

To your health: Why sleep is your superpower!

Tired? Brain fog? Can't remember why you walked in room? It might not be your age, but instead a lack of sleep! Christine Kjeldbjerg looks at how sleep can supercharge your life.



'Sleep is your superpower', claims Matthew Walker, renowned neuroscience professor and expert in the science of sleep. Why should we care about sleep? It is often neglected but the single most effective thing you can do to reset your health and body every single day and sleep deprivation has a significant impact upon health and wellness outcomes.

Sleep is an investment not a cost, yet slowly the population is catching up with this notion. Sleep is like hitting the SAVE button on the information accumulated throughout the day. Long-term memory is formed during sleep by a process that strengthens memories, reorganises them, and integrates them into specific areas of the brain. These processes store previously acquired memories and also enables the capacity for new learning.

A lack of sleep alters both physiology and behaviour and increases the risk of mortality.

Adults sleeping for greater than seven hours in a 24-hour period have a reduced risk of heart attack, coronary heart disease, stroke, and diabetes compared with adults sleeping for less than 7 hours. This means a requirement to be in bed for at least 8 hours to get 7 hours of sleep as the body takes time to fall into a sleep state. However, even 15 minutes reduction in rapid eye movement (REM) sleep per day has shown to decrease lifespan by 13%.

Sleep debt: What too little sleep may do

With a lack of sleep, the memory inbox of the brain shuts down and leads to an increased development of a toxic protein in the brain called *beta amyloid* which is associated with Alzheimers disease. During deep nighttime sleep, the 'sewage system' in the brain, known as the *glymphatic system*, works hard to wash away this toxic protein and other toxic debris.

- Sleep deprivation affects the **reproductive system**: males sleeping 4 - 5 hours a night will have testosterone levels of someone 10 years older.
- Just one night of 4-5 hours of sleep will impact the **immune system** by reducing natural killer immune cell activity by 70%.
- Short sleep duration also predicts **increased risk of cancers** of the prostate, bowel and breast.
- Acute sleep deprivation and sleep fragmentation may also be associated with an **inability to regulate blood sugar** levels. This may contribute to disordered eating and weight gain.

STAGES OF SLEEP

Sleep stages are important because they allow the brain and body to recuperate and develop. A lack of both deep sleep and REM sleep may be associated with poorer cognitive and physical health.

There are FOUR stages of sleep; one for rapid eye movement (REM) sleep and three that form non-REM (NREM) sleep. These stages represent changes in brain activity during sleep.

We spend the most time in deep sleep during the first half of the night. During the early sleep cycles, N3 stages commonly last for 20-40 minutes. As you continue sleeping, these stages get shorter and more time gets spent in REM sleep instead.

REM sleep is “emotional first aid” and it provides mental health therapy overnight. It is during REM sleep that traumatic or difficult experiences from the day are softened. It is also known as emotional convalescence.

Under normal circumstances, you don't enter a REM sleep stage until you've been asleep for about 90 minutes. As the night goes on, REM stages get longer, especially in the second half of the night.

SLEEP STAGES	TYPE OF SLEEP	OTHER NAMES	DURATION IN MINUTES
1	NREM	N1 "dozing stage"	1 - 5
2	NREM	N2 short burst of brain activity.	10 - 60
3	NREM	N3 "delta sleep" or "short wave" sleep: SWS	20 - 40
4	REM	REM SLEEP	10 - 60

Table adapted from <https://www.sleepfoundation.org/>

Recommended TIPS for improved quality sleep

1. **Routine:** Go to bed and wake up at the same time regularly. Regularity improves the quality and quantity of sleep. The brain has a 24-hour clock and works best under conditions of regularity.
2. **Stay cool:** Keep the bedroom cool. The brain and body need to drop the core temperature by approx. 1 degree celsius in order to initiate and then stay asleep. 18 degrees Celsius is optimal.
3. **Turn off the lights:** Darkness is required to trigger the hormone melatonin which helps regulate the health timing of sleep. In the last hour before bed, dim down lights in the house and stay away from tablets, computers, and phones.
4. **Don't toss and turn:** Walk it out. Don't stay in bed unable to sleep. After 25 minutes get out of bed and do something different so your brain does not associate the bed with wakefulness. Only return to bed when sleepy.
5. **Prepare:** Change into bed clothes, brush your teeth, wash skin **1 hour** before going to bed.
6. **Sleep alarm:** Set a "to bed alarm" that will give an 8-hour sleep opportunity. This notification may encourage getting to bed a little earlier.
7. **Skip the coffee:** Caffeine is a stimulant and will make sleep more fragile, even for those who can fall asleep following a late dinner espresso. Research has shown that it takes 6 hours for the body to detoxify 50% of the caffeine from one coffee. Caffeine should be avoided by those suffering with anxiety as sleep is key in supporting an anxious brain.
8. **No night cap:** Alcohol also fragments sleep and makes sleep more fragile. Aldehydes (a byproduct of alcohol) potently suppress REM sleep. It is a misunderstood sleep-aid. A night-cap is not beneficial for sleep.
9. **Support melatonin:** Eat foods high in nutrients that help make melatonin: bananas, cherries, oranges and oats. A protein called tryptophan is also required and found in nuts, tofu, pumpkin seeds, hummus and tahini.

IF YOU SUFFER FROM INSOMNIA THESE TIPS MAY NOT HELP YOU AND YOU MAY REQUIRE ADDITIONAL SUPPORT.

Morning person or night owl?

Society is biased towards morning types rather than evening types. This depends upon our personal chronotype and may be driven by genetics. Some individuals are not programmed to get up early and thrive later in the day.

Sleep tables for Europe: <https://landgeist.com/2021/05/12/sleep-duration-in-europe/>

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***For educational purposes only, always consult your doctor before starting or changing medication.*