

## Nutraceutical - Definition and Introduction

Submitted: April 15, 2003; Accepted: July 28, 2003; Published: September 3, 2003

Ekta K. Kalra<sup>1</sup>

<sup>1</sup>Nagpur College of Pharmacy, Wanadongri, Hingna Road, Nagpur 411110, Maharashtra, India

---

### ABSTRACT

Dr Stephen DeFelice coined the term "Nutraceutical" from "Nutrition" and "Pharmaceutical" in 1989. The term nutraceutical is being commonly used in marketing but has no regulatory definition. An attempt to re-define nutraceuticals and functional foods is made in this article. The proposed definitions can help distinguish between functional foods, nutraceuticals, and dietary supplements. The advantages and disadvantages of nutraceuticals are also briefly discussed.

**KEYWORDS:** nutraceutical, functional food, dietary supplement

### INTRODUCTION

The term "nutraceutical" was coined from "nutrition" and "pharmaceutical" in 1989 by Stephen DeFelice, MD, founder and chairman of the Foundation for Innovation in Medicine (FIM), Cranford, NJ.<sup>1</sup> According to DeFelice, nutraceutical can be defined as, "a food (or part of a food) that provides medical or health benefits, including the prevention and/or treatment of a disease."<sup>1</sup> However, the term nutraceutical as commonly used in marketing has no regulatory definition.<sup>2</sup>

I propose to redefine functional foods and nutraceuticals. When food is being cooked or prepared using "scientific intelligence" with or without knowledge of how or why it is being used, the food is called "functional food." Thus, functional food provides the body with the required amount of vitamins, fats, proteins, carbohydrates, etc, needed for its healthy survival.

---

**Corresponding Author:** Ekta K. Kalra, Nagpur College of Pharmacy, Wanadongri, Hingna Road, Nagpur 411110, Maharashtra, India. Phone: +91 0712-2646270; Fax: Not Forwarded; Email: [ektakkalra@rediffmail.com](mailto:ektakkalra@rediffmail.com)

When functional food aids in the prevention and/or treatment of disease(s) and/or disorder(s) other than anemia, it is called a nutraceutical. (Since most of the functional foods act in some way or the other as anti-anemic, the exception to anemia is considered so as to have a clear distinction between the two terms, functional food and nutraceutical.) Thus, a functional food for one consumer can act as a nutraceutical for another consumer. Examples of nutraceuticals include fortified dairy products (eg, milk) and citrus fruits (eg, orange juice).

The DSHEA formally defