

High-fat diet alters reward system in rats

May 29 2017



Credit: CC0 Public Domain

Exposure to high-fat diet from childhood may increase the sensitivity of the dopamine system later in adulthood, according to a study in male rats published in *eNeuro*. The research describes potential mechanisms that, if translated to humans, may drive people to seek foods that contribute to obesity.

Dopamine is a neurotransmitter that plays an important role in sensitization—the process by which repeated administration of a reward, being pharmacological such as amphetamine or natural such as highly palatable food, causes an increase in response to the reward.

In this study, Guillaume Ferreira and colleagues investigated the effects of [high-fat diet](#) exposure on sensitization to amphetamine, a psychostimulant acting through the [dopamine](#) system. The authors found that male rats fed a high-fat diet for three months, from weaning to adulthood, exhibited increased locomotor activity in response to a second injection of amphetamine, as well as increased activity of dopamine cells in the [ventral tegmental area](#) (VTA) and dopamine release in the nucleus accumbens (NAc).

These findings reveal that the development of the VTA-NAc pathway during adolescence is influenced by a high-fat diet, which may lead to long-term changes in reward-seeking behavior.

More information: *eNeuro*, doi.org/10.1523/ENEURO.0120-17.2017

Provided by Society for Neuroscience

Citation: High-fat diet alters reward system in rats (2017, May 29) retrieved 27 April 2024 from <https://medicalxpress.com/news/2017-05-high-fat-diet-reward-rats.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.