Podcast: Ultra-Processed Foods (Part 1) Transcript

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Introduction to Nutrition Science

Doesn't it seem like when it comes to nutrition, there are more opinions than facts to go around? Every day we hear new [music] theories about diets and supplements and best foods to eat. Well, my role is to take the mystery out of good nutrition and look at the science. Welcome to the NutritionFacts podcast. I'm your host, Dr. [music] Michael Greger.

Ideally, we should try to center our diets around healthy, unprocessed plant foods. But in today's world, most of what fills our grocery carts isn't just processed, but ultra-processed, which is good for shelf life, but not necessarily our life. Let's take a closer [music] look.

Modern nutrition science began about a century ago in the context [music] of nutrient deficiency diseases. Editorials in the Journal of the American Medical Association had titles like sugar as food, heralding sugar as one of the cheapest sources of calories. For 6 cents, you could buy 3,000 calories. But the nutrient deficiency era gave way to the dietary excess era.

No longer were we dying of nutrient deficiency diseases like scurvy as much as we were dying from nutrient excess diseases like obesity and heart disease.

So, nutrition scientists became more about avoiding too many calories, too much sugar, too much sodium, while still focused on nutrients. This allowed food companies to get away with whipping out fiber-fortified Fruit Loops. But food, not nutrients, is the fundamental unit of nutrition.

From Nutrients to Food-Based Guidelines

And to its credit, the field of nutrition started moving towards a more holistic view. First-generation dietary guidelines emphasized individual nutrients, then moved to second-generation food-based dietary guidelines, which largely converged on encouraging diets rich in vegetables, fruits, legumes, beans, split peas, chickpeas, lentils, whole grains, and nuts.

But an area of emerging importance is the degree of food processing. National nutrition guidelines first told us to cut down on saturated fat, alcohol, cholesterol, salt, and sugar. Then they started actually naming names, suggesting citizens might want to cut down on cake, for example. So, from nutrients to foods, and more recently, countries recommending limiting processed foods. This was the bombshell that really started the momentum. A commentary in the journal Public Health Nutrition in by Carlos Monteiro, a nutrition professor at the University of São Paulo, maybe the issue with nutrition and health is not so much the food nor the nutrients as much as the level of processing.

For example, food-based dietary guidelines might tell us to eat more vegetable soup. Great. But there's vegetable soup, then there are the vegetable soup. I mean, we're talking about, you know, cleaning out your fridge vegetable soup, a health-haloed organic quinoa and kale soup with a heart-stopping 1,200 mg of sodium per can.

Uh how about a vegetable soup that has more salt than it has vegetables? Or a vegetable-flavored soup that contains more artificial flavors and MSG than it has vegetables. Um just like there's breakfast cereal, and then there is breakfast cereal. Professor Monteiro and colleagues proposed the NOVA food classification system. NOVA is not an acronym.

The NOVA Classification and Ultra-Processed Foods

It means new in Portuguese, as in a new way to classify foods based on the level of processing. NOVA classifies all foods and food products into four groups. Group 1 foods are unprocessed or minimally processed like fresh,

dried, frozen, or cooked plants or animal parts with nothing bad added like salt or sugar. Group 2 foods are the salt, sugar, and fats used in cooking. And group 3 includes traditionally processed foods like when you add group 2 ingredients to group 1 foods.

But what really put NOVA on the map is group 4, its concept of ultra-processed foods. These are industrial formulations of several ingredients, which, besides salt, sugar, oils, and fats, include food substances not used in culinary preparations like added flavors, colors, artificial sweeteners, emulsifiers, other additives used to imitate real foods. Like a frosted grape Pop-Tart that has more grapes on the front of the box than inside it, with less grapes than salt, but may artificially taste like grapes and look like grapes because of 1 2 3 4 5 different food dyes.

