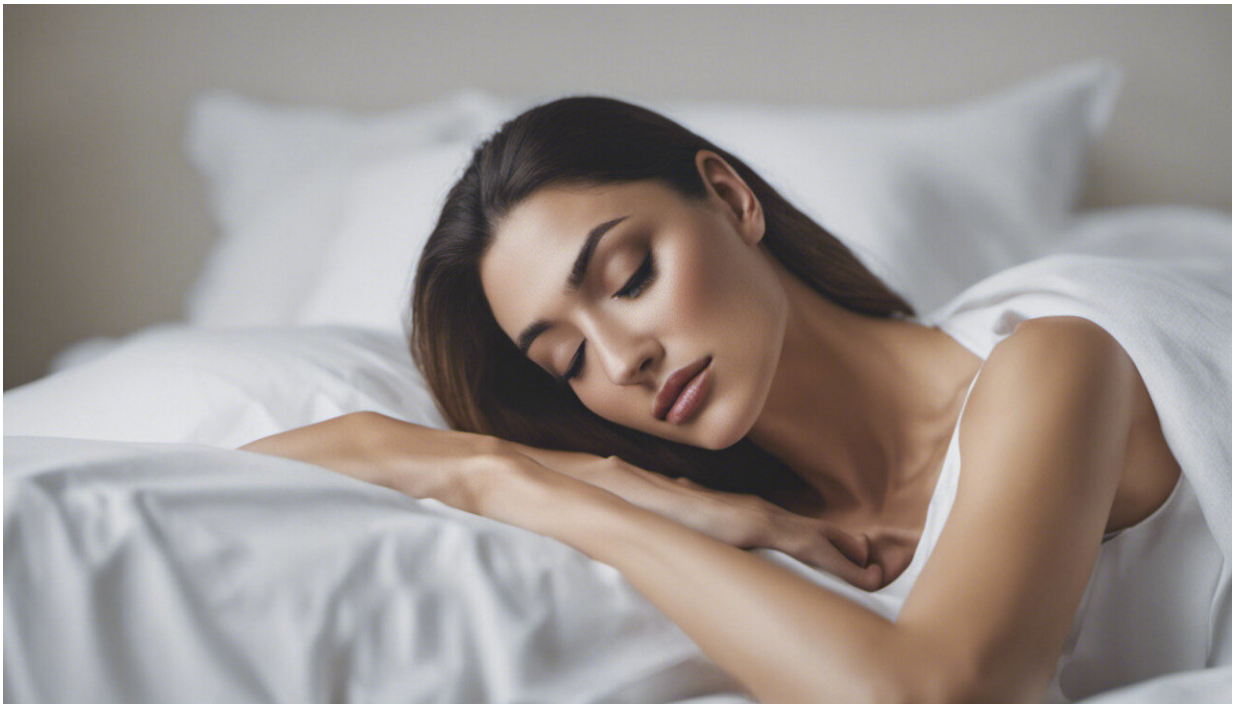


Probing Question: Can you train yourself to need less sleep?

September 7 2006



Credit: AI-generated image ([disclaimer](#))

Not long ago I took a fishing trip with two friends. We woke before dawn after only four hours of sleep and headed out on the road. Fatigue set in quickly: As heads bobbed and eyelids eased shut, we drifted onto the shoulder of the highway before jerking awake and coming safely to a stop. As the 18-wheelers barreled past us in the early morning light I

couldn't help but wonder: Do truck drivers, and others in sleep-deprived occupations, experience similar fatigue? Or do their bodies learn to adapt to less sleep?

Cynthia LaJambe, a chronobiologist at the Pennsylvania Transportation Institute, has conducted sleep research at Penn State and the Walter Reed Army Institute of Research, and has seen the effects of sleep deprivation -- including fatigue, sadness, stress, anger and diminished performance -- first-hand.

"At Walter Reed we were particularly interested in the effects of lack of sleep on soldiers," LaJambe said. "In combat situations, they are often forced to go 36 or 48 hours without sleep. Our tests conducted on soldiers over 72 and 86 hours showed that -- except for the rare individuals who seem genetically able to stay awake longer -- adapting in a short period to less sleep wasn't possible." Researchers still are investigating whether people can adapt better over longer time periods.

In another study, conducted at Walter Reed and the University of Pennsylvania, LaJambe noted, among participants who slept from two to nine hours daily for eight days, those who slept nine hours performed the best on "psychomotor vigilance" tasks, which measure reaction time. Those who slept three hours or less not only had progressively slower reaction times, but did not recover from the effects of sleep deprivation even after several days of sleeping longer hours.

At Penn State, LaJambe's research focus has turned to long-haul trucking. While truck drivers usually get more sleep than soldiers, she noted, they sometimes get only four to five hours sleep per night, compared to the eight hours recommended for healthy adults by the National Sleep Foundation. Tired drivers are at risk not only for falling asleep, LaJambe said, but for what she calls lapses.

A "lapse," as LaJambe described it, is a momentary shutdown of the prefrontal cortex causing a person to be temporarily unable to respond to stimuli -- in the case of driving, unable to operate the vehicle. After a lapse, a person often feels as though they have been momentarily asleep, although technically they have not been. Such incidents are more common than actually falling asleep, LaJambe said, and are particularly dangerous, "because even though people might think they can fight off dozing, this is something outside their control." The level of impairment caused by sleep deprivation can be equivalent to that caused by drunkenness, she added.

College students often experience lapses when pulling "all nighters" during exam periods. New parents, too, quickly come to know the effects of significantly reduced sleep. To avoid dozing off, or just to make more time for work, some people have tried a radical alternative. Polyphasic, or Da Vinci, sleep (so named for the great Renaissance master, who purportedly slept very little, in very short spurts), requires 15-20 minute naps every couple of hours, totaling between two and five hours of sleep per day.

Such fragmented sleep patterns inevitably take a toll on alertness, LaJambe said. "Some people think they are adapting to being awake more, but are actually performing at a lower level. They don't realize it because the functional decline happens so gradually."

In the short term, for those who have no choice but to stay awake, she said, "a short nap and a moderate amount of caffeine, like a cup of coffee, is still the best approach." But those naps should be kept under 20 minutes, LaJambe advised. "Otherwise, sleep inertia sets in, and you'll be groggy when you wake up."

"In the end," she noted, "there is no denying the effects of sleep deprivation. And training the body to sleep less is not a viable option."

Nothing matches a good night's sleep.

Source: By Ryan Szivos, Research/Penn State

Citation: Probing Question: Can you train yourself to need less sleep? (2006, September 7)
retrieved 27 April 2024 from <https://medicalxpress.com/news/2006-09-probing.html>

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