

## Study in rats finds low blood alcohol levels have no effect on total calories consumed

November 23 2016, by Diana Yates

---



Rats eat less food when they drink water laced with alcohol, balancing their total energy intake, researchers found. Credit: Julie McMahon

Laboratory rats will drink alcohol if it's available, and may even get a

little tipsy, researchers report in a new study. But they won't voluntarily drink until they're drunk. And while ethanol is calorie-rich, rats that drink it eat less food and their total energy intake remains steady, the research team found.

The findings - the first from a series of studies designed to explore the relationship between feeding and [alcohol consumption](#) - are reported in the journal *Pharmacology, Biochemistry and Behavior*.

"I was looking at whether [alcohol intake](#) affects overall caloric intake and body weight change," said University of Illinois psychology professor Nu-Chu Liang, who led the research. "And the result, in terms of voluntary drinking, is that it does not - at least in [rats](#)."

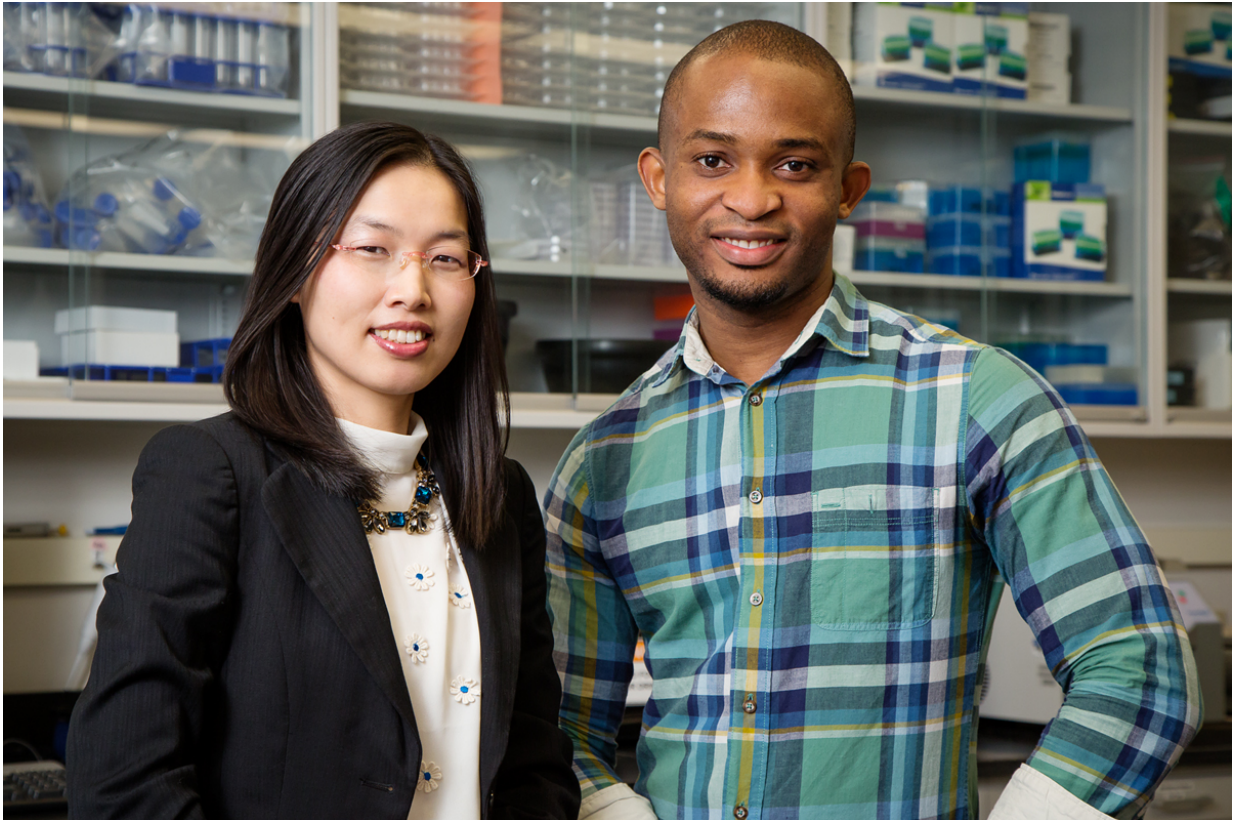
When the researchers dosed the rats with higher levels of alcohol through injections in an effort to mimic the effects of binge drinking, however, the results were very different. At [blood alcohol](#) levels that correspond to intoxication in humans (0.08 percent and higher), the rats ate significantly fewer calories and began to lose weight.

This is the first study to show a direct link between blood alcohol levels and feeding behavior in rats.

Liang thinks rats make better models of [human](#) feeding behaviors than mice because rats are bigger mammals and eat significantly more than mice, making it easier to measure their food intake. Their feeding patterns and related brain circuits also are more like those of humans, she said.

But there are limitations. Several studies in humans suggest that moderate drinking stimulates appetite, something not seen in the rats, Liang said.

The rats ate the same standard lab chow every day, so their interest in the food was likely blunted by familiarity. Future studies will try to better mimic conditions that humans encounter when consuming alcohol, Liang said.



University of Illinois psychology professor Nu-Chu Liang and graduate student Nnamdi Nelson study the relationship between food and alcohol intake. Credit: L. Brian Stauffer

"When humans drink, a lot of times it's in an environment that encourages appetite, so it's at a dinner or a social event like a party," she said. "And then you have a glass of wine and your [blood alcohol level](#) is elevated but not reaching intoxication, and there's also a lot of food

around and you have choices of what food you want."

The new findings suggest that if alcohol suppresses appetite, it does so only at blood alcohol levels corresponding to heavy intoxication in humans, Liang said. This would not be a good weight-loss model for humans, she said.

"In this case, high blood alcohol levels suppress appetite and suppress weight gain, but it's more like the loss of appetite and weight loss during sickness," she said.

**More information:** Nnamdi G Nelson et al, Appetite and weight gain suppression effects of alcohol depend on the route and pattern of administration in Long Evans rats, *Pharmacology Biochemistry and Behavior* (2016). [DOI: 10.1016/j.pbb.2016.10.006](https://doi.org/10.1016/j.pbb.2016.10.006)

Provided by University of Illinois at Urbana-Champaign

Citation: Study in rats finds low blood alcohol levels have no effect on total calories consumed (2016, November 23) retrieved 20 April 2024 from <https://medicalxpress.com/news/2016-11-rats-blood-alcohol-effect-total.html>

<p>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.</p>
--