

High-fructose diet in adolescence may exacerbate depressive-like behavior

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Credit: George Hodan/Public Domain

The consumption of a diet high in fructose throughout adolescence can worsen depressive- and anxiety-like behavior and alter how the brain responds to stress, according to new animal research scheduled for presentation at Neuroscience 2014, the annual meeting of the Society for Neuroscience and the world's largest source of emerging news about brain science and health.

"Our results offer new insights into the ways in which diet can alter [brain](#) health and may lead to important implications for adolescent nutrition and development," said lead author Constance Harrell of Emory University in Atlanta.

Harrell is presenting her work Saturday, Nov. 15, Halls A-C, 3-4 pm and participating in an "Unhealthy diet, unhealthy mind"-themed press conference on Tuesday, Nov. 18 at 12:30 pm.

Harrell is a graduate student working with Gretchen Neigh, PhD, assistant professor of physiology, psychiatry and behavioral sciences at Emory University School of Medicine.

Fructose, a sugar found naturally in fruits and vegetables but also added to many processed foods and beverages, can promote negative cardiovascular effects. It also stimulates neural pathways that affect how the brain responds to stress, which can have important behavioral effects, including the worsening of symptoms related to depression and anxiety. Such effects are of particular concern during the teen years, which is a critical time for the development of the brain's [stress response](#).

To determine whether fructose consumption has the potential to create long-term changes in metabolism and behavior during adolescence, Harrell and her colleagues gave both adolescent and adult rats either a standard or a high-fructose diet. After 10 weeks, the adolescent but not adult rats on the high-fructose diet had a different stress hormone response to an acute stressor, which was consistent with their depressed-like behavior. A genetic pathway in the brain that plays a key role in regulating the way the brain responds to stress was also altered. These findings indicate that consuming a diet high in fructose throughout adolescence may exacerbate depressive behaviors and affect the way the body and the brain respond to [stress](#).

More information: [Abstract](#)

Provided by Emory University

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