally and their reaction time is slower. Both of these increase the risk of injury whether it is a football player not keeping his head up on a block or tackle, or a pitcher not reacting quickly enough to dodge a batted ball. Sleep deprivation also inhibits the immune system, increasing the risk of illness.

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Physical growth as well as recovery from exercise and injury are slowed due to lack of sleep. During sleep bodily activity is slowed for maximum restoration and growth. While sleeping the body increases the amount of growth hormone released which helps increase and maintain strength, forms red blood cells to carry oxygen throughout the body, and promotes bone & muscle growth.

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The effects of sleep deprivation have been compared by some researchers to the effects of alcohol on a person's driving ability. The results show that a teenager who stays up all night (for example watching movies, playing video games and talking to friends) impairs their driving ability as much as one who has a blood alcohol level of 1.0! An adult's blood alcohol level of .08 means they are legally drunk!

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### TIPS ON HOW TO GET A GOOD NIGHT'S SLEEP

- Avoid caffeine after 4:00pm.
- Don't nap for more than 30 minutes during the day.
- Don't use the computer right before bedtime as the light stimulates your brain.
- Don't read suspense novels or watch violent or scary shows before bedtime.
- Don't exercise right before bedtime.
- Do go to bed at approximately the same time every night (*within 1 hour*) and wake up at approximately the same time every morning (*within 2 hours*).
- Do meditate, read or listen to soothing music before bed.

Sources: "Biology Supports Teenager Complaints," The Cedar Rapids Gazette, September 25, 1999; "Educating Youth About Sleep and Drowsy Driving," National Institutes for Health, September 1998; "How Much Sleep Do I Need," Teen Health, The Nemours Foundation, November 2001; "Sleep," Teen Health, The Nemours Foundation, October 2002; "Study: Lack of Sleep Much Like Inebriation," The Cedar Rapids Gazette, September 27, 1999; "Study Shows Connection Between Sleep & Childhood Injury," National Sleep Foundation; "Warning: Lack of Sleep May Pose Risks for Athletes," Sidelines, National Youth Sports Safety Foundation, Fall 2002.