

Regular AND Diet Soda Increase Risk of Metabolic Syndrome

We already know that consumption of soda has been linked to obesity in children and adolescents, but what's the risk for middle-aged adults? A recent study in the July 23, 2007 Journal of the American Heart Association – *Circulation* – gives us the sad, and somewhat shocking, answer.

Researchers examined participants from the Framingham Heart Study, a famous study started in 1948 that looks at the health and lifestyle habits of thousands of people and their offspring. The participants reported the average number of 12-oz servings of soft drinks (Coke, Pepsi, Sprite, or other carbonated soft drinks, separately categorized into caffeinated or decaffeinated drinks) consumed per day in the year preceding the survey.

The researchers then looked at the prevalence and incidence of metabolic syndrome and its components such as: waist circumference greater than or equal to 35 inches for women and 40 inches for men; fasting blood sugar greater than or equal to 100 mg/dL or being treated with oral medications or insulin; blood pressure greater than or equal to 135/85 mm Hg or being treated for high blood pressure; triglycerides greater than or equal to 150 mg/dL or being treated for high triglycerides; and HDL less than 40 mg/dL for men and less than 50 mg/dL for women. Participants in the study had to be free of metabolic syndrome at their baseline examination.

The results were disturbing and should serve as a wake-up call for our nation of soda drinkers. Individuals who consumed at least 1 soft drink per day had a 44% *higher risk* for developing metabolic syndrome. Worse yet, intake of at least 1 regular OR diet soda per day was associated with a greater than 50% *higher incidence* of metabolic syndrome than among those who drank less than 1 soft drink per week. The surprising outcome was that the increased risk and incidence of metabolic syndrome was observed for intake of both regular AND diet soft drinks. The authors of the study state that this is obviously noteworthy given the lack of calories in diet soda. However, they do cite other studies showing associations of diet soft drinks with weight gain in boys and hypertension in women.

According to the authors of the study, there are several mechanisms that can explain the higher risk of metabolic abnormalities associated with greater consumption of soda, and obviously a higher intake of high fructose corn syrup tops the list. But what about the diet soda? Some researchers speculate that consuming artificially sweetened soft drinks somehow affects our ability to adjust to eating less food at subsequent meals. Some suggest that the high sweetness of diet or regular sodas may lead to conditioning our bodies for a greater preference for sweetened items. Some believe some of the chemicals in the soda may promote insulin resistance.

Dietary habits of persons consuming sodas can also differ from persons who don't drink soda. Some studies show soda drinkers have a greater intake of saturated and trans fats, lower consumption of fiber and dairy products, and a sedentary life. However, in the present investigation, the researchers adjusted for these factors and still found a significant association of soda consumption and the risk of developing metabolic syndrome.

My personal theory is that artificially-sweetened beverages stimulate the pancreas to overproduce insulin in response to the "sugar" load. If this is the case, any real sugars already in the blood might then get stored as fat, causing blood sugar levels to become too low. The liver would then have to release extra glucose to bring the blood sugars back up to normal, and, as is often the case, the liver might then release *too* much sugar into the blood, starting the cycle all over again. This process frequently occurs in persons with insulin resistance, with the extra insulin contributing to heart disease and metabolic syndrome risk factors.

Whatever the reason, the news is bad. Soda consumption, diet or regular, greatly increases our risk of serious disease. That makes this author think twice (or three times!) before "Doing the Dew".

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