Chronic sleep deprivation suppresses immune system

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Many people report getting sick when they don't get enough sleep. A new study helps explain why.

Researchers took blood samples from 11 pairs of identical twins with different sleep patterns and discovered that the twin with shorter sleep duration had a depressed immune system, compared with his or her sibling. The findings were published Jan. 25 in the journal *Sleep*.

"What we show is that the immune system functions best when it gets enough sleep. Seven or more hours of sleep is recommended for optimal health," said lead author Dr. Nathaniel Watson, co-director of the UW Medicine Sleep Center at Harborview Medical Center.

A unique feature of this study was to employ identical twins in order to control for the large genetic determinant to humans' sleep duration. Researchers say genetics account for 31 to 55 percent of sleep duration and behavior and environment account for the remainder.

Dr. Sina Gharib, director of UW Medicine's Computational Medicine Core at the Center for Lung Biology, and the paper's senior author, explained that a lot of existing data shows that curtailing sleep - for a limited time in the laboratory setting - can increase inflammatory markers and activate immune cells. Little is known, though, about the effects of longstanding short sleep duration under natural conditions. This study employed "real world" conditions, he said, and showed for the first time that chronic short sleep shuts down programs involved in immune response of circulating white blood cells.

"The results are consistent with studies that show when sleep deprived people are given a vaccine, there is a lower antibody response and if you expose sleep deprived people to a rhinovirus they are more likely to get the virus," Watson said. "This study provides further evidence of sleep to overall health and well-being particularly to immune health.

The researchers, citing data from the Centers for Disease Control, said that over the past century people in the United States are sleeping an

estimated 1.5 to two hours less, and about one-third of the working population sleeps less than six hours per night.

"Modern society, with its control of light, omnipresent technology and countless competing interests for time, along with the zeitgeist de-emphasizing sleep's importance, has resulted in the widespread deprioritization of sleep," they wrote.

Provided by University of Washington

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