

# There is more to nutrition and cardiovascular disease than ultra-processing

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Rauber et al.<sup>1</sup> compared plant-based foods that were or were not ultra-processed (UPF); concluding that “the role of food processing is crucial for favourable cardiovascular disease outcomes”. There are reasons to question this conclusion.

A particular food is not consumed in isolation but is associated with a preference for other items: there is a dietary style and a diet high in UPFs has more sugar and fat, but less fibre, protein and micro-nutrients.<sup>2</sup> Although sensitivity analysis was used to adjust for a few aspects of nutrition, this did not reflect the complexity of the diet associated with UPF. To conclude that food processing was critical it must be established that a poor diet was not the mechanism.

A previous examination of the data used by Rauber et al. found that the associations between most macro-nutrients and cardiovascular disease were non-linear, making adding foods to form a group, problematic.<sup>3</sup> Their influence will depend on the pre-existing intake, suggesting that general dietary advice should not be given, but rather tailored to individual consumption. For example the risk of cardiovascular disease is less with low-to-moderate alcohol consumption, rather than abstinence or heavy drinking. The common conclusion is that the type of drink does not matter,<sup>4</sup> although Rauber et al.<sup>1</sup> made a distinction only based on how it is manufactured.

As when more sugar is consumed the risk of cardiovascular disease increases<sup>5</sup>; why was sugar in the category producing a low level of cardiovascular disease? Margarine is listed as ultra-processed, yet it is suggested that substituting butter with margarine decreases the risk of myocardial infarction.<sup>6</sup> Cohort studies find ultra-processed chocolate is associated with a low risk of

coronary heart disease,<sup>7</sup> although Rauber et al.<sup>1</sup> suggested otherwise. It would have been better if foods that influence cardiovascular disease were established, and it was then looked to see if they have anything in common.

Diet is important, as in the USA it is associated 40% of cardiometabolic-related deaths.<sup>5</sup> Yet we will not progress until the dynamic and integrated nature of diet is acknowledged. Medicine needs to consider more than single foods, single nutrients, or the method of manufacture.

## Contributors

DB and HY had the original idea, and DB wrote the first draft. After further discussion, the text was modified and approved by both authors.

## Declaration of interests

Neither author have any interest to declare.

## References

- 1 Rauber F, da Costa Louzada ML, Chang K, et al. Implications of food ultra-processing on cardiovascular risk considering plant origin foods: an analysis of the UK Biobank cohort. *Lancet Reg Health Eur.* 2024;43:100948.
- 2 Martini D, Godos J, Bonaccio M, et al. Ultra-processed foods and nutritional dietary profile: a meta-analysis of nationally representative samples. *Nutrients.* 2021;13:3390.
- 3 Ho K, Gray SR, Welsh P, et al. Associations of fat and carbohydrate intake with cardiovascular disease and mortality: prospective cohort study of UK Biobank participants. *BMJ.* 2020;368:m688.
- 4 Minzer S, Losno EA, Casas R. The effect of alcohol on cardiovascular risk factors: is there new information? *Nutrients.* 2020;12:912.
- 5 Carbone S, Billingsley HE, Lavie CJ. The effects of dietary sugars on cardiovascular disease and cardiovascular disease-related mortality: finding the sweet spot. *Mayo Clin Proc.* 2019;94:2375–2377.
- 6 Liu Q, Rossouw JR, Roberts MB, et al. Theoretical effects of substituting butter with margarine on risk of cardiovascular disease. *Epidemiology.* 2017;28:145–156.
- 7 Chareonrungrueangchai K, Wongkawinwoot K, Anothaisintawee T, et al. Dietary factors and risks of cardiovascular diseases: an umbrella review. *Nutrients.* 2020:1088.

The Lancet Regional Health - Europe  
2025;48: 101141

Published Online 11  
December 2024  
<https://doi.org/10.1016/j.lanepe.2024.101141>

DOIs of original articles: <https://doi.org/10.1016/j.lanepe.2024.100948>, <https://doi.org/10.1016/j.lanepe.2024.101142>

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