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Replacement of saturated fatty acids from meats by dairy sources in relation to incident coronary heart diseases in the European Investigation into Cancer and Nutrition (EPIC)-Norfolk study

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Coronary heart disease (CHD) is a major cause of mortality and affects an estimated 2.3 million people in the UK⁽¹⁾. Risk of CHD can be affected by saturated fatty acids (SFA) consumption and evidence suggest that SFA sources, specifically meat and dairy products, have positive and negative associations, respectively, with the risk of CHD⁽²⁾. This study aims to examine the associations of modelled replacement of SFA from total and different types of meat by SFA from total and different types of dairy on CHD risk among UK adults.

Data from 21,846 participants (56.4% female, mean age: 58.5 (SD: 9.2) in the European Investigation into Cancer and Nutrition (EPIC)-Norfolk study were used. Participants without prevalent cardiovascular disease (CVD) at baseline (1993–1998) were followed up to 31 March 2018. Baseline dietary intake was assessed using food frequency questionnaires. CHD cases included non-fatal and fatal events (angina pectoris, myocardial infarction and its complications, acute and chronic CHD), which were ascertained by hospital and mortality records. Cox regression model, adjusted for demographic, lifestyle, energy, dietary and other factors, was used to estimate CHD risk associated with isoenergetic replacement of 2.5% of total energy intake (TEI) of meat SFA (total, red, processed, poultry) by the equivalent from dairy (total, milk, cheese, yogurt). Replacement of 2.5%TEI was chosen, as the median SFA intake in the study population was 12.5%TEI, approximately 2.5%TEI above the UK SFA recommendation of <10%TEI.

In the study population, median SFA intake [range] was 1.60%TEI [0.00–12.31%TEI] from meat and 3.01%TEI [0.00–18.11%TEI] from dairy. A total of 4217 incident cases of CHD during a median follow-up of 21 years were identified. Replacing SFA from meat by dairy (2.5%TEI) was significantly associated with lower CHD incidence (Hazard ratio (HR), 95% confidence interval (CI): 0.88, 0.80–0.97). Food group analyses revealed that replacing SFA from red meat by SFA from milk (0.93, 0.81–1.06), cheese (0.87, 0.75–1.01) or yogurt (0.95, 0.71–1.28) were non-significantly associated with lower CHD incidence. Replacing SFA from processed meat by SFA from milk (0.83, 0.73–0.95) or cheese (0.78, 0.67–0.90), but not yogurt (0.87, 0.65–1.16), were significantly associated with lower CHD incidence. Additionally, replacing SFA from poultry by SFA from milk (1.38, 0.86–2.23), cheese (1.31, 0.81–2.13) or yogurt (1.40, 0.81–2.41) were associated with non-significant higher CHD incidence.

Replacing 2.5%TEI of meat SFA by the equivalent from dairy was associated with 12% lower risk of CHD. Specifically, replacing SFA from processed meat by SFA from milk or cheese, but not yogurt, were associated with lower CHD risk. These data support recommendations to reduce processed meat in the UK diet, with possible benefits from replacement by milk or cheese.

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References

1. British Heart Foundation. (2023). [Available at: <https://www.bhf.org.uk/-/media/files/for-professionals/research/heart-statistics/bhf-cvd-statistics-uk-factsheet.pdf?rev=b88610e2495b4564821ab365bd8e1b2e&hash=294E7519486335830B73739235600CE7>].
2. Oliveira Otto MC, Mozaffarian D, Kromhout D *et al.* (2012) *Am J Clin Nutr* 96(2), 397–404.