

Daily Life with Christ-80. Understanding brain addictions: how behavior rewires the brain like drugs: E.g., Junk Food.

SCIENTIFIC AMERICAN

BAD FATS = COCAINE & HEROIN

Willing to endure
ELECTRIC SHOCKS

Energy & Sustainability ▾ Evolution ▾ Health ▾ Mind & Brain ▾ Space ▾ Technology ▾ More

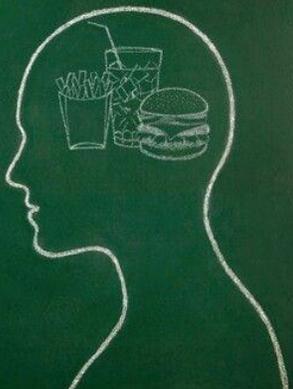
Addicted to Fat: Overeating May Alter the Brain as Much as Hard Drugs

Rats given access to high-fat foods showed some of the same characteristics as animals hooked on cocaine or heroin -and found it hard to quit even when given electric shocks

By Katherine Harmon | March 28, 2010 | 26

 **The Human Brain & Food Addiction**

Dopamine receptor sites trigger a rush of pleasure in the brain and body. Everytime you eat something high in salt, sugar or fat, you experience "happy chemicals" that create a pathway in your brain, thus resulting in a habit that leads to addiction.



The neurobiology of food addiction (the theory of compulsive overeating)



- People may become addicted to addictive substances such as nicotine and alcohol but research indicates that people can also become addicted to sugar.
- Sugar addicts experience the same withdrawal symptoms seen with those addicted to classic drugs of abuse when they are deprived of their drug.

Discuss factors related to overeating and the development of obesity

No doubt, this article will not be the most popular for all of us junk food eaters, but here goes. In the last article, I made a distinction between drug-induced and behaviorally-induced addictions. Junk food addiction seems to fall within both categories. The same kind of rewiring of the brain takes place with food addiction as we see in dangerous drugs. It is also behaviorally induced for a variety of reasons.

A junk food addict can be broadly characterized as a person who craves and eats junk food despite negative consequences on one's health and social well-being. Obesity is a significant health problem in the United States. In fact, about 2/3 of Americans are overweight and about 1/3 are clinically obese. There are a number of reasons for the epidemic of obesity in the United States, but one of the most important reasons is the easy access to junk food.

For most of human history people had no choice but to eat fresh, unprocessed food that was relatively low in calories. There simply weren't any alternatives; high-calorie foods were very rare. Furthermore, most people had to walk long distances and perform quite a bit of manual labor just to survive. They therefore burned a lot of calories relatively quickly.

The problem is that in our society, calories are not nearly so precious. In fact, they are very easy to come by. High-calorie food for our ancestors included foods like fruit and nuts. But today, we have high-fat junk foods and refined carbohydrates. Junk foods are supernormal stimuli—exaggerated versions of our ancestors' fruits and nuts. Eating such foods therefore engages the motivational circuits in the brain in a very powerful way and can lead to significant cravings and overconsumption.

There is a great deal of neuroscience of compulsive eating that shed light on how these stimuli affect the brain. Recall that dopamine is the molecule that is associated with wanting or craving, and it underlies our motivation to do virtually everything we do—and that includes eating. Increased dopamine levels led to increased food craving, both in laboratory rats and human beings. Just like the drug addict that needs more and more to feel pleasure, with food addiction the person eats more and more and more. Like the drug addict, the food addict actually enjoys the food less than if his brain had not been hijacked—if he had a normal brain.

Like with drug addicts who are hypersensitive to drug-clues (seeing a cigarette, beer, a needle, a familiar drug environment), food addicts are hypersensitive to food-related cues (seeing junk food, food environments—for example, watching TV and eating high-calorie food). Like drug addicts, the food-addict actually derives less-than-normal pleasure from real food consumption. Again, this is the same kind of pattern we have seen in drug addicts who crave drugs despite deriving less and less pleasure from them.

Food companies have one motive—to sell as much as possible. The combination of supplements in their food makes this wish possible. These components include fat, sugar, salt, caffeine, refined sweeteners and carbohydrates. The results leave eaters unable to give up their unhealthy habit, and scientists tells us that this is more than a craving; it becomes full blown addiction.

As noted, recent studies have demonstrated that having food addiction is similar to cocaine because junk food also stimulates the reward system in the brain. This shared chemistry and rewiring of the brain is what is classified as a full-blown addiction.

When someone eats junk food, the brain releases ‘feel-good chemicals’ in the reward system such as the neurotransmitter called dopamine, which we recognize as pleasure. We therefore naturally seek out behaviors that release dopamine and the problem is that modern junk food can cause a ‘powerful’ reward. This can also then lead to the traits of a physical addiction – tolerance and withdrawal.

Tolerance occurs when one no longer responds to the substance of addiction in the way they initially did. Eventually, the brain will start removing the dopamine receptors to keep things balanced. Then, with fewer receptors – more dopamine is needed in order to reach the same effect which causes people to eat more junk food. When there is little dopamine activity, the person may start to feel hopeless and in need of a food “fix”.

Once the triggers have been identified, the addict can develop a strategy for avoiding them or coping with them when they do arise. Control of one’s environment goes a long way to breaking the addiction and bringing the brain back to normalcy where one can enjoy almost any food without the brain being hijacked by insatiable cravings.

As far as treatment, first someone with a food addiction must recognize that he has a problem and be committed to trying to overcome it. The motivation has to come from within; it can’t come from someone else. Second, it is important to understand the cognitive and emotional motivations that lead to addictive behavior. For example, what are the thoughts and feelings that trigger a desire to overconsume junk food? Are there environmental stimuli that tend to trigger the problem, like having cookies and chips out on the counter? Is food being used for comfort? Eating is pleasurable and a lot of our environmental changes in the last 50 years have been around making food very palatable, energy dense and easily available,’ says Margaret. This makes feeding the addiction very easy with supermarkets today having a huge supply of high-fat food for a low cost.

Many suffer health problems or poor self-esteem due to obesity. They often feel terrible about themselves because they try and try and try to stop eating so much, but their will power simply is not strong enough. Understanding the brain pathology enables one to better understand that a large part of the problem is that the brain has been hijacked and rewired. The good news is that the brain is very pliable and be rewired back to normalcy.

For us Christians, we also have the LORD who can help us with our abnormal and often self-destructive cravings. If we were just spiritual beings, there would be no problem. However, we are not. We are also physical, and our physical brains have a very powerful influence over our lives. We have a higher will (what we know we should do) that is immaterial, and a lower will that is inextricably connected to the physical (sensible appetites). And it is the lower will that often usurps our highest will.

As far as the battle of our two wills, the higher and lower, there is only one solution, and that is sanctification—uniting both wills into the higher will, which is called sanctification. Unless and until we grow in progressive sanctification, the lower will will continue to usurp our highest will—and we will have fragmented lives. The fragmented life when a person is divided against himself, where he constantly does things (lower will) he wishes (higher will) he would not do, ending in self-loathing. This is no way to live.

The LORD offers us so much more than a frustrated fragmented life that is divided against itself. He provides a unified life in Him as our Highest Good. Let us redouble our efforts to be all that the LORD wants us to be and what we really want to be as well.

For Him,

Pastor Don