

Are all ultra-processed foods bad for health?

Carlos Augusto Monteiro^{a,*} and Leandro F. M. Rezende^{a,b}

^aCenter for Epidemiological Studies in Health and Nutrition, University of Sao Paulo, Av. Dr. Arnaldo 715, Sao Paulo, 01246-904, Brazil

^bDepartment of Preventive Medicine, Escola Paulista de Medicina, Universidade Federal de São Paulo, Sao Paulo, Brazil

Using data from the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort, Dicken and colleagues¹ demonstrated that, as seen in several studies,² ultra-processed food (UPF)³ consumption increases the risk of type 2 diabetes. However, as observed in another study,⁴ they also found that increasing the intake of specific UPF subgroups, such as breads, biscuits, breakfast cereals, at the expense of non-UPFs, reduces the risk of type 2 diabetes. According to them, “this questions the use of an overall UPF metric for public guidance and supports recommendations to focus efforts on reducing consumption of specific UPFs.”

There are several concerns with this claim. First, while examining the health effects of UPF subgroups is certainly important, determining whether ultra-processing is harmful in specific food categories requires substitution analyses that compare them with their non-UPF counterparts, rather than the overall non-UPF consumption. Second, multicollinearity, false-positive findings and confounding effects of different constituents of foods are well-known challenges of subgroup analyses.⁵ Third, the variability as well as the average consumption of five out of the ten studied UPF subgroups was minimal within the cohort, making up less than 1% of total food intake. Ultra-processed plant-based alternatives, one of the UPF subgroups seemingly protective against diabetes, accounted for 0.1% of total

food intake. This makes any health effect estimates for these specific foods unreliable. Finally, recommendations regarding the health effects of ultra-processed subgroups should consider the totality of the evidence, including the 32 ill-health outcomes associated with UPF consumption, not just diabetes.²

Contributors

CAM and LFM wrote the original draft, revised, and approved the manuscript.

Declaration of interests

The authors declared no conflict of interest.

References

- 1 Dicken SJ, Dahm CC, Ibsen DB, et al. Food consumption by degree of food processing and risk of type 2 diabetes mellitus: results from the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort. *Lancet Reg Health Europe*. 2024;101043. <https://doi.org/10.1016/j.lanepe.2024.101043>.
- 2 Lane MM, Gamage E, Du S, et al. Ultra-processed food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses. *BMJ*. 2024;384:e077310.
- 3 Monteiro CA, Cannon G, Levy RB, et al. Ultra-processed foods: what they are and how to identify them. *Public Health Nutr*. 2019;22(5):936–941.
- 4 Chen Z, Khandpur N, Desjardins C, et al. Ultra-processed food consumption and risk of type 2 diabetes: three large prospective U.S. Cohort studies. *Diabetes Care*. 2023;46(7):1335–1344.
- 5 Gomes FS, Rezende LFM, Schlüssel M, et al. Ultra-processed food consumption and risk of type 2 diabetes: three large prospective U.S. Cohort studies. *Diabetes Care* 2023;46:1335-1344. *Diabetes Care*. 2024;47(2):e22–e23. <https://doi.org/10.2337/dc23-1837>.



The Lancet Regional Health - Europe 2024;46: 101106

Published Online xxx <https://doi.org/10.1016/j.lanepe.2024.101106>

DOI of original article: <https://doi.org/10.1016/j.lanepe.2024.101043>

*Corresponding author.

E-mail address: carlosam@usp.br (C.A. Monteiro).

© 2024 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).