



Sleep Tight

By Michelle Martin

Eleven men on Stanford's varsity basketball team did one simple, somewhat surprising thing that improved their reaction times, elevated their moods, and allowed them to sprint faster and sink more 3-point shots. They neither ran more laps nor practiced more drills; quite the opposite, actually—they slept. More to the point, they got more sleep than usual. ■ Over the course of five to seven weeks

during their competitive basketball season, the players extended their nocturnal sleep, whenever possible, with the goal of 10 hours in bed.

The results from this study—which was conducted by researchers from Stanford University and the University of California, San Francisco—were published earlier this year in the journal *Sleep* and suggest that athletic performance can be enhanced by optimal sleep and sleep habits. According to the study's lead author—Cheri Mah, a researcher at the Stanford Sleep Disorders Clinic—some professional sports teams have started to recognize the importance of sleep while training and traveling.

And if it's good for professional athletes, then it's probably also good for the rest of

us. In fact, researchers have linked sleep to proper functioning of the mind and body. Decision-making, reasoning, response time, judgment and mood are all negatively affected by lack of sleep.

Sleep researchers have delineated four stages of sleep, through which people cycle multiple times per night; the time spent in each stage varies from one cycle to the next. According to the National Institutes of Health, the first stage is a very light one in which people's muscles relax, and their heart and breathing rates slow. In stage two, brain waves begin to slow, with occasional bursts of faster waves. Stage three is known as deep sleep, during which the brain produces extremely slow waves. If awakened during this stage, people feel groggy. During deep sleep, growth hor-

mone is released. For children and even teens, this hormone is linked to physical development. For adults, it has more to do with repairing the body and aiding in metabolic processes, such as liver function.

The final stage is rapid eye movement, or REM, sleep, which is thought to produce the majority of dreams. During this phase, the eyes move rapidly behind closed eyelids. Though the purpose of dreaming is not fully understood, some research suggests that image-laden REM sleep is a time for problem-solving and integrating the day's learning and memories.

SLEEP IS ALMOST CERTAINLY a vital necessity, says William C. Dement, a pioneering sleep researcher who was the first to intensively study the connection between rapid eye movement and dreaming, and who founded the world's first sleep clinic, at Stanford University, where he is a professor in the department of psychiatry and behavioral sciences. Dement is one of the four researchers who studied the effects of sleep extension on athletic performance.

"When you are not able to breathe, you have a very strong drive to breathe. When you need water, you are thirsty, and hunger assures that you will seek food. The same applies to sleep. If you get inadequate sleep, you become sleepy, drowsy," Dement says. "Most people can't go more than one or two days without any sleep at all."

It's not just about fatigue. Sleep deprivation can have an effect on the body similar to that of alcohol, impairing coordination, reaction time and judgment.

"When you don't get enough sleep, the effect is cumulative," Dement says.

Even though each individual has a specific optimal amount of sleep that is good for him or her, the average is around eight hours for adults. Of the hundreds of healthy university students who have participated in studies with Dement over the years, all were carrying a sleep deficit, he says. And the varsity basketball players were no exception. Their daily require-

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ments were likely less than the 10 hours required by the study, but they each had an initial deficit to overcome.

“If you can go to bed early and sleep until midafternoon, that’s repaying sleep debt,” Dement says. Once the debt is paid, a healthy adult will likely not need to sleep more than his or her daily requirement.

SEATTLE RESIDENT and geomorphologist Stephanie McGuire knows what it feels like to be sleep-deprived. While studying environmental science at one college, training as a paramedic at another, and working part time and volunteering at her local firehouse, McGuire stayed up late into the night and awoke early to go to work. However, maintaining this pace got more complicated when several medical conditions, including pain from an injury, further impaired her ability to sleep.

“There’s a belief in our society that the need for sleep is seen as a weakness,” McGuire says. “People pride themselves on not needing much sleep.”

After a 13-year struggle with constant weariness, however, McGuire says she views sleep differently. She now has a more moderate schedule and a greater appreciation for the precious sleep that was once so elusive. Over time, and with help from various health care providers, McGuire has found her way back to better sleep, and as a result, she has more energy.

“The biggest shift for me was that I stopped viewing my body as a tool, and started appreciating the work it does for me,” says McGuire.

ONE WAY TO DETERMINE if you are getting the sleep you need is to gauge your drowsiness, says Bill Lucht, a physician and lung specialist at Lung & Sleep Clinic of Alaska in Anchorage. How do you feel after doing 15 minutes of a seated activity, such as reading, watching television or listening to a speaker? Do you lose your place or nod off? These are signs of sleep deprivation.

The good news, says Lucht, is that those who are getting too little sleep can often turn the tide and pay back their sleep debt in less than a week—assuming there is no physical reason for *CONTINUED ON PAGE 146*

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FROM PAGE 142 the lack of sleep.

One of the most important things to do is to maintain good sleep habits, or “sleep hygiene.” An individual’s biological clock is the brain process that produces 24-hour fluctuations in his or her temperature and hormones, among other things. Going to sleep at the same time every day helps keep that biological clock on track. In fact, when someone is getting enough sleep and maintaining a consistent schedule, Lucht says, he or she will wake up at the same time every day and feel tired when it is bedtime.

Good sleep hygiene also includes turning off TVs and computers and maintaining a comfortable bedroom temperature. Keeping the room dark at night is also important, according to Lucht, because one of the key hormones involved with sleep—melatonin—is released in the presence of darkness. Melatonin has been linked to sleep as well as memory formation.

“It doesn’t take too much light to affect the body’s melatonin,” Lucht says. Even a computer screen can interfere with one’s ability to fall and/or stay asleep.

Other tips for improving sleep, according to the National Sleep Foundation, include exercising each day, but not within a couple hours of bedtime; avoiding caffeine, nicotine and alcohol close to bedtime; and relaxing before bed, such as by reading or taking a hot bath.

If improving your habits doesn’t help you to get better sleep, it may be time to consult your doctor to determine if there is a medical cause. Forty million Americans suffer from a sleep disorder, according to the National Institutes of Health. One common physical ailment is sleep apnea—a condition in which an obstructed airway causes someone to awaken up to 400 times per night. People with sleep apnea feel tired during the day but likely do not recall waking frequently during the night. Snoring is often a symptom of the condition.

In the end, good sleep contributes to good mental and physical health.

“If people get as much sleep as they need,” Dement says, “they feel great.” ▲

Michelle Martin writes from Seattle.