

## Lost sleep equals gained weight

Losing sleep can increase hormones linked with eating behavior.

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WASHINGTON (Reuters) -- People who put on a few extra pounds may be able to blame a lack of sleep for the added weight, according to two separate studies published Monday.

Losing sleep can raise levels of hormones linked with appetite and eating behavior, the researchers said.

In one study, people who slept only four hours a night for two nights had an 18 percent reduction in leptin, a hormone that tells the brain there is no need for more food, and a 28 percent increase in ghrelin, which triggers hunger.

The young men in the study also tended to eat more sweet and starchy foods when sleep was cut short.

"We don't yet know why food choice would shift," said Eve Van Cauter, a professor of medicine at the University of Chicago who led the study.

"Since the brain is fueled by glucose, we suspect it seeks simple carbohydrates when distressed by lack of sleep.

"This is the first study to show that sleep is a major regulator of these two hormones and to correlate the extent of the hormonal changes with the magnitude of the hunger change," Van Cauter said.

"But we are finding that people tend to replace reduced sleep with added calories," Van Cauter and colleagues wrote in the *Annals of Internal Medicine* that they studied 12 healthy men in their early 20s. They measured circulating levels of leptin and ghrelin before the study, after two nights of only four hours in bed, and after two nights of ten hours in bed.

"We were particularly interested in the ratio of the two hormones -- the balance between ghrelin and leptin," Van Cauter said.

After four hours of sleep, the ratio of ghrelin jumped 71 percent compared to a night when the men slept nine hours.

The sleep-deprived men chose candy, cookies and cake over fruit, vegetables or dairy products.

A second study found that the less people sleep, the more they weigh, using a measure called body mass index, which scales weight to height.

It also found lower leptin levels and higher ghrelin levels in people who slept less. Dr. Emmanuel Mignot of Stanford University in California and colleagues examined 1,000 people in the Wisconsin Sleep Cohort Study, measuring each person's sleep habits, as well as sleep on the night before the exam and leptin and ghrelin levels.

They found people who consistently slept five hours or less per night had on average 14.9 more ghrelin and 15.5 percent lower leptin levels than those who slept eight hours a night.

"Our results demonstrate an important relationship between sleep and metabolic hormones," the researchers wrote in the *Public Library of Science Medicine* journal.

"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."

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