



Give it time, and sleep

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April 16, 2007, Researchers at McGill University and Harvard Medical School have established a direct link between sleep and improved relational memory function. Their study is published today in the April 16 online edition of Proceedings of the National Academy of Sciences (PNAS).

"Sleep clearly has a favourable effect on human relational memory — the memory that allows us to draw connections between facts and events," explains Professor Debra Titone, Associate Professor of Psychology at McGill University and Canada Research Chair in Cognitive Neuroscience of Language and Memory.

The study's fifty-six subjects were shown five pairs of abstract patterns that had a hierarchy that was unfamiliar to them. They then learned that some patterns were correct and some were incorrect. After a period of study, the subjects were tested in three groups for their understanding of the hierarchies of the pairs of patterns and for their inferential abilities. The first group was tested after a 20 minute-long rest, the second after 12 hours, with or without sleep, and the third was tested 24 hours later.

The results showed that after a learning period, memory continues to process information during periods of sleep, which allows the brain to associate new memories with one another. "It's like making a soup," said psychology Professor Matthew Walker, director of the Sleep and Neuroimaging Laboratory at Harvard Medical School. "Just putting all the ingredients in a pot won't do it, they have to be left to marinate and cook together. After many hours, particularly after sleeping, the brain can consolidate the elements of individual memories in the same storage space."

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