

WHAT'S IN OUR FOOD: SCIENCE AND SAFETY OF FOOD ADDITIVES



FOR FOOD & NUTRITION PROFESSIONALS ★

Consumers are becoming more interested in improving their health through the foods they choose, including a shift to consuming more whole foods and minimally processed foods. This growing interest in food and health is leading to many questions about what's in our food and the safety of ingredients. Food & nutrition professionals have a responsibility to answer questions based on science, to help people make informed decisions.

WHY THE CONCERN?



Consumers are generally unfamiliar with food additives because there is uncertainty with the unknown (e.g., not being able to pronounce the ingredients). ¹



People feel a sense of comfort with familiar foods or foods they've prepared at home. ¹

60%
of consumers think the absence of artificial additives is important. ²



59%
believe fewer ingredients = healthier. ³

30%
are cautious about serving foods with preservatives. ⁴



25%
look for products only with recognizable ingredients or fewest ingredients. ⁴

"The goal ... should be to consolidate [consumer] views and enable consumers to make informed decisions about food additives."

- Kaptan B. Kayisoglu S.

Consumers' Attitude towards Food Additives. American Journal of Food Science and Nutrition Research. 2015;2(2):21-25.

PUBLIC RESPONSE

**NO ARTIFICIAL
COLORS,
FLAVORS, OR
PRESERVATIVES**



▶ People are willing to pay a premium when a product label says "free of" something. ⁵

▶ "Free-of" does not necessarily mean "zero" (e.g., "gluten-free" 20 ppm). ⁵

ENCOURAGE THESE RESOURCES FOR INFORMATION ABOUT FOOD ADDITIVES

• **FDA - Food Additives & Ingredients**

<http://bit.ly/1tn64y9>

• **FDA - Consumer Info About Additives & Ingredients**

<http://bit.ly/2k8GpAj>

• **U.S. Dept. of Agriculture (USDA) Food Safety & Inspection Service (USDA-FSIS) regulates meat and poultry products)**

<http://bit.ly/1hm8ZW1>

• **Medline Plus**

<http://bit.ly/2lFYvB5>

• **International Food Information Council**

<http://bit.ly/1wo2at3>



EDUCATE ABOUT FOOD ADDITIVES AND WHY THEY ARE USED

33 CATEGORIES OF DIRECT FOOD ADDITIVES:⁶

- Anticaking agents and free-flow agents
- Antimicrobial agents
- Antioxidants
- Colors and color adjuncts
- Curing and pickling agents
- Dough strengtheners
- Drying agents
- Emulsifiers and emulsifier salts
- Enzymes
- Firming agents
- Flavor enhancers
- Flavor agents and adjuvants
- Flour-treating agents
- Food preservatives
- Formulation aids
- Fumigants
- Humectants
- Leavening agents
- Lubricants and release agents
- Nonnutritive sweeteners
- Nutrient supplements
- Nutritive sweeteners
- Oxidizing and reducing agents
- pH control agents
- Processing aids
- Propellants, aerating agents, and gases
- Sequestrants
- Solvents and vehicles
- Stabilizers and thickeners
- Surface-active agents
- Surface-finishing agents
- Synergists
- Texturizers

JECFA (Joint FAO/WHO Expert Committee on Food Additives) has evaluated more than 2,500 food additives and found them to be safe.

FAO website.
<http://bit.ly/Zi5PNg>

FUNDAMENTAL FUNCTIONS OF FOOD ADDITIVES

A food additive is any substance that may directly or indirectly become a component of or otherwise affect the characteristic of a food or beverage.⁷



FOOD PRESERVATION

Prevent spoilage – foodborne illness was once the #1 cause of death; America wastes 40% of all food produced from farm to fork. Some food additives reduce food waste and environmental losses. Many food additives are intended to increase the shelf life of food.

