

To learn better, take a nap (and don't forget to dream)

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A child sleeping. Image: Alessandro Zangrilli, via Wikipedia.

Researchers reporting online on April 22nd in *Current Biology* offer more evidence that successful study habits should include plenty of napping. They found that people who take a nap and dream about a task they've just learned perform it better upon waking than either those who don't sleep at all or those who sleep but don't report any associated dreams.

The [learners](#) in the study were asked to sit in front of a computer screen and learn the layout of a three-dimensional maze so that they could find their way to a landmark (a tree) when they were plopped down at a random location within the virtual space five hours later. Those who were allowed to take a nap and also remembered dreaming of the task found the tree in less time.

"We at first thought that dreaming must reflect the [memory](#) process that's improving performance," said Robert Stickgold of Harvard Medical School. "But when you look at the content of the dreams, it was hard to argue that."

In a couple of cases, the dreamers said they recalled just the music from the computer maze. One subject said they were dreaming that there were people at particular checkpoints in the maze, even though the real maze didn't have any people or checkpoints. Another said they dreamt about an experience they'd had tromping through bat caves and thinking that the caves were like mazes.

"We think that the dreams are a marker that the brain is working on the same problem at many levels," Stickgold said. "The dreams might reflect the brain's attempt to find associations for the memories that could make them more useful in the future."

In other words, it's not that the dreams led to better memory, but rather that they are a sign that other, unconscious parts of the brain were working hard to remember how to get through the virtual maze. The dreams are essentially a side effect of that memory process.

Stickgold said that there may still be ways to take advantage of this phenomenon for improving [learning](#) and memory. For instance, it may be better to study hard right before you go to sleep than in the afternoon, or to take a nap after a period of intense afternoon study. More generally, people might take notice of the study habits or mental processes while awake that lead them to [dream](#) about something they need to remember. Perhaps other more directed ways to guide dreams could even prove useful to make your brain work on what you want it to at night.

But, Stickgold said, the most exciting thing to him is the notion that this

line of evidence might elucidate a deeper question that has seemed almost impossible to tackle: Why do we dream? What is its function?

"Some have viewed dreaming as entertainment, but this study suggests it is a by-product of memory processing," he said. Whether you have to remember your dreams to get the benefits isn't yet entirely clear, but Stickgold suspects not. After all, he said, people generally remember only a small fraction, no more than 10 to 15 percent, of their dreams.

The researchers hope to follow up their study by manipulating the learning environment in ways that boost incorporation into dreams. They also plan to study the same phenomenon following a full night of sleep as opposed to a [nap](#).

More information: Wamsley et al.: "Report: Dreaming of a Learning Task Is Associated with Enhanced Sleep-Dependent Memory Consolidation." Publishing in *Current Biology* 20, 1-6, May 11, 2010. [DOI:10.1016/j.cub.2010.03.027](https://doi.org/10.1016/j.cub.2010.03.027)

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