

# Nature's brain tonic: a good night's rest

**DWIGHT CHAPIN**  
**HEALTH ADVISOR**

Research shows that sleep is among the most critical factors for peak performance, memory, productivity, immune function and mood regulation – but the speed and information overload of today's pace of life can challenge sleep quality, resulting in a decline in health and cognitive function.

Our best intentions to catch up on a sleep debt can lead to inconsistent patterns of sleep. This is a slippery slope. Unfortunately, an hour less tonight does not equal an extra hour tomorrow.

According to cognitive psychologist and best-selling author Daniel J. Levitin, you cannot make up for lost sleep. Levitin's work explores recent advances in brain science and how leaders in the information age excel. In his book *The Organized Mind: Thinking Straight in the Age of Information Overload*, he explains the importance of sleep and the cost of sleep deprivation.

The belief that people can adapt to chronic sleep loss without a negative influence on brain function is no longer supported. The U.S. Centers for Disease Control and Prevention (CDC) declared sleep deprivation a public health epidemic in 2013.

Not all sleep is equal. Recovery or catch-up sleep is characterized by abnormal brain waves as the brain attempts to resynchro-



Children need 10 to 12 hours of sleep, teenagers 8.5 to 9, and adults six to 10. Trying to make up for lost sleep is considered ineffective. FRANK GUNN/CP

nize with the body's circadian rhythm. Even a mild sleep reduction or change in sleep routine can produce detrimental effects on cognitive performance for many days afterward.

Following these tips will help improve sleep quality and support brain function.

**Sleep needs**

There is great individual variance in sleep cycles. Some are able to fall asleep as their head hits the pillow; others may take an hour. Both are considered within the normal range. What is most important is to understand your specific sleep requirements and lock in this pattern. General guidelines suggest that

children require 10 to 12 hours, teenagers 8.5 to 9 hours and adults six to 10 hours.

Deeper restorative sleep typically occurs during the first two hours and the last 90 minutes. If the important 90-minute window of deeper REM (rapid eye movement) sleep is interrupted or never occurs, sleep deprivation leads to memory loss.

Sleep habits that lead to normal, quality nighttime sleep and full daytime alertness, referred to as sleep hygiene, are supported by a consistent routine. Maintain a regular wake-and-sleep pattern seven days a week.

**Sleep posture**

Yes, your posture is important

even when you sleep. Lying on your back or side allows your head, neck and spine to relax into their natural alignment. Stomach sleeping places stress on your spine and is discouraged for back- and neck-pain sufferers. Try placing a pillow under your knees when lying on your back. This will take pressure off your lower back. Back sleeping may lead to snoring and poor sleep quality for your partner. If so, roll onto your side and position your head, neck and shoulders in line with your spine.

Pillow selection can be challenging. The wrong pillow may worsen headaches, neck pain, shoulder and arm numbness and/or discomfort.

Back sleepers need thinner pillows, so their head is not thrown too far forward. And there's some benefit from the use of cervical pillows with extra loft in the bottom third of the pillow to cradle the neck.

Side sleepers need a firmer pillow to fill in the distance between the ear and outside shoulder. Final selection will be influenced by your body size, shape and sleep habits. Most pillows wear out in a couple of years and should be regularly replaced.

Mattresses should be comfortably supportive. You want a mattress to be flexible enough to adapt to your body's shape while providing firm support for your spine. Replace your mattress every eight to 12 years.

**Strategies for better sleep**

• Avoid stimulants such as caffeine, nicotine, and alcohol too close to bedtime: While alcohol is well known to speed the onset of sleep, it disrupts sleep in the second half as the body begins to metabolize the alcohol, causing arousal.

• Exercise can promote good sleep: Keep vigorous exercise to the morning or late afternoon. A relaxing exercise, such as yoga, can be done before bed to help initiate a restful night's sleep.

• Eating can be disruptive right before sleep: Stay away from large meals close to bedtime.

• Ensure adequate exposure to natural light: This is particularly important for older people who may not venture outside as frequently. Light exposure on waking helps maintain a healthy sleep-wake cycle.

• Establish a regular relaxing bedtime routine: Try to avoid emotionally charged conversations and activities before bed.

• Associate your bed with sleep: It's not a good idea to use your bed to watch TV, surf the web, or read.

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## Hutchinson: Highest infection risk is when vitamin D levels are typically lowest

As a result, Svendsen says, Norwegian skiers are now advised to wait until the day after competition to fly home, "rather than jumping straight in a car to the airport after their last race."

A more surprising finding was that athletes with higher "training monotony," meaning that the intensity and duration of their training didn't fluctuate wildly from day to day, were less likely to get sick.

That doesn't mean that athletes should train the same every day, Svendsen cautions – after all, mixing hard and easy training days is a common piece of training advice. But it suggests that sudden increases in training load, or overly dramatic fluctuations from very easy to very hard, might put you at higher risk.

