Podcast: Ultra-Processed Foods (Part 3) Transcript

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Introduction to Ultra-Processed Foods

We have lots of choices to make about our diet and to that doing the right thing when it comes to treating a chronic disease or fighting a virus or losing weight and suddenly our nutrition choices can seem almost overwhelming. Well, I'm here to help. Welcome to the Nutrition Facts podcast. I'm your host Dr. Michael Greger.

Did you know that ultra-processed foods now supply more than half of daily calories in the US? And studies have linked higher [snorts] intake of obesity, heart disease, type 2 diabetes, and increased mortality with increased intake. [music] And not just because of the nutritional makeup, but in part due to food [music] additives.

So-called ultra-processed foods aren't really real food, but they really can affect our health. Why do we need a new term though? Can we just say we should stay away from junk food, defined as food and beverages with high levels of concentrated calories and added saturated fats, sodium, and sugar?

I mean, that's where most of our sugar and about half of our calories, salt, and saturated fat comes from. But ultra-processed is not synonymous with junk.

Why Ultra-Processed Foods Are More Than Junk Food

There are some junk foods that are not ultra-processed, and some ultra-processed foods that don't fit the definition of junk. For example, while a sausage is considered an ultra-processed meat, bacon is considered just a processed meat. Though bacon would also meet junk food's definition of a calorie concentrated food loaded with added salt.

What about an ultra-processed product like Diet Coke? It doesn't have any calories, no sugar, no fat, not junk food, but still ultra-processed and not necessarily good for you. So, there's a limitation to exclusively focusing on the nutrient profile of ultra-processed foods, but how can they be bad if they're fat-free, sugar-free, salt-free? Health risks are not only related to the poor nutritional quality of ultra-processed foods, but also to the presence of additives. No apparent calories, fat, salt, or sugar, but contains caramel color, which results in the formation of 4-methylimidazole, which is a possible human carcinogen.

Contains aspartame, too, also recently classified as possibly cancer-causing in humans. And Diet Coke contains phosphoric acid, which is a phosphate additive that may be damaging to health. In fact, that's just the kind of additive that could help explain the link between ultra-processed foods and heart and kidney problems. Contains a benzoate preservative, too.

Additives, Safety, and Health Risks

If you remove artificial colorings and benzoate preservatives from the diets of preschoolers and then randomize the kids to be slipped the placebo or a cocktail of colorings and benzoate, you'll see a significant reduction in hyperactive behavior during the withdrawal phase, and a significant increase in hyperactive behavior when the kids got the colorings and benzoate compared to placebo. Of course, it could have been the colorings, not the benzoate, but that's one of the problems. As little as we know about the effects of these individual additives, we know even less about what combinations of them can do. There's a large body of evidence suggesting toxicity from certain artificial food colors, benzoate preservatives, artificial sweeteners, and emulsifiers, in part sometimes to our gut microbiome. This may explain at least part of the connection between inflammatory bowel disease and ultra-processed foods.

Now, industry apologists argue that the US Food and Drug Administration carefully evaluates food additives to make sure they're safe. Until they're not. In fact, to show the system works, they cite the removal of six carcinogenic artificial flavors in 2018. Artificial flavors that had been in the food supply approved for safety since 1964.

So, we were exposed more than 50 years before they were banned. Critics of the ultra-processed food concept puzzle at the fact that natural yogurt is considered minimally processed and yogurt with added sugar is considered a processed food, but if the yogurt's sweetened with artificial sweetener and contains less sugar, it's considered ultra-processed.

You can see how the critics try to stick with a nutrient paradigm of hey, less sugar should be better. But that was before aspartame, sold as NutraSweet, was officially recognized as a potential human carcinogen in 2023.

42 years earlier, when aspartame was first approved, the FDA's own public board of inquiry opposed approval of the artificial sweetener based on brain tumors in rats and the industry's own studies. This included several FDA scientists who didn't think it was safe. The FDA commissioner rejected these concerns and approved it anyway before leaving the agency to enjoy a $1,000 [clears throat] per day consultancy position with the aspartame company's PR firm. And then the FDA actually prevented the National Toxicology Program from doing further cancer testing. Meanwhile, literally tens of millions of pounds made it into the food supply. Fine, critics of the ultra-processed label say, if there are some additives that are bad, let's find out exactly which ones they are and get rid of those. No need to guilty until proven innocent broad brush all additives as potentially harmful. Take artificial food colors though.

Artificial Colors and the Red Dye No. 3 Ban

What level of evidence do we need to remove something whose sole reason of existence is to make some dayglow marshmallows in a kid's cereal that much more eye-catching?

I've long been concerned about red dye number three, why it hasn't been banned from food for example, given the dye was banned more than 30 years ago from inclusion in anything going on our skin due to cancer risk, but it's okay to eat? Finally, just recently, the California Food Safety Act was signed banning red dye number three from foods and drinks sold in California as of 2027. Consumer groups like Center for Science in the Public Interest continue to petition the FDA for a national ban to prohibit use of this carcinogen and in 2025, the FDA finally agreed to ban it from food, 35 years after they removed it from cosmetics.

