

# Sugar linked to memory problems in adolescent rats

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Studying rats as model subjects, scientists found that adolescents were at an increased risk of suffering negative health effects from sugar-sweetened beverage consumption.

Adolescent rats that freely consumed large quantities of liquid solutions containing sugar or high-fructose corn syrup (HFCS) in concentrations comparable to popular sugar-sweetened beverages experienced memory problems and [brain inflammation](#), and became pre-diabetic, according to a new study from USC. Neither [adult rats](#) fed the sugary drinks nor adolescent rats who did not consume sugar had the same issues.

"The brain is especially vulnerable to dietary influences during critical periods of development, like adolescence," said Scott Kanoski, corresponding author of the study and an assistant professor at the USC Dornsife College of Letters, Arts and Sciences.

Kanoski collaborated with USC's Ted Hsu, Vaibhav Konanur, Lilly Taing, Ryan Usui, Brandon Kayser, and Michael Goran. Their study, which tested a total of 76 rats, was published online by the journal *Hippocampus* on Sept. 23.

About 35 to 40 percent of the rats' [caloric intake](#) was from sugar or HFCS. For comparison, added sugars make up about 17 percent of the total caloric intake of teens in the U.S. on average, according to the CDC.

The rats were then tested in mazes that probe their spatial memory ability. Adolescent rats that had consumed the sugary beverages, particularly HFCS, performed worse on the test than any other group – which may be the result of the neuroinflammation detected in the hippocampus, Kanoski said.

The hippocampus is a part of the temporal lobe located deep within the brain that controls memory formation. People with Alzheimer's Disease and other dementias often suffer damage to the hippocampus.

"Consuming a diet high in added sugars not only can lead to weight gain and metabolic disturbances, but can also negatively impact our neural functioning and cognitive ability." Kanoski said. Next, Kanoski and his team plan to see how different monosaccharides ([simple sugars](#)) and HFCS affect the brain.

Provided by University of Southern California

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