Not All Processed Foods Are Created Equal

— Blaming them for America's poor health is simplistic and distracting

by Neal D. Barnard, MD
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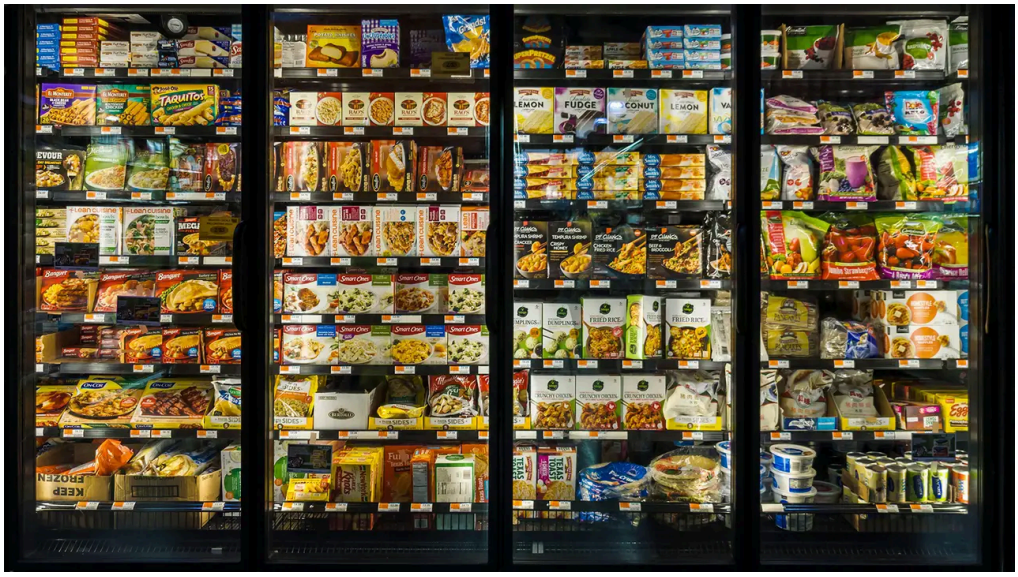

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In its December 2024 report, the Dietary Guidelines Advisory Committee refused to blame ultra-processed foods for America's health problems. The evidence was simply not there. The press response was quick and fierce: How could the committee remain silent, they asked, given common knowledge that processed -- especially "ultra-processed" -- foods cause diabetes and other health woes?

But the committee was right. As is often the case in medicine, "common knowledge" was off the mark.

Many people imagine that type 2 diabetes is caused by sugary cereals, gumdrops, or spaghetti. The truth is that diabetes begins as insulin resistance, which is caused primarily by the accumulation of intracellular fats that impair insulin signaling in liver and muscle cells. These fats do come from the diet -- from meat, cheese, and fried foods -- but not necessarily from what are commonly thought of as "processed foods."

The popularity of the terms "processed" and "ultra-processed" foods stems from a system conceptualized by Brazilian researcher Carlos Monteiro, MD, PhD, known as the NOVA system ("nova" is Portuguese for "new"), which divides foods into four groups, from unprocessed or minimally processed (group 1) to ultra-processed (group 4). Government action, he said, should target the most processed foods (e.g., ultra-processed foods). However, group 4 lumps breakfast cereals, hot dogs, and ice cream in the same "ultra-processed" category, despite enormous nutrient differences between these foods. In other words, the system reflects preconceived notions about "processing," not science. A 2023 consumer survey found just that: laypersons have vague ideas about processing that are often not scientifically sound.

Observational studies have tried to use the system to scrutinize processed foods' role in diabetes. In a 2023 analysis from three Harvard cohorts, frequent consumption of "ultra-processed" foods overall was associated with a 46% increased risk of developing type 2 diabetes. A closer look, however, leads to a striking reappraisal. The primary drivers of the association were animal-based products and ready-to-eat/heat mixed dishes, associated with 44% and

42% increased risk of diabetes, respectively. In contrast, ultra-processed cereals were associated with 22% *reduced* risk. Packaged sweet snacks and fruit-based products were associated with 13% and 18% reduced risk, respectively. In other words, the plant-based ultra-processed foods were largely exonerated. The Harvard researchers acknowledged this dichotomy, noting a "favorable relationship of plant-rich diets compared with animal-rich diets with T2D."

The same phenomenon surfaced in the European Prospective Investigation into Cancer and Nutrition (EPIC). Savory snacks and animal-based products were associated with increased risk; plant-based alternatives were associated with reduced risk. Well-designed clinical trials have shown that shifting from animal-based to low-fat plant-based (vegan) diets reduces insulin resistance and improves glycemic control, even when processed plant foods are included.

Nonetheless, the public remains mightily confused. A new study by our research team found that 39% of U.S. adults surveyed believe that all processed foods are unhealthy, and their definitions of "processed" are all over the map.

The dichotomy has surfaced again among "unprocessed" foods. While fruits, vegetables, and other plant-derived foods are associated with reduced diabetes risk, a meta-analysis of 31 cohorts found that "unprocessed" red meat and poultry consumption was associated with increased risk, as was processed meat. Each 100-gram serving of unprocessed red meat raised diabetes risk by 10%. For processed red meat, the figure was 15%, and for poultry, it was 8%.

Bottom line: research suggests animal-derived foods tend to increase the risk, while plant-derived foods -- even "ultra-processed" ones -- tend not to, albeit with some exceptions, such as sodas. Clinical trials in individuals with type 2 diabetes follow the theme: Exchanging animal-derived products and oily foods for low-fat plant foods reduces hepatocellular and intramyocellular lipid and insulin resistance and improves glycemic control.

Pointing an overly vigorous finger of blame at "ultra-processed foods" distracts us from the true causes of illness. Among the most underappreciated facts is that *biological* processing -- through an animal's body -- is as much an issue as mechanical processing. When corn is fed to chickens to create drumsticks and wings, salivary and pancreatic amylase performs the same function as factory amylase used to create high-fructose corn syrup. The animals' digestive tracts sequester fiber as effectively as any mechanized operation, and their digestive and anabolic systems markedly alter the macro- and micronutrient content of the nutritional input. As the chicken's metabolic processes convert corn's macronutrients into chicken wings, they increase fat content from 14% to 55% of calories, add cholesterol, and remove fiber, which may account for the significant association of chicken consumption with diabetes.

In conclusion, some processed foods are healthful, while others are not. Knowing the difference goes a long way toward advancing our health goals.

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Disclosures