

Canada Beef releases a bi-monthly Nutrition Journal Tracker as a summary report of health/nutrition research published that is of significance for beef.

## TERMS

**Meta-analysis** - A process that analyzes data from different studies done about the same subject. The results of a meta-analysis are usually stronger than the results of any study by itself.

**Observational study** - Observe individuals without manipulation or intervention. Associations from these studies help to formulate hypotheses to be tested in subsequent controlled experiments.

**Prospective cohort studies** - A research study that follows over time groups of individuals who are alike in many ways but differ by a certain characteristic (for example, female nurses who smoke and those who do not smoke) and compares them for a particular outcome (such as lung cancer).

**Randomized controlled trial (RTC)** - A study design that randomly assigns participants into an experimental group or a control group. RCTs seek to measure and compare the outcomes after the participants receive the interventions. The RCT is the most scientifically rigorous method of hypothesis testing available and is regarded as the gold standard trial for evaluating the effectiveness of interventions.

## TOPIC

Saturated Fat

## ARTICLE

Saturated Fats and Health: A Reassessment and Proposal for Food-Based Recommendations

## CITATION

Saturated Fats and Health: A Reassessment and Proposal for Food-Based Recommendations  
Arne Astrup, Faidon Magkos, Dennis M. Bier, J. Thomas Brenna, Marcia C. de Oliveira Otto, James O. Hill, Janet C. King, Andrew Mente, Jose M. Ordovas, Jeff S. Volek, Salim Yusuf, Ronald M. Krauss  
J Am Coll Cardiol. 2020 Aug, 76 (7) 844-857.

## LINK

<https://www.onlinejacc.org/content/76/7/844>

**SIGNIFICANCE** This state-of-the-art review found limits on saturated fats are not justified by the science.

## SUMMARY

- This article challenges the popular belief of saturated fatty acids being unhealthy. This study highlights protective effects of SFAs against stroke and the importance of the food matrix.
- Lowering the consumption of saturated fat has been a central theme of U.S. (and Canadian) dietary goals and recommendations since the late 1970s. It has been recommended that saturated fatty acid (SFA) intake be limited to <10% of total calories as a means of reducing risk for cardiovascular disease (CVD). This recommendation has persisted despite mounting evidence to the contrary. The scientific basis of dietary recommendations to limit dietary saturated fat were conducted some 40 to 50 years ago and have methodological flaws.
- Most recent meta-analyses of randomized trials and observational studies found no beneficial effects of reducing SFA intake on cardiovascular disease (CVD) and total mortality, and instead found protective effects against stroke.
- Although SFAs increase low-density lipoprotein (LDL) cholesterol, in most individuals, this is not due to increasing levels of small, dense LDL particles, but rather larger LDL particles, which are much less strongly related to CVD risk. Dietary effects on CVD risk may not be reliably reflected by changes in LDL cholesterol levels, and therefore it is imperative to develop and implement more valid surrogate markers for assessing CVD risk and monitoring diet-induced effects in research and clinical practice.
- Lipogenesis is a process whereby excess carbohydrate and protein are converted to fatty acids. An individual with insulin resistance has a higher propensity to convert carbohydrate to fat, increasing circulating levels of SFAs and lipogenic fatty acids. It is important to distinguish between dietary saturated fat and circulating SFAs. Notably, the amount of circulating SFAs in blood is not related to saturated fat intake from the diet but instead tends to track more closely with dietary carbohydrate intake.
- For dietary carbohydrate, higher consumption (mainly from starchy carbohydrates and sugar) was associated with a higher risk of CVD and mortality. Restricting carbohydrate intake, particularly refined carbohydrates, may be more relevant today for decreasing the risk of mortality in individuals with insulin resistance and type 2 diabetes.
- The impact of dietary SFAs on health must consider the important role of carbohydrate intake and the underlying degree of insulin resistance, both of which significantly affect how the body processes saturated fat. This intertwining aspect of macronutrient physiology and metabolism has been consistently overlooked in previous dietary recommendations.
- Obesity and type 2 diabetes are major contributors to the risk of CVD. The optimal diet for weight control and glycemic control depends in part on the individual's "carbohydrate tolerance", which is determined by insulin resistance and insulin secretion capacity. Carbohydrate tolerance may also vary with level of exercise or fitness of the individual. Whereas diets lower in total and saturated fat may be optimal for carbohydrate-tolerant (i.e., insulin-sensitive) individuals, a diet lower in carbohydrates and higher in fibre and fat seems to be optimal for patients with type 2 diabetes.
- The healthfulness of fats is not a simple function of their SFA content, but rather is a result of the various components in the food, often referred to as the "food matrix." Recommendations should, therefore, emphasize food-based strategies that translate into understandable, consistent recommendations for healthy dietary patterns.

- Although intake of processed meat has been associated with increased risk of CHD, intake of unprocessed red meat is not, which indicates that the SFA content of meat is unlikely to be responsible for this association. A meta-analysis found no differences in cardiometabolic risk factors between groups of individuals consuming more versus fewer than 0.5 daily servings of meat. Prospective cohort studies also depict stronger associations of processed meat consumption, compared with unprocessed red meat consumption, in relation to type 2 diabetes. Another meta-analysis found that processed meat gave rise to a 19% higher risk of type 2 diabetes, but red meat consumption was not significantly associated with diabetes. The collective evidence from randomized controlled trials suggests there is low- to very low-certainty evidence supporting that diets restricted in red meat have a significant effect on major cardiometabolic outcomes.
- However, one analysis found a small but significant association of processed meat, unprocessed red meat, and poultry consumption with a higher risk of incident CVD, and a mild association of processed or unprocessed red meat with a higher risk of all-cause mortality. Nevertheless, meat is a major source of protein, bioavailable iron, minerals, and vitamins. In modest amounts, unprocessed red meat constitutes an important part of the diet.
- A focus on total SFAs has had the unintended effect of misleadingly guiding governments, consumers, and industry toward foods low in SFAs but rich in refined starch and sugar.
- This study's authors suggest making the public aware that low carbohydrate diets high in saturated fat, which are popular for managing body weight, may also improve metabolic disease endpoints in some individuals. There should be emphasis that health effects of dietary carbohydrate depend on the amount, type and quality of carbohydrate, food sources, degree of processing, etc.
- The health effects of foods cannot be predicted by their content in any nutrient group without considering the overall macronutrient distribution. Whole-fat dairy, unprocessed meat, and dark chocolate are SFA-rich foods with a complex matrix that are not associated with increased risk of CVD. The totality of available evidence does not support further limiting the intake of such foods.