



## More sleep could help control weight

Sorting out the factors that result in weight gain and obesity has proved to be a daunting challenge for researchers. Lack of exercise, large food portions, too much dietary fat, carbohydrates and/or protein have all been blamed for fat gain. Another emerging contributor to weight gain is lack of adequate sleep. Although spending too much time sitting on your butt may lead to obesity, too little time in bed asleep also may contribute to weight gain.

One clue to the relationship between sleep and body fat comes from a study of more than 8,000 children age 6 to 7. This study reported that obese children generally get less sleep than leaner children.

A similar association between high body fat and lack of sleep was found in a study on adults conducted in Spain. Although it is difficult to tell which comes first -- sleeping less or being overweight -- the researchers concluded that the odds of being overweight are 24 percent lower for each additional hour of sleep.

**Question:** How can getting more sleep affect body weight?

**Answer:** Sleep is much more than just what Shakespeare wrote, "... perchance to dream." Sleep affects both behavioral and metabolic characteristics. This, in turn, can affect a person's overall calorie intake, energy expenditure and how excess calories are distributed on the body.

**Q:** How does lack of sleep affect exercise?

**A:** When people are not well rested, they tend to be less inclined to exercise. Additionally, when people are deprived of adequate sleep, there is a strong tendency to exercise at a reduced intensity. Consequently, a rested person may walk two miles in 30 minutes, while the poorly rested person is likely to go at half that speed, cover half the distance and burn half as many calories in the same amount of exercise time.

**Q:** How does sleep affect metabolism and fat storage?

**A:** Lack of sleep can affect metabolism due to its effects on hormone levels. In particular, sleep loss affects the body's levels of cortisol, insulin and growth hormone. Cortisol increases in response to emotional or physical

stress, including lack of sleep. Then, cortisol raises insulin levels, and that promotes fat storage and inhibits fat loss. A drop in growth hormone with poor sleep also favors fat storage and loss of muscle mass.

**Q:** How does lack of sleep affect appetite and food intake?

**A:** When deprived of sleep, most people tend to consume more calories than they require to maintain body weight. In addition, some studies have indicated that a tired person tends to crave sweet high-carbohydrate foods. Combine this with elevated cortisol and insulin, and the balance is set in favor of fat storage.

This scenario grows further complicated as it tends to lead to a condition called insulin resistance. When this happens, blood glucose levels rise, and this can lead to the development of type 2 diabetes and its health consequences.

If you are planning to get into shape, getting plenty of good sleep may be the first step to eating and exercising better. Try trading some "tube time" for some good-quality bed time. One small step for a couch potato.

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