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Yet another study stirring the debate on saturated fat

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Dietary recommendations that guide the population toward healthy food choices have come a long way over the last 100 y (1). The prominence of a nutrient-based focus in earlier guidelines has yielded to recommendations promoting whole dietary patterns compatible with long-term health. Consistent features among current dietary guidelines around the world include emphasis on vegetables, fruits, and whole-grain products. The promotion of plant-based food products has also recently made its way into many food guides for both chronic disease prevention as well as diet sustainability purposes. The science supporting the place of these foods in a variety of healthy dietary patterns is hardly disputable. The recommendation to limit the consumption of highly processed foods to reduce the intake of sodium, added sugar, and SFAs is also a ubiquitous feature of most healthy eating guidelines.

Although mostly food-based, several dietary guidelines, including the Dietary Guidelines for Americans (DGA) 2020–2025 and Canada's Food Guide (CFG) 2019, continue to make specific recommendations targeting nutrients of public health concern, including SFAs (2, 3). The SFA limit set by both the DGA 2020–2025 and the 2019 CFG is <10% of total daily energy. The consumption of reduced-fat dairy foods is also encouraged to lower one's intake of SFAs. Discouraging the consumption of dietary SFA has been one of the key dietary targets of cardiovascular disease (CVD) prevention for >60 y. Increased intakes of SFAs almost invariably elevate serum LDL-cholesterol concentrations, which on its own is convincing enough to identify SFA as a villain. Replacing dietary SFAs by unsaturated fat has also been associated with cardiovascular benefits in several meta-analyses (4). Yet, the consensus around SFAs has eroded in the last 10 y. Why is that? For one, several meta-analyses have reported that dietary SFAs are not associated with an increased risk of CVD (5). Unsurprisingly, these controversy-stirring meta-analyses have been heavily criticized (5). On the other hand, there is emerging evidence from clinical and epidemiologic studies that SFAs from different sources may differentially affect cardiometabolic and CVD risk (6). For example, high intakes of SFAs from cheese did not increase LDL cholesterol to the same extent as the same high intakes of SFAs from butter (7). With more and more published studies on this topic, the concept that the food matrix may influence the cardiometabolic impacts of nutrients such as SFAs is both intriguing and challenging.

In this issue of *The American Journal of Clinical Nutrition*, Yuan et al. (8) report the associations between intake of SFAs from dairy and nondairy food sources at baseline and cardiometabolic risk factors measured 4 y later. Their analyses are based on data from the well-known Framingham Offspring Study, which included in this particular case slightly more than 2300 middle-aged men and women. One of the strengths of this work rests on an extensive assessment of dietary intake using repeated 3-d diet records over an 8-y baseline period. Women among the highest quintile of SFAs from dairy sources at baseline had lower BMI and percentage body fat over the next 4 y than those in the lowest quintile of SFAs from dairy. There were no such associations among men or for SFAs from nondairy sources. In men but not in women, intakes of SFAs from dairy at baseline were positively associated with blood HDL-cholesterol concentrations and inversely associated with TGs, CRP, and fibrinogen measured over the next 4 y. Also in men only, intakes of SFAs from nondairy sources at baseline were positively associated with higher fibrinogen 4 y later. The article presented associations between SFAs from dairy and nondairy sources and LDL and HDL particle sizes and distributions. These particular analyses were cross-sectional in nature because only baseline data on LDL and HDL particles were available, hence limiting their scope.

How do these results contribute to the debate on SFAs and cardiovascular health? On the one hand, they do provide further support to the paradigm that the food matrix should be factored in when considering the impact of SFAs on health (6). On the other hand, data from this study have inherent limits that should not be overlooked. As mentioned in the article by the authors, associations reported are associations, and causal effects cannot be inferred from this observational study. On a side note, it is unfortunate and misleading that the authors often used the word "effect" to describe the association between SFA intake and cardiometabolic risk factors.

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Interestingly, intakes of SFAs from dairy sources were associated with a lower diet quality, as measured by the Healthy Eating Index-2015. This was expected because *1*) the Healthy Eating Index-2015 penalizes higher SFA intakes and *2*) a higher intake of SFAs from dairy foods was associated with higher intakes of meats/processed meats and SFAs from nondairy sources as well as with lower intakes of fish, fruits, and nonstarchy vegetables. Yet, the favorable associations in men or women between intake of SFAs from dairy sources at baseline and some of the cardiometabolic risk factors measured over the next 4 y were independent of diet quality. This is a puzzling observation because poor diet quality has been associated with increased cardiometabolic risk. Certainly, these data emphasize the relevance of investigating further how the food matrix modulates the impact of specific nutrients on cardiometabolic risk factors. More controlled intervention studies are needed to further advance the research in this highly debated field of nutrition research.

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