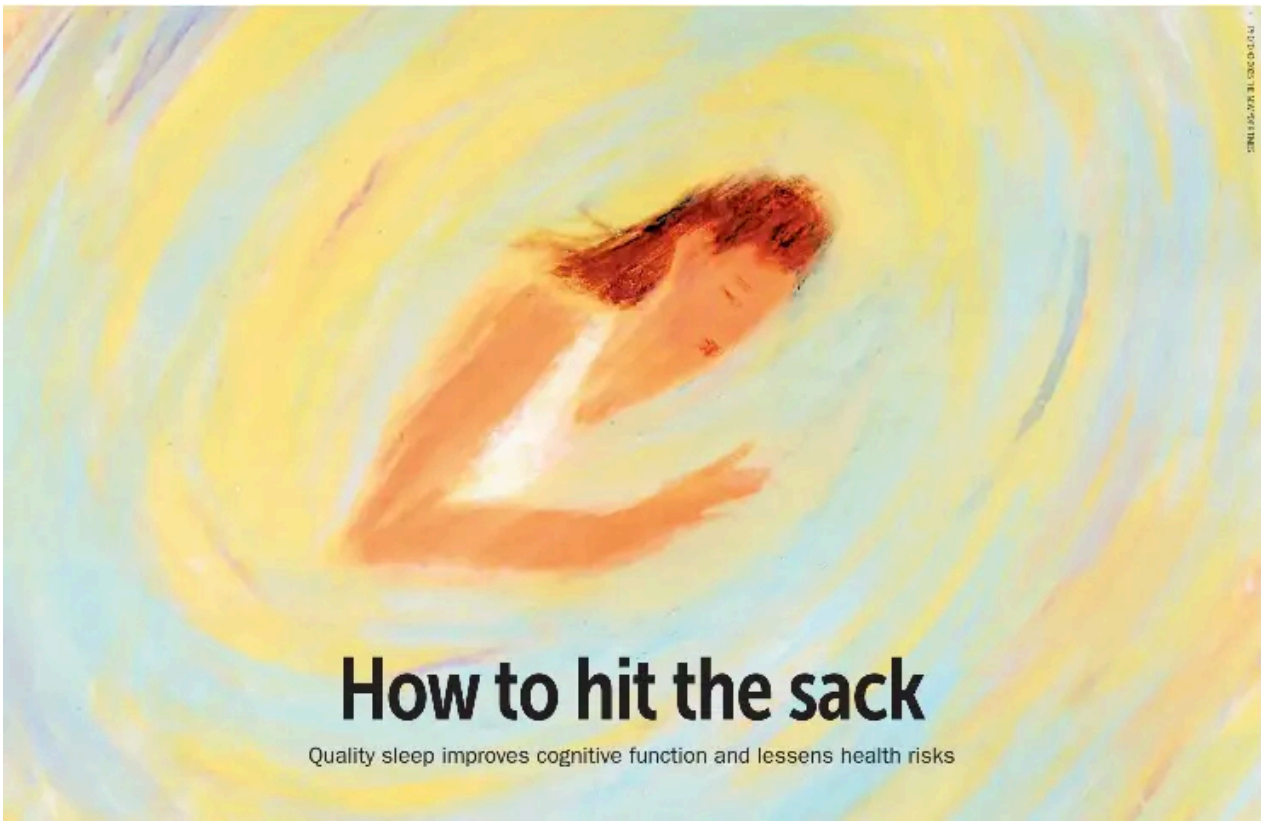
THE IMPORTANCE OF QUALITY SLEEP

Quality sleep improves cognitive function and lessens health risks

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Agood night's sleep isn't just about the number of hours you log. Getting quality sleep — the kind that leaves you feeling refreshed and ready for the day — is critical for a healthy brain.



People with disturbed sleep, like insomnia or sleep apnea, have a higher risk of developing dementia than those with no sleep issues. Poor sleep can harm your brain in other ways, too. One study found that people in their 30s and 40s with heavily disrupted sleep (such as frequent awakenings or movements) were two to three times more likely to test lower in executive function, working memory and processing speeds a decade or so later.

Scientists think that deep sleep and rapid eye movement (or REM) sleep are particularly influential when it comes to brain health and dementia risk. A study published in March on people with deep sleep and REM deficiencies found that the subjects' brains showed signs of atrophy in MRI scans 13 to 17 years after the deficiencies were observed; the atrophy looked similar to what you'd find in the early stages of Alzheimer's disease.

WHAT SCIENTISTS KNOW SO FAR

When you're asleep, your brain continuously cycles through four distinct phases: Two stages of lighter sleep, when your body relaxes and your heart rate and temperature drop; deep sleep or slow wave sleep, when brain activity slows; and REM, when you typically dream. The brain generally takes about 90 minutes to cycle through all four stages and then restarts the process.

Deep sleep and REM help your brain "heal itself" from fatigue and stress and consolidate memories, said Matthew Pase, an associate professor at the School of Psychological Sciences at Monash University in Melbourne, Australia. In deep sleep, your brain regulates metabolism and hormones; it also acts as a "rinse" for the brain, clearing out waste. REM is when your brain processes emotions and new information you picked up when you were awake.

The two phases influence dementia risk in different ways, scientists think.

As part of the rinsing process in deep sleep, your brain flushes out amyloid proteins that are a hallmark of Alzheimer's. Years of interrupted deep sleep and incomplete flushing — known as glymphatic failure — could hasten the onset of dementia, said Dr Maiken Nedergaard, a neurology professor at the University of Rochester Medical Center who researches the glymphatic system.

Scientists understand less about how REM is tied to dementia risk, said Dr Roneil Malkani, an associate professor of sleep medicine at Northwestern University's Feinberg School of Medicine.

A 2017 study of more than 300 people over 60 found that a shorter amount of nightly REM sleep and taking longer to get to the REM phase in each sleep cycle, were both predictors for dementia later in life. That could be because

REM is "vitally important" for storing and processing memories and losing that capacity both weakens the brain's defences against cognitive decline and can accelerate atrophy in parts of the brain that aren't used, said Pase, who co-wrote the study.

It's also hard to tease out the "chicken and egg" relationship between sleep and dementia, and whether poor sleep definitively causes it, Pase said. Adults (particularly women) naturally spend less time in deep and REM sleep as they age. Scientists already know ageing itself increases dementia risk, but dementia also tends to worsen sleep. It's possible the two processes "compound each other," he said.

TIPS FOR A BETTER NIGHT'S SLEEP

It's generally difficult to target individual stages of sleep for improvement, and as you get older, experts think it may be harder to change the brain's sleep cycles. But there's no downside to improving your sleep hygiene, which is an effective way to boost your sleep overall, including deep and REM sleep, Malkani said.

Getting about seven hours of sleep a night is the easiest step you can take. That gives your brain enough time to cycle through its stages between four and seven times, he said.

Research has shown that people who sleep six hours or less a night in their 50s, 60s and 70s have a 30% increased risk of dementia later in life, suggesting that it's never too late to improve your sleep, said Bryce Mander, an associate professor of psychiatry and human behavior at the University of California, Irvine.

Having a consistent sleep and wake time can help you fall asleep more easily, said Zsófia Zavecz, a postdoctoral researcher at the Adaptive Brain Lab at the University of Cambridge.

What's more, parts of the brain that are used heavily during the day tend to exhibit slower brain waves during sleep, so doing anything that "meaningfully engages the brain for a while," like learning a new skill, could exhaust certain parts and increase their need for restorative, slow-wave sleep, Zavecz said.

Exercising can keep you mentally engaged and increase blood flow to the brain, which is helpful in glymphatic clearance, Nedergaard said. Minimising stress also boosts the process, she added.

So how do you know if you're getting enough sleep? Wearable trackers or smartphone apps can estimate the amount of time you spend in each cycle, but Malkani said it's more helpful to ask yourself, "How do I feel when I wake up?" And if you wake up in the middle of the night, ask "How long did it take me to fall back asleep?"

In general, setting aside enough time to sleep is the best way to ensure your brain reaches deeper stages — and depending on deficits, it may spend more time in REM or deep sleep as it cycles, Pase said. "Let the brain do its thing, and it will shuffle around as it needs," he said.