

1. Mark your confusion.
2. Show evidence of a close reading on the page.
3. Write a one-page reflection in your WN

## **Slumber By the Numbers**

Source: Science News for Kids Jan. 27, 2010.  
<http://www.sciencenewsforkids.org/articles/20100127/Note3.asp>

It's an important question: "On an average school night, how many hours of sleep do you get?"

More than 12,000 high school students were recently asked that during a survey by the Centers for Disease Control and Prevention. The overall answer: not enough.

Studies have shown that teenagers really need at least nine hours of sleep, with eight hours considered a "borderline" acceptable amount. In the CDC study, however, only around 900 of the surveyed students reported getting the ideal amount, while an additional 2,800 reported averaging eight hours of shut-eye nightly.

Danice Eaton, a research scientist at the CDC, led this most recent survey, which was part of what the agency calls a Youth Risk Behavior Surveillance. Every year, CDC scientists like Eaton ask high school students about behaviors that can harm their health. The questions are on topics such as nutrition, weapons, sex and drug use — and sleep.

Sleeplessness, like other behaviors, carries a heavy toll. Scientists ask the survey questions to find a way to help people. Among people between the ages of 10 and 24, nearly three of every four deaths happen for one of the following reasons: motor vehicle accident, other accidents, homicide and suicide. Scientists like the CDC's Eaton hope that by understanding the risky behaviors, like sleeplessness, that might contribute to these tragedies, they may be able to save lives.

Also, without enough sleep, a person might have more trouble learning or exercising good judgment. Over time, people who regularly don't get enough sleep are more likely to be obese (which means very overweight) or get sick with serious diseases, some studies have found. Other studies have shown that even one night with less sleep than needed can throw off the chemical balance of the body.

Most students interviewed got much less than eight hours of sleep. Eaton and her team found that 30.2 percent, or about 3,600 students, sleep for only seven hours per night. About 2,700 students, or 22.8 percent, sleep only six hours per night. About 1,200 students, or 10 percent, reported sleeping five hours, and 5.9 percent, or 708 students, said they slept four hours or less.

The CDC's study identified a problem — but not the cause. Why do teenagers sleep less than they should? Maybe many teens like to work and stay up late. (This can make it rough to get up for school the next morning.) A number of scientific studies suggest some other ideas, as well. Computer use may be a culprit: Some scientists have found that the blue light given off by computer screens may interfere with the body's internal biological clock — making it difficult to go to sleep.

Other scientists have come up with new and interesting ways to help people who can't sleep.

Studies suggest, for example, that a person's biological clock responds favorably to blue light that is the color of the sky. So perhaps people are biologically "set" to start their day when they see the sky — and when people see a blue computer screen, their bodies misinterpret the light as morning. Some research has shown that donning a pair of yellow glasses at night will block the blue wavelengths. This allows people to become naturally sleepy, even after a long night on the computer.

Whatever the cause of too little sleep may turn out to be, the CDC's effort to identify the problem is an early step toward finding a treatment. Once scientists understand the problem, they can design ways to solve it.

### **The Effects of Sleep Deprivation on Brain and Behavior**

Source: Sarah Ledoux <http://serendip.brynmawr.edu/exchange/node/1690>

Sleep deprivation is a commonplace occurrence in modern culture. Every day there seems to be twice as much work and half as much time to complete it in. This results in either extended periods of wakefulness or a decrease in sleep over an extended period of time. While some people may like to believe that they can train their bodies to not require as much sleep as they once did this belief is false (1). Sleep is needed to regenerate certain parts of the body, especially the brain, so that it may continue to function optimally. After periods of extended wakefulness or reduced sleep neurons may begin to malfunction, visibly effecting a person's behavior. Some organs, such as muscles, are able to regenerate even when a person is not sleeping so long as they are resting. This could involve lying awake but relaxed within a quite environment. Even though cognitive functions might not seem necessary in this scenario the brain, especially the cerebral cortex, is not able to rest but rather remains semi-alert in a state of "quiet readiness" (2). Certain stages of sleep are needed for the regeneration of neurons within the cerebral cortex while other stages of sleep seem to be used for forming new memories and generating new synaptic connections. The effects of sleep deprivation on behavior have been tested with relation to the presence of activity in different sections of the cerebral cortex.

Possible WN topics:

Do you get enough sleep? Why? Why not?

How has a lack of sleep had a negative impact on your life?