

Sleep Deprivation – A Hidden Threat to Public Health

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STORY AT-A-GLANCE

- › Influenza risk increases by 54% during acute sleep deprivation, with national events disrupting sleep patterns and weakening immune system responses
- › Dr. Matthew Walker, one of today's top sleep experts, emphasizes sleep as a key health foundation, affecting memory, emotional regulation, immune function and reducing risks of neurodegenerative diseases like Alzheimer's
- › Insufficient sleep carries significant economic consequences, costing nations billions annually and impacting productivity, with approximately one-third of the global population not getting recommended sleep hours
- › Optimal sleep quality depends on consistent schedules, creating a dark and cool sleep environment, managing diet and developing calming evening routines to support cellular health
- › Genetic predispositions, modern technology, stress and lifestyle factors contribute to sleep disruption, making sleep a complex but essential component of overall physical and mental well-being

Influenza, commonly known as the flu, is a contagious respiratory illness characterized by symptoms such as fever, cough, sore throat, muscle aches and fatigue. The U.S. Centers for Disease Control and Prevention (CDC) estimates that influenza leads to between 9.3 and 41 million cases annually in the United States alone.¹

This viral infection could lead to severe health complications, especially in vulnerable populations like the elderly, young children and immunocompromised individuals. This is why understanding the factors that influence the spread and severity of influenza is essential. According to recent research, sleep deprivation plays a significant role in increasing your risk.

Sleep Deprivation Raises Your Risk of Getting the Flu

A recent study published in medRxiv found that acute sleep deprivation is linked to a 54% increase in the risk of flu-related healthcare visits.² This significant rise highlights the impact of sleep patterns on immune function and disease susceptibility.

The researchers used data from Fitbit users between 2016 and 2022, and studied their sleep patterns, including their sleep estimates. They identified 32 different national events, both political and nonpolitical, wherein people were getting significantly less sleep than usual. These were dubbed as "acute sleep deprivation events" (ASDEs). They found that after these ASDEs occurred, the participants' risk of getting the flu significantly increased.³

"In agreement with our hypothesis, the association of ASDEs with influenza visits was heightened in individuals with a greater number of short sleep genotypes (OR = 1.47 [1.32, 1.64] vs. 1.10 [0.98, 1.22], P-value of genotype-ASDE interaction = 0.0008, Table S8-S10).

Together, these findings suggest that population-level acute sleep deprivation and genetic predisposition jointly influence the risk of influenza-associated healthcare visits," the researchers concluded.⁴

This interplay between sleep deprivation and influenza risk suggests that factors disrupting sleep exacerbate the spread and severity of the flu, posing additional challenges for disease control and prevention.

Acute Sleep Deprivation Is Now a Public Health Emergency

Sleep is essential for the regulation of various bodily functions, including the immune system. When sleep is disrupted, the production of cytokines, proteins that help fight infections, is reduced. This reduction weakens the immune response, making the body more vulnerable to infections like influenza. Additionally, sleep deprivation affects the body's ability to produce antibodies, further compromising its ability to fend off viruses.

The underlying causes of acute sleep deprivation are multifaceted. One major factor is the modern lifestyle, which often prioritizes productivity over rest. This societal pressure leads to irregular sleep patterns and insufficient sleep duration.

Another contributing factor is the pervasive use of modern technology, which exposes individuals to blue light from screens, disrupting natural sleep cycles. Stress and anxiety, common in today's fast-paced world, further exacerbate sleep disturbances. Genetic predispositions also play a role, as some individuals are naturally inclined to shorter sleep durations, making them more susceptible to the effects of sleep deprivation.

The complexity of sleep and its impact on health means that diagnosis sometimes falls short. Many healthcare providers do not fully recognize the significance of sleep patterns in relation to health outcomes. This oversight results in underdiagnosis or misdiagnosis of conditions related to sleep deprivation.

