



# Health Connections

LINKING NUTRITION RESEARCH TO PRACTICE

## “PROCESSED FOOD”

# A Continuum of Choices

Has progress in food technology transformed the U.S. food system into one of the safest, most technologically advanced, sustainable, productive and least expensive food supplies anywhere? Or has the industrialization of food production—processing food in ways designed to appeal to preferences for sweetness, fat and salt<sup>1</sup>—resulted in a deterioration of the healthfulness of our food supply and contributed to obesity and other chronic diseases?

This issue of *Health Connections* looks at perceptions some consumers—and perhaps health professionals—have about processed food, and outlines how to educate clients regarding appropriate selection of “processed” foods to meet both lifestyle needs and individual health goals.

### Background

The United States Department of Agriculture (USDA), Agricultural Marketing Service (AMS) defines processed food as a retail item derived from a commodity that has undergone specific processing, resulting in a change in the character of the commodity.<sup>2</sup> Processed foods are “value-added” products—raw commodities transformed through use of materials, labor and technology. Any product that requires some degree of processing is referred to as a processed product, whether the amount of processing is minor—such as for frozen vegetables, canned fruit or pasteurized milk—or more complex, such as for snack foods.<sup>3</sup> A multi-billion dollar industry in the United States, food processing offers a nearly limitless supply of foods packaged in a variety of ways to meet consumers’ demand for products suited to their busy lifestyles.

Food processing performs a variety of useful services that consumers often take for granted: the addition of antioxidants to prevent oils from turning rancid, the fortification of specific foods

such as milk and grains to reduce risk of malnutrition and the application of heat to kill food-borne pathogens. Food processing has come a long way from the early days of sun drying, preserving with salt and fermenting; to pasteurization, canning, freezing/freeze-drying; to ready-made meals, allergen-free foods, shelf-stable products and to foods for extended space missions. Processed foods also provide food security for survival in times of natural disasters.

### Processed foods: A broad category

Rather than pejorative, the term “processed foods” refers to a broad spectrum or continuum of choices ranging from minimally processed, nutrient-dense foods—such as pasteurized, fortified milk—to highly processed, energy-dense, fortified snack foods considered by some as “technology run amok.” Food fortification is used by the food industry to provide foods along this continuum. Examples of fortification to improve public health include adding vitamin D to milk, B vitamins and iron to grains and iodine to salt. Health professionals can assist consumers in evaluating their choices within the broad category of “processed foods” to select the most nutrient dense, rather than categorically omitting all processed foods.



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John D. Floros, Ph.D.

## Interview — John D. Floros, Ph.D., Professor and Head, Department of Food Science, Penn State University, University Park

### Q. Why all the negativity about “processed” foods?

A. Food is in the spotlight—consider all the books, blogs, movies, cooking shows, star chefs. We want consumers to take an interest in what they eat, as food is directly connected to their health and well-being. This connection makes processed foods an easy target by those who may mean well, but who suggest naïve, simplistic approaches about “what to eat.” It is important that consumers understand what processed food is, so they can choose accordingly.

Processing is a very broad term. There are less intrusive “benign forms” of processing such as washing, slicing and packaging, but there is the other side of the continuum in which food is handled, reduced, combined and transformed into a greatly different, almost unrecognizable product. Certainly not all processed foods are “nutritious”; some are just for “fun.” Accusations against processed food are not valid in isolation—when ignoring the social character of food and eating. The reality is that food companies make products they think consumers will like. But that is marketing. The consumer is the one who can make changes—we need to educate consumers, or correct the miscommunication, about what is “good for you.”

### Q. What do you mean when you say we need to “get real about our modern food system”?

A. While not perfect, our modern food system is important and complex. If some popular movements continue to limit choices, people and the environment will pay the price. Without science and technology to transform raw materials from the farm into nutritious, tasty, affordable, convenient foods, we will not be able to feed the seven billion or so people now on this planet, nor the 9–10 billion estimated in the very near future. We need to consider the entire food system (not just a particular food, whether processed or not) as part of the overall ecosystem. In the next 40 to 50 years, we will require 100 percent more food than we produce today for both developed and developing countries. (<http://foodsci.wisc.edu/assets/FT-0508-PRESIDENT-MESSAGE1.pdf>) Today in the U.S., virtually 100 percent of the food produced at the farm now finds its way to consumers’ tables, which differs from the rest of the world where as much as 50 percent or more of food produced at the farm is lost to insects, microorganisms, humidity and other factors and never reaches those in need.<sup>4</sup>

### Q. How can nutrition professionals help correct miscommunication about processed foods?

A. Consumers already do a lot of food “processing” in their own kitchens. Food processing has its roots in ancient civilizations more so than in the laboratory. What is vilified as processed food has roots in ancient cultures that were able to flourish by taking raw materials and transforming them to have ample food supplies throughout the year. Greeks applied rather sophisticated technologies to transform raw materials—some barely edible (seeds of wheat); some inedible (fresh olives); some perishable (grapes)—into completely different foods with different properties. The resulting staples of bread, olive oil and wine supported that culture’s health and social well-being. (<http://www.ed.psu.edu/ICIK/2004Proceedings/section2-floros.pdf>) This connection between culture and food processing is what I refer to when I say processed foods need to be considered in the context of the social aspects of eating.

