Researchers find link between sleep deprivation and cell damage

December 8 2014

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Scientists at the Medical College of Wisconsin (MCW) have discovered a link between sleep loss and cell injury. Results of a new study find sleep deprivation causes the damage to cells, especially in the liver, lung, and small intestine. Recovery sleep following deprivation heals the damage.

The findings are published in the December issue of *Sleep*, a joint publication of the Sleep Research Society and the American Academy of Sleep Medicine. The lead author is Carol Everson, Ph.D., professor of neurology, cell biology, neurobiology and anatomy at MCW. Co-authors are Christopher Henchen, B.S., Clinical Research Coordinator at MCW; Aniko Szabo Ph.D., associate professor of biostatistics and director of the Biostatistics Consulting Service at MCW; and Neil Hogg, Ph.D., professor of biophysics and assistant dean of recruitment for MCW's Graduate School of Biomedical Sciences.

Dr. Everson's team discovered that sleep loss causes cell damage, resulting in a link between sleep and disease risk. Furthermore, recovery sleep from sleep loss was found to restore the balance and decrease cell injury. These findings elucidate previous research indicating sleep abnormalities as risk factors for diseases such as cardiovascular disease and cancer.

"The study culminates years of work and provides physical evidence that sleep deprivation injures cells and that sleep recovery restores the balance between, among other parameters, DNA damage and repair," Dr. Everson said. "This is important because specific physical underpinnings that pose disease risk from sleep deficiency have been elusive and are now becoming identified."

Provided by Medical College of Wisconsin