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## The Impact of Sleep on Brain Health During Aging: Why Sleep Matters

Image



Shakespeare was on to something when he described sleep as the “*chief nourisher in life's feast.*”

Put simply, sleep is fundamental for maintaining and improving physical and mental health.

When you don't get enough good sleep, thinking gets fuzzy, and your brain feels sluggish. It gets much harder to concentrate, learn new things, and remember information. Even simple tasks seem harder because your brain is working at a big disadvantage, namely, too little restorative sleep.

It is especially important for older adults to prioritize good sleep habits. Maintaining regular sleep cycles can even lower the risk of developing neurodegenerative

conditions like Alzheimer disease.

## Key Takeaways

- Sleep is fundamental in many ways, including support for cognitive and physical health.
- Disrupted sleep increases the risk of obesity, diabetes, and other chronic diseases, like Alzheimer's disease and other conditions that lead to dementia.
- “Sleep hygiene” is a group of habits that raise the chances of getting high-quality, good sleep every night.
- Poor sleep is a major contributor to cognitive decline, and it raises the risk of developing dementia.
- Sleep is *non-negotiable*. Take steps to make sleep a priority today.

## Why is sleep so important?

Most of us can relate to how bad we feel after even one night of poor sleep.

Sleep is a nightly physiological cycle. We need it because sleep allows the brain and body to rest. That said, a lot happens while we sleep: neurons mature, new memories “consolidate” into long-term storage, the body heals, and metabolism is regulated.

Scientific and medical research is learning more and more about just how very fundamental sleep is to health of all kinds:

- The American Academy of Sleep Medicine tells us that sleep is a “biological necessity.” Too little sleep or having a sleep disorder damages health, well-being, and even public safety.
- The American Thoracic Society reminds us that disrupted sleep can increase the risk of obesity, diabetes, and other chronic diseases.
- Poor sleep during midlife is associated with increased deposits of amyloid-beta protein, a major risk factor for Alzheimer disease.
- The World Health Organization classifies night shift work as a probable cause of cancer due to disruption of the body clock.

These are powerful reasons to pay attention to your sleep habits.<sup>1</sup>

Sleep contributes to many biological processes, such as:

**Physical health:** Sleep is an important repair cycle. It allows the body to produce proteins to help repair damage to cells and tissues. Sleep promotes muscle growth and helps fight infection and other illnesses.

**Sleep supports the immune system:** During sleep, the body produces small proteins called cytokines. Cytokines are crucial for lowering inflammation and helping to stave off infections.

**Cognitive function:** Sleep is an essential support for our ability to concentrate, be productive, make decisions, and be creative. As noted, sleep is when the brain “consolidates” new memories into long-term storage.

**Regulating behavior and emotion:** Sleep deprivation can cause mood disturbances, such as anxiety and depression. Poor sleep makes it harder to manage stress.

**Taking out the cellular garbage:** Sleep helps clear toxic substances from neurons and other brain cells and tissues. During sleep, the body clears toxic proteins—like beta-amyloid and tau, which form the plaques and tangles that cause Alzheimer disease—from the brain.

Getting enough high-quality sleep is essential for cognitive, emotional, and physical health, plus quality of life and overall well-being. Sleep can even help you live longer.<sup>2-4</sup>

## **What is Sleep Hygiene?**

It is an odd term, right? But think of it this way: “Hygiene” is defined as a group of practices that help maintain health and prevent disease. And that is a pretty good definition of sleep, too, if we do our sleep right.

In short, sleep hygiene can be thought of as a group of habits that raise the chances of getting high-quality, good sleep every night.

Key elements of good sleep hygiene include these practices:

A **consistent sleep schedule** is crucial for good sleep hygiene. This means going to bed and getting up at about the same time each day. Doing this—even (or especially!) on the weekends—can help regulate your sleep-wake cycle.

Your bedroom should be your **sleeping oasis**. The best environment for sleeping is one that is comfortable, quiet, cool, and dark. Blackout curtains, sleep masks, and white noise (eg, from a fan) are excellent tools for sleep hygiene. Having the television on while sleeping is a “dirty” move because it disrupts sleep.

Put yourself to bed each night with a **relaxing bedtime routine**. It doesn't have to be a bedtime story, but reading before bed is a good way to signal to your brain that it is time to wind down to sleep. Warm baths, meditation, and deep breathing are all conducive to sleep. Exercise and work are stimulating activities that should be avoided at bedtime.

**“Screen time” is the enemy** of good sleep hygiene. Those blue lights coming from smartphones, computers, and tablets interfere with the body's ability to produce melatonin, a sleep hormone. Blue lights are best avoided for at least an hour before bedtime.

The **same goes for alcohol and stimulants** like caffeine and nicotine. Caffeine is a stimulant that is best avoided in the late afternoon and evening. Alcohol fragments sleep, and it causes frequent awakenings later in the night.

### **How does sleep change as we age?**

Older people tend to have more restless, “broken-up” sleep than younger adults.

- With age, people spend less time in the deeper stages of sleep.
- Older people tend to wake up more often during the night, and napping becomes more common.
- Total time asleep lessens with age, making it more important to maximize the quality of sleep even as the quantity of sleep may decrease.

For older adults, good restorative sleep boosts energy, improves attention and memory, and reduces the risks of falls and other accidents.

### **How does poor sleep affect cognitive function in older adults?**

In older people, poor sleep is a major contributor to cognitive decline, and it raises the risk of developing dementia.

Alas, sleep problems like insomnia and sleep apnea increase as we age.

For older adults, the lack of good sleep has numerous downsides, including:

- Chronic lack of sleep is associated with brain shrinkage, or atrophy. This atrophy occurs in brain regions that are key for memory and cognitive function, such as the prefrontal cortex (directly behind the forehead) and the hippocampus, a small grape-shaped structure that lies deep in the temporal lobe just above the ear on each side.
- Toxic proteins, like the beta-amyloid and tau proteins that damage brain cells in Alzheimer disease, build up in poor sleep. During sleep, a specialized waste removal mechanism known as the glymphatic system helps to clear these and other waste products from brain cells.
- Attention and focus decline with poor sleep, making it harder to focus and stay “on task.”
- Poor sleep slows processing speed and worsens mental flexibility, making it hard to react quickly to changes in the environment.
- Memory suffers when poor sleep makes it harder to form and “consolidate” new memories for later recall.
- Poor sleep clouds judgment and hampers decision-making.
- The risk of cognitive decline and dementia rises for those with chronic poor sleep.

Taking steps to improve sleep issues can also have direct benefits. Better sleep may mean sharper thinking, quicker memory, and better overall daily functioning.

**Do you have another question that the Sunday Health brain health experts can answer? We invite you to send your questions to [hello@sundayhealth.com](mailto:hello@sundayhealth.com).**

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