### Q. How can there be a greater collaboration between food science and nutrition science?

A. These two disciplines look at food somewhat differently. Nutritionists look at a food’s nutrient profile and healthful properties, often from a singular focus. Food scientists look at the food in the context of a complex matrix that includes taste, consistency and sensory appeal, and is somewhat more holistic.

Nevertheless, these disciplines—whether in academia, industry or government—have to work together to connect food and health to the well-being of the population, society and the environment. Along with medical and social sciences, there is no one else to figure out how consumers can live longer, healthier.

Whether our food is fast or slow, local or global, whole, natural, fresh or processed, industrial or not, will require more science and collaboration. Our country must make an investment at the federal and state levels in science in general, and in food science in particular, to create a better food supply. “Better” can be described as safer, more economical, nutritious or convenient. The food industry will be out there doing what it has to do to get market share for its *food products*—but research on how to improve the *food supply* will require national resources.

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## Consumer demand, expectations and perceptions

Consumers spend the largest portion of their food dollars at home on the “other” food category, which includes sugar, sweets, fats and oils, miscellaneous foods, nonalcoholic beverages and prepared foods. There is high demand for convenient and ready-to-serve products, snack foods, snack bars and frozen food to meet the needs of consumers generally short on time. As the U.S. population becomes increasingly ethnically diverse, demand for food products also diversifies.<sup>3</sup>

In our postindustrial society, consumers no longer live on farms and do not know details regarding how food is grown, harvested, processed or distributed. They expect the food industry to deliver products with benefits important in their lives—great-tasting, convenient, healthy, safe, sustainable and affordable products. Processing technologies can help deliver these benefits, but consumer acceptance may be limited—particularly when consumers are unaware of methods and safeguards used and consider the “risks” imposed by the processor beyond their control.<sup>5</sup>

### Practice Points for the Health Professional

Communication delivered by trusted and knowledgeable food and nutrition scientists and health professionals can help to dispel some complex and controversial perceptions about processed food. Risks can never be completely eliminated, but a factual discussion about the benefits of particular foods or processing methods can help increase consumer confidence and acceptance.<sup>5</sup> Use the following talking points to discuss the pluses and minuses of processed foods and tailor the information to meet an individual’s lifestyle and health goals.

#### Perception

#### Talking points

Processed foods are a nutritional desert; unhealthy and useless.

Processed-food ingredients are harvested at peak freshness to “lock in” nutrients and improve taste and can be higher in nutrition and flavor to what is “fresh” in the supermarket.<sup>6</sup>

Packaging protects food products from outside influences and damage (chemical, biological, physical), and provides consumers with ingredient and nutritional information, traceability, tamper identification and convenience by extending shelf life and maintaining quality.<sup>7</sup>

Processed foods contain dangerous food additives.

Food and color additives are strictly studied, regulated and monitored by the Food and Drug Administration (FDA). Regulations require that each substance is safe at its intended level of use before it can be added to foods.<sup>8</sup> Educate consumers about the function of common food-processing ingredients and additives, such as the antioxidants BHT and BHA for product freshness and emulsifiers (such as lecithin) for product stability.

Food processors care only about profits, not health or the environment.

Products live and die in the marketplace of consumer demand. No demand, no profit, no product. Concerns about the environment and sustainability impact growers and producers, who are increasing efforts to lessen environmental impact. See [http://www.dairycouncilofca.org/PDFs/hc\\_fall08.pdf](http://www.dairycouncilofca.org/PDFs/hc_fall08.pdf).

Unpronounceable food ingredients lead to consumer skepticism and the misconception that the ingredient is not natural.

There are thousands of diverse nutrients and bioactive compounds in whole foods with unfamiliar names (see the USDA Nutrient Databases for Antioxidant Nutrients and Phytonutrients; Isoflavone, Proanthocyanidin and Phytochemical databases [www.ars.usda.gov/Services/docs.htm?docid=5843](http://www.ars.usda.gov/Services/docs.htm?docid=5843)) and thousands of food ingredients with unfamiliar names that consumers consider complex chemical compounds. Yet every food—whether fresh fruit or a highly-processed donut—is a mixture of chemical compounds that determine flavor, color, texture and nutrient value.

Pasteurization kills all the good bioactives in dairy.

Since its introduction more than a century ago, pasteurization has been recognized around the world as an essential tool for ensuring that milk and dairy products are safe. During pasteurization, the temperature of milk is raised to at least 161 degrees Fahrenheit for more than 15 seconds, which is a simple, effective method to kill bacteria without affecting the taste or nutritional value of milk.<sup>9</sup>