Another key factor was the time of year. The athletes were twice as likely to get sick during the winter, and when they did, the symptoms lasted longer than during the summer. That may seem obvious, but it's particularly interesting because it's the same pattern observed in summer athletes such as swimmers, even though their yearly training and competition calendars are reversed.

Skiers do their highest volume of training over the summer, and yet that's when they're least likely to get sick. That suggests the culprit is environmental factors, rather than training – and in particular, Svendsen and her colleagues point out, vitamin D levels may play a role. In fact, the highest risk of infection came in late winter and early spring, precisely when vitamin D levels are lowest in most people.

According to Neil Walsh, an exercise immunologist and head



Data collected on Norwegian cross-country skiers demonstrate that small things matter when it comes to training. VIANNEY THIBAUT/AGENCE ZOOM/GETTY IMAGES

of the Extremes Research Group at Bangor University in Britain, there is mounting evidence that keeping your blood levels of vitamin D – or, strictly speaking, of a related marker called 25(OH)D – around 75 nanomoles a litre optimizes immune function in athletes and reduces the risk of respiratory tract infections. In contrast, a minimum level of 50 nmol/L is

commonly recommended by bodies such as the U.S. Institute of Medicine.

To reach 75 nmol/L, Walsh and his colleagues suggested in a recent paper in *Exercise Immunology Review* that supplementing with 1,000 international units a day during the winter is a good idea. During the summer, on the other hand, getting about 15 minutes

of unprotected sun exposure daily, between 10 a.m. and 3 p.m., is sufficient for most people.

"With adequate, safe summer sunlight exposure, there shouldn't be a need to supplement year-round," Walsh says.

Many of the other factors that contribute to infection risk are things we already know. "Hand hygiene is a big one," Svendsen

points out, as well as basics such as getting enough sleep and staying hydrated. "These are all pretty common-sense things, but are sometimes overlooked."

If there is one thing we should take away from the Norwegian skiers' data, it is that these little things matter. Dodge a cold here, avoid a stomach bug there, and you might just make it to the podium.

**SPORTS**

## Race injuries mostly caused by cyclist collisions, study shows

**KATHRYN DOYLE**

Based on data from northern Belgium, almost one in six non-professional cyclists suffers an accident during a race and colliding with other riders is a major cause.

"Although the number of accidents is quite high, luckily most lesions are minor," said senior author Dr. Alexander Van Tongel of Ghent University Hospital.

The researchers studied an acute injury registry for the years 2002 and 2012 in Flanders. There were 777 documented reports of accidents with more than 1,000 injuries during non-professional cycling competition.

In 2002, almost 16 per cent of registered riders were injured during competition, and 7 per cent had more than one accident. About one-third of incidents in each year resulted in severe injuries, most commonly injuries of the hand or shoulder.



Researchers in Belgium found that cycling events had a six times higher rate of injuries for non-professionals than normal riding. FEDERICOC

There were 30 concussions in 2002 and 35 in 2012. In both seasons, colliding with another rider was by far the most frequently reported accident cause, as reported in the *British Journal of Sports Medicine*.

"What you have to underline is these are competitive injuries,"

said Dr. Mark Greve of the Warren Alpert School of Medicine at Brown University in Providence, R.I.

"Cycling events, over all, have a six times higher rate of injuries than normal bike riding in the community."

Greve cautioned against apply-

ing these results to all types of cycling.

Cycling can be beneficial for obesity, high blood pressure, diabetes and asthma, among other conditions, so the benefits still outweigh the risks, which are relatively small, Greve told Reuters Health.

"As shown in the study, most injuries are caused by collision with other riders," Van Tongel said by e-mail. "Although the numbers of races in one year are limited for several age groups, currently the number of participants is not limited."

"The most important risk is head and severe brain injuries," he said.

The International Cycling Union made hard-shell helmets compulsory for races in 2003, and several studies confirm the protective effect of wearing a bicycle helmet, he said.

Reuters

**TODAY'S SUDOKU SOLUTION**

2	4	8	5	3	7	1	9	6
5	1	9	8	6	4	2	7	3
3	7	6	9	2	1	8	5	4
4	3	7	2	9	6	5	8	1
1	9	2	4	5	8	6	3	7
6	8	5	1	7	3	4	2	9
9	5	1	3	4	2	7	6	8
8	6	3	7	1	5	9	4	2
7	2	4	6	8	9	3	1	5

**TODAY'S KENKEN SOLUTION**

2 <sup>-</sup>		90 <sup>x</sup>		3 <sup>-</sup>	
1	2	5	3	6	4
3 <sup>-</sup>	2 <sup>-</sup>	10 <sup>+</sup>	4	4	1
3	6	2	5	4	1
6	4	3	1 <sup>3+</sup>	2	5
2	3 <sup>3-</sup>	1	4	5	6
1 <sup>-</sup>	4	5	2 <sup>-</sup>	1	3
6 <sup>+</sup>	5	1	4	6	3
			6	5 <sup>+</sup>	2