

Functional Foods Fact Sheet

Egg Nutrition Center

Definition of Functional Foods

Plainly stated, functional foods are defined as foods that, in addition to supplying known nutrients, can provide other health benefits as well. Many common foods possess nutritional qualities that are not established as recommended nutrients, but are considered to have functional benefits such as reducing your risk of disease or promoting good health. A good example of a functional food would be the cranberry, known to promote healthy bacterial flora in the urinary tract which can lower the risk of urinary tract infections.



Eggs contain the carotenoids lutein and zeaxanthin as well as choline which makes them a functional

History of Functional Foods

The concept of using foods to prevent disease and/or promote health is not new. In the early 1900's, the practice of fortifying table salt with iodine to prevent goiter was an early attempt at creating a functional food. Since that time, many foods that we are familiar with have become fortified, such as breakfast cereals, orange juice, milk and grain foods. Other foods that have lost some of their nutrient content due to processing are enriched with the lost nutrients. Classic examples of enriched foods are bread and bakery products. More recently, as technology has improved, scientists have come to recognize the advantages of a natural balance of wholesome foods. With the advancement of genetic engineering, crops can now be grown that optimize their beneficial nutritional qualities. Functional foods have been selected because of their qualities designed by nature to promote health and prevent disease beyond their basic nutrient content.

Labeling and Claims

As yet there is no legal definition of what constitutes a functional food. The Food and Drug Administration regulates functional foods no differently than other foods. Food manufacturers must receive pre-market approval from FDA to assure the safety of ingredients. In addition, all health claims must be authorized by FDA based on extensive review of scientific literature.

Since 1994 there have been 14 approved health claims that are sanctioned to appear on the label of a food when appropriate. Health claims describe a relationship between a food substance and a disease or health-related condition. Approved health claims must emphasize the importance of the total diet and not exaggerate the role of a specific food or diet in disease prevention. This differs from structure/function claims or qualified health claims, used only by dietary supplements, based on the weight of scientific evidence rather than any validity standard established by FDA.



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Cost:Benefits Ratio

Eating a diet that includes functional foods is no more costly than consuming less nutrient dense food. In fact, eating foods that offer additional health benefits beyond that of known nutritional needs can in the long run save money in reduced medical costs and less assistance needed to accomplish daily activities. Functional foods such as eggs, grapes, fish and tomatoes have long been recognized by health professionals as naturally wholesome, inexpensive, nutrient dense foods that remain wise choices for health promotion.

A Sample List of Functional Foods



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Yogurt- *probiotic function*: Fermented dairy products are thought to possess microbial components that contribute to the healthy balance of bacteria in the gastrointestinal tract. A similar product acidophilus milk, is considered a probiotic as well, because it helps to encourage growth of a health promoting bacterial flora in the intestines, and is thought to bolster one's immunity. Many products now popular in Europe are considered probiotics, such as those made with oligofructose and are found in foods such as biscuits and soups.

Plant stanol ester spreads- *control of blood cholesterol*: Plant stanol esters are derived from naturally occurring cholesterol like substances in plants. The stanols are combined with canola oil and whipped into a spread. The stanol esters help block reabsorption of biliary cholesterol from the digestive tract. This in turn helps to lower blood levels of LDL cholesterol (bad cholesterol) without affecting HDL cholesterol (good cholesterol) levels.

Eggs- *dietary carotenoids (xanthophylls) and choline*– Besides having a natural balance of all nutrients needed by humans except vitamin C, and complete high quality protein, eggs also provide two important carotenoids, lutein and zeaxanthin that help reduce the risk of age related macular degeneration and cataracts. In fact, studies show that the human body can utilize the lutein and zeaxanthin in eggs better than from other sources such as green leafy vegetables, probably due to their moderate fat content. Another functional quality of eggs is its choline and lecithin content. Studies in animals have shown the choline is important for development of brain function and memory, especially valuable during fetal and postnatal development.

Fish- *omega-3 fatty acids*- besides the health virtues of its moderately low fat content and its ample vitamin and mineral content, the beneficial role of fish consumption seems to relate to its fatty acid content. Omega-3 fatty acids are polyunsaturated fatty acids that have been found to lower blood clotting and narrowing of the artery walls. This reduced thickening of the arteries may lower one's risk for heart disease, when omega-3 fatty acids are consumed as part of a healthy diet.

Tomatoes- *Lycopene*- with an ample vitamin C content, the tomato possesses considerable ability to provide antioxidant action to the body. Lycopene is one of the family of carotenoids that has been recognized for its ability to clear the body of free radical waste products, thereby lowering the risk for development of some forms of cancer, most notably prostate cancer.

Pecans- *monounsaturated fatty acids*- the pecan along with other tree nuts has recently been investigated for its beneficial role in health promotion. In a randomized controlled study of the effects of pecan intake on blood cholesterol levels it was found that subjects had lower LDL (bad) cholesterol levels after an 8-week introduction of pecans to a self selected diet. The mechanism for this change in the cholesterol is not known, however, pecans do have a significant monounsaturated fatty acid content.

Grapes- *Resveratrol*- found mainly in the skin of grapes, may have health related benefits relative to cancer prevention and reduction of heart disease risk. One study found significant improvement in arterial function in subjects with compromised blood flow after subjects were given grape juice.

Tea- *Polyphenol*- both black and green tea contain flavonoids, also known as polyphenols, which are believed to exert antioxidant action within the body. These antioxidants are thought to protect the body from the corrosive damage resulting from naturally occurring metabolic wastes such as free radicals. Research has focused on the role of these free radicals in heart disease and cancer.