

contents of dietary fiber, almost double that of average Western diets, which indicated that there was a very peculiar selection of plant foods. 2) The cheese and meat diets were enriched with foods rich in polyunsaturated fats such as nuts, canola oil, and sunflower oil, which are known to lower LDL cholesterol. 3) The low-fat diet was enriched with coconut milk and fat, both of which are rich in palmitic acid, which is a highly LDL-raising fatty acid. 4) The low-fat diet had a <3% higher content of dietary fiber than the cheese and meat diets despite having a 25% higher carbohydrate content. These details show that the carbohydrate foods that replaced fat in the low-fat diet had extremely poor dietary fiber contents (i.e., must have been primarily simple carbohydrates).

Numerous previous studies have shown how the replacement of foods that are rich in saturated fats with foods that are rich in complex carbohydrates including dietary fiber leads to clear reductions in LDL cholesterol (and in HDL cholesterol; it is not new that fat intake and HDL-cholesterol concentrations are positively associated). This effect was elegantly reviewed many years ago in the *Journal* (2). The superiority of low-saturated fat, high-dietary fiber diets over high-saturated fat diets with respect to the prevention of atherosclerosis and coronary heart disease has been shown in a large variety of studies that fulfilled the Hill criteria of causation. The Finnish experience is a striking example from real life (3). The study by Thorning et al. (1) does not challenge the current dietary recommendations of limiting saturated fat intake.

The author reported no conflicts of interest related to the study.

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Reply to P Marckmann

Dear Editor:

Thank you for allowing us to respond to Marckmann and for his interest in our study (1) and its funding. First, we do not consider the dietary fiber content extremely high. The mean fiber intake of 35.8–37.0 g/d for the 3 diets was just above the recommended 25–35 g/d according to the Nordic Nutrition Recommendations. As seen in our Supplemental Table 2, no peculiar foods were chosen. The Danish-type fiber-rich rye bread that is frequently eaten by Danes was omitted to ensure the generalizability of the results to non-Danes. Also, most importantly, all 3 diets were matched for the fiber content so that it would not confound the results.

Second, the cheese and meat diets included foods with polyunsaturated and monounsaturated fats to balance the SFA:MUFA:PUFA ratio of the 3 diets so that any differences in the outcome could

not be attributed to this ratio. A similar SFA:MUFA:PUFA ratio was chosen because the focus of our study was the saturated fatty acids in cheese and meat when present in their food matrices without the interference of differences in unsaturated fatty acids in the foods. Third, we presented our focus in both the Methods/Diets section when we stated, “Hence, focus was on the 2 primary sources of saturated fat within their food matrices and not on providing a direct comparison between meat and cheese as whole foods,” and in the Discussion section when we stated: “The matching of macronutrients, the SFA:MUFA:PUFA ratio, and dietary fiber, sugar, and sodium contents in CHEESE and MEAT diets made it possible to compare food-specific SFAs and micronutrients in cheese and meat.”

Fourth, we presented the type of carbohydrates used as a replacement for fat in the carbohydrate diet under the Diets paragraph. Because the fiber content of the 3 diets was balanced, the types of carbohydrates in the carbohydrate diet could not be made up of fiber-rich, whole-grain types. We agree that the replacement of saturated fat exclusively with low-glycemic index (GI), high-fiber carbohydrates reduces LDL cholesterol and HDL cholesterol and may lower risk of cardiovascular disease (CVD) (2). However, this replacement is not comparable to the objectives and design of the current study. Also, it is unlikely that saturated fat will exclusively be replaced by low-GI carbohydrates in a free-living population with the aim of reducing their intakes of saturated fat. More likely, the replacement would be a mixture of different types of carbohydrates, and there appears to be no improvement in risk of CVD when saturated fat is replaced with medium- or high-GI carbohydrates (2). In addition, meta-analyses of observational studies have shown that there is no association between intakes of saturated fat and CVD risk (3–5). Very likely, effects other than on the LDL-cholesterol concentration have to be considered such as the particle sizes and functionality, the effects on HDL cholesterol, and other mediators of the CVD progression. Furthermore, an intervention study showed that other components in the food matrices in which the saturated fat is present markedly influenced the effects of saturated fat on LDL cholesterol and on CVD risk (6). Therefore, the effects of whole foods rather than nutrients should be investigated (7).

The study was sponsored by dairy companies, but as was clearly stated in the article, the sponsors were invited only to comment on the study design, and we made the decisions about the design. The sponsors had no influence on the execution of the study, analysis and interpretation of the data, or the final manuscript.

AA is a member of the International Carbohydrate Quality Consortium scientific network and of the Executive Committee of Global Energy Balance Network. He is member of advisory boards for the Global Dairy Platform, United States; McCain Foods Ltd., United States; McDonald's, United States; Lucozade Ribena Suntory Ltd, United Kingdom; and Weight Watchers, United States. AA acted as expert witness for Lantbrukarnas Riksförbund Mjöljk in a case before the courts in Stockholm, Sweden, 7 October 2015. He is principal investigator of current or recent research projects supported by grants from Arla Foods AMBA, Denmark; The Danish Dairy Research Foundation, Denmark; Global Dairy Platform, United States; and the Danish Agriculture and Food Foundation, Denmark. TKT, FR, TT, and AR reported no conflicts of interest related to the study.

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