Beverages With Sucrose or High-Fructose Corn Syrup Increase Liver Fat

Sugary drinks also led to lowered insulin sensitivity, a risk factor for diabetes.

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Beverages sweetened with sucrose are not much better for the liver than those sweetened with high-fructose corn syrup: Both can lead to fatty liver disease. In a study published in The Journal of Clinical Endocrinology & Metabolism, researchers reported that consuming sucrose-containing drinks consistently for two weeks also worsened the risk for diabetes.

“This is the first dietary intervention study to show that consumption of both sucrose- and high-fructose corn–sweetened beverages increase liver fat and decrease insulin sensitivity,” Kimber Stanhope, PhD, of the UC Davis School of Veterinary Medicine, said in a press release. “People often have a skewed perspective of aspartame and give sucrose a pass, but this study suggests that consumers should be equally concerned about both major added sugars in our food supply.”

High-fructose corn syrup is commonly considered to be more harmful than sugar. Previous studies in rodents and humans have shown that diets containing high-fructose corn syrup are associated with more metabolic problems than diets containing sucrose. These problems include non-alcoholic fatty liver disease, which can lead to cirrhosis and liver cancer.

Stanhope and colleagues studied the effect of drinking different kinds of sweetened beverages on metabolic outcomes. They compared three different sweeteners—sucrose, high-fructose corn syrup and the artificial sweetener aspartame as a control.

The total study population included 75 adults between 18 and 40 years old. The population was split into three different groups matched for sex, body mass index and certain metabolic factors.

The study began in a closed environment in which participants were given controlled meals for 3.5 days in an inpatient setting. Several experimental procedures were also carried out. This baseline period was followed by a 12-day outpatient intervention period and a 3.5-day inpatient intervention period during which the experimental procedures were repeated. The intervention consisted of three daily portions of a drink containing sucrose, high-fructose corn syrup or aspartame for 16 days.

The team found that drinks containing either sucrose or high-fructose corn syrup similarly

increased liver fat and did so more than aspartame. They also noticed a drop in insulin sensitivity. Decreased insulin sensitivity is a risk factor for diabetes. Both types of sugary drinks also increased the levels of various lipids, lipoproteins and uric acid in the blood compared with aspartame.

“Within the span of two weeks, we observed a significant change in liver fat and insulin sensitivity in the two groups consuming sucrose- or high-fructose corn syrup–sweetened beverages,” Stanhope said. “It’s very likely that the mechanism by which we develop metabolic syndrome goes through liver fat and insulin resistance.”

Click here to read the study in The Journal of Clinical Endocrinology & Metabolism.

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