Highly Processed Foods Linked to Cancer Risk in Large Study

Increased consumption of “ultra-processed” food may drive rising cancer rates.

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Eating highly processed food products may increase an individual’s risk of developing cancer and contribute to rising cancer rates at the population level, according to a study recently published in the British Medical Journal.

This large cohort study found that a 10 percent increase in the proportion of “ultra-processed” foods in the diet—including packaged baked goods, soda, ready-to-eat meals and reconstituted meat products—was associated with a 12 percent rise in the risk of cancer overall and an 11 percent jump in the risk of breast cancer after menopause.

Mathilde Touvier, PhD, of the Nutritional Epidemiology Research Team at the Sorbonne in Paris, and colleagues looked at associations between consumption of ultra-processed food and cancer risk in a prospective cohort study, meaning participants were followed over time. This was an observational study, meaning the researchers did not try to change how participants ate.

Several surveys in the United States and Europe have suggested that ultra-processed food products account for between 25 and 50 percent of total daily calorie intake, according to the study authors. While some prior studies have linked highly processed foods to an increased risk of cardiovascular and metabolic disorders, such as obesity and hypertension, no previous prospective epidemiological studies have evaluated the link between processed food and cancer risk.

This analysis included about 105,000 adults from the French NutriNet-Santé cohort who were followed from 2009 through 2017. Nearly 80 percent were women and the average age was 43. Ultra-processed foods made up about 19 percent of their diet. People who consumed the most ultra-processed foods tended to be younger, current smokers and have a lower education level.

Food intake data were collected using web-based 24-hour dietary records designed to report consumption of more than 3,000 food items. Food records were completed every six months to account for seasonal variation. Food and drink items were categorized according to the NOVA food classification system. Products in the NOVA “ultra-processed” category include the following:

- Mass-produced packaged baked goods

- Sweet or savory packaged snacks
- Industrially produced sweets and desserts
- Sodas and other sweetened drinks
- Instant noodles and soups
- Frozen or shelf-stable ready-made meals
- Meatballs, chicken and fish nuggets and other reconstituted meat products with added preservatives other than salt
- Other food products made mostly or entirely from sugar, oils and fats, modified starches and other substances not commonly used in culinary preparation.

Ultra-processed foods may involve industrial processes including hydrogenation, hydrolysis, extrusion, molding and addition of flavoring and coloring agents, emulsifiers and other additives "to imitate sensorial properties of unprocessed or minimally processed foods and their culinary preparations or to disguise undesirable qualities of the final product," according to the researchers.

The other NOVA classifications are "unprocessed or minimally processed foods," (fresh, dried, ground, frozen, pasteurized or fermented staples like fruits, vegetables, beans, eggs, milk, meat and fish), "processed culinary ingredients" (salt, sugar, vegetable oils, butter and other ingredients used in home kitchen preparations) and "processed foods" (canned vegetables with added salt, sugar-coated dried fruits, meat products preserved with only salt, cheese, unpackaged bread and other products manufactured with salt, sugar or other processed culinary ingredients).

The study showed that ultra-processed food intake was associated with a higher risk of cancer overall and of postmenopausal (but not premenopausal) breast cancer. These increases were statistically significant, meaning they probably were not attributable to chance. More specifically, ultra-processed fats and sauces, sugary products and drinks were all linked with increased overall cancer risk, while only sugary products were significantly associated with breast cancer risk.

There was a "borderline" link between ultra-processed foods and colorectal cancer, but this did not reach statistical significance. No significant association was seen for prostate cancer, according to the study authors.

The association with overall cancer risk was seen in all population subgroups including women and men, older and younger adults, smokers and nonsmokers, and people with low and high levels of physical activity. Adjusting for use of dietary supplements, fruit and vegetable consumption and a so-called Western diet did not change the results.

Conversely, people who ate more foods from the "unprocessed or minimally processed" category had a lower risk of overall cancer and especially breast cancer. No association with cancer was

observed for the “processed foods” category.

Prior research has shown that obesity raises the risk of more than a dozen types of cancer. This study suggests that the extent and type of food processing—rather than just a high calorie intake—plays a role in promoting cancer development.

The researchers discussed which characteristics of ultra-processed foods might contribute to development of disease. These products often contain more fat, added sugar and salt than unprocessed items, as well as less fiber and fewer vitamins. Some contain “authorized but controversial” food additives linked to cancer in animal studies (such as sodium nitrite and titanium dioxide). They may contain “neoformed contaminants,” or carcinogenic substances produced during heating or other processing (such as acrylamide, heterocyclic amines and polycyclic aromatic hydrocarbons). In addition, packaging of highly processed foods may contain carcinogenic or endocrine-disrupting substances (such as bisphenol A).

“Rapidly increasing consumption of ultra-processed foods may drive an increasing burden of cancer and other noncommunicable diseases,” the study authors concluded.

“Thus, policy actions targeting product reformulation, taxation and marketing restrictions on ultra-processed products and promotion of fresh or minimally processed foods may contribute to primary cancer prevention.”

Click here to read the study in the British Medical Journal.
