

Middle-aged men: Could dwindling testosterone levels decrease sleep?

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At 30 years old, male testosterone levels drop by one to two percent annually. By age 40, men's quality of sleep begins to diminish. Could there be a link between decreased testosterone and reduced sleep? Absolutely according to Zoran Sekerovic, a graduate student from the University of Montreal Department of Psychology, who presented his findings at the annual conference of the Association francophone pour le savoir (ACFAS).

Sekerovic discovered a link between testosterone levels in [men](#) over 50 and their quality of sleep - specifically less [deep sleep](#) i.e. Phases III and IV of the slumber cycle. "Deep sleep is when the recuperation of body and mind is optimal," says Sekerovic, adding his is the first study to find this correlation.

In young men, deep sleep represents 10 to 20 percent of total sleep. By age 50, it decreases to five to seven percent. For men over 60, it can disappear altogether. The study didn't find any correlation with other parts of the sleep cycle: falling asleep, Phases I and II, or paradoxical sleep, when most of dreaming occurs.

The University of Montreal researcher explains that men in their 20s don't have such a correlation because their [neuronal circuits](#) are intact. "With age, there is neuronal loss and the synchronization of cerebral activity isn't as good, which is why there is a loss of deep sleep. Because deep sleep requires great synchronization," says Sekerovic. "Low levels of testosterone intensify the lack of synchronization and can explain 20

percent of men's inability to experience deep sleep."

Sekerovic suggests dwindling testosterone levels are what impact sleep, not vice-versa, as other studies have suggested. He adds previous investigations measured daily fluctuations in testosterone levels, which are higher in the morning.

If Sekerovic is right, his findings could re-ignite the [hormone therapy](#) debate. "The loss of deep sleep is a serious problem that could be treated with [testosterone](#). That would be tremendous progress," says Sekerovic. "But hormone therapy can have secondary effects. Therefore, it will be essential to better understand the mechanisms leading to the loss of deep [sleep](#)."

This study was conducted under the supervision of Julie Carrier, a professor of psychology at the University of Montreal and director of the Chronobiology Laboratory at the Hôpital du Sacré-Coeur de Montréal.

Provided by University of Montreal

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