

## October 2020 Health Notes by Evelyn Ames

### Food Additives of Concern—An Update

Regulation of additives (such as preservatives, colors, sweeteners, fat replacers, and emulsifiers) used in foods in the United States is through the US Food and Drug Administration. Some 10,000 chemical ingredients are added to food to maintain or improve safety, freshness, nutritional value, taste, texture, and appearance. They can be direct (added for a specific purpose) or indirect (added in trace amounts due to packaging, storage, or handling). Any substance that is reasonably expected to become a component of food is a food additive. It is subject to premarket approval by FDA, unless the substance is generally recognized as safe (GRAS) as evaluated by those qualified with scientific training and experience. The GRAS list has been in existence since it was first published in December of 1959. Do note that what is allowed in the United States is not always allowed in European countries. Recent Consumer Reports and other research studies (e.g., *Nature*, a British scientific journal) have reviewed several additives and made the following suggestions about several food additives in relation to safety.

**Nitrates and Nitrites** (preservatives in bacon, deli meats and hot dogs). Foods with nitrates (either synthetic such as sodium nitrate/nitrite or natural sources such as celery) when cooked at high heat can form with stomach acid to generate nitrosamines, which may be carcinogenic. Suggestion is to eat less.

**Trehalose** is a type of sugar that enhances flavor by adding mild sweetness to foods. It is also used to extend shelf life and improve texture. Trehalose is widespread in bacteria, fungi, yeast, insects, and plants. It is used in baked goods, cereals, fish in pouches, and frozen shrimp. A study published in *Nature* found a connection between trehalose and *Clostridioides difficile*. This bacterium causes inflammation of the colon and diarrhea. Enzymes in the body that break it down get overwhelmed when too much is eaten. “Consuming trehalose doesn’t transmit the bacteria, ... but it encourages its growth. And anyone who’s taking an antibiotic—which typically wipes out the good bacteria that keep *C. diff* in check along with ridding your body of infection—can be at risk.”

**Carrageenan** is obtained from red seaweed and is used as a stabilizer. It keeps salad dressing from separating and gives yogurts, frozen desserts, and plant milks a creamy taste and texture. According to a Univ. of Illinois, Chicago researcher, carrageenan is foreign to human cells and exposure can lead to inflammation, especially in the gastrointestinal tract. Individuals with irritable bowel syndrome reported in the study that relief occurred when they avoided carrageenan. The National Organic Standards Board called for removal of carrageenan in organic products due to its questionable safety. The USDA (Department of Agriculture) decided to continue to allow carrageenan in organic products.

**Artificial sweeteners** are sugar substitutes and include acesulfame potassium (Ace K), aspartame, and sucralose. They are much sweeter than sugar and have few or no calories and are used in so-called “diet” foods. They are being used in products due to the fact the food manufacturers must list on the label how many grams of added sugars are in a product. Manufacturers want to keep total grams of added sugars low and use the artificial sweetener to keep a level of sweetness. The concern is that these sweeteners may cause changes in the intestinal tract microbiome and may also increase risk of type 2 diabetes and heart disease. Additionally, studies have found using artificial sweeteners in place of sugar (e.g., diet colas in place of regular sodas) do not lead to weight loss but actually increase a person’s number of fat cells.

**Sorbitol**, a sugar alcohol with about half the calories of sugar and half the sweetness, is used in sugar-free versions of foods like candy, cookies, and gum. It is used as an emulsifier and anti-caking agent in some products. Sorbitol does occur naturally in some dried fruits—particularly prunes. Since sorbitol brings water into the colon, high doses can cause bloating, gas, and diarrhea.

**Phosphorus-containing additives** (phosphoric acid and disodium phosphate) are found in processed foods such as sodas, baked goods, and dairy products and in fast food. Phosphorus from additives is more readily absorbed than when it occurs naturally in food. High phosphorus intake is hazardous for people with kidney disease or those at risk for it. Additionally, too much phosphorus can bind to calcium, pulling it from bones and leaving them brittle. A United Kingdom study found subjects with normal kidney function but high phosphate levels had increased risk of heart attack or stroke.

Comment on Food Colors: these refer to substances added to food and impart color to the food. Any color additive in food is deemed unsafe unless its use is either permitted by regulation or exempt by regulation. Unlike the definition for food additive, there is no GRAS exemption for color additives. Colors are also used in drugs and cosmetics, hence the FDC (food, drug, cosmetic) label.

Sources: *Consumer Reports on Health*, September 2020.

<https://www.fda.gov/food/food-ingredients-packaging/determining-regulatory-status-food-ingredient>

<https://cspinet.org/sites/default/files/attachment/GRAS-Infographic%20%281%29.pdf>