Learning best when you rest: Sleeping after processing new info most effective, new study shows

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Nodding off in class may not be such a bad idea after all. New research from the University of Notre Dame shows that going to sleep shortly after learning new material is most beneficial for recall.

Titled "Memory for Semantically Related and Unrelated Declarative Information: The Benefit of Sleep, the Cost of Wake," the study was published March 22 in PLOS One.

Notre Dame Psychologist Jessica Payne and colleagues studied 207 students who habitually slept for at least six hours per night. Participants were randomly assigned to study declarative, semantically related or unrelated word pairs at 9:00 a.m. or 9:00 p.m., and returned for testing 30 minutes, 12 hours or 24 hours later. Declarative memory refers to the ability to consciously remember facts and events, and can be broken down into episodic memory (memory for events) and semantic memory (memory for facts about the world). People routinely use both types of memory every day – recalling where we parked today or learning how a colleague prefers to be addressed.

At the 12-hour retest, memory overall was superior following a night of sleep compared to a day of wakefulness. However, this performance difference was a result of a pronounced deterioration in memory for unrelated word pairs; there was no sleep-wake difference for related word pairs. At the 24-hour retest, with all subjects having received both

a full night of sleep and a full day of wakefulness, subjects' memories were superior when sleep occurred shortly after learning, rather than following a full day of wakefulness.

"Our study confirms that sleeping directly after learning something new is beneficial for memory. What's novel about this study is that we tried to shine light on sleep's influence on both types of declarative memory by studying semantically unrelated and related word pairs," Payne says.

"Since we found that sleeping soon after learning benefited both types of memory, this means that it would be a good thing to rehearse any information you need to remember just prior to going to bed. In some sense, you may be 'telling' the sleeping brain what to consolidate."

Provided by University of Notre Dame