Sleep – The Ultimate Reset for Your Brain and Body

The featured video from The Diary of a CEO podcast features Dr. Matthew Walker, a professor of neuroscience and psychology at the University of California, Berkeley and one of the top experts on sleep science today. In this interview, Walker shares insights that will help revolutionize your understanding of sleep.⁵

*"Sleep is the single most effective thing you can do to reset your brain and body health ... It is your life support system and as best we can tell I would argue it's Mother Nature's best effort yet at immortality," he says.*⁶

The evolutionary significance of sleep cannot be overstated. Walker explains that sleep evolved alongside life itself on this planet, indicating its foundational role in biological

processes.⁷ This long-standing presence in the natural world underscores sleep's essential function in sustaining life and facilitating growth.

Walker states that insufficient sleep now carries a staggering economic burden, costing most nations billions of dollars annually. This massive financial toll underscores the importance of prioritizing adequate sleep within public health strategies and individual lifestyle choices.⁸

"Insufficient sleep costs most nations about 2% of their [gross domestic product] GDP. So here in America, that number was 411 billion dollars of lost profit caused by insufficient sleep. In the United Kingdom, it was over 50 billion dollars. In Japan, it was over 120 billion dollars."

Sleep Plays a Multifaceted Role in Your Health

Walker describes sleep as "the tide that rises all the other health boats."⁹ By supporting various body functions, from metabolism to emotional regulation, sleep ensures that all aspects of your health are maintained optimally, making it a cornerstone of overall health and longevity.

However, he estimates that one-third of the global population is now lacking the recommended seven to nine hours of sleep per night, which leads to a cascade of health issues that compromise your overall well-being.

For example, sleep plays a crucial role in fortifying your immune system, making sure you're better equipped to fend off illnesses and will recover more swiftly when you do get sick. "Sleep for example will restock the weaponry in your immune arsenal. It will make you a more immune sensitive individual, so you're more immune robust when you wake up," Walker said.

When it comes to weight management, not getting enough sleep has significant consequences. Walker notes that if you're not getting sufficient sleep, 60% of all weight loss will come from lean muscle mass rather than fat.¹⁰ This means that lack of sleep

not only hampers your ability to shed unwanted pounds but also compromises your muscle strength and overall metabolism.

"When you are dieting but you are under slept, you lose what you want to keep which is muscle, and you keep what you want to lose, which is fat. So again, it's not an ideal situation," he explains.

High-Quality Sleep's Role in Brain Health and Alzheimer's Disease

Walker also touched on the effects of sleep deprivation on cognitive and emotional health, stressing that memory and learning are deeply intertwined with your sleep patterns. "Sleep, upstairs within the brain, will fixate memories and help you learn and remember," he said.¹¹

Knowledge and wisdom are deeply connected through sleep. While knowledge involves remembering individual pieces of information, wisdom is about understanding how these pieces fit together.¹² Sleep facilitates this transformation, allowing you to integrate and apply what you've learned in meaningful ways.

Emotional well-being is also greatly influenced by your sleep quality. Adequate sleep de-escalates anxiety and reduces emotional difficulties and traumas.¹³ By allowing your brain to process emotions effectively, sleep helps maintain mental stability and resilience against stressors.

In the realm of neurodegenerative diseases, Walker says that sleep has a remarkable cleansing effect, as it helps remove Alzheimer's toxic proteins that build up in the brain.¹⁴ This detoxification process is crucial in preventing the onset and progression of dementia-related conditions, highlighting sleep's role in long-term brain health.

"The two most feared diseases in developed nations are cancer and Alzheimer's disease. Both of them have links to insufficient sleep, many of them causal. And this relationship between sleep and Alzheimer's disease ... I'd probably say

almost 50% of the work that I do at my sleep center is focused on sleep and Alzheimer's disease.

The data is stunning; I would say at this stage insufficient sleep seems to be one of the most significant lifestyle factors that can develop or dictate the development of Alzheimer's disease later in life. Now, that's a lifestyle factor. There are other genetic factors, but certainly we now know that insufficient sleep predicts a greater amount of Alzheimer's pathology in your brain."

These Strategies Will Optimize Your Sleep Quality

Poor sleep negatively impacts every facet of your health, from cognitive performance to immune resilience. Fortunately, targeted lifestyle modifications that align with optimal cellular energy production and overall well-being will help significantly enhance your sleep quality.

One of Walker's recommendations is to avoid lingering in bed in the morning; within 30 minutes after you wake up, you should get out of your bed and go to a different room and do something relaxing, like stretching, meditating or even reading a book.

"The reason is because if you start to spend a lot of time awake in your bed, your brain is an incredibly associative device and very quickly it will start to learn that this thing called your bed is this place where I'm always awake. Therefore, you start to learn through this repeated loop of behavior that 'I'm always going to be wide awake in bed' and we need to break that association," he explains.

One of the strategies I recommend is getting at least 10 to 15 minutes of natural light first thing in the morning. Bright, blue light-rich morning sunlight signals to your body that it's time to wake up. This will help send a strong message to your internal clock that day has arrived, making it less likely to be confused by weaker light signals later on.

When it comes to having an efficient sleep routine, consistency is key. I recommend reading "[Top 33 Tips to Optimize Your Sleep Routine](#)" for a comprehensive list of

strategies to get high-quality, restorative sleep at night, but to get you started, follow these four tips:

- 1. Maintain a consistent sleep schedule** — Establishing regular bedtimes and wake-up times each day helps synchronize your circadian rhythm naturally. Consistent sleep patterns enable your body to prepare for rest more efficiently, promoting deeper and more restorative sleep.

Aim for seven to nine hours of uninterrupted sleep nightly. Chronic sleep deprivation or consistently getting less than six hours of sleep substantially elevates the risk of accidents, impaired decision-making and various health issues.

- 2. Optimize your sleep environment for cellular health** — Create a bedroom that is completely dark, quiet, and cool, maintaining a temperature between 65 to 68 degrees F (18 to 20 degrees C). This supports the natural drop in body temperature that facilitates restful sleep.

Eliminate all sources of artificial light, including LED screens and electronic devices, as even minimal light exposure disrupts melatonin production and interferes with your sleep cycle.

Additionally, ensure your sleep area is free from environmental toxins by avoiding products containing vegetable oils, heavy metals and other harmful substances. Use natural, nontoxic bedding and minimize exposure to pollutants to foster an environment conducive to optimal cellular function and sleep quality.

- 3. Regulate carbohydrate and protein intake for restorative sleep** — Your diet plays a crucial role in sleep quality. Consume 250 to 300 grams of carbohydrates daily, adjusting based on your microbiome and activity level, to support cellular energy production and metabolic health.

Ensure that approximately 15% of your calorie intake comes from protein, prioritizing 0.8 grams of protein per pound of lean body mass. Incorporate collagen-rich protein sources to aid in metabolic processes and support overall health. Avoid

high-fiber diets and eliminate foods like pasteurized dairy products, processed snacks and ultraprocessed foods.

This approach helps maintain gut health and reduces endotoxin levels, thereby positively impacting your sleep.

- 4. Support mitochondrial function with supplements** – Develop a calming evening routine two to three hours before bedtime by reducing both mental and physical activities. Engage in soothing practices such as light stretching, reading or gentle movements to signal to your body that it's time to prepare for rest. Avoid stimulating activities, heavy meals and intense exercise during this period.

Incorporate pharmaceutical-grade methylene blue, only as prescribed by a healthcare professional, to support mitochondrial function and reduce reductive stress. The recommended dosage is 5 milligrams once daily, sourced exclusively from a compounding pharmacy.

Additionally, consider grounding practices in uncontaminated environments, such as the ocean, to alleviate stress and enhance relaxation. This structured wind-down routine helps transition your brain from active engagement to a state of restful sleep, ensuring higher quality and more restorative rest.

Sources and References

- ¹ [CDC, About Estimated Flu Burden](#)
- ^{2, 3, 4} [medRxiv, October 29, 2024](#)
- ^{5, 6, 7, 8, 9, 10, 11, 12, 13, 14} [Youtube, The Diary of a CEO Podcast, "The World's No.1 Sleep Expert: The 6 Sleep Hacks You NEED! Matthew Walker," March 9, 2023](#)