

Ultra-processed food: new evidence on severe health risks for consumers

EFSA Stakeholders Discussion Group
on Emerging Risks

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STRIVING FOR SAFER FOOD FOR EUROPEAN CONSUMERS



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IDENTITY AND MISSION

SAFE is an **independent non-profit organization** which strives to **protect and advance consumers' rights in EU food policy**

Main activities

- Lobbying to improve the EU legislative framework
- Raising public awareness and training consumers
- Leading several EU projects on food safety and agriculture



SAFE PROJECTS

SAFE has conducted several European projects and strives for a EU legislative framework able to protect consumers and the environment

Main projects

- SISTERS and ZEROW are two 4 years Horizons projects on food waste that SAFE has been recently awarded
- R3PACK is an upcoming Horizon project to create and promote sustainable packaging for both industry and consumers.
- Food4Inclusion is an operating grant from the Commission to use sustainable and healthy food as a tool to foster social inclusion.
- NutriModule is an Erasmus+ projects that wants to further mainstream nutrition into medical school curricula.

Nutri  Module
Undergraduate Medical University
Module in Nutrition



SISTERS

ZEROW 



Funded by
the European Union

ULTRA-PROCESSED FOOD (UPF): Definition

What are processed and ultra-processed foods?



The definition:

- Studies define UPF as “formulations of food substances often modified by chemical processes and then assembled into ready-to-consume hyper-palatable food and drink products using flavours, colours, emulsifiers and . . . other cosmetic additives”⁽¹⁾. These foods include savoury snacks, reconstituted meat products, prepared frozen dishes, and soft drinks.

Overall characteristics⁽²⁾:

- high in free sugars, saturated fat, sodium
- low in protein, dietary fibre, micronutrients and phytochemicals, relative to their unprocessed/minimally processed counterparts.
- Highly palatable, energy dense, with a high glycaemic load

(1) Monteiro CA, Cannon G, Levy RB, et al . Ultra-processed foods: what they are and how to identify them. *Public Health Nutr* 2019;22:936-41

(2) handpur N, Neri D, A, Monteiro C, Mazur A, Frelut M, -L, Boyland E, Weghuber D, Thivel D: Ultra-Processed Food Consumption among the Paediatric Population: An Overview and Call to Action from the European Childhood Obesity Group. *Ann Nutr Metab* 2020;76:109-113. doi: 10.1159/000507840

ULTRA-PROCESSED FOOD (UPF): recent figures



Increased consumptions and favouring food environment

- The percentage of total calories consumed by children per day coming from UPF is 58% in the UK, 37% in the EU, 48% in the US⁽³⁾
- European countries the proportion of daily energy intake from UPF ranges from 24.4% to 36% ⁽⁴⁾



Recent studies show mortality risks connected with UPF consumption

- The studies shows severe health risks for consumers that consume UPF ranging from NCDs to cognitive problems for children ⁽⁵⁾
- Health risks might be triggered by additional factors such as food contact materials, additives and other chemical substances, going beyond the nutritional problems⁽⁶⁾



Studies show effects on vulnerable groups and low-income families

- Children in low income households who lack a social network, from single-parent families or with unemployed parents are disproportionately likely to be high UPF consumers⁽⁷⁾
- Besides nutritional deficiencies, there is some suggestion that the academic ability of children and adolescents on UPF diets may be compromised⁽⁸⁾.

(3,7,8) *handpur N, Neri D, A, Monteiro C, Mazur A, Frelut M, -L, Boyland E, Weghuber D, Thivel D: Ultra-Processed Food Consumption among the Paediatric Population: An Overview and Call to Action from the European Childhood Obesity Group. Ann Nutr Metab 2020;76:109-113. doi: 10.1159/000507840*

(4) *Bonaccio M, Costanzo S, Di Castelnuovo A, Persichillo M, Magnacca S, De Curtis A, Cerletti C, Donati MB, de Gaetano G, Iacoviello L. Ultra-processed food intake and all-cause and cause-specific mortality in individuals with cardiovascular disease: the Moli-sani Study. Eur Heart J. 2022 Jan 25;43(3):213-224. doi: 10.1093/eurheartj/ehab783. PMID: 34849691.*

(5) *Rico-Campá A, Martínez-González M A, Alvarez-Alvarez I, Mendonça S a R d D, de la Fuente-Arillaga C, Gázquez-Donoso C et al. Association between consumption of ultra-processed foods and all cause mortality: SUN prospective cohort study BMJ 2019; 365 :l1949 doi:10.1136/bmj.l1949*

(6) *Lawrence M A, Baker P I. Ultra-processed food and adverse health outcomes BMJ 2019; 365 :l2289 doi:10.1136/bmj.l2289*

HEALTH RISKS: the Moli-sani study ⁽⁹⁾.

