

Researchers identify brain circuits that may act as a brake on binge eating and junk food craving

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Have you ever wondered why we crave the very foods that we try to avoid when dieting? Or wish there was a way to turn off the craving?

Researchers from The University of Texas Medical Branch at Galveston have identified new brain circuits that may act as a brake on binge eating and junk food craving.

In rats who had spent a month eating a low-fat diet, researchers successfully inhibited the fatty food seeking behaviors. The findings are currently available in Behavioural Brain Research.

"Craving for foods high in fat -- this includes many junk foods -- is an important part of obesity and binge eating," said Jonathan Hommel, assistant professor in the department of pharmacology and toxicology.

"When trying to lose weight people often strive to avoid fatty foods, which ironically increases motivation and craving for these foods and can lead to overeating. Even worse, the longer someone abstains from fatty foods, the greater the cravings."

Several behavioral studies have demonstrated that denying certain foods, like being on a diet, causes increased craving and motivation for that food. However, the brain mechanisms that lead to this type of overeating are not known. To this end, the UTMB researchers sought to learn how the brain drives this potentially harmful behavior.

Using rats that had been placed on a 30-day low-fat diet, the UTMB team trained them to work for fatty treats by pressing a

lever. To measure craving and motivation, the researchers kept increasing how many times the rats needed to press the lever in order to receive the treat until the rat gave up trying.

Next, half of the rats underwent a surgical procedure that blocked the effects of a brain chemical called neuromedin U receptor 2 within a region of the brain that regulates food intake. The other half of the rats did not receive this treatment.

After surgical recovery, the researchers found that the rats who had been treated did not work nearly as hard for fatty treats as their unaltered counterparts did.

"While our findings are only the first step in a long process from the scientific lab to the doctor's office, we are planning to develop new drugs to help curb those cravings," said Hommel. "Although it may be years before the drug is ready, our research highlights some important features of food craving that may help you set realistic New Year's resolutions."