June 2012 Health Notes by Evelyn Ames

Food Additives: What? Why? Benefits/Risks? Part 1

In simple terms, food additives are any substances used in the production, processing, treatment, packaging, transportation or storage of food. The legal definition is "any substance the intended use which results or may reasonably result—directly or indirectly—in its becoming a component or otherwise affecting the characteristics of any food" (U.S. Food and Drug Administration). An additive listed as FDC means that it can be used with a food (F), a drug (D), and a cosmetic (C). Commonly used food additives include baking soda, salt, sugar, yeast, and vanilla.

- Direct Additive: added to a food for a specific purpose in a food (e.g., aspartame added to diet drinks).
- Indirect Additive: becomes part of a food in trace amounts due to its packaging, storage, or other handling (e.g., potato chip packages have antioxidants (e.g., BHT) in the packaging to prevent rancidity occurring in package. Food packaging manufacturers must prove to FDA that all materials coming in contact with food are safe before they are permitted for use in such a manner.

Five main reasons additives are used in foods:

1. Maintain product consistency. Emulsifiers give products a consistent texture and prevent them from separating; stabilizers and thickeners give smooth uniform texture; and anti-caking agents help substances such as salt flow freely (e.g., guar gum, lecithin, pectin, alginates, mono- and di-glycerides).
   - Foods: baked goods, cake mixes, salad dressings, ice cream, process cheese, coconut, table salt.
2. Improve/maintain nutritional value. Vitamins and minerals (Vitamins A and D, Thiamine, Niacin, Riboflavin, Pyridoxine, Folic Acid, Ascorbic Acid, Calcium Carbonate, Zinc Oxide, and Iron) are added to many foods such as milk, flour, cereal and margarine to make up for those likely to be lacking in a person's diet or lost in processing. All products containing added nutrients must be labeled appropriately.
   - Foods: flour, bread, biscuits, breakfast cereals, pasta, margarine, milk, iodized salt, gelatin desserts.
3. Maintain palatability and wholesomeness. Preservatives are used to retard spoilage caused by mold, air, bacteria, fungi, or yeast, whereas antioxidants are preservatives that prevent fats and oils in baked goods, and other foods, from becoming rancid or developing an off-flavor (e.g., propionic acid, ascorbic acid, citric acid, butylated hydroxyanisole (BHA) and butylated hydrorxytoluene (BHT).
   - Foods: bread, cheese, crackers, frozen & dried fruit, margarine, lard, potato chips, cake mixes, meat.
4. Provide leavening or control acidity/alkalinity. Leavening agents that release acids when heated can react with baking soda to help cakes, biscuits and other baked goods rise during baking. Other additives help modify the acidity and alkalinity of foods for proper flavor, taste, and color (e.g., yeast, sodium bicarbonate, citric acid, fumaric acid, phosphoric acid, lactic acid, and tartrates).
   - Foods: cakes, cookies, quick breads, crackers, butter, chocolates, soft drinks.
5. Enhance flavor or impart desired color. Many spices and natural and artificial flavors enhance the taste of food. Colors enhance the appearance of certain foods to meet consumer expectations (e.g., spices, caramel, tumeric, aspartame and saccharin and other artificial sweeteners, cloves, ginger, fructose, FD&C Red No.40, monosodium glutamate, annatto, and limonene).
   - Foods: spice cake, gingerbread, soft drinks, yogurt, soup, confections, baked goods, cheeses, jams, and chewing gum.
   - Source for reasons for use in foods. http://www.nlm.nih.gov/medlineplus/ency/article/002435.htm

What is a color additive? It is any dye, pigment, or substance that can impart color when added or applied to a food, drug, or cosmetic, or to the human body. Colors may be used in foods, drugs, cosmetics, and certain medical devices such as contact lenses. Colors are added in foods to offset color loss due to storage or processing of foods and to correct natural variations in food color (e.g., FD&C Yellow #6 is used in cereals, bakery goods, snack foods). Colors for use in foods are classified as certified or exempt from certification. Certified colors are human-made, with each batch tested by the manufacturer and FDA to ensure they meet strict specifications for purity. There are 9 certified colors approved for use in the U.S.

FD&C Blue No. 1; FD&C Blue No. 2; FD&C Green No. 3; Orange B (restricted for use in hot dog and sausage casings); Citrus Red No. 2; FD&C Red No. 3; FD&C Red No. 40; FD&C Yellow No. 5; FD&C Yellow No. 6. Colors exempt from certification include pigments derived from natural sources such as vegetables, minerals, or animals (e.g., caramel color (heating sugar and other carbohydrates), beet powder (red colors); most colors exempt from certification must meet certain legal criteria for specifications and purity. Source: http://ecfr.gpoaccess.gov/cgi/t/text/textidx?c=ecfr&sid=3f6c9146ba54b1b84f17046e27197926&tpl=/ecfrbrowse/Title21/21cfr74_main_02.tpl

Artificial Sweeteners: "Artificial sweeteners are synthetic sugar substitutes but may be derived from naturally occurring substances, including herbs or sugar itself. Artificial sweeteners are also known as intense sweeteners because they are many times sweeter than regular sugar." "Some manufacturers call their sweeteners "natural" even though they're processed or refined, as is the case with stevia preparations. And some artificial sweeteners are derived from naturally occurring substances — sucralose comes from sugar" (http://www.mayoclinic.com/health/artificial-sweeteners/MY00073. The FDA currently approves Acesulfame potassium (Sunett, Sweet One), Aspartame (Equal, NutraSweet), Neotame, Saccharin (SugarTwin, Sweet'N Low), and Sucralose (Splenda). Possible health benefits and health concerns are reported at the mayoclinic site.

What are sulfites? "Sulfites are a group of sulfur-based compounds that may occur naturally or may be added to food as an enhancer and preservative. The FDA estimates that one out of 100 people is sensitive to the compounds. A person can develop sensitivity to sulfites at any time in life, and the trigger for the sensitivity is unknown. For a person who is sensitive to sulfites, a reaction can be mild or life threatening." In 1986, the FDA banned the use of sulfites on fruits and vegetables that are eaten raw, such as lettuce or apples. Regulations also require manufacturers who use sulfites in their processed products to list the compounds on their product labels. Although sulfites are no longer used on most fresh foods, they still can be found in a variety of cooked and processed foods. They also occur naturally in the process of making wine and beer." http://www.webmd.com/allergies/guide/sulfite-sensitivity. If concerned about allergy to sulfites, look on food labels for sulfur dioxide, potassium bisulfite or potassium metabisulfite, and sodium bisulfite, sodium metabisulfite or sodium sulfite.

Additional sources that provide comments and opinions about food additives:
http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/FoodIngredientsandPackaging/ucm061846.htm
http://www.fda.gov/Food/FoodIngredientsPackaging/GenerallyRecognizedasSafeGRAS/GRASSubstancesSCOGSDatabase/ucm084142.htm (pertains to the GRAS list—generally recognized as safe)
http://www.fda.gov/Food/FoodIngredientsPackaging/FoodAdditives/FoodAdditiveListings/ucm091048.htm
http://www.who.int/foodsafety/chem/en/ (World Health Organization)

Discussion of various food additives (e.g., BHT, BHA, high fructose corn syrup, guar gum, cellulose, MSG, and artificial flavors, and those relating to meat and poultry) continues in the September 2012 WWURA Newsletter.