

Consuming too much fructose during pregnancy raises the child's risk for heart disease

April 20 2016



The negative health effects of consuming large amounts of fructose could impact several generations, according to researchers at The University of Texas Medical Branch at Galveston.

The UTMB study found that when pregnant mice only drink water sweetened with fructose, a common sweetener in foods and beverages, their offspring have several more [risk factors](#) for heart disease, compared with mice who only drank water throughout pregnancy. These findings were recently published in the *American Journal of Obstetrics and Gynecology*.

The study could have worldwide implications for people because a large proportion of processed foods and carbonated beverages contain high-fructose syrup and other fructose-based sweeteners. Recent studies support a connection between fructose consumption and the rise in rates of [cardiovascular disease](#), obesity and Type 2 diabetes.

In the UTMB study, the researchers investigated the impact that high levels of fructose consumption throughout pregnancy had on the offspring when they are adults.

Throughout their pregnancy, the researchers gave [pregnant mice](#) either only water or a 10 percent fructose drink that mimics the level of fructose in most soft drinks. Otherwise, the diets were the same for both the water and fructose groups. After weaning, the pups were provided water and a normal mouse diet and evaluated after a year. A year is considered middle aged for mice since their life expectancy is about two years.

Antonio Saad, a UTMB fellow in Maternal Fetal Medicine, and his team measured percent of abdominal fat tissue and liver fat using computed tomography, or CT, scanning. They conducted blood tests to measure glucose concentrations, insulin, total cholesterol, triglycerides and leptin—a hormone made by fat cells that helps regulate energy balance by blunting hunger.

They found that both female and male offspring in the fructose group had higher peak glucose levels and higher blood pressure. Female offspring of the fructose group also were heavier and had higher percentages of abdominal fat tissue, liver fat and insulin resistance as well as lower concentrations of leptin compared with their water group counterparts. None of the mice showed any differences in total cholesterol or triglycerides, regardless of group or gender.

"We found that when the mother has a high intake of fructose in her diet throughout pregnancy, her offspring is more at risk of developing adult obesity, high blood pressure and metabolic dysfunction, all of which are risk factors for cardiovascular disease," said Saad. "This effect is more pronounced in female offspring. Limiting intake of high [fructose](#)-enriched foods and beverages during pregnancy may have a great impact on the child's future health."

More information: Antonio F. Saad et al. High-fructose diet in pregnancy leads to fetal programming of hypertension, insulin resistance, and obesity in adult offspring, *American Journal of Obstetrics and Gynecology* (2016). [DOI: 10.1016/j.ajog.2016.03.038](https://doi.org/10.1016/j.ajog.2016.03.038)

Provided by University of Texas Medical Branch at Galveston

Citation: Consuming too much fructose during pregnancy raises the child's risk for heart disease (2016, April 20) retrieved 4 May 2024 from <https://medicalxpress.com/news/2016-04-consuming-fructose-pregnancy-child-heart.html>

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