

# Daily sugar-sweetened beverage habit linked to non-alcoholic fatty liver disease

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A daily sugar-sweetened beverage habit may increase the risk for non-alcoholic fatty liver disease (NAFLD), researchers from the Jean Mayer USDA Human Nutrition Research Center on Aging (USDA HRNCA) at Tufts University report today in the *Journal of Hepatology*.

The researchers analyzed 2,634 self-reported dietary questionnaires from mostly Caucasian middle-aged men and women enrolled in the National Heart Lung and Blood Institute (NHLBI) Framingham Heart Study's Offspring and Third Generation cohorts. The sugar-sweetened [beverages](#) on the questionnaires included caffeinated- and caffeine-free colas, other carbonated beverages with sugar, fruit punches, lemonade or other non-carbonated fruit drinks. The participants underwent a computed tomography (CT) scan to measure the amount of fat in the

liver and the authors of the current study used a previously defined cut-point to identify NAFLD. They saw a higher prevalence of NAFLD among people who reported drinking more than one sugar-sweetened beverage per day compared to people who said they drank no sugar-sweetened beverages.

The relationships between sugar-sweetened beverages and NAFLD persisted after the authors accounted for age, sex, [body mass index](#) (BMI), and dietary and lifestyle factors such as calorie intake, alcohol, and smoking. In contrast, after accounting for these factors the authors found no association between diet cola and NAFLD.

"Our study adds to a growing body of research suggesting that sugar-sweetened beverages may be linked to NAFLD and other chronic diseases including diabetes and cardiovascular disease," said first author Jiantao Ma, Ph.D., a former doctoral student in the Nutrition Epidemiology Program at the USDA HNRCA and a graduate of the Friedman School of Nutrition Science and Policy at Tufts University.

NAFLD is characterized by an accumulation of fat in the liver cells that is unrelated to alcohol consumption. NAFLD is diagnosed by ultrasounds, CT, MRI, or biopsy, and many of the approximately 25% of Americans with the disease don't experience any symptoms. Being obese or overweight increases the risk for NAFLD and people with NAFLD are at greater risk of developing cardiovascular disease and type 2 diabetes.

Sugar-sweetened beverages are a major dietary source of fructose, the sugar that is suspected of increasing risk of NAFLD because of how our bodies process it. "Few observational studies, to date, have examined the relationship between sugar-sweetened beverages and NAFLD," Ma said. "Long-term prospective studies are needed to help ascertain the potential role of sugar-sweetened beverages in the development of NAFLD."

"The cross-sectional nature of this study prevents us from establishing causality. Future prospective studies are needed to account for the changes in beverage consumption over time as soda consumers may switch to diet soda and these changes may be related to weight status," added corresponding and senior author Nicola McKeown, Ph.D., a scientist in the Nutritional Epidemiology Program at the USDA HNRCA and an associate professor at the Friedman School. "Although there is much more research to be done, sugar-sweetened beverages are a source of empty calories, and people need to be mindful of how much they are drinking, perhaps by reserving this habit for special occasions."

**More information:** Ma, J; Fox, CS; Jacques, PF; Speliotes, EK; Hoffmann, U; Smith, CE; Saltzman, E; and McKeown, NM. "Sugar-Sweetened Beverage, Diet Soda, and Fatty Liver Disease in the Framingham Study Cohorts." *Journal of Hepatology*. June 5, 2015. [dx.doi.org/10.1016/j.jhep.2015.03.032](https://doi.org/10.1016/j.jhep.2015.03.032)

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