

An Introduction to Functional Foods, Nutraceuticals and Natural Health Products

In recent years, the popularity of alternative therapies and the use of functional foods, nutraceuticals and natural health products, have increased tremendously in North America. This increase in popularity is due in part to a growing body of scientific evidence that suggests that some of these products may have the potential to contribute significantly to health maintenance and disease treatment and prevention. This article was written to introduce readers to key definitions and concepts pertaining to functional foods, nutraceuticals and natural health products.

What are Functional Foods?

In the past, foods were recognized as being nutritious based on their content of essential nutrients (fat, protein, carbohydrate, minerals and vitamins) that are needed for normal metabolic activity and bodily function. In recent years however, a growing body of scientific evidence has demonstrated that other food constituents (often referred to as *phytochemicals and zoochemicals*, when they come from plant and animal foods, respectively) may provide health benefits beyond basic nutrition and help prevent chronic diseases like cardiovascular disease, cancer and osteoporosis among others. Examples of such disease-fighting food constituents include omega-3 fatty acids from fish, flaxseed, soybean, hempseed and canola oil, isoflavones from soya beans, carotenoids (like beta-carotene and lycopene) from carrots, tomatoes and other red/orange fruits and vegetables, sulforaphane from broccoli, polyphenols from tea and wine and soluble fibre from oats and barley.



Foods that may have physiological benefits and/or have the ability to reduce the risk of chronic disease beyond basic nutritional functions are called *functional foods* (Health Canada, 1998). Functional foods may be conventional foods that are consumed in their natural state (like fruits, vegetables, grains) or novel foods that are modified or enriched with functional components to provide greater health benefits (like omega-3 eggs, phytosterol-enriched margarines). Other words that are often used to describe functional foods include health foods, medical foods, designer foods, foods for special dietary use and pharmafoods.

Is There Scientific Evidence Supporting the Health Benefits of Functional Foods?

Some functional foods have been scientifically proven to provide health benefits beyond basic nutrition. For many others however, the supporting evidence is only preliminary in nature. Unfortunately, it can take several years and millions of dollars for the purported health benefits of a functional food to be substantiated by scientific evidence. Although some functional foods may provide health benefits, no single food is a “magic bullet” for maintaining health and preventing disease. Consuming a balanced diet consisting of a variety of foods is the best way to maintain optimal health.



Are Functional Foods Safe?

Generally speaking, functional foods are considered safe to use. Many functional foods are conventional foods that have been consumed for hundreds of years without any significant safety concerns. Novel foods that have been modified in some way to convey a functional benefit must undergo a thorough safety assessment before they can be sold.

Despite the apparent safety of functional foods however, some may have the potential to be hazardous, particularly when consumed in excess. Before making any major dietary changes, it is important to consult with a health care provider, especially if you are nursing or pregnant, have a chronic disease, are taking prescription medications or are about to undergo surgery. Once again, it must be emphasized that no single food is a “magic bullet” for maintaining health and preventing disease. A balanced diet consisting of a variety of foods is the safest and healthiest way to maintain optimal health.

What are Nutraceuticals?

Nutraceuticals are products that are isolated or purified from foods and generally sold in medicinal forms not usually associated with food (tablets, capsules, drops) that may have physiological benefits and/or have the ability to reduce the risk of chronic disease beyond basic nutritional functions (Health Canada, 1998). Examples of nutraceuticals include fish oils, soy isoflavones and canola phytosterols. Since nutraceuticals are sold in medicinal form and not consumed as food, they are often classified as natural health products.

What are Natural Health Products?

As defined by Health Canada, *natural health products* are naturally occurring substances that are consumed for the purpose of diagnosing, treating or preventing illness or maintaining or promoting health. Natural health product substances include plant, algal, fungal, or animal materials or extracts thereof; vitamins; minerals; amino acids; essential fatty acids and probiotics. They are usually sold in dosage form (capsule, pill, tablets or liquid extracts). The natural health product definition includes traditional medicines and homeopathic preparations but excludes drugs and foods, among other substances. Since nutraceuticals are sold in medicinal form, they are sometimes classified as natural health products. In the United States, the term ‘*dietary supplements*’ is used in place of natural health products.



Is There Scientific Evidence Supporting the Health Benefits of Natural Health Products?

There is generally a need for further research to substantiate the purported health benefits of natural health products. For some natural health products, the scientific evidence is strong, but still inconclusive. For many others, the evidence is only preliminary in nature. Moreover, the chemical compositions and biological mechanisms of many natural health products are still poorly understood. Many natural health products vary significantly in chemical composition and therefore cannot be expected to produce consistent therapeutic effects. Natural health products whose chemical compositions and biological mechanisms are well understood can be standardized to contain specific amounts of active constituents, and can therefore be expected to produce consistent therapeutic effects.

Despite a lack of scientific evidence to substantiate their purported benefits and inconsistency in chemical composition and quality, natural health products can still be sold under current laws and

regulations, provided that they are safe and that they do not bear any unsubstantiated drug-like claims (claims of treating or preventing illness or disease) on their labels. Instead of drug claims, manufacturers are often use indirect and often misleading “general well-being” statements that are not always substantiated by scientific evidence.

Are Natural Health Products Safe?

Many natural health products have been used as traditional remedies for hundreds of years and are therefore presumed to be safe. Moreover, natural health products usually produce much fewer adverse side effects than conventional drugs. Despite their historical use and low incidence of adverse effects however, it should not be assumed that all natural health products are safe. There is often a lack of scientific data proving the safety of natural health products in the context in which most North Americans are using them today. There have been a number of instances when natural health products have been removed from the market due to severe adverse events, some of which were attributed to interactions with conventional drugs. There have also been instances when natural health products have been contaminated with pharmaceuticals and other foreign agents. In Canada, products bearing drug identification numbers (DIN) on their labels are manufactured in accordance with strict drug standards and are therefore less likely to be contaminated than products that do not bear DINs.

Due to the potential hazards of using natural health products it is important to consult with a health care provider before beginning self-treatment, especially if you are nursing or pregnant, have a chronic disease, are taking prescription medications or are about to undergo surgery.

Summary

A growing body of scientific evidence suggests that functional foods and natural health products have the potential to contribute significantly to health maintenance and disease treatment and prevention. Although the safety and efficacy of some of these products have been substantiated with scientific evidence, for many others, the evidence is only preliminary in nature. Furthermore, there are a number of problems and inconsistencies with the developing North American functional foods/natural health product industry that must be resolved before the true benefits of functional foods and natural health products can be realized. As laws and regulations improve and research continues to separate fact from fiction, functional foods and natural health products are likely to play an increasingly important role in health maintenance and disease prevention in coming years.

Photos courtesy of the USDA Agricultural Research Service Image Gallery (www.ars.usda.gov/is/graphics/photos/index.html)

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