

Sleep Starvation Linked to Hunger

People have been sleeping less and getting heavier during the last few decades. Is it coincidence or could there be an evidence based link? Leptin and ghrelin are the two key opposing hormones in appetite regulation. Scientists have known for years that acute partial sleep deprivation increases plasma concentrations of ghrelin while decreasing those of leptin. In one study, researchers found that normal-weight young men ate a Big Mac's-worth of extra calories when they'd gotten four hours of sleep, as compared to when they slept for eight hours. "Sleep restriction could be one of the environmental factors that contribute to the obesity epidemic," according to the American Journal of Clinical Nutrition.



What happens to a normal-weight

person's eating patterns when he or she sleeps less? To investigate, Dr. Laurent Brondel of the European Center for Taste Sciences in Dijon, France, and colleagues looked at sleep, eating, and energy expenditure. The researchers found that the subjects with sleep restricted to four hours took in an average of 22 percent more calories than when they were allowed to sleep for eight hours. They ate more at breakfast and dinner, but not at lunch. The average calorie increase was about 560.

One theory is that people might eat more after a short sleep because mammals have evolved to store calories in the summer, when nights are short and food is plentiful (proposed by Brondel and his colleague Dr. Damien Davenne of the University de Caen in Caen, France).

Another study at the University of Wisconsin found that sleeping less than eight hours increased BMI proportionately to decreased sleep. Short sleep was associated with low leptin and high ghrelin, independent of BMI. These differences in leptin and ghrelin are likely to increase appetite, possibly explaining the increased BMI observed with short sleep duration. In Western societies, where chronic sleep restriction is common and food is widely available, changes in appetite regulatory hormones with sleep curtailment may contribute to obesity.

The findings make it clear that people need to do their best to get an adequate amount of sleep so their bodies can function properly. Sleep is not a waste of time, but a restorative process that helps control appetite, energy and therefore weight.