

Sleep deprivation may disrupt your genes, study says

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But small study doesn't explain how that works or effects on health.

(HealthDay)—Far more than just leaving you yawning, a small amount of sleep deprivation disrupts the activity of genes, potentially affecting metabolism and other functions in the human body, a new study suggests.

It's not clear how your health may be affected by the genetic disruption if you don't get enough sleep. Still, the research raises the possibility that the effects of too little sleep could have long-lasting effects on your body.

"If people regularly restrict their sleep, it is possible that the disruption that we see ... could have an impact over time that ultimately determines their [health outcomes](#) as they age in later life," said study co-author

Simon Archer, who studies sleep at the University of Surrey, in England.

The study was published online Feb. 25 in the [Proceedings of the National Academy of Sciences](#).

At issue is how a lack of enough sleep affects the [human body](#). While it's obvious that people get tired when they don't sleep, scientists have only recently started to understand how [sleep deprivation](#) affects more than the brain, said Dr. Charles Czeisler, chief of the division of [sleep medicine](#) at Brigham and Women's Hospital, in Boston. Research has suggested that sleep is important all the way down to the level of cells, said Czeisler, who was not involved in the new study.

For the study, researchers recruited 26 volunteers who spent a week getting a normal amount of sleep (8.5 hours) and a week getting less than normal (5.7 hours). The participants were still able to enter periods of [deep sleep](#).

The researchers then studied the [genes](#) of the participants in [blood samples](#) and found that numerous genes, including some related to [metabolism](#), became less active.

So what does that mean for the body? "We have no idea," Archer said, "but these effects are not minor." They appear to be similar to those that separate normal from abnormal types of tissue in the body, he said.

Archer said the next step will be to investigate how a lack of sleep affects the body in the long term and to figure out whether some kinds of people are more vulnerable to sleep deprivation's negative effects on health.

For his part, Czeisler praised the study and said it raises the prospect of a blood test that will tell doctors if a patient's body is being affected

because he or she isn't getting enough sleep. That's important because substances such as caffeine can hide the effects of lack of sleep so patients don't realize there's a problem, he said.

What about the possibility of a pill that mimics the effects of sleep so people don't have to bother getting some shut-eye in the first place? There's no evidence to support the idea of such a pill, Czeisler said, although there's ongoing research into how to improve the quality of sleep that people do manage to get.

More information: "Effects of insufficient sleep on circadian rhythmicity and expression amplitude of the human blood transcriptome," by Carla Möller-Levet et al. *PNAS*, 2013.

For more about [sleep disorders](#), try the U.S. National Library of Medicine.

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