



## SLEEP MAKES YOU SMARTER AND HEALTHIER

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**E'RE NO DIFFERENT THAN RATS WHEN** it comes to getting our Zzzzs. We, too, will die if we're sleep deprived.

But new research indicates sleep is more essential than the late-1990s-touted advantages of restoration, recovery and energy conservation. Modern studies show sleep is essential in immune function, hormone and mood regulation, learning, memory, and toxin release, says Dr. Robert Stickgold, associate professor of psychiatry at Harvard Medical School, who presented at Vail's Living Well Conference in mid-September.

He cited various studies, which illustrated: how subjects deprived of one night's sleep after a hepatitis vaccination ended up with half the ability to fight the disease as subjects who slept; how sleeping only four hours a night for four days in a row results in subjects who

appear to have Type 2 diabetes; and how sleep improves motor skills, memory, probabilistic learning and mood.

In relation to the Type 2 diabetes study, he believes the nation's obesity problem may, in fact, be partially due to sleep deprivation, because bodies that can't properly regulate insulin, as a result of poor sleep habits, store more fat.

He also says our brain processes information and improves learning and memory functions as we sleep. "The sleeping brain is working as hard, if not harder, than it is during the day," he says.

So, if you want to remain as healthy, emotionally balanced and cognitively well functioning as possible, Stickgold says you need more than six hours of sleep every night. Or, as he puts it bluntly — and with good-humor:

"If you don't sleep, you'll be unhappy, stupid, fat and sick. It's your choice."



## SEVERAL SLEEP STUDIES

### MEMORY

Subjects were trained to recognize where slashes were located in a rather dense block of dashes. After a night of sleep, they became 10 percent faster at finding the slashes, and a week later, after no further training, they were even quicker, indicating that more sleep helped strengthen their memory. Those who were sleep deprived the night after training performed as if they had received no training; they showed no improvement.

### MOTOR SKILLS

Subjects typed a series of numbers. After training, they showed a 60 percent increase in typing/motor skills, and after a night's sleep, this increased further, by 20 percent and resulted in less typos. Those sleep deprived showed no benefit from the training.

### INSULIN REGULATION

Subjects who slept from 1-5 a.m. (4 hours total) for four nights in a row showed a 40 percent decrease in glucose clearance and a 30 percent decrease in acute insulin response. In other words, their bodies responded as if they had Type 2 diabetes.

### IMMUNE FUNCTION

College students who were sleep-deprived for 24 hours directly after receiving their hepatitis vaccination showed the same number of antibodies against the disease for the first two weeks as compared to students who received a full night's sleep. However, after 28 days, the one-night-sleep-deprived students ended up with only half the resistance to hepatitis as the students who slept the night after the vaccination.

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### EMOTIONAL REGULATION

Researchers flashed both emotionally impactful and neutral pictures to subjects and measured their levels of emotional arousal. After a night's sleep, the emotional arousal caused by the pictures decreased. "Sleep not only helps you remember what's important," Stickgold says, "but (you) do so more calmly."

### PROBABILISTIC LEARNING

Researchers trained subjects in extracting patterns, and thus predicting a future outcome based on the specific cards they were given. After 300 trials, they showed no significant change in predicting the future, but after a night's sleep, they showed a 10 percent increase in extracting the patterns. In other words, they "figured out the rules while they slept," Stickgold says, adding that this indicates that during sleep, people are "figuring out how the world works, based on the information they're given."



## SLEEP APNEA

More than 18 million people suffer from sleep apnea, according to the American Academy of Sleep Medicine, and often, it goes untreated because people don't always realize they stop breathing at night.

One symptom of sleep apnea involves snoring, but only about half of the 90 million people who snore actually suffer from sleep apnea, according to the American Sleep Apnea Association. With obstructive sleep apnea, in which the airway becomes blocked, snoring is loud and rhythmic, followed by periods of silence, during which the sleeper doesn't breathe. As soon as the brain registers the ensuing lack of oxygen, the person snorts or gasps for air.

"You could have a couple hundred (of these) arousals during the night and not know it, and then not feel

rested because you're only reaching the light stages of sleep," says David Everett, owner of Mobile Sleep Services, which performs sleep studies through Vail Valley Medical Center.

People often don't seek treatment until they're so tired in the daytime, it interferes with daily activity. By then, sleep apnea is usually advanced.

High elevation complicates sleep apnea, because the pressure avails the body of less oxygen.

Fortunately, there's help. The Vail Valley Medical Center's Sleep Disorder Center offers non-invasive tests to diagnose sleep apnea and other problems.

Treatment ranges from nasal decongestants, abstinence from alcohol before bedtime, and dental devices to machines that deliver oxygen.

Supplemental oxygen (CPAP) is the most common treatment, Everett says. Some people wear oxygen masks,

while others simply place small, soft plastic nasal prongs in their nostrils.

However, the American Academy of Dental Sleep Medicine estimates that up to 50 percent of people who are prescribed oxygen do not comply with or tolerate it. Everett says using oxygen takes getting used to, "just like anything."

"Sleeping with a CPAP machine, which includes a face mask, tubing and a constantly running motor, can be difficult," says Jonathan Haerter, a dentist at Vail Dentistry.

For those with obstructive sleep apnea who don't want to use oxygen machines, custom-made oral appliances, like a mouth guard, are available.

"Oral appliance therapy often can equal CPAP in effectiveness and offer a higher patient compliance," says Haerter.

Sleep apnea is a serious condition that can lead to high blood pressure and a host of other problems, but, rest assured: It is easily diagnosed and treated.

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