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🕒 **SEPTEMBER 17, 2020**

New study links combination of two sugars in high fructose corn syrup to heart health risks

by Amy Young, UC Davis



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Consuming high fructose corn syrup appears to be as bad for your health as consuming sugar in the form of fructose alone, according to a new study from researchers at the University of California, Davis. The study reports health risks related to the type of sugar consumed, but also reveals novel risks when sugars are combined, which has important implications for dietary guidelines.

When it comes to [health risks](#), sugar in the form of [fructose](#) is clearly the bad guy. This is because a majority of fructose consumed ends up in the liver. When there is too much fructose, the liver produces [uric acid](#) and fat in the form of triglycerides, which increase the risk of fatty liver, [heart disease](#) and gout. But lead investigator Kimber Stanhope, a researcher with the UC Davis School of Veterinary Medicine, says the new data shows that we shouldn't let glucose off the hook.

"It turns out that the combination of fructose and glucose found in [high fructose corn syrup](#) appears to be worse than fructose alone for some [heart disease risk factors](#)," said Stanhope. "When we planned this study, we didn't expect to find this."

Research has shown that fructose compared with glucose increases risk factors for heart disease and diabetes. This led to an assumption that the glucose in the high fructose corn syrup is benign. The new study, published in *Metabolism* Journal, tested this assumption by examining differences in health risk factors based on sugar type. Participants consumed beverages containing fructose, glucose, high fructose corn syrup, or an aspartame control, and researchers analyzed their blood for known risk factors for heart disease and diabetes.

The researchers expected risk factors would be highest for fructose and lowest for glucose, with high fructose corn syrup somewhere in between. This is exactly what they saw for some of the risk factors. However, for others, including the risk factors many scientists believe are the most predictive for heart disease, the increases were highest for high fructose corn syrup due to an interaction of fructose and glucose.

Consumer choices and dietary guidelines

The results of the current study suggest that [dietary guidelines](#) and consumer choices should not be based on the assumption that all adverse effects from dietary sugars are due to fructose content.

"Our study shows that nutrition is more than looking at individual food components," said first author Bettina Hieronimus with the Department of Child Nutrition at the Max-Rubner Institut in Karlsruhe, Germany. "To understand the way our food affects our bodies, we need to study diets as a whole."

More information: Bettina Hieronimus et al. Synergistic effects of fructose and glucose on lipoprotein risk factors for cardiovascular disease in young adults, *Metabolism* (2020). DOI: [10.1016/j.metabol.2020.154356](https://doi.org/10.1016/j.metabol.2020.154356)

Provided by [UC Davis](#)

Citation: New study links combination of two sugars in high fructose corn syrup to heart health risks (2020, September 17) retrieved 23 September 2020 from <https://medicalxpress.com/news/2020-09-links-combination-sugars-high-fructose.html>

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