

How Harnessing Your Dreams Can Lead to Better Sleep, Creativity and Memory

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STORY AT-A-GLANCE

- › The Cognitive Neuroscience Society (CNS) held its annual meeting in mid-April 2024. One of the key discussions is how dreams can affect our lives and health
- › Presenters at the symposium talked about dreams' positive impacts, such as enhancing creativity, promoting better sleep and boosting memory
- › Lucid dreaming allows you to be in control of your dreams. You can use this awareness to help you "train" while you sleep. However, the health drawbacks are not worth it
- › Instead, the key is to use healthy lifestyle changes that focus on optimizing sleep quality to maximize your chances of entering the dream state during REM sleep

The Cognitive Neuroscience Society (CNS), held its annual meeting in mid-April 2024, in Toronto, Canada. One of the key discussions during the meeting was understanding dreams and the role they play in our waking experiences.¹

This is a fascinating subject as dreams can have a positive impact on your cognitive function in different ways. Dreams have an impact on creativity, memory, and perception of sleep quality. There are several strategies you can use to improve sleep and access and maximize your dream state.

The Impact of Dreams on Creativity

During the 2024 CNS's "Into the Night: The Cognitive Neuroscience of Dreaming" symposia, Kathleen Esfahany, a Ph.D. student at Harvard University, presented her paper entitled, "Targeted Dream Incubation Increases Subsequent Content-Related Creativity," which explored the link between dreams and creativity.²

Investigating the hypothesis that sleep onset (designated N1 in the study) produces the best creative ideas, the researchers used a dream incubation process, during which listened to cues as they were falling asleep that introduced specific themes. Afterward, they were asked to complete three theme-related creativity tasks, which were subsequently evaluated by human raters and computational methods. According to the researchers:³

"Our findings show enhanced creative performance and greater semantic distance in task responses following a period of N1 sleep as compared to wake, corroborating recent work identifying N1 as a creative sweet spot and offering novel evidence for N1 enabling a cognitive state with greater associative divergence.

We further demonstrate that successful N1 dream incubation enhances creative performance more than N1 sleep alone. To our knowledge, this is the first controlled experiment investigating a direct role of incubating dream content in the enhancement of creative performance."

So, how does dreaming enhance creativity? According to Matthew Walker, Ph.D., director of the Center for Human Sleep Science at the University of California Berkeley, any new information learned while you're awake is integrated with your past experiences during REM (rapid eye movement) sleep, which creates novel connections between the old and new. In a guest appearance for Business Insider, he elucidates this further, stating:⁴

"The brain starts to collide all of the information that you've recently learned together with all of this back catalog of autobiographical information that you've got stored up in the brain. And it starts to build novel connections, it's almost like group therapy for memories. And through this pattern of informational alchemy at night, we create a revised mind wide web of associations.

And you can start to divine new novel insights into previously unsolved problems, so that you wake up the next morning with new solutions, and it's probably the reason that no one has ever told you that you should stay awake on a problem.

Instead, people tell you to sleep on a problem. And we now have good evidence that it's dream sleep that gifts you that type of informational wisdom rather than simply knowledge."

Dreaming May Help You Recall Past Information

In another presentation at the symposia, Erin Wamsley, Ph.D., an associate professor of psychology at Furman University, theorizes that recent actions can cause old memories to eventually appear in your dreams. Furthermore, these memories can mix with new information.

Wamsley and her team asked participants to write an emotional memory from their distant past prior to sleeping. After testing, they noted that these specific memories frequently appeared in their dreams, often combined with other recently learned information. Wamsley believes that her observations "could be relevant to the integration of new experience into existing cortical networks during sleep."⁵

Dreams Can Influence Perception of Sleep Quality

In a presentation by Claudia Picard-Deland titled "Sleep Depth, Dream Immersion and the Neural Architecture of Sleep," she shared how her team sought to explore the impact of dreams on the perception of sleep quality.

Participants were asked to sleep in a laboratory, where they were awakened one dozen times during all stages of sleep (early, middle and late periods). Afterward, they were asked to describe "(a) how deeply they felt, and, if dreaming, (b) how immersed and physically present they felt in their dream."⁶

Based on the participants' reports, Picard-Deland and her team noted that those who were able to clearly recall their dreams had deeper sleep.⁷

"In all stages of sleep, subjective sleep depth was strongly correlated with how immersive the dream experience was.

The findings replicate and extend previous studies showing that sleep is perceived as deeper in the presence of rich and immersive dreams, which are more common in REM sleep or late-night sleep, contrasting the conception of N3 sleep as the 'deepest' stage of sleep.

Further clarifying the phenomenology of sleep depth across the night could inform underlying mechanisms and treatments for sleep disorders leading to restless sleep," they reported.

Is There a Way to Hack Into the Architecture of Sleep?

If Picard-Deland's research suggests that dreams can lead to deeper, better sleep, what if there was a way to control them, and could it have other benefits? According to Remington Mallett, Chair of CNS 2024, having the ability to manipulate dreams could help people with nightmares and sleeping disorders. In a Medical Xpress article, he states:⁸

"You need to manipulate dreams for good experimentation, and you need to manipulate dreams to reduce nightmares. Nightmares are incredibly frustrating for a variety of clinical populations, and there is great need for approaches to reducing them. Understanding how dreams are formed, and how to change them, is already laying paths forward for efficient nightmare reduction protocols."

But how do nightmares form in the first place? According to an article published by Harvard Medical School, factors such as "stress, anxiety, irregular sleep, medications, mental health disorders" can contribute to their likelihood of forming.⁹ But why?

No one knows the answer, but sleep psychologist Joshua Tal, Ph.D., believes that they are your mind's attempts at making sense of what happened to you during the day.¹⁰ If that's the case, there may be a way to control dreams by yourself without the need for scientific manipulation – lucid dreaming.

Lucid Dreaming: A Potential Way to Controlling Dreams?

Lucid dreaming is a dream state where you're aware that you're in a dream, but your body is still asleep.¹¹ A notable aspect about this state is that you're able to shape the dream. By doing so, your actions in the dream may translate to better performance when you're awake.

To achieve lucid dreaming, your mind needs to enter the REM (rapid eye movement) stage of sleep, which is where normal, non-lucid dreams also manifest.¹² During REM sleep, your body displays brainwaves similar to wakefulness, but your body is in deep slumber.¹³ It normally takes 90 minutes of sleep to achieve this state.¹⁴

In an interview with Harvard Business Review, Daniel Erlacher from the University of Bern, Switzerland, discussed how he tested lucid dreaming as a tool to help athletes' fitness training regimen.^{15,16} He observed that athletes who mentally rehearse their sport can improve performance, and hypothesizes that the same results could be achieved through lucid dreaming:¹⁷

"In one experiment we asked participants to dream about doing deep knee bends. Even though their bodies weren't moving, their heart and respiration rates increased slightly as if they were exercising.

So your brain is responding to the dream movements in similar ways, and that allows you to use dreams as a simulation. You can learn from that," Erlacher said.

There is some research to support this claim. In a 2023 study¹⁸ published in Medical Hypotheses, researchers found that lucid dreaming can lead to "promising performance improvements" in athletes. In addition, those who entered a lucid dreaming state

displayed sleep biomarkers comparable to when they're practicing awake, similar to what Erlacher observed.

But how do you enter a lucid state while sleeping? Here are three techniques, according to researchers from the University of Adelaide, published in ScienceDaily:¹⁹

- 1. Reality testing** – This involves performing reality checks while you're awake. Every two hours, you'll ask yourself, "Am I dreaming right now?" The idea here is that this habit will enter your dreams, allowing you to become aware you're currently dreaming.
- 2. Mnemonic induction of lucid dreams (MILD)** – After sleeping for five hours, repeat the phrase, "The next time I'm dreaming, I will remember that I'm dreaming" before going back to sleep. Similar to reality testing, MILD will eventually accustom your mind to becoming aware while dreaming.
- 3. Walking back to bed (WBTB)** – Upon reaching five hours of sleep, you stay awake for 15 to 20 minutes, then go back to sleep. The idea is you will go back to REM sleep, allowing you to stay more easily lucid.

Sleep disruption is the obvious drawback to MILD and WBTB, so I don't recommend trying these methods. Chronic sleep deprivation can have disastrous consequences for your health.

In an episode of The Joe Rogan Experience podcast,²⁰ Walker cited research showing that just four hours of sleep can lower the amount of natural killer cells by 70%. In other words, your immune function becomes severely compromised, making it easier for pathogens to cause disease. So, how can you reach REM sleep consistently to be able to dream? Your next best strategy is to boost your sleep quality.

Optimize Your Sleep Quality to Access the Dream State

To be able to access your dream state and gain its benefits, getting REM sleep is paramount. However, this can be challenging because we're bombarded with technology

that can disrupt our sleep.

Walker believes that sleep is the pillar that diet and exercise are built on.²¹ This statement makes so much sense, as it catalyzes other healthy lifestyle choices you make.

For example, if you're exercising, you need enough sleep to let your body rebuild itself and become stronger. According to a study published in *Physiological Reports*, "chronic sleep loss is a potent catabolic stressor, increasing the risk of metabolic dysfunction and loss of muscle mass and function."²²

For a comprehensive list of strategies that can help boost sleep quality, see "[Sleep — Why You Need It and 50 Ways to Improve It](#)." It also goes over the consequences of sleep deprivation in greater detail. That said, some strategies you can use to improve your sleep quality include:

Going to bed early — As a general rule, try to get somewhere between seven and nine hours of sleep.

Exposing your skin to bright sunlight during solar noon — This will help "set" your master clock. In turn, avoid blue light exposure after sunset for the same reason.²³ If you must be exposed to **blue light** during the evening, I recommend wearing special glasses to counteract its effects, as it is normally emitted by artificial lighting and electronic screens.

Sleeping in complete darkness — Research reveals that even dim light exposure during sleep can affect your cognition the next day.²⁴ Black out shades or an eye mask can help in this situation.

Finding your ideal temperature for sleeping — Michelle Drerup, PsyD., a sleep psychology at the Cleveland Clinic, noted the ideal temperature is around 60 to 57 degrees Fahrenheit (15 to 19 degrees Celsius).²⁵

Getting regular exercise – Being physically active not only helps you stay strong and fit, but also helps improve sleep quality, insomnia severity and daytime sleepiness, according to a 2021 study.²⁶

Eating a healthy diet – Adding more fruits and vegetables to your diet may have a positive effect on sleep quality.²⁷

Additional natural sleep remedies that may help include:

- **Melatonin** – This is a hormone produced in your pineal gland that has sleep-promoting properties²⁸ and is a **powerful antioxidant**. You can also take it in supplement form. Start with as little as 0.25 milligrams (mg) and work your way up in quarter-gram increments.
- **Valerian root** – Research suggests this herbal remedy may help improve the speed at which you fall asleep.²⁹ Start with a minimal dose and use the lowest dose needed to achieve the desired effect, as higher doses can actually have an energizing effect on some people. Typical dosages used in studies range between 450 mg³⁰ and 900 mg.³¹
- **Chamomile** – This herb is typically used in the form of infusions, teas, liquid extracts or essential oils made from the plant's fresh or dried flower seeds. It has sedative effects that may help with sleep, which is why chamomile tea is often sipped before bed.

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