

# Nutrition News

Department of Human Nutrition



September 2010

## The roles of food additives

When you think of a rainbow of colors, do you think about the variety of fruits and vegetables you are encouraged to eat daily? Or instead, do you consider a handful of colorful M&Ms, or the nine synthetic dyes (Blue 1, Blue 2, Citrus Red 2, Green 3, Orange B, Red 3, Red 40, Yellow 5, and Yellow 6) that can be used in food products? There is growing concern about these color additives being used in breakfast cereals, snack foods, soft drinks and other processed foods because of reports of hyperactivity and hypersensitivity in some children and consumers, respectively. However, the Food and Drug Administration (FDA) has ruled these reports as inconclusive because of the inconsistencies between studies. Therefore, the food industry continues to use these inexpensive, brighter-than-natural color substances.

Color additives are just one category of food additives, and each category has a role in our food supply. For hundreds of years, food additives have been used to preserve foods. Prior to refrigeration, salt was used to preserve meats,

vegetables were pickled in vinegar, and sugar was used to preserve fruits. Salt, vinegar and sugar seem harmless, but they are just a few, along with color additives, among the list of over 3,000 ingredients maintained by the FDA in its food additive database.

Food additives are substances added to a food to preserve it, give it flavor, or improve its taste and/or appearance. Manufacturers use additives in foods to retain nutritional value, maintain freshness and safety, and increase affordability and convenience. Basically, without food additives, our food supply would be limited and costly.

Additives such as fiber, vitamins and minerals can improve the nutrient density of a product and help protect against certain health problems. Breakfast cereal is a good example of a product that has been “enriched” (nutrients lost during processing are added back to the product) or “fortified” (nutrients have been added that did not originally exist in the product).

Preservatives, another category of food additive, protect food by slowing down the damage caused by bacteria, fungi, mold, yeast, and air. Vitamin E, butylated hydroxyanisole (BHA), and butylated hydroxytoluene (BHT) are examples of preservatives used in baked goods because these additives hinder the rancidity of fats and oils.

Some food additives such as sorbitan monostearate may sound more harmful than others because the name is difficult to pronounce or the function is unknown, yet sorbitan monostearate and egg yolks both serve as emulsifiers in products to keep oil and water from separating. Although the FDA strictly monitors and regulates all food additives for safety based on the intended usage level in a product, consuming several different products with similar additives could increase risks for some chronic diseases. For example, salt (sodium) and sugar (sucrose) are very common household names, but too much sodium increases the risk for hypertension and too much sugar increases the risk

for obesity and dental caries. Hypertension and obesity both increase the risk for heart disease. Baking soda (sodium bicarbonate), monosodium glutamate (MSG), sodium benzoate, sodium carbonate, and sodium erythorbate are all sodium-based ingredients, yet they are found in different products and serve different roles. Likewise, corn syrup, high fructose corn syrup, brown sugar, maple syrup, molasses, and evaporated cane juice are all sugar ingredients that appear in different products and contribute the majority of the added sugar consumed in the American diet.

A chart listing the various categories of food additives, the functions of those additives, products they are typically found in, and examples of food additive names found on product labels accompanies this article. Individuals who have food allergies or sensitivities should read food labels carefully and avoid or limit those products of concern.

#### References:

1. Duyff, R.L. "What's on today's table?" The American Dietetic Association: Complete Food and Nutrition Guide. Hoboken: Wiley & Sons, 2006. 196-202.
2. Jacobson, M.F. and Kobylewski, S. "Color us worried: Why synthetic food dyes should be banned". Nutrition Action. 2010;37(7):10-11.
3. Seher, C.L. "Gray area: Jury's still out on link between artificial colors and hyperactivity". Today's Dietitian. 2010;12 (9):8-10.
4. U.S. Department of Health and Human Services and U.S. Department of Agriculture. Dietary Guidelines for Americans, 2005. 6th Edition, Washington, DC: U.S. Government Printing Office
5. U.S. Food and Drug Administration. Food ingredients and colors. Retrieved June 7, 2010 from: [www.fda.gov/Food/FoodIngredientsPackaging](http://www.fda.gov/Food/FoodIngredientsPackaging)
6. U.S. National Library of Medicine and National Institutes of Health. Food additives. Retrieved July 7, 2010 from: [www.nlm.nih.gov/medlineplus/print/ency/article/002435](http://www.nlm.nih.gov/medlineplus/print/ency/article/002435)

For more information about healthy eating, contact your local extension office.  
The Food Assistance Program can help people of all ages with low income buy nutritious foods for a better diet.  
To find out more, call toll-free 1-888-369-4777.

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit **Tandalayo Kidd**, Assistant Professor, Department of Human Nutrition; Kansas State University; *The roles of food additives*; September 2010.

K-State Research and Extension is a short name for the Kansas State University Agricultural Experiment Station and Cooperative Extension Service, a program designed to generate and distribute useful knowledge for the well-being of Kansans. Supported by county, state, federal and private funds, the program has county Extension offices, experiment fields, area Extension offices and regional research centers statewide. Its headquarters is on the K-State campus, Manhattan. This material was funded in part by USDA's Food Stamp Program through a contract with Kansas Department of Social and Rehabilitation Services.

Brand names appearing in this publication are for product identification purposes only.

No endorsement is intended, nor is criticism implied of similar products not mentioned. Kansas State University is an equal opportunity provider and employer. **Kansas State University Agricultural Experiment Station and Cooperative Extension Service**, Manhattan, Kansas. Kansas State University, County Extension Councils, Extension Districts, and the U.S. Department of Agriculture cooperating.