Example:
- Ascorbic acid is added to fresh-cut fruit to prevent browning.⁸



SENSORY CHARACTERISTICS

Enhance food appeal and acceptability (i.e. flavor, texture, color) to meet people's expectations.

Examples:
- Carageenan is added to non-dairy beverages like soymilk to create a creamy mouthfeel.
- Leavening agents allow baked goods to rise.⁶



FOOD PROCESSING

Processing aids are not required to be listed in the ingredient list but they may be present at very low concentrations in the finished product per FDA guidelines. Many are removed from the finished food product.

Examples:
- Sodium salts are added to deli meats so they slice well and keep their shape.
- Nitrogen is used in packaged products to reduce oxidation, retain specific nutrients, and extend storage.⁶

NUTRITIONAL QUALITY

Fortifying foods with micronutrients adds nutritional quality to foods.

Examples:
- Vitamin D and vitamin A are added to liquid milk products.
- Iron salts or elemental iron is added to meal-replacement products, cereals, and infant formulas.
- Iodine is added to salt (since the 1920's in the U.S. to prevent goiter)⁹

MORE CONSUMER CHOICE

Food additives can help create more product options for consumers.

Examples:
- Low-fat salad dressing
- Low-fat chocolate milk
- Nut-based beverages
- No added sugar jelly¹⁰



"When provided more information about ingredients, consumers are more confident about their decisions and value the product more."

- Council For Agricultural Science And Technology.

Process Labeling of Food: Consumer Behavior, the Agricultural Sector, and Policy Recommendations. October 2015.

WE ARE ALWAYS LEARNING THROUGH SCIENCE: KEEP CONSUMERS INFORMED

Science is always evolving, and as the science presents itself, some food additives will be added or taken off the approved list. An example is trans fats in the 1990's. At the time there was limited science around partially hydrogenated oils and the effects of their trans fats, but since then the FDA has removed partially hydrogenated oils from the generally recognized as safe (GRAS) list.

eat right. Academy of Nutrition and Dietetics Foundation
Future of Food Initiative

This infographic was developed as part of the Future of Food initiative through an educational grant to the Academy of Nutrition and Dietetics Foundation from National Dairy Council®.

References:

1. Gasparro A. Nestlé USA to Remove Artificial Ingredients From Candy. Wall Street Journal. Feb. 17, 2015.
2. Kaptan B, Kayisoglu S. Consumers' Attitude towards Food Additives. American Journal of Food Science and Nutrition Research. 2015;2(2):21-25.
3. Mintel Web site. www.mintel.com/press-centre/food-and-drink/84-of-americans-buy-free-from-foods-because-they-believe-them-to-be-more-natural-or-less-processed.
4. Petrun L, Flood A, Sellnow T, et al. Shaping health perceptions: Communicating effectively about chemicals in food. Food Protection Trends. 2014;35(1):24-35.
5. Liukonyte J, Streletskaia NA, Kaiser HM, et al. Consumer Response to "Contains" and "Free of" Labeling: Evidence from Lab Experiments. Applied Economic Perspectives and Policy. 2013 doi: 10.1093/aep/ppt015.
6. U.S. Food and Drug Administration Web site. [21CFR184]. <https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcr/CFRSearch.cfm?CFRPart=184>.
7. U.S. Public Law 85-929. September 6, 1958. <http://uscode.house.gov/statutes/pl/85/929.pdf>.
8. Gunders D. Wasted: How America is losing up to 40 percent of its food from farm to fork to landfill. Natural Resources Defense Council website. <http://www.nrdc.org/food/files/wasted-food-ip.pdf>. Published August 2012.
9. Food and Drug Administration Web site. 21CFR101.22 <http://www.fda.gov/Food/IngredientsPackagingLabeling/FoodAdditivesIngredients/ucm094211.htm>.
10. Codex Alimentarius Web site. Codex General Standard for Food Additives (GSFA) Online Database. <http://www.fao.org/fao-who-codexalimentarius/standards/gsa/en/>