Simply put, ultra-processed foods are foods that can't be made in home kitchens because they have been chemically or physically transformed using industrial processes. And they typically contain little or no whole foods, are ready consumer or heat up, and are fatty, salty, or sugary, and depleted in dietary fiber and other nutrients. Like all the sweet, fatty, or salty snacks like potato chips, ice cream, soda, candy, french fries, burgers, hot dogs, chicken nuggets, fish sticks. Basically, almost everything in a box or a bag. Why not just call them packaged foods? Well, they were thinking about it, but we're afraid consumers might look at a bag of apples or something and get confused. Before the NOVA classification system was introduced, the issue of food processing was largely ignored or minimized in education and outreach as well as in public health policy. But NOVA exploded onto the stage, resulting in a supernova in the world of nutrition. But what exactly is so revolutionary about this concept of ultra-processed foods? I mean, wasn't fatty, salty, sugary junk always a bad idea? What's so new about NOVA?

Monteiro suggests that there are harmful effects of ultra-processed foods that are independent of the nutrient profile. Is that true? That's exactly what I'll cover next.

At present, the United States has the lowest life expectancy of the top dozen richest countries in the world. We also have the greatest share of our diet composed of ultra-processed foods. In fact, most of what goes into our mouth isn't considered real food. Could there be a connection?

Ultra-processed foods are said to be troublesome for a wide variety of reasons like all the packaging, etc. But I'm just going to discuss the health aspects.

Health Risks Linked to Ultra-Processed Foods

Based on studies encompassing nearly 10 million participants, greater exposure to ultra-processed food was associated with a higher risk of a variety of adverse health outcomes, including all-cause mortality, meaning living a significantly shorter life.

As a reminder, ultra-processed foods are industrial formulations of processed food substances that contain little or no whole foods and typically include flavorings, colorings, emulsifiers, and other cosmetic additives. Think Twinkie.

So nutritionally vacuous that you could go blind from nutrient deficiencies if that's all you ate. Some of the health outcomes make sense, like higher ultra-processed food consumption being associated with more dental cavities in kids. That made sense as a lot of them are packed with sugar. Higher ultra-processed food consumption is also associated with an increased risk of high blood pressure. That makes sense as a lot of them are packed with salt. And with high blood pressure, as you could see how there could be a higher rate of cardiovascular events like heart attacks and strokes. And since cardiovascular diseases are our leading killers, you could see how that could lead to increased overall mortality.

Obesity is also a no-brainer. A lot of ultra-processed products are packed with calories, and furthermore, intentionally engineered with hyperpalatable combinations of fat, sugar, salt, and flavors, so you can't just eat one, promoting weight gain through so-called hedonic eating, meaning eating for pleasure even if you aren't really hungry.

I can I can see all that, but why would there also be a higher overall cancer risk associated with ultra-processed food consumption? Or a higher risk of dementia? Or a higher risk of inflammatory bowel disease?

Or a higher risk of irritable bowel syndrome? And a higher risk of developing chronic kidney disease, too. Overall, direct associations have been found between exposure to ultra-processed foods in 70% of the health issues that were investigated. A higher risk of dying from all causes put together, higher risk of getting cancer, not sleeping well, suffering from anxiety, depression, other common mental disorders, wheezing, cardiovascular disease, Crohn's disease, abdominal obesity, obesity in general, fatty liver disease, type 2 diabetes. So, increased risk of a variety of chronic diseases and mental health disorders. And apparently, not a single study reporting an association between ultra-processed food intake and beneficial health outcomes. There was never a "Take two Twinkies and call me in the morning." Given the large body of evidence implicating ultra-processed foods in human diseases and their ever-increasing consumption around the world, there's a pressing need to recognize their contribution to the global burden of disease. All right, but but wait. These are associations. Just because A is correlated with B doesn't mean that A causes B. Maybe B causes A. For example, snapshot-in-time studies show that intake of higher ultra-processed foods is associated with increased odds of depression or anxiety symptoms.

But individuals might turn to ultra-processed foods in an attempt to mitigate stress-related anxiety. They don't call it comfort food for nothing. Now, there are longitudinal studies show that greater intake of ultra-processed foods preceded depression, but maybe the food was just used to fend off bad feelings for years before any official diagnosis.

Are the Effects Independent of Diet Quality?

Uh but reverse causation, B causing A, seems less plausible when it comes to non-mental health outcomes. For example, it's harder to paint a picture of how a heart attack would cause people to then go on to eat more junk food instead of vice versa.

The other big issue when trying to establish cause and effect from observational correlational data is confounding. Maybe the reason A is associated with B is that some third confounding factor C is linked to both. For example, if people who eat more junk tend to smoke more, no wonder junk eaters would be dying more, but it would have more to do with the cigarette they put in their mouth rather than food. And indeed, people consuming unhealthy diets are also likely to smoke, drink, and not exercise, but we have ways to control for these factors. Indeed, the majority of studies were adjusted for these confounders. The most obvious confounding factor though is that highly processed foods just tend to be more likely to be junky crap. The reason cakes, crullers, candy, and cola are bad for us has less to do with how much they're processed and more to do with the fact that they are cakes, crullers, candy, and cola, packed with sugar and calories with very few nutrients. Diets high in ultra-processed foods are diets high in added sugar, saturated fat, sodium, calories, displacing more nutritious foods such as fruits and vegetables, legumes, nuts, and seeds.

So, maybe ultra-processed foods are just markers of poor diet quality. And indeed, the more ultra-processed foods we believe the more refined carbs are eating, the more sugar, saturated fat, sodium, energy, cholesterol, and the less fiber in their diet. So, where's the mystery? People who eat more bad foods get more diseases. We already knew that.

What does processing per se have to do with it? Because ultra-processed category foods are more likely to be crappy foods. I mean, we could use it as kind of a heuristic that they probably won't be good for us. For example, if you made up some rule that you're going to avoid breakfast cereals with cartoon characters on them, you'd probably end up healthier. Not because the graven image of Tony the Tiger magically hastens you to the grave, but rather because they're proxies for high sugar content. But for the developers of the ultra-processed concept, ultra-processed was no proxy. They claim that the harmful effects of ultra-processed foods are not fully captured by their nutrient profile and even go as far to say we should avoid ultra-processed foods irrespective of their nutrient profiles.

Whether ultra-processed diets are detrimental to health simply because they are of poor nutritional quality or whether the nature and extent of processing itself has health consequences has been this ongoing debate. How might we settle it? Well, if it were the case that the association between ultra-processed foods and poor health was solely because of the excess saturated fat, sugar, salt, or just from a less helpful dietary pattern in general, then if we were to adjust for dietary quality, the association between ultra-processed foods and disease should disappear,

right? In other words, if it was all about the nutrients, then people eating crappy diets high in saturated fat, salt, and sugar should have high disease rates regardless of whether they eat more ultra-processed foods or less of them, and people who eat really healthy diets should have low rates of disease regardless of how many ultra-processed foods they consume.

But that's not the case. The majority of the associations between ultra-processed foods and obesity and health problems remain significant and unchanged in magnitude after adjustment for diet quality or pattern. Meaning, even if you balance out dietary quality, those eating more ultra-processed tend to do worse.

Closing Remarks and Resources

This suggests that at least some of the adverse consequences of ultra-processed foods are independent of dietary quality. So, it's not as though the ultra-processed food companies can just reformulate their products to be lower in salt or sugar and be done with it.

There appears to be something about this class of foods beyond the standard nutrient profile that contributes to their deleterious effects, and that's just what I'll be discussing in this extended series on ultra-processed foods. Visit nutritionfacts.org/audio to see all the podcast episodes with descriptions that include links to the 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 die, and how not to age is at nutritionfacts.org/books.

All proceeds which I get are donated directly to charity. And I've got a new book in the publication pipeline, the manuscript for how not to hurt on diet and lifestyle approaches to pain management. It's been handed in and will be published December 15th. >> [music] >> I'm going to be doing a series of webinars to feature some of the new research that I discovered. Sign up for our free newsletter at nutritionfacts.org/subscribe to stay updated on when those will be.

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