

Evidence suggests sugar consumption plays greater role in heart disease than saturated fat

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Atherosclerotic Coronary Heart Disease (CHD) is responsible for one in every six deaths in the United States as well as being the leading cause of death throughout the developed world. Healthcare professionals have for many years sought to limit and control CHD by focusing on prevention and, from a dietary perspective, on limiting saturated fats.

In an article published in the journal *Progress in Cardiovascular Diseases*, Saint Luke's Mid America Heart Institute cardiovascular research scientist and James J. DiNicolantonio, PharmD, and James H. O'Keefe, MD, examined the question of whether that focus may be misplaced and ask does sugar have a greater impact on coronary heart disease than saturated fat?

The theory of dietary saturated fats as the principal promoter of elevated serum cholesterol and heart disease stems from research beginning in the 1950's by an American scientist Ancel Keys. It was this theory which was embraced by the American Heart Association and the US federal government in the 1960s and 70s. However, at the same time of Keys research, a British physiologist John Yudkin argued that sugar intake was more closely related to incidence of and mortality from CHD.

Both Yudkin and Keys were able to support their theories through observational studies in large part because people eat foods, not isolated food constituents. Dietary sources of saturated fat are also often dietary

sources of sugar and people who eat lots of sugar often also eat lots of saturated fat.

Along with co-author, Sean C. Lucan, MD, MPH, MS, from the Albert Einstein College of Medicine, DiNicolantonio and O'Keefe evaluated the evidence to date linking saturated fats and sugars to CHD, considering basic science, epidemiology, and clinical trial data related to CHD risk, CHD events, and CHD mortality. The authors concluded that sugar consumption, particularly in the form of refined added sugars, are a greater contributor to CHD than saturated fats.

"While the original studies upon which the longstanding guidelines were based were largely observational," said DiNicolantonio, "We now have more than a half century of data as well as increased understanding of how nutrition impacts the body and specifically [coronary heart disease](#)."

The metabolic aspects of saturated [fatty acids](#) (SFAs) are complex but existing research suggests that certain SFAs may actually confer measurable benefits for lipid profiles and CHD risk. For instance, some SFAs increase high-density lipoprotein cholesterol (HDL), which is often referred to as the "good cholesterol" as this lipoprotein is associated with a reduced risk of CHD

Replacing saturated fats, or any other component, from one's diet almost inevitably means replacing it with something else. When carbohydrates, particularly refined carbohydrates like sugar, replace saturated fats, which can have a negative impact on lipid profiles (HDL tends to fall and triglycerides tend to rise).

As stated earlier, people don't eat isolated fatty acids - they eat foods that are a mix of various fatty acids and other food constituents. While high intakes from processed meats may increase risk of CHD, higher intakes from dairy sources of saturated fat may not only pose no risk but

actually decrease risk.

Consuming a diet high in sugar for just a few weeks has been shown to cause numerous abnormalities found in patients with CHD, such as high total cholesterol, triglycerides, LDL, oxidized LDL, uric acid, insulin resistance and abnormal glucose tolerance, low HDL, and altered platelet function. The overall effect of consuming a diet high in sugar on these numerous health markers is likely more detrimental to overall health compared to increased consumption of saturated fat, which can increase LDL but at the same time raise HDL.

Added fructose - generally in the form of sucrose (table sugar) or high fructose corn syrup (HFCS) in processed foods and beverages seems especially potent for producing harm. Consuming these sugars can lead to resistance in leptin, which is a key hormone in the maintenance of normal body weight. The overconsumption of added fructose undoubtedly increases the risk for obesity, which is also a risk factor for CHD.

Excess fructose also markedly increases the risk for non-alcoholic fatty liver disease (NAFLD) - the most common liver disease in the US and a strong independent risk factor for CHD. The association between NAFLD and CHD is stronger than the link between CHD and smoking, hypertension, diabetes, male gender, high cholesterol or metabolic syndrome.

Sugars occurring naturally in fruits and vegetables pose no increased risk for CHD. The problem is refined sugars - with ultraprocessed foods being of greatest concern. Products with added sugars represent 75% of all packaged foods and beverages in the US and most commonly contain sucrose or HFCS, which seem to raise CHD risk even more than other sugars such as glucose.

A diet high in sugar has also been found to promote prediabetes and diabetes. And patients with both of these conditions have a much greater risk for CHD compared to normal healthy patients, particularly a severe narrowing of the left main coronary artery.

Ultra-processed foods also tend to be sources of saturated fats but the harms associated with eating these products may have nothing to do with the fat and everything to do with processed foods themselves. Therefore, best advice is to avoid processed foods rather than to simply avoid SFAs as avoiding SFAs might direct people away from foods that are not only completely benign but actually beneficial (such as dairy foods) but also steer people towards foods that may be harmful - i.e. low-fat, ultra-processed, with huge amounts of hidden added sugars.

"After a thorough analysis of the evidence it seems appropriate to recommend dietary guidelines shift focus away from recommendations to reduce [saturated fat](#) and towards recommendations to avoid added sugars," said Dr DiNicolantonio. "Most importantly recommendations should support the eating of whole foods whenever possible and the avoidance of ultra-processed food."

More information: "The Evidence for Saturated Fat and for Sugar Related to Coronary Heart Disease" James J. DiNicolantonio, Sean C. Lucan, James H. O'Keefe. DOI: doi: 10.1016/j.jpcad.2015.11.006

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