

Transcript Details

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How Ultra-Processed Foods Increase the Risk of Type 2 Diabetes

Dr. Buse:

Welcome to *Diabetes Discourse* on ReachMD. I'm Dr. John Buse, and joining us for a discussion on ultra-processed food consumption and the risk of type 2 diabetes is Dr. Jean-Philippe Drouin-Chartier. Dr. Drouin-Chartier is an Assistant Professor at the Faculté de Pharmacie at Laval University and a researcher in the Nutrition, Health, and Society Center of the Institute on Nutrition and Functional Foods in Quebec, Canada.

JP, thank you for joining us today.

Dr. Drouin-Chartier:

Hello, John. Thank you very much for having me. It's a pleasure.

Dr. Buse:

So to start us off, can you tell us what ultra-processed foods are and why we think they could be associated with diabetes?

Dr. Drouin-Chartier:

Yes, of course. So the basic definition of ultra-processed food or the official definition is that these are industrial formulations made mostly or entirely with extract from foods with often chemically modified additives and stuff like this, so there's little whole foods in ultra-processed food. And the easier way to describe them as I like to present them is that these are basically the foods that are packaged and ready to eat or ready to heat. This is usually how we can simply define ultra-processed food.

Dr. Buse:

And why do we think they could be associated with diabetes?

Dr. Drouin-Chartier:

So these foods went through a whole process, and sometimes emulsifiers are added to the food, so these kinds of nutrient additives have been associated in mechanistic studies to impairment in the gut microbiota, development of systemic inflammation, insulin resistance, body weight, and all these are pathways toward diabetes development. And also, ultra-processed foods just tend to have less fiber, so these are all the overall nutrient profile reflex that is associated usually with higher risk of diabetes.

Dr. Buse:

So with that in mind how did you conduct your study? From my read, it seemed like an outstandingly comprehensive approach.

Dr. Drouin-Chartier:

Yeah. Thank you very much. It was a two-step process. So first, we did the standard, nutritional prospective analysis, and we worked with the Harvard cohorts, the Nurses Health study, and the Health Professionals follow-up study. These cohorts were implemented in the '80s, early '90s, and since then, the participants every two to four years report information on their diet using the Food Frequency Questionnaire and also information on their health, including diabetes diagnosis. So in this cohort, we know a lot about the lifestyle and health of the participants for many decades.

So what we did is we leveraged diet data, so we identified from the questionnaire the items in the questionnaire that met the definition of ultra-processed food, and then we calculated the overall intake per participant of ultra-processed food, and we prospectively linked it with diabetes development, and we observed in these cohort that total ultra-processed food consumption was associated with a higher risk of diabetes. So that was the first step. That's already quite a strong demonstration of this relationship. But then what we did is we conducted a meta-analysis, so we screened the literature, and we identified a few other studies, mostly from Europe where the same

relationship is previously being assessed, and then we meta-analyzed this cohort, and that basically confirmed our analysis in the Harvard cohorts but with a more global perspective, and it confirmed that ultra-processed food consumption is associated with a high risk of diabetes.

In nutrition meta-analysis, there is a tool. It's called the NutriGrade evidence scoring system, which allows us to grade the quality of the evidence using the meta-analysis data. So we applied this scoring system, and what we observed is that our study has generated high-quality evidence supporting this relationship. This means that further studies, similar prospective analysis on ultra-processed food and type 2 diabetes show mostly more evidence on this direction on this detrimental association.

Dr. Buse:

Are there any specific foods or food types that had a particularly large effect?

Dr. Drouin-Chartier:

Our main analyses were on total ultra-processed food intake, so this means that we put together like white bread, which is an ultra-processed food, but also some whole-grain breads that can be categorized as ultra-processed food. And we know that with whole-grain breads there is more fiber; they have been associated with lower risk of diabetes, so to obtain a more clear picture of specific foods that are the most detrimental, we did a subgroup analysis, and we observed that refined breads, sauce, breads, condiments, sugar-sweetened beverages, animal-based products, and all the ready-to-eat, ready-to-heat dishes were associated with a higher risk of type 2 diabetes. And conversely, we saw that cereals, dark whole-grain breads, fruit-based products, yogurt, and dairy-based desserts were associated with a lower risk of diabetes.

