

OPTIMAL HEALTH UNIVERSITY™

Presented by Steven L. Smith, DC

Could You Be Addicted to Junk Food?

Dr. Smith is extremely concerned about the obesity epidemic and the plethora of health problems skyrocketing as a result, including diabetes, heart disease and high blood pressure. A major component of the obesity crisis is the availability of plentiful and cheap processed foods, often high in sugar, salt and unhealthy fats. We have evolved to seek out these flavors because they are present in calorie-dense foods. But, in modern Western society, the calories our ancestors had to struggle for are now overabundant (Can Med Assoc J 2010;182:327-8).



The clash between our innate food preferences and our modern food system has created many new disorders, including junk food addiction. How do we become addicted to junk food?

And how can we temper food addiction to maintain optimal health? Dr. Smith explores the latest research.

The Research

One study published in the journal *Nature Neuroscience* gives further credence to the idea that unhealthy food can indeed be addictive (*Nat Neurosci* 2010;13:635-41).

Scholars at the Scripps Research Institute provided a group of rats an unlimited smorgasbord of sweets, processed meats and other junk food. Not surprisingly, the rats quickly became obese. Next, the rats repeatedly received an electric shock upon eating the unhealthy food. Surprisingly, they continued to pig out. Furthermore, when the treats were replaced with healthier chow, the rats refused to eat at all.



Dr. Smith agrees with the researchers that these rats can teach us something about human compulsion to gorge on junk food. Unhealthy foods may alter the brain's ability to tell us when we are full. When this brain "switch" is turned off, junk food ceases to satisfy, and an individual craves more of it — in other words, he or she becomes addicted.

Is Food Addiction Real?

Consider the definition and criteria for addiction. An addiction is a compulsion that often becomes destructive to personal health and social relationships. The term has long described abuse of drugs or alcohol.

Today, science shows that the same brain activity associated with drug and alcohol addiction is also present in compulsive behaviors like problem gambling, as well as use of seemingly benign substances like food. No wonder many scientists are pushing to classify food addiction as a substance use disorder on par with drug addiction (*Medical Hypotheses* 2009;72:518-26).

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From Steven L. Smith, DC**

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Several of the behaviors used to diagnose addiction are evident in cases of compulsive eating, including loss of control over use, repeated failure to change behavior and continued use despite negative consequences (*J Addict Med* 2009;3:1-7).

According to one report presented at the American College of Neuropsychopharmacology in Scottsdale, Arizona, rats became accustomed to eating large quantities of sugar, then were denied the sweet treat.

The rats showed classic addiction responses of withdrawal and craving followed by relapse when researchers reintroduced sugar. Other animal studies also reveal withdrawal symptoms in rats that receive an unlimited high-calorie diet and then have intake restricted (*Proc Natl Acad Sci* 2009;106:20016-20).

Brain Chemical Changes May Trigger Overeating

Several neurochemicals and hormones work in tandem to control our appetites. Imbalances of any of these may be possible causes of overeating and food addiction (*Obesity and Food Addiction Summit 2009 Bainbridge Island, WA*).

For instance, in the Scripps study noted previously, the obese rats' brains showed decreased dopamine receptors. Dopamine is a neurotransmitter that activates the brain's reward system, reinforcing behaviors that cause pleasure. A decline in dopamine receptors is implicated in heroin and cocaine addictions. According to scientists, a similar process occurs in food addiction (*Nat Neurosci* 2010;13:635-41).

The hormones leptin and insulin are critical to appetite regulation and nutrient absorption. Levels of both key hormones plummet in rats fed a high fat diet (*Physiol Behav* 2006;89:611-16). Leptin regulates hunger, while insulin prompts the liver, muscles and fat tissue to absorb sugar from the bloodstream. A decline in these hormones interferes with our ability to recognize that we are full.

Cortisol, best known as the "stress hormone", may also play a role in food addiction. The endocrine system reacts to high levels of cortisol by releasing natural opioids (chemicals that alleviate pain and cause euphoria) to reduce the effects of stress.

These opioids are also released in reaction to consumption of enjoyable food. Compulsive overeating therefore may manifest as a reaction to emotional strain as the brain seeks pleasurable opioids to combat stress (*Physiol Behav* 2007;91:449-58).

Addiction is Often Hardwired

Research shows that some people may have an ingrained tendency toward addiction. Many gastric surgery patients who defeat food addiction seem to transfer to another addiction, such as compulsive shopping or gambling (*Can Med Assoc J* 2010;182:327-28).

Some individuals have a predisposition to food addiction — researchers call it "external food sensitivity". Individuals with this sensitivity experience powerful cravings upon seeing, smelling or even thinking about food. Animals with a greater propensity to gain weight on a normal diet show more symptoms of withdrawal — cravings and anxiety — after being taken off a high fat and high sugar feed (*Psychopharmacol* 2009;204:431).

Which Foods Are Addictive?

The most notoriously addictive food ingredient is sugar. It triggers release of opioids and dopamine, the chemicals linked to addiction (*Neurosci Biobehav Rev* 2008;32:20-39). Researchers observe that sugar withdrawal symptoms parallel those of withdrawal from morphine or nicotine (*Obes Res* 2002;10:478-88). In fact, in another study, 94 percent of rats chose sweetened water over intravenous cocaine (*PLoS ONE* 2007;2:e698).

Carbohydrates, especially highly processed ones, also show great potential for addiction. In a study at the University of Illinois, overweight women who reported frequent emotional eat-

ing were offered two identical-tasting drinks, one high in carbohydrates and one high in protein. The women were asked to choose the drink that made them feel better emotionally. They overwhelmingly selected the high-carb drink (*Psychopharmacology Berl* 2008;197:637-47).

Tips for Beating Junk Food Addiction

If you feel that you are addicted to unhealthy foods, it is important to avoid situations and foods that could trigger a binge for you. This could mean taking a route home from work that avoids your favorite fast food outlet or unplugging the television if you find yourself tempted by commercials for junk foods.

Stress-related overeating necessitates alternate ways to deal with emotional situations. Chiropractic care may be particularly helpful for those dealing with stress. In addition to regular chiropractic adjustments, the doctor recommends a brisk walk, deep breathing, yoga or a soothing cup of herbal tea. Post a list of stress-busting techniques on your fridge to short-circuit your binge.

In cases where junk food addiction is out of control, therapy and nutritional counseling may be in order. Ask the doctor to provide referrals to these professionals.

Finally, remember that it is extremely difficult to adhere to a diet that deprives you of all pleasurable foods. Eat sensibly and enjoy healthy, satisfying foods that do not trigger overeating.

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