It also starts to take effect in 2027. Until then, here's a pro tip suggestion for food companies. Should you want to make your cherry popsicles red, maybe try adding some cherries. If the harm of ultra-processed foods lies in potentially harmful additives, why not just stick to so-called clean label foods made with simple, recognizable ingredients, no matter how the food is processed? But that's assuming additives are the only reason ultra-processed foods may be unhealthy. In fact, harmful additives are just one of many reasons ultra-processed foods may lead to increased risk of death and disease. [music] I'll address some of these others next.

One of the reasons the consumption of ultra-processed foods is associated [music] with a higher risk of disease is food additives like artificial colors and flavors, sweeteners, emulsifiers, and more. But at least they're listed in the ingredients on the label, so you can avoid them if you wanted to.

Other Hidden Harms of Processing

Unlisted are some of the sneakier ways ultra-processed foods can be bad for you, like contaminants formed during industrial processing methods. For example, there's acrolein, a toxin found in cigarette smoke, that's also generated during the cooking or frying of food with fats or oils. So, it can be found in foods like potato chips, french fries, donuts. Ironically, canola oil, considered to be perhaps the most {quote} heart-healthy type of oil, appears to generate the highest amounts of acrolein, and acrolein may cause cardiovascular disease and probably causes cancer, too. In fairness, acrolein would still be a problem even if you made french fries from scratch, which would be considered a minimally processed food rather than ultra-processed frozen fries or fast food fries, but if every time you wanted to have fries, you had to cut up potatoes yourself and deep fry them, we'd probably eat a lot fewer fries.

Fried and pre-fried foods may also be contaminated with 3-MCPD, another possible carcinogen. Furans and acrylamide are two other heat-generated contaminants that are possibly or probably cancer-causing.

Trans fats are produced in the refining process to make vegetable oils, so they may end up as high as half a percent trans fats. In fairness, even unprocessed meat dairy products naturally have a lot more without much difference between unprocessed and ultra-processed products. Similarly problematic are dietary cholesterol oxidation products, which are found in meat, eggs, and dairy. Once absorbed into the circulation, they can contribute to the progression of several inflammatory diseases. Cholesterol is bad enough. However, oxidized cholesterol is even more toxic and disease-causing than cholesterol itself. And it's also associated with the initiation and progression of major chronic diseases, including atherosclerosis, Alzheimer's, kidney failure, and diabetes. Food processing can dramatically trigger the accumulation of cholesterol oxidation products in meats, including fish and poultry, eggs, and dairy products. But that processing can just mean cooking the meat.

Contaminants, AGEs, and Molecular Damage

Cholesterol oxidation products arise during thermal processing of foods of animal origin, with maximal cholesterol oxidation at only 300° F or so. So, the difference between the levels in ultra-processed products like pork sausage aren't that much different from a minimally processed product like roast pork.

That's why the levels of oxysterols in foods, including oxidized phytosterols in margarine, is split mainly between ultra-processed and minimally processed foods. So, many of these contaminants are not exclusive to ultra-processed foods. Advanced glycation end products are another good example. Increasing evidence shows that the uptake of dietary AGEs, advanced glycation end products, is closely related to the occurrence of many chronic diseases such as diabetes, chronic kidney disease, osteoporosis, and Alzheimer's.

In fact, it's hard to find an age-related disease that doesn't involve AGEs. Dietary AGEs are abundant in highly processed foods because thermal treatments are commonly used to improve their flavor, texture, preservation, and safety.

But, thermal treatment just means heat. So, you can get AGEs from industrial processing or home cooking. Canned corn has 20 units of AGEs per serving. Corn chips 151, and corn pops cereal 373.

Rice has nine per serving, rice crackers 275, rice crispies 600. A boiled potato has 17 AGE units per serving, potato chips 865, and fast food fries more than 1,500, whereas homemade fries have less than half that. So, ultra-processed plant foods can have nearly 100 times more AGE units than minimally processed plant foods. But, animal foods start out with high levels even when they're raw and unprocessed, and just go up from there.

Instead of 10 or 20 like the corn, rice, and potatoes, fish, poultry, and other meats start out at around 500 AGE units or more, and then jump into the thousands once cooked, which is considered minimally processed.

For meat that's processed or ultra-processed, they can exceed 10,000 per serving. Although these contaminants are by no means limited to ultra-processed foods, you can see how considering how good or bad foods are based only on their listed nutrients fails to capture how food processing can transform food at the molecular level.

And it's clear that just using the clean label strategy of sticking to foods with simple ingredient lists won't help because we're never going to see acrolein or acrylamide on the label.

Closing Resources and Support

It's the processing itself, >> [music] >> whether traditional or industrial, that's affecting the healthfulness of the food. Visit nutritionfacts.org/audio to see all the podcast episodes with descriptions that include links [music] to their associated videos. Sources cited and other details are available on each video's page. Information about my books, How Not to Die, How Not to Diet, and How Not to Age is all at nutritionfacts.org/books [music] including some of the newer titles including lowering LDL cholesterol naturally with food. All proceeds from all book sales that I get go to charity. And I've got a new book in the publication pipeline, How Not to Hurt. It's going to be available on December 15th of this year, 2026. [music] And don't forget to sign up for our free newsletter, nutritionfacts.org/subscribe, [music] to stay updated on the latest bite-size videos and articles. [music] Nutritionfacts.org is a science-based nonprofit and everything on the website is free. There are no ads, no

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