Module 6, Lesson 2 Handout:

Artificial Colors, Preservatives, & Sweeteners

We know the importance of a whole food unprocessed diet and the role that eating nutrient dense foods can play in promoting overall health, yet there are still things made available in our food supply that are so connected to disease. We get more into how this happens in Lesson 11 on GRAS, but for now let's focus on the dangers of these additives in relation to health. There's solid evidence showing the connection between food additives and certain cancers and obesity and research is now shedding light on the impact additives may have on the immune system.

Though the research is still fairly new in this area, the theory is that certain additives may be damaging the junctions in the gut that protect the intestinal mucosa. These gut junctions are a lynchpin in developing autoimmune diseases. Research finds that the seven food additives listed below may be raising the risk for autoimmune diseases in autoimmune disorders related to the GI tract.

Emulsifiers

Emulsifiers are additives that allow ingredients like oil and water to live in blended harmony without separating. Common emulsifiers are lecithin, carboxymethylcellulose (CMC) and polysorbate 80 (P80.) Emulsifiers are typically found in baked goods and desserts, ice cream, dairy, fats, oils, processed meat and other processed foods. Research has shown common emulsifiers can cause changes in gut bacteria, reducing the number of beneficial bacteria and increasing levels of inflammatory microbes, which may be contributing to risk of GI related autoimmune diseases such as IBDand Crohn's disease.

Gluten

Gluten can be used as a food additive to improve the texture and volume of processed foods. This is typically seen as vital wheat gluten on ingredients labels. Even though we know the gluten free hype is often just that - hype - autoimmune diseases are an example of time where gluten may need to be avoided (and definitely in cases of Celiac disease.) As for claims that eating gluten can actually cause an autoimmune disorder, there is no clear evidence that this is the case. Even still, cutting out processed foods is a goal for pretty much any client, so you'll inherently be cutting back on gluten additives too.

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Microbial transglutaminase

This additive is basically food glue used in processed meats, fish and baked goods to hold them together. If it doesn't sound gross enough, there's now some research showing this ingredient may be linked to the development of celiac disease in children due to the way the gut responds to the additive's glue-like consistency.

Nanometric particles

These are super tiny particles - we're talking between one and 100 nanometers in size, (remember that's a billionth of a meter) - that are used to improve taste, color, uniformity, and texture as well in food packaging. Oneexample is titanium dioxide nanoparticle, which is added to foods like whipped cream frosting and Pop Tarts to enhance the white color. There's plenty of research showing these products can cause harm; for example, damage to liver and brain cells. As for autoimmune disease, scientists have found that nanoparticles can harm the gut by weakening the tight junctions that protect the intestinal mucosa. The scariest thing about these particles is that you won't necessarily find these ingredients on food labels, so your best bet is just avoiding all overly processed foods.

Organic solvents (used to stabilize food products, preserve and add flavor)

This group of additives includes hexane, benzene, and (trichloroethylene) TCE. A big meta-analysis confirmed that exposure to organic solvents is a risk factor for developing autoimmune diseases. Though the reasoning wasn't totally clear, this might be because consuming lots of these additives over time could lead to build up of these solvents in organs and this could initiate an inflammatory response and lead to autoimmune disease.

Salt

We typically think about blood pressure and heart health when we think about salt, but research is now showing the link between salt and autoimmune disease. Animal research found that gut bacteria are super sensitive to salt and that eating a diet high in salt can reduce the amount of lactic acid bacteria in the gut, which impacts the immune cells that play a role in autoimmune diseases. Other lab research found a high salt diet can accelerate progression of an autoimmune disease.

Artificial Sweeteners

We spent a lot of time covering the dangers of artificial sweeteners in Level 1 and their connection to autoimmune diseases provides another reason to always steer clear. Animal research shows a clear

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connection between artificial sweeteners and the immune system. One case study found a link between artificial sweeteners and autoimmune thyroiditis. Another study published in the *World Journal of Gastroenterology* found artificial sweeteners may be contributing to the high incidence of IBD.

Bottom Line

Though each of these ingredients acts in a different way in our bodies, the key is that our guts don't know how to break down these chemicals, causing damage to our systems. The science isn't as strong in this area as it is in say, the connection between charred meats and cancers or blueberries for brain health, but we can make a pretty strong case for steering clear of most packaged processed foods for a host of different health reasons. Work with clients to help identify which foods contain these ingredients and how to spot them on labels. The best piece of advice to give clients? Avoid anything overly processed - think foods that can sit on the shelves for months - and stick with fresh to steer clear of these harmful ingredients.

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