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Press information

Consumption of ultra-processed food and risk of cancer

A new study bringing together researchers from Inserm, Inra and University of Paris 13 (Center of Research in Epidemiology and Statistics Sorbonne Paris Cité, EREN team) suggests a link between the consumption of ultra-processed food and the additional risk of developing cancer. In total, 104,980 participants from the French NutriNet-Santé cohort were included. During the follow-up period (8 years), 2,228 cases of cancer were diagnosed and validated. A 10% increase in the proportion of ultra-processed foods in the diet was associated with a greater than 10% increase in the risk of overall cancer and, more specifically, breast cancer. Out of the various hypotheses which could explain these findings, the generally poorer nutritional quality of ultra-processed food may not be the only contributing factor, thereby pointing to mechanisms involving other compounds (additives, substances formed during industrial processes, materials in contact with food, etc.). These findings, which must therefore be considered as an initial avenue of investigation in this area, need to be confirmed in other study populations. The causal relationship in particular remains to be proven. This study was published on February 15, 2018 in the [British Medical Journal](#).

In recent decades, dietary habits have shifted towards an increased consumption of ultra-processed foods, which currently account for over half of the total daily energy intake in many western countries. Such foods are often characterized by lower nutritional quality, in addition to the presence of additives, neoformed compounds and substances from packaging and other contact materials.

Recent studies have shown links between the consumption of ultra-processed foods and an increased risk of dyslipidemia, overweight, obesity, and hypertension. However, none of the studies looked at the risk of cancer, even though animal experiments suggest potential carcinogenic effects of a number of components usually present in ultra-processed food.

In total, 104,980 participants from the French NutriNet-Santé cohort (followed up between 2009 and 2017) were included. Dietary intakes were collected with the help of repeated 24h dietary records, designed to evaluate participants' usual consumption for 3300 different food items. These were grouped according to their degree of processing by the NOVA classification (see text box below).

During the follow-up period, 2,228 cases of cancer were diagnosed and validated. A 10% increase in the proportion of ultra-processed foods in the diet was associated with a greater than 10% increase in the risk of overall cancer and, more specifically, breast cancer. These results were significant after a large number of sociodemographic and lifestyle characteristics were taken into account, as well as also the nutritional quality of the diet. This suggests that

the lower overall nutritional quality of ultra-processed foods may not be the only factor involved.

These findings must be considered as an initial avenue of investigation in this area and require confirmation in other study populations. The causal relationship in particular remains to be proven. Likewise, further studies are needed to better understand the relative impact of the various dimensions of food processing (nutritional composition, additives, contact materials and neofomed contaminants) on these associations.

To continue this work, the research team is currently launching a new program on food additives, the principal objective of which will be to evaluate the usual dietary exposures to these substances and study their potential effects on health and chronic disease development. This will be made possible thanks to the accurate and repeated evaluation of dietary exposures in the NutriNet-Santé cohort (together with nutrition supplements and medicines), including the brands and trade names of the processed foods consumed. This last point is fundamental in accurately determining exposure to additives at the individual level given the wide variability of composition between the brands. The recruitment of new volunteers to participate in the NutriNet-Santé study continues. Simply register online (www.etude-nutrinet-sante.fr) and complete the questionnaires. These will enable the researchers to deepen their knowledge on the links between nutrition and health and thereby improve the prevention of chronic diseases through our diet.

Definition and examples of ultra-processed foods

Food and drinks are assigned to one of the four groups in the NOVA classification, based on their degree of industrial processing (unprocessed or minimally processed foods, processed culinary ingredients, processed foods, ultra-processed foods). This study primarily focused on the “ultra-processed foods” group, which includes, for example, mass produced breads and buns, candy bars, savory snacks, sodas and sweetened drinks, poultry and fish nuggets, instant soups, frozen or shelf-stable ready meals, and any processed products with the addition of preservatives other than salt (for example, nitrites), as well as food products made mostly or entirely from sugar, oils and fats and other substances not used in culinary preparations, such as hydrogenated oils and modified starches. Industrial processes notably include hydrogenation, hydrolysis, extruding, and pre-processing by frying. Colors, emulsifiers, texturizing agents, non-sugar sweeteners and other additives are often added to these products.

Examples:

- Fruit compotes with only sugar added are considered “processed foods”, whereas flavored fruit desserts with the addition of not just sugar but also texturizing agents and colors are considered “ultra-processed” foods.
- Salted red or white meats are considered “processed foods”, whereas smoked meats and/or with added nitrites and preservatives, such as sausages and ham, are considered “ultra-processed foods”.
- Likewise, canned vegetables with only salt added are considered “processed foods”, whereas industrially cooked or fried vegetables, marinated in sauces and/or with added flavors or texturizing agents (such as industrially-produced vegetable stir-fry preparations) are considered “ultra-processed foods”.

Source: Monteiro CA, Cannon G, Moubarac JC, Levy RB, Louzada MLC, Jaime PC. The UN Decade of Nutrition, the NOVA food classification and the trouble with ultra-processing. *Public Health Nutr* 2018;21:5-17. <http://dx.doi.org/10.1017/S1368980017000234>

Sources

Consumption of ultra-processed foods and cancer risk: results from NutriNet-Santé prospective cohort

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