Ultra-processed Food and Mortality in CVD individuals

Participants and Exposure

1,171 individuals with history of CVD (mean age 66.8 y; 67.8% men) from the Moli-sani Study (2005-2010)



N = 333 total deaths, N = 178 CVD deaths after 10.6 y follow-up

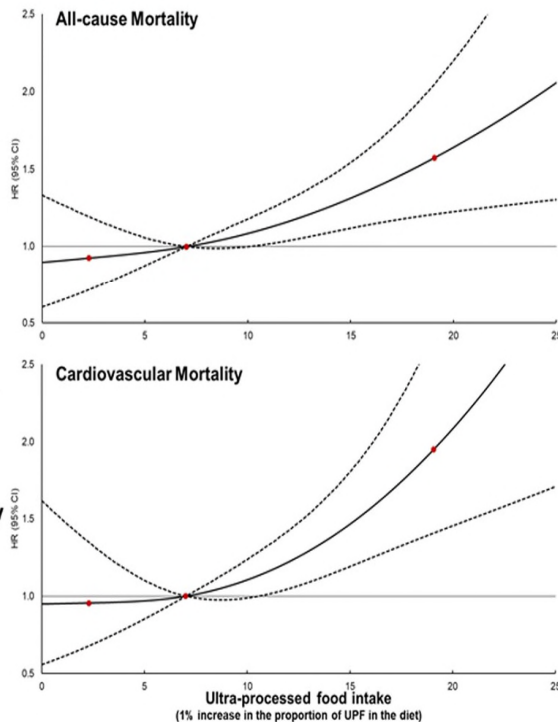
UPF intake as defined by NOVA



Biomarkers on the pathway

- Inflammatory
- Metabolic
- Cardiovascular
- Renal

Outcomes and Mediators



18.3% explained by altered levels of Cystatin C



16.6% explained by altered levels of Cystatin C

The study: lasted about 8.2y and followed 184,816 people.

The results: data indicate that high consumption of UPF is associated with a 58% increased risk of CVD mortality and 52% higher risk of dying from HD/cerebrovascular uses.

Conclusion: A diet rich in UPF is associated with increased hazards of all-cause and CVD mortality among individuals with prior cardiovascular events, possibly through an altered renal function. Elevated UPF intake represents a major public health concern in secondary CVD prevention.

