

Let's not sleep on it: Sleep deprivation eliminates fear generalization

December 7 2010

We commonly think of sleep as a healing process that melts away the stresses of the day, preparing us to deal with new challenges. Research has also shown that sleep plays a crucial role in the development of memories.

An important component of anxiety disorders, including posttraumatic [stress disorder](#) (PTSD), is the formulation of memories associated with fear.

Therefore, researchers decided to evaluate whether sleep deprivation after exposure to an aversive event might eliminate the associated fear, due to the lack of memory consolidation that would typically occur during sleep.

They evaluated healthy volunteers who were shown video clips of both safe driving and unexpected motor vehicle accidents. Half of the volunteers were then deprived of sleep while the other half received a normal night's sleep.

Later testing sessions revealed that sleep deprivation eliminated the fear-associated memories through both fear recognition and physiological fear reactions, suggesting a possible therapy for individuals with PTSD or other [anxiety disorders](#).

Dr. Kenichi Kuriyama, corresponding author, explained: "Sleep deprivation after exposure to a traumatic event, whether intentional or

not, may help prevent PTSD. Our findings may help to clarify the functional role of acute insomnia and to develop a prophylactic strategy of sleep restriction for prevention of PTSD."

"It would be nice if the benefits of sleep deprivation upon fear learning could be produced more easily for survivors of extreme stress," noted John Krystal, M.D., Editor of *Biological Psychiatry* and Professor and Chair of Psychiatry at Yale University. "New insights into the [neurobiology](#) of sleep dependent learning may make it possible for these people to take a medication that disrupts this process while leaving restorative elements of sleep intact."

Further research is necessary, but these findings indicate that [sleep deprivation](#) is a promising avenue for the possible treatment and prevention of [PTSD](#).

More information: The article is "Sleep Deprivation Facilitates Extinction of Implicit Fear Generalization and Physiological Response to Fear" by Kenichi Kuriyama, Takahiro Soshi, and Yoshiharu Kim. The authors are affiliated with the Department of Adult Mental Health, National Institute of Mental Health, National Center of Neurology and Psychiatry, Tokyo, Japan. The article appears in *Biological Psychiatry*, Volume 68, Number 11 (December 1, 2010)

Provided by Elsevier

Citation: Let's not sleep on it: Sleep deprivation eliminates fear generalization (2010, December 7) retrieved 3 May 2024 from <https://medicalxpress.com/news/2010-12-deprivation.html>

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