

Commonly-used artificial sweetener linked to anxiety - study

Aspartame, a sweetener used in thousands of products, produced anxiety-like behavior that can even pass on to further generations.

By TZVI JOFFRE Published: DECEMBER 11, 2022 05:52



Cans of Diet Coke and Diet Pepsi.
(photo credit: REUTERS/CARLO ALLEGRI)



Listen to this article now

Powered by **Trinity Audio**

00:00

10 16 1.0x

03:18

A commonly used artificial sweetener called aspartame may be linked to [anxiety](#), even if used according to FDA guidelines, according to a new peer-reviewed [study](#) published in the *Proceedings of the National Academy of Sciences* earlier this month.

Aspartame is an [artificial sweetener](#) which has been used with FDA approval since 1981 in thousands of low-calorie foods and drinks.

The researchers from Florida State University noted that aspartame is broken down into aspartic acid, phenylalanine and methanol once consumed, all of which can have strong effects on the central nervous system. Nevertheless, research on the sweetener's effects on the brain and mental health is split.

In the new study, researchers gave mice either drinking water containing 8-15% of the FDA recommended maximum daily intake of aspartame or plain drinking water. The dose is equivalent to about six to eight 8-ounce cans of diet soda a day for humans.

The mice given the aspartame-dosed drinking water displayed “robust anxiety-like behavior.” Diazepam, commonly known as Valium, helped alleviate their anxious behavior.



The brain (illustrative). (credit: PIXABAY)

Aspartame exposure affects genes as well

The aspartame exposure also affected the genes of the mice, changing the mice’s amygdalas in ways that caused its cells to fire more, which could explain the anxiety in the mice.

The researchers additionally checked to see if the changes in the mice’s behavior would be passed down to later generations, even if they weren’t exposed to aspartame. The researchers took male mice who were exposed to the sweetener and bred them with female mice who weren’t exposed. They then bred these children with other female mice who also weren’t exposed to aspartame.

The scientists found that the descendants of mice who had been exposed to aspartame and the descendants of those descendants also expressed anxiety-like behavior, suggesting that the effects of the sweetener could be passed down to descendants for up to at least two generations.

Aspartame's effects seem to decrease over generations

Diazepam treatment for the mice's descendants helped their symptoms, but alleviated the symptoms of the second generation more than it did for the first generation, suggesting that the [sweetener's](#) effects decreased somewhat over generations.

Genetic testing also found that the aspartame-induced changes in the amygdala were passed down from the sweetener-exposed mice to their descendants, but not to the descendants of those descendants.

"What this study is showing is we need to look back at the environmental factors, because what we see today is not only what's happening today, but what happened two generations ago and maybe even longer," said co-author Pradeep Bhide, the Jim and Betty Ann Rodgers Eminent Scholar Chair of Developmental Neuroscience in the Department of Biomedical Sciences.

"It was such a robust anxiety-like trait that I don't think any of us were anticipating we would see," said doctoral candidate Sara Jones. "It was completely unexpected. Usually you see subtle changes."

[Sign up for the Health & Wellness newsletter >>](#)