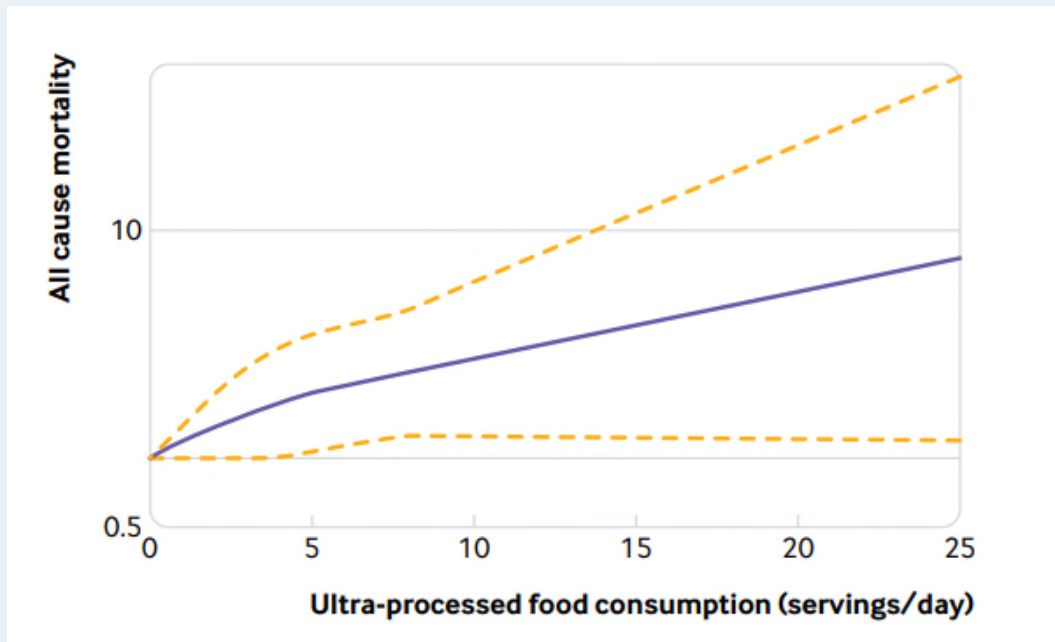
(9) Bonaccio M, Costanzo S, Di Castelnuovo A, Persichillo M, Magnacca S, De Curtis A, Cerletti C, Donati MB, de Gaetano G, Iacoviello L. Ultra-processed food intake and all-cause and cause-specific mortality in individuals with cardiovascular disease: the Moli-sani Study. *Eur Heart J.* 2022 Jan 25;43(3):213-224. doi: 10.1093/eurheartj/ehab783. PMID: 34849691.

HEALTH RISKS: the Moli-sani study ⁽⁹⁾.

In addition, the Moli-sani study highlights:

- Ultra-processing negatively affects both **food structure** and **nutrient composition**. Food structure, which is highly dependent on processing conditions, is increasingly recognized to play a role in glycemic responses.
- There is evidence that food processing can lead to **newformed compounds** related to the heating and processing and industrial chemicals used on some UPF plastic packaging that may result in harm in CV health.
- Association between increasing UPF intake and mortality was likely mediated by biomarkers of renal function. Habitual consumers of UPF tended to report **higher concentrations of biomarkers of renal function, whereas cystatin C, a more sensitive marker of renal function, represents a strong predictor of CVD risk also in the general population.**

HEALTH RISKS: the Rico-compà study ⁽¹⁰⁾.



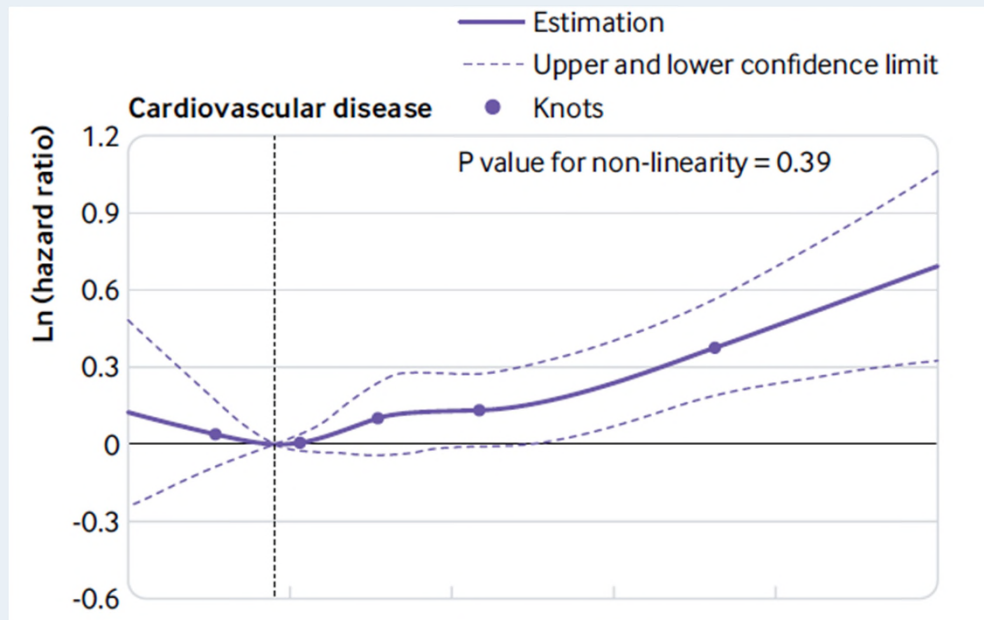
The study: 19 899 participants (12 113 women and 7786 men) aged 20-91 years followed-up every two years between 1999 and 2014 for food and drink consumption, classified according to the degree of processing by the NOVA classification, and evaluated through a validated 136 item food frequency questionnaire.

The results: Participants with high consumption of ultra-processed foods had a higher hazard for all cause mortality compared with those in the lowest quarter. For each additional serving of ultra-processed foods, all cause mortality relatively increased by 18%

Conclusion: A higher consumption of ultra-processed foods (>4 servings daily) was independently associated with a 62% relatively increased hazard for all cause mortality. For each additional serving of ultraprocesed food, all cause mortality increased.

(10) Rico-Campã A, MartÃnez-GonzÃlez M A, Alvarez-Alvarez I, MendonÃa S a R d D, de la Fuente-Arillaga C, GÃmez-Donoso C et al. Association between consumption of ultra-processed foods and all cause mortality: SUN prospective cohort study BMJ 2019; 365 :11949 doi:10.1136/bmj.11949

HEALTH RISKS: the study focused on health issues ⁽¹¹⁾



The study: 105 159 participants (age: 18+) were observed between 2009 and 2018 in relation to 3300 food items. These foods were categorised using the NOVA classification according to degree of processing.

The results: During a median follow-up of 5.2 years, intake of ultra-processed food was associated with a higher risk of overall, defining the following incidence rates:

- cardiovascular disease: 277 per 100 000 person years,
- coronary heart disease: 124 per 100 000 person years
- cerebrovascular disease: 144 per 100 000 person years

Conclusion: Higher consumption of ultra-processed foods was associated with higher risks of cardiovascular, coronary heart, and cerebrovascular diseases. **IMPORTANT:** the study specifies that various factors in processing, such as nutritional composition of the final product, additives, contact materials, and neo-formed contaminants might play a role in these associations, and further studies are needed to understand better the relative contributions.

(11) Srour B, Fezeu LK, Kesse-Guyot E, Allès B, Méjean C, Andrianasolo RM, Chazelas E, Deschasaux M, Hercberg S, Galan P, Monteiro CA, Julia C, Touvier M. Ultra-processed food intake and risk of cardiovascular disease: prospective cohort study (NutriNet-Santé). *BMJ*. 2019 May 29;365:11451. doi: 10.1136/bmj.11451. PMID: 31142457; PMCID: PMC6538975.

ADDITIONAL ISSUES OF UPF CONSUMPTION

Environmental risks

- A 2021 study from the City University London⁽¹²⁾ in collaboration with other Universities identified, over the last 30 years, that Brazil has undergone a nutrition transition toward a diet higher in ultra-processed foods, and that of food types consumed, with similar trends to Europe.
- They calculated the environmental impact of food items purchased, per 1,000 calories (kcal) consumed, for four food groups outlined by the widely used NOVA system
- The increasing environmental impact of ultra-processed meat reached about 20 per cent of total diet-related footprints over the 30-year time-frame.

Dr Ximena Schmidt, co-author and Global Challenges Research Fellow at the Centre for Sustainable Energy Use, Brunel University London: "*This study **shows for the first time** how increasing the consumption of ultra-processed foods has produced more greenhouse gas emissions and used more water and land [...] . We need to finally acknowledge that impacts to the environment and health have to be tackled together*".

(12) City University London. "Environmental implications of ultra-processed foods." ScienceDaily. ScienceDaily, 11 November 2021. www.sciencedaily.com/releases/2021/11/211111080345.htm

OUR RECCOMANDATIONS A MORE SUSTAINABLE FUTURE

Ensure that the **Farm to Fork Strategies** remain the main priorities and drivers for recovery from the current nutritional and environmental crisis, the EU should allow food environments to:

- 1** Have nutritional **labelling systems** that can allow consumers understanding products' formulation and composition
- 2** Make minimally processed food the most **accessible and affordable** option for all groups of population, including disadvantaged families.
- 3** Recognise that sustainable diets can have a positive effect also in tackling the **environmental and climate crisis**
- 4** Ensure that reformulation of ultra-processed foods **avoids including substances dangerous for human health**



Thank you for your attention!

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