Dr. Buse:

For those just tuning in, you're listening to *Diabetes Discourse* on ReachMD. I'm Dr. John Buse, and today I'm speaking with Dr. Drouin-Chartier about his study on ultra-processed food consumption and the risk of type 2 diabetes.

JP, you have a lovely and long discussion in the paper that tries to pull it all together. What are the messages that clinicians should be providing to their patients with diabetes or those at risk of developing diabetes with regards to food choices?

Dr. Drouin-Chartier:

I think the most simple message is to reinforce the current dietary guidelines that promote the consumption of minimally processed plant-based foods mostly. By promoting these foods, I think we are reducing the risk of many diseases, including diabetes, but that's a challenge because to have an overall diet that is rich in minimally processed food means that the diet is rich in fresh foods and that these need to be cooked. So it's all about promoting more healthy foods in the diet but also providing support, I think, to patients on how to prepare and enjoy these foods.

Dr. Buse:

Yeah, it's a complicated business, but I have a confession. I eat a 120-calorie ultra-processed ice cream cone in the evening almost every day. I actually started while I was on a weight loss diet as sort of a treat for good behavior during the day. But one of the unexpected findings in your paper is that dairy-based desserts were associated with a lower risk for diabetes. Can you take a deeper dive on that and your feelings about the appropriate place for sweets and desserts in meal planning?

Dr. Drouin-Chartier:

Yes, we observed that yogurt and dairy-based desserts, as a group, was associated with lower risk of diabetes, but this result needs to be, in my view, interpreted the way that in this group of food, the most consumed food is yogurt and then other dairy-based desserts like ice cream or sorbet, and the relationship between yogurt consumption and lower risk of type 2 diabetes has been described in the Harvard cohorts, but also in many if not most cohorts worldwide, so this effect will be likely related to lactic bacteria and the potential beneficial effect of the bacteria content on the gut microbiota. So the effect that we observe I think is mostly driven by the yogurt in this food group. I think that diet is all about balance also, and even though we want to promote minimally processed, plant-rich diets, there's always a place for these kinds of treats that keeps some pleasure and that are good for the mind sometimes, so I don't think that promoting a restrictive approach is a good way.

Dr. Buse:

Yeah, I agree. I think it's very important to enjoy food, but be mindful about how it's put together. Before we close, is there anything else you'd like to tell the audience?

Dr. Drouin-Chartier:

Again, I think that it's important that the audience is conscious of the challenges that can be associated with promoting a healthy diet because promoting is one thing, but applying the change that will last needs tools, teaching, and counseling, and also there's a need to address the potential public health issues of the high presence of ultra-processed foods in diets and in the food environment in North

America. I think it needs to be targeted by policies that would try to reduce the presence of these foods in grocery stores and also to improve the quality of these foods because as we saw in our analysis, there are subgroups that seem to be totally fine. I mean whole-grain breads, it's not because it's tagged as an ultra-processed food that it's necessarily bad for health, but if the overall offer of bread in North America remains mostly of refined breads, white bread, there's this lack of access to these healthy foods, so I think it's part individual but also through populational and policies that we can tackle the challenge associated with the presence of ultra-processed food in our diet.

Dr. Buse:

This has been a really impactful conversation. I'd like to thank my guest, Dr. Drouin-Chartier, for being here and for sharing his insights on ultra-processed food consumption and the risk of type 2 diabetes. JP, thank you so much for joining us.

Dr. Drouin-Chartier:

Thank you very much. It was a pleasure.

Dr. Buse:

For ReachMD, I'm Dr. John Buse. To access this episode and others from our series, visit *Diabetes Discourse* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening.