



## Why Do I Eat More Junk Food When I'm Tired?

It's well established that sleep, or a lack thereof, has a profound effect on your body composition. Studies such as this one, which monitored thousands of Americans, have found that those who skimp on sleep tend to have a higher BMI (body mass index, a measurement of body fat based on height and weight) and are more likely to be obese.

Similarly, study after study shows that the less sleep we get, the more we crave calorie-dense, carb-heavy foods. (Are you there, Double Quarter Pounder with bacon and cheese? What about you, side of fries?)

Why is that? Researchers say it essentially boils down to two things: The effect that sleeplessness has on your hormones, and on your brain.

There are two hormones in your body that are most responsible for appetite regulation: leptin and ghrelin. Leptin, secreted by your body's fat cells, is known as the "satiety hormone." It's your body's way of telling your brain, "Hey, I'm full, I don't need to eat another plate of nachos right now, thanks anyway."

Ghrelin, on the other hand, has been dubbed "the hunger hormone." Your digestive system is the primary production source—when your stomach is empty, cells further down the tract secrete ghrelin to signal your brain, "Yo, need some food down here, hit me up."

Studies show measurable differences in the levels of these hormones when people are well rested compared to when their sleep is curtailed. Specifically, when people slept for shortened periods (less than seven hours; sometimes as few as four) or went without sleeping entirely, their levels of leptin fell while ghrelin rose. This happened even to those who had a healthy, normal weight, and were observed after just a single night of being sleep deprived.

Long story short: the less sleep you get, the more your body starts signaling your brain that it's hungry. This spells trouble because a sleep-starved brain is less equipped to make complex decisions, or tell your body to chill out.

But why can't I seem to eat 10 apples or a bushel of broccoli when I'm wiped out?

It's all about the carbs and calories — that's what our sleep-deprived brains want. Researchers at UC Berkeley observed a clear preference for burgers, doughnuts and other junk food in subjects coming off of a sleepless night. Using functional magnetic resonance imaging (fMRI), the Berkeley team saw less activity in the frontal lobe among the group who'd been kept up. The frontal lobe is where your brain makes more complex decisions, such as the reasoned and thoughtful choice to bypass a giant bag of potato chips for a salad of local leafy greens.

The same scan showed an increase in activity in the amygdala, our more primal reward center in the brain. The amygdala, which helps regulate basic emotions, sees things at a more fundamental level: Food equals good. Donuts taste delicious. The makeup of that food, and its potential long-term effects on your body, are less likely to be taken into consideration.

The lead researcher in UC Berkeley study chalks the effect up to a buildup of adenosine in the brain. Adenosine is a metabolic byproduct that can disrupt neural function. It's cleared out when we sleep, but will stick around when we go without rest. So when your brain gets junked up by adenosine, you're more likely to pig out. And the extra ghrelin coursing through your system will be urging you on to go forth and find some French fries.

Source: Business Insider – Science/Brian Sabin; <http://www.businessinsider.com/why-you-crave-carbs-2015-9>

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