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Functional Foods[1]

Amanda L. Ford and Wendy J. Dahl[2]

What are functional foods?

Currently, there is no universally accepted definition for a functional food in the United States. Instead, a functional food is commonly defined as a food that provides benefits beyond the basic nutrition provided by that food. The additional benefit is due to a component in the food item that offers physical or biological—i.e., functional—benefits.

Functional foods have become increasingly popular in the United States. Some foods naturally contain a functional component, or a functional ingredient can be added to a processed food to create a functional food. Functional foods may help reduce the risk of certain diseases or may increase overall health.

How are functional foods regulated?

The U.S. Food and Drug Administration (FDA) is the government agency that is responsible for regulating and ensuring the safety of food. As the FDA does not have a formal definition of a functional food, the rules regulating functional foods depend on how the manufacturer chooses to market the food product to the consumer (you).

A manufacturer can market its product as a whole food, or as enriched food, fortified food, or enhanced food:

- **Enriched** – the addition of one or more nutrients that was lost during food processing

Figure 1. Food label of unknown origin featuring various structure-function claims, together with fine-print disclaimer that reads, "This product is not intended to treat, cure or prevent any disease or ailment." / Credits: Kai Schreiber, CC BY-SA 2.0, http://flic.kr/p/88c3bq

- **Fortified** – the addition of one or more nutrients into a food
- **Enhanced** – the addition of one or more nutrients into a food by modification or indirect methods

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2. Amanda L. Ford, MS, graduate student, and Wendy J. Dahl, PhD, assistant professor; Food Science and Human Nutrition Department, Institute of Food and Agricultural Sciences, University of Florida; Gainesville, FL 32611.

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Figure 2. Scrambled Omega-3 eggs with tomato / Credits: Renée Suen, CC BY-NC-ND 2.0, http://flic.kr/p/73AGTa

Claims Made for Functional Foods

The FDA is also responsible for monitoring the health claims that manufacturers make for their products. As a consumer, it is important to take notice of the claims that may be located on the packaging of functional foods. Most claims on functional food labels are considered structure-function claims. Structure-function claims are often placed on foods and are not highly regulated by the FDA. The Federal Food, Drug and Cosmetic Act states that a structure-function claim cannot be proven to be false or misleading to the consumer and cannot claim to treat, cure, or prevent a disease or disease condition. Some examples of structure-function claims are "Calcium builds strong bones", "Vitamin D helps contribute to bone health", and "Vitamin A may help to contribute to maintenance of healthy vision".

Classification of Functional Foods

Functional foods can be divided into two broad categories. The first category consists of functional foods that naturally contain a component that offers additional benefits to the consumer. The other category of functional foods consists of processed foods in which a component is added to the food to give it additional benefits.

Foods with naturally-occurring functional components

Tomatoes, for example, are considered a functional food because they contain the bioactive component lycopene. Lycopene has been shown to promote prostate health. **Table 1** lists some examples of functional foods along with the component that occurs naturally in the food item and its possible health benefits. Many of the foods in this category are commonly found in your grocer's produce department.

Table 1. Foods with Functional Components

Functional Food	Functional Component	Potential Benefit
Tomatoes, Watermelon	Lycopene	Prostate health
Broccoli	Lutein	Reduced risk of macular degeneration
Citrus	Flavanones	Neutralizes free radicals, reduced risk of some cancers
Soybeans	Isoflavones	Lowers LDL and total cholesterol
Cranberries	Proanthocyanidins	Improves urinary tract health
Fish oils	Omega-3 fatty acids	Reduced risk of cardiovascular disease
Insoluble fiber	Wheat bran	Reduced risk of breast and colon cancer

Foods with enhanced functional components

Omega-3 enriched eggs are considered a functional food because they contain the bioactive food ingredient omega-3 fatty acids. Omega-3 fatty acids are not added directly to the eggs. Instead the hens that lay these eggs are given a feed that contains large amounts of an ingredient (commonly flax seed) that is high in omega-3. In studies, omega-3 fatty acids have been shown to reduce risks associated with cardiovascular disease.

Foods with added functional ingredients

Table 2 lists functional foods along with the component that manufacturers have added and its possible benefits. The foods in this category are generally processed. Examples include orange juice with added vitamin D, breads and cereals with added fiber, and a wide variety of other food products.

Table 2. Foods with Added Functional Ingredients

Functional Food	Functional Ingredient	Potential Benefit
Orange juice with added vitamin D	Vitamin D	Reduced risk of bone diseases
Yogurt with probiotics	Probiotics	Improved health of gastrointestinal tract
Breads and cereals with added fiber	Fiber	Alleviates constipation and may reduce risk of certain cancers
Margarine fortified with plant sterols	Plant sterols and Phytosterols	Reduces cholesterol

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Should we consume functional foods?

Functional foods can provide additional health benefits to you if you consume them regularly as part of a varied diet. As functional foods become increasingly popular in the U.S., it is important to be an informed shopper.

Figure 3. Orange juice (Credits: Tom & Katrien / CC BY-NC-SA 2.0) Reliable nutrition information may be found online at: fda.gov • fycs.ifas.ufl.edu • eatright.org • nutrition.gov