

# The staggering impact of sleep deprivation on our health

written by Dr. Ronald Hoffman | March 3, 2023



March is Sleep Awareness Month, with National Sleep Week coming up on the 12th. In commemoration, I'll be spending the next two issues focusing on the impacts of sleep on our health. This week, I'm paying particular attention to the impacts of getting *too little* sleep—some of which you may not be aware of.

"Sleep is the single most effective thing you can do to reset the health of your brain and body," according to Matthew

Walker, *SleepFoundation.org's* Scientific Advisor and director of the Center for Human Sleep Science at the University of California, Berkeley. He says that a "catastrophic" lack of sleep in modern society is killing us; sleep deprivation affects "every aspect of our biology" and is widespread in Western countries.

A poll of 2000 adults suggests that the pandemic has worsened America's sleep problems. **Disrupted schedules prompted by remote work have spawned "Coronasomnia"**. Six in ten Americans say their sleep routine during quarantine has them feeling more exhausted than they've ever felt in their lives; Unhealthy binging on increasingly-pervasive online entertainment and social media has compounded sleep deficits.

A recent study indicates that **getting good sleep could add years to your life**. *Science Daily* reports:

*"Getting good sleep can play a role in supporting your heart and overall health—and maybe even how long you live—according to new research being presented at the American College of Cardiology's Annual Scientific Session Together With the World Congress of Cardiology. The study found that young people who have more beneficial sleep habits are incrementally less likely to die early. Moreover, the data suggest that about 8% of deaths from any cause could be attributed to poor sleep patterns."*

Optimal sleep factors included: 1) ideal sleep duration of seven to eight hours a night; 2) difficulty falling asleep no more than two times a week; 3) trouble staying asleep no more than two times a week; 4) not using any sleep

medication; and 5) feeling well rested after waking up at least five days a week.

*“Among men and women who reported having all five quality sleep measures (a score of five), life expectancy was 4.7 years greater for men and 2.4 years greater for women compared with those who had none or only one of the five favorable elements of low-risk sleep.”*

**Sleep is associated with optimal performance of the glymphatic system**—the brain’s cleanup process by which accumulations of toxic metabolites are eliminated. A recent review concludes:

*“1. glymphatic clearance plays a major role in Alzheimer’s pathology; 2. the vast majority of waste clearance occurs during sleep; 3. dementias are associated with sleep disruption . . . glymphatic activity is dramatically boosted during sleep.”*

Indeed, research suggests that getting adequate sleep and maintaining a normal circadian rhythm may be keys to preventing Alzheimer’s Disease. It was found that healthy sleep habits and avoiding sleep interruptions help the brain clear out the protein Amyloid-Beta 42 (AB42). Accumulations of amyloid are responsible for the clumps and tangles of brain tissue that are hallmarks of Alzheimer’s.

**Sleep deprivation can make you gain weight.** According to the *American Journal of Clinical Nutrition* sleep restriction leads to increased activation of brain regions sensitive to food stimuli. They conclude:

*“The findings of this study link restricted sleep and susceptibility to food stimuli and are consistent with the notion that reduced sleep may lead to greater propensity to overeat.”*

Another study found that sleep loss is linked to nighttime snacking, junk food cravings, obesity, and diabetes.

And depriving healthy non-obese adults of adequate sleep (14 days of 4 hours sleep) has been shown to boost weight and increase intra-abdominal fat.

Insufficient sleep in teenagers—worsened by strenuous academic schedules and night-time screen addiction—is associated with overweight and obesity.

According to a survey of health professionals, **insomnia, disrupted sleep, and burnout are linked to higher odds of severe COVID-19**; for every additional hour of sleep, there was a 12% lower odds of infection among clinicians. Sleep deprivation is known to be associated with immune suppression; during sleep the immune system is restored. Inadequate sleep also blunts the efficacy of vaccines. Short sleepers are four times more likely to catch a cold.

Remember back in school when we bragged about pulling “all-nighters” cramming for exams? It turns out that **adequate sleep is the key to academic success**. Researchers equipped students with *Fitbits* that tracked sleep, and found that when sleep duration fell below six hours per night, academic performance

suffered. Studies have shown that sleep is essential for memory consolidation. Nightly sleep duration was found to be predictive of grade point average in the first year of college.

**Fragmented sleep accelerates cancer growth.** Two identical groups of mice were injected with cancer cells; one group was subjected to interrupted bouts of sleep. Tumors grew to twice the size in sleep-deprived animals. And it's well-known that shift workers whose circadian rhythms are disrupted are more prone to cancer. Since perturbed sleep is common among cancer patients, the implications for the importance of adjunctive lifestyle support in oncology are obvious.

#### **More quick facts about sleep:**

- Every nuclear accident reported so far anywhere in the world has occurred on the night shift, when people are tired.
- Most highway accidents take place between midnight and 6:00 a.m. and are fatigue-related. Their rate is nearly triple that of accidents occurring at noon or 6:00 p.m.
- People who suffer from severe sleep apnea have more than twice as many car accidents as the general population.
- 50,000 car accidents a year occur because drivers fall asleep at the wheel.
- We sleep less now than we did a decade ago according to data from a Japanese study. In 1970 we slept an average of 7.5 to 8 hours a night. In 1990 we slept an average of 7 to 7.5 hours a night. As of 2023, 32.5% of Americans sleep less than 7 hours per night.
- 50 percent of the elderly suffer from insomnia.
- The average person sleeps 220,000 hours in a lifetime.
- The average healthy sleeper moves 40 to 60 times each night.
- Nearly 40,000,000 North Americans snore occasionally.
- The life span of a pillow is supposed to be at least two years.
- 15 percent of people sleep in the nude.
- The highest sound level of a snoring sleeper ever recorded is 90 decibels.
- 15 percent of children younger than 12 sleepwalk at least once.
- Louis XIV of France had 413 beds.
- Mark Twain's advice for insomnia was: "Try lying on the end of the bed, then you might drop off."

Next week I'll explore more ramifications of sleep for health, and offer

solutions and strategies for overcoming common sleep problems.