

Added Sugar: Contributing Factor for Cardiovascular Disease

American consumption of added sugars has increased drastically over the last few decades—and these empty calories may be doing far more than expanding waistlines. A new study published in the April 21, 2010 online issue of *JAMA, The Journal of the American Medical Association*, says these added sugars could be a contributing factor in the development of cardiovascular disease.

What is added sugar? Some sugars occur naturally in foods like fruit and yogurt. Other sugars/sweeteners are added to food during manufacturing or preparation to make it more palatable to consumers. These added sugars provide no nutritional value and were the subject of concern for researchers at Emory University and the Centers for Disease Control and Prevention in Atlanta.

Sugar epidemic. According to study authors, average daily consumption of added sugars is 89.8 g (21.4 tsp), equating to 359 kcal, or 15.8% of total daily caloric intake. **This represents a 50% jump over 30 years ago when added sugar consumption was an average of 10.6% of total calories.** To determine if America's increasing consumption of added sugars has any impact on their blood lipid levels, researchers compared the diets and blood profiles of 6,113 adults from the National Health and Nutrition Examination Survey (NHANES) from 1999 to 2006.

First study of its kind. The researchers believe theirs is the first study to look at the relationship between consumption of added sugars and dyslipidemia, a lipid profile associated with cardiovascular disease risk. The NHANES data enabled them to "control for several important confounding variables, including BMI, physical activity, total energy intake and other dietary components."

Study results. Participants were divided into 5 groups based on daily consumption of added sugars. The reference group consumed less than 5% of their daily calories in added sugars and the highest group consumed more than 25%. When comparing the highest and lowest groups, researchers found that the group who consumed the least amount of added sugars had

- 23% higher HDL-C (good cholesterol) levels
- 8-10% lower triglyceride levels
- 6% lower LDL-C (bad cholesterol) levels in the female participants (there was no LDL-C trend for the male participants)

Study authors concluded: "The results of our study demonstrate that increased added sugars are associated with important cardiovascular disease risk factors, including lower HDL-C levels, higher triglyceride levels, and higher ratios of triglycerides to HDL-C." (See table.)

Group based on % of added sugar in total daily calories	HDL-C levels	Triglyceride levels	LDL-C levels (women only)
Less than 5% (reference group)	58.7 mg/dL	105 mg/dL	116 mg/dL
5-10%	57.5 mg/dL	102 mg/dL	115 mg/dL
10-17.5%	53.7 mg/dL	111 mg/dL	118 mg/dL
17.5-25%	51.0 mg/dL	113 mg/dL	121 mg/dL
More than 25%	47.7 mg/dL	114 mg/dL	123 mg/dL

A Sugar By Any Other Name . . . exposing the added sugar in your food

Read ingredient labels—sugar has a number of different names. Food labels list ingredients in descending order by weight, so limit foods that have sugar listed within the first few ingredients or that have several sources of sugar listed. Here are a few of the terms that spell S-U-G-A-R.

Agave nectar	Brown sugar
Cane crystals	Cane sugar
Corn sweetener	Corn syrup
Crystalline fructose	Dextrose
Evaporated cane juice	Fructose
Fruit juice concentrates	Glucose
High-fructose corn syrup	Honey
Invert sugar	Lactose
Malt syrup	Raw sugar
Sucrose	Syrup
Maltose Molasses	

Source: *Harvard School of Public Health and USDA Dietary Guidelines*

Conclusions. According to the researchers, “Recommendations to reduce cardiovascular disease risk have long promoted a diet low in fat and cholesterol to lower levels of serum total cholesterol and LDL-C. Possibly as a result, the consumption of added fats and oils appears to have decreased, and intakes of refined carbohydrates appear to have increased. While the overall effect of these dietary trends is unclear, there is a need to review the dietary recommendations to see how they influence intake of added sugars and to develop further understanding of the role different carbohydrates and sugars play in increasing risk of chronic disease.”

How much is too much? Experts disagree on how much added sugar is too much for optimal health.

- According to the Institute of Medicine, added sugars should be less than 25% of total calories consumed.
- The World Health Organization suggests less than 10%, and the American Heart Association (AHA) recommends less than 100 calories daily for women and 150 calories daily for men (approximately 5% of total calories).
- Per study co-author Dr. Miriam Vos, assistant professor of pediatrics at Emory School of Medicine, “Just like eating a high-fat diet can increase your levels of triglycerides and high cholesterol, eating sugar can also affect those same lipids...Our findings strongly support the AHA recommendations to limit added sugar.”
- Lead author Jean Welsh, a registered nurse at Emory University, recommends people choose foods with the lowest overall sugar content to lower their risk of cardiovascular disease. Per Welsh, “The most appropriate limit isn’t known, but the results of our study suggest that heart disease risk is less among those who consume less than 10 percent of their calories as added sugars daily.”

Fast Fact

Sugary drinks are the #1 source of added sugars in the American diet, especially:

- Soft drinks
- Fruit drinks
- Sports drinks

Source: USDA & AHA



Cenegenics perspective. Reporting on the study on his physician blog—www.cenegenicsfoundation.org/blog—Cenegenics Senior Institute Physician/ Executive Director of Physician Education Dr. Alvin B. Lin wrote, “For many years, our nutritionists have stressed the importance of low-glycemic nutrition to minimize HgbA1c [glycated hemoglobin], elevated levels of which have been associated with increased risk of heart attack and stroke. In a roundabout way, we’ve known about the increased risk of CAD in association with high glycemic nutrition. However, we’ve never found a truly direct link until today...In the end, low-glycemic nutrition is good for both sugar control and lowering high cholesterol.”

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