

Drinking just one soft drink a day — whether diet or regular — may boost your risk of getting [heart disease](#), a new study shows.

That is because a soda habit increases the risk of developing a condition called metabolic syndrome, according to the new research, and that in turn boosts the chance of getting both heart disease and [diabetes](#). "Even one soda per day increases your risk of developing metabolic syndrome by about 50 percent," says Ramachandran Vasan, MD, professor of medicine at [Boston University School of Medicine](#) and the senior author of the study, published in the July 31 issue of the American Heart Association's journal *Circulation*. To be diagnosed with metabolic syndrome, three of five criteria must be met: a large waistline, elevated blood pressure, elevated fasting blood sugar, elevated fasting triglycerides, or reduced HDL or "good" cholesterol. "This study adds to the wealth of scientific evidence that sugar-sweetened beverages increase the risk of metabolic syndrome," says Vasan. Already, he says, the rise in sugary drink consumption has been linked to the epidemic of obesity and diabetes among children and teens and to the development of high blood pressure in adults.

The food and beverage industry takes issue with the finding.

Roger Clemens, DrPH, a spokesperson for the [Institute of Food Technologists](#), calls the study findings "oversimplified."

"There are many attributes associated with the development of metabolic syndrome," Clemens says. "Some of which are part of lifestyle choices, such as eating too many calories." Diet soda is a more appropriate choice than regular soda, he says.

"It's way too soon to say stop drinking diet soda," says Clemens, a professor of molecular toxicology at the [University of Southern California School of Pharmacy, Los Angeles](#), who is familiar with the new research. "Diet soda, in moderation, can be part of a healthy lifestyle."

Study Details

Vasan and his colleagues evaluated about 3,500 men and women participating in the Framingham Offspring Study. The offspring study began in 1971, following the original [Framingham Heart Study](#) launched in 1948. The offspring study included 5,124 people in all.

The questions about soda and other dietary habits were asked at three different exam periods, from 1987 to 1991, 1991 to 1995, and 1995 to 1998. The average age of those who answered questions about their soft drink intake and other health habits was 53 during the three exam periods, Vasan says.

At the first exam period, those who drank one or more soft drinks daily had a 48 percent increased prevalence of having metabolic syndrome compared with those who drank less than one a day, the researchers found. As the study progressed, drinking one or more sodas a day was linked with a 44 percent higher risk of participants developing metabolic syndrome, Vasan's team found, compared with drinking less than a soda a day.

The researchers looked at soda consumption and the person's risk of developing each of the five criteria of metabolic syndrome. "Other than elevated blood pressure, the risk of developing the other four increased from about 20 percent to 30 percent with one soda a day," Vasan says. They also found a trend toward an increased risk of developing high blood pressure with soda consumption, but it wasn't enough to be considered significant.

Explaining the Soda-Heart Disease Link

The link between soda consumption and heart disease risk factors "might be reflecting dietary behavior," Vasan says. "We know people who drink sodas have a greater intake of calories."

Soda drinkers, he says, are more likely to have a less healthy lifestyle pattern, such as eating fries, chips, and other high-fat foods. "They tend to smoke more and exercise less," he says.

Even after adjusting for intake of fat, fiber consumption, total calories, smoking, and physical activity, he says, there was still a link between soft drink intake and metabolic risk factors.

"We cannot rule out the possibility that consumption of soda is a marker of risk — meaning it tracks with behavior that promotes the risk of [metabolic syndrome](#) — rather than a true risk factor," Vasan says.

Other possible explanations: Drinking more sweet beverages could condition you to have a greater preference for eating more sweets, Vasan says, which could increase your weight and your waist size. Or if you drink a large soft drink with a meal, you may be hungrier and eat more at the next meal.

The findings don't surprise Paul Lachance, PhD, acting director of [The Nutraceuticals Institute at Rutgers, The State University of New Jersey](#), and a diet and health expert for the Institute of Food Technologists. "It's plausible," he says of the link between soda intake and increased risk of metabolic syndrome.

But he wonders about the true root of the association. It may not be the soda intake itself leading to the increased risk, he says. "People who drink sodas may be giving up drinking healthier beverages," he says, such as juices, milk, wine, and other beverages.

Soda Industry Strikes Back

In a prepared statement, the soft drink industry took issue with the findings. "Blaming one food, beverage, or ingredient as the cause for myriad health problems defies common sense and doesn't agree with the current body of nutritional science," says Susan K. Neely, president and chief executive officer of the

[American Beverage Association](#).

The Washington, D.C.-based industry group represents many companies that make and distribute nonalcoholic beverages in the U.S.

"Metabolic syndrome and heart disease are complex problems that have no single cause and no single solution," the statement continues. Soft drinks can be part of a healthy way of life "when consumed in moderation and as part of a balanced lifestyle," it states.

"We're underscoring the point the researchers make that it's an association, not causal," Neely tells WebMD. "The association found between diet soda and metabolic syndrome is particularly implausible. Diet soda is a beverage with zero calories, and it is 99 percent water."

What's Next?

Is there a "safe" amount of soda? "We cannot really answer that question," Vasan says. The research shows an association between soda consumption and metabolic syndrome risk, Vasan says, but not cause-effect. More study is needed.

Still, he adds, "the group without risk drank less than one soda a day."

His co-author, Ravi Dhingra, MD, a physician at the [Alice Peck Day Memorial Hospital](#), in Lebanon, N.H., and instructor of medicine at [Harvard Medical School](#) in Boston, says: "If you are drinking more than one soft drink per day, you may be increasing the metabolic risk factors for heart disease."