

PRESS RELEASE

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Afternoon naps clear up the brain and improve learning ability

Even a short afternoon nap can help the brain recover and improve its ability to learn. In a study published on January 22, 2026, in the journal [NeuroImage](#), researchers at the Medical Center – University of Freiburg (Germany), Geneva University Hospitals (HUG) and University of Geneva (UNIGE), show that even a nap is enough to reorganize connections between nerve cells so that new information can be stored more effectively. Until now, these effects were only known to occur after a full night's sleep. The new study shows that a short sleep period can relieve the brain and put it back into a state of readiness to learn – a process that could be particularly beneficial for situations with high work load.

“Our results suggest that even short periods of sleep enhance the brain’s capacity to encode new information” says study leader Prof. Christoph Nissen, who performed the study during his time as medical director of the sleep center at the Department of Psychiatry and Psychotherapy at the Medical Center – University of Freiburg, Germany. Today, he is Chief-physician of the Division of psychiatric specialties and Director of the Sleep medicine center (HUG), and Full Professor in the Department of psychiatry at the UNIGE Faculty of Medicine

What happens in the brain during an afternoon nap

The brain is constantly active during the day: new impressions, thoughts, and information are processed, strengthening the connections between nerve cells (synapses). These strengthened synaptic connections are an important neural basis for learning processes. However, they also lead to saturation, so that the brain's ability to learn further decreases over time. Sleep helps to regulate this excessive activity again – without losing important information. “The study shows that this ‘synaptic reset’ can happen with just an afternoon nap, clearing space for new memories to form.” says Prof Nissen.

“The study helps us understand how important even short periods of sleep are for mental recovery,” says Prof. Kai Spiegelhalter, head of the Section for Psychiatric Sleep Research and Sleep Medicine at the Department of Psychiatry and Psychotherapy at the University Medical Center Freiburg. “A short nap can help you think more clearly and continue working with concentration.”

How the study was conducted

The study examined 20 healthy young adults who either took a nap or stayed awake on two afternoons. The afternoon nap lasted on average 45 minutes. Since direct measurements on synapses in healthy humans are not possible, the research team used established, non-invasive methods such as transcranial magnetic stimulation (TMS) and EEG measurements to draw conclusions about the strength and flexibility of the synapses.

The results showed that after the nap, the overall strength of synaptic connections in the brain was reduced – a sign of the restorative effect of sleep. At the same time, the brain's ability to form new connections was significantly improved. The brain was therefore better prepared for learning new content than after an equally long period of wakefulness.

Everyday benefits and outlook

The study provides a biological explanation for why people often perform better after an afternoon nap. Especially in professions or activities that require a high level of mental or physical performance – such as in music, sports, or safety-critical areas – a nap could be used to maintain performance. “An afternoon nap can sustain performance under high demand,” says Prof Nissen.

However, the researchers emphasize that occasional sleep problems do not automatically lead to a decline in performance. In chronic insomnia disorder in particular, sleep-wake regulatory systems are essentially intact; rather, worries and unfavorable sleep-wake behavior dominate. In such situations, cognitive behavioral therapy for insomnia (CBT-I) is more useful than sleeping pills, as the latter can disrupt the brain's natural recovery processes and lead to the development of dependence.

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