Excess Weight May Cause Poor Quality Sleep

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An abundance of research has linked poor-quality sleep to an increased risk for obesity because a lack of zzz's deregulates the appetite and leads to an increase in calories consumed. But new findings published in PLOS Biology suggest that the reverse may be true, that obesity may in fact trigger unhealthy sleep, reports Penn Medicine News.

For the study, researchers from the University of Pennsylvania's Perelman School of Medicine and the University of Nevada in Reno genetically modified the microscopic worm Caenorhabditis elegans (C. elegans)—a good model for examining mammalian slumber— to turn off a neuron that controls sleep.(Although the worms couldn't sleep, they were still able to eat, breathe and reproduce.)

Scientists noted that the modification caused a severe drop in levels of adenosine triphosphate (ATP), a compound in living tissues that provides energy for the body's physiological processes.

In previous research, this same dip in ATP occurred when scientists manipulated the gene KIN-29, which caused the worms to pack on excess fat. This time, when researchers freed the same worms of the extra pounds they carried, the squiggly invertebrates were, once again, able to sleep.

According to study coauthor David Raizen, MD, PhD, an associate professor of neurology at Penn and a member of the university's Chronobiology and Sleep Institute, this may help explain why folks with obesity experience sleep problems. "There could be a signaling problem between the fat stores and the brain cells that control sleep," he suggested.

Although like all mammals, worms have nervous systems and require sleep, Raizen cautioned that these results might not translate to humans.

Nevertheless, the findings are still promising because these conclusions can further help scientists understand one of sleep's core functions as well as how to treat common sleep disorders.

For related coverage, read "Can Lack of Sleep Increase the Risk of Mental Health Problems in Kids?" and "Lack of Sleep Among Teens May Lead to Future Heart Troubles."

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