

News Summary

P2-375: Breast-feeding moms who consume too much fructose sweetener more likely to have obese kids

Mothers who drink an excessive amount of fructose-sweetened beverages during pregnancy or breast-feeding may be likelier to have children—at least sons—who are more prone to becoming overweight and developing type 2 diabetes, authors of a new study reported. The results will be presented Thursday at The Endocrine Society's 91st Annual Meeting in Washington, D.C.

The study, conducted in rats, found that the first male offspring had signs of metabolic endocrine disorders in adulthood, even though the sons ate a normal diet with no extra fructose, said co-author Eduardo Spinedi, PhD. He is head of the Neuroendocrinology Research Unit at the Multidisciplinary Institute of Cell Biology in La Plata, Buenos Aires, Argentina.

Fructose, as in high-fructose corn syrup, is widely found in regular soda pop, fruit juices and other drinks. Many researchers believe that high fructose intake plays a role in the development of prediabetes and the metabolic syndrome, which increases the risk of type 2 diabetes.

In this study, co-author Giovambattista and his colleagues divided 21 pregnant rats into three groups of seven rats each. One group of rats received fructose excess dissolved in their drinking water during pregnancy, but they drank plain tap water after they gave birth and while they breast-fed. The second group was the reverse; they received fructose supplementation during breast-feeding but not pregnancy. The third group, the controls, did not receive fructose in their water at any time. All rats were allowed to eat as much rat chow as they wanted.

Mothers that received fructose-supplemented water during pregnancy consumed about 22 percent of their calories a day from fructose. For rats that drank fructose water during breast-feeding, fructose made up about 14 percent of their daily calories. The offspring were studied for 60 days, until the rats became adults. Rat pups could eat as much chow as they wanted but did not receive fructose supplementation.

Results are available only for the male offspring at this time. Males born from the rats given fructose during breast-feeding had the most pronounced abnormalities. Compared with controls, these rats had increased food intake and body weight from days 49 to 60. They also had increased blood levels of the so-called hunger hormone, leptin, which is associated with obesity. Furthermore, they had high insulin levels, which Giovambattista called “a clear indicator of already developed illness such as type 2 diabetes.”

The offspring of the rats receiving fructose during pregnancy, although not obese, had decreases in their circulating, or nonfasting, blood levels of glucose (blood sugar) and triglycerides (fats in the blood). This could indicate an unbalanced metabolism that could make them highly susceptible to overeating and overweight, according to Giovambattista.

“Based on our study and others, we advise that pregnant and breast-feeding mothers consume a balanced diet with low fructose intake, to help prevent obesity in their children,” he said.

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