

Fructose-Sweetened Beverages Linked to Heart Risks

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Some research has suggested that consumption of high-fructose corn syrup, used as a sweetener in a wide variety of foods, may increase the risk of [obesity](#) and heart disease. Now, a controlled and randomized study has found that drinks sweetened with fructose led to higher blood levels of L.D.L, or "bad" [cholesterol](#), and [triglycerides](#) in overweight test subjects, while drinks sweetened with another sugar, glucose, did not. Both L.D.L. and triglycerides have been linked to an increased risk of cardiovascular disease.

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The study was published online on Monday in The Journal of Clinical Investigation.

Researchers at the University of California, Davis, assigned 32 overweight men and women, whose average age was 55, to groups consuming either fructose-sweetened or glucose-sweetened drinks over a 10-week period. The drinks, specially formulated for the study, contained only pure fructose or pure glucose.

For the first two weeks, the volunteers lived in a clinical research center, consuming a [balanced diet](#) high in [complex carbohydrates](#) and undergoing various blood tests and measurements of body fat. This phase established baseline measurements for the study.

As outpatients for the next two weeks, the subjects ate their usual diets, plus either fructose- or glucose-sweetened drinks consisting of 25 percent of their energy requirements. After returning to the center for more tests, the participants spent six more weeks as outpatients on their usual diets, then finally two more weeks in the clinic on the high-carbohydrate [diet](#) while drinking the sweetened beverages.

While outside the hospital, the subjects' diets were tracked with daily phone calls, and compliance with consumption of the drinks was measured by urine tests.

The two groups had been matched for age, weight, fasting triglyceride levels, insulin concentrations, [total cholesterol](#) and other factors. But by the end of the study, the researchers found, those participants consuming fructose beverages had significantly increased blood levels of triglycerides and L.D.L., compared to those consuming drinks sweetened with glucose.

Although there was a similar moderate weight gain in both groups, the fructose drinkers also had larger increases in fat inside the abdomen, also associated with an increased risk of cardiovascular disease.

The study was intended only to learn more about the metabolic impacts of glucose and fructose consumption, the authors noted, not the health effects of high-fructose corn syrup, which is a mixture of fructose and glucose. Table sugar also contains both glucose and fructose, as do many fruits and some vegetables.

Dr. Peter J. Havel, the senior author and a nutrition professor at the University of California, Davis, said that the findings "do not imply that anyone should avoid fruit, which contains only small amounts of fructose and has other important nutritional benefits."

John S. White, a biochemist who has published widely on nutritive sweeteners and was not involved in this study, said that the experimental setup did not reproduce a real-life diet. The study did not test high-fructose corn syrup, he said, and judgments should not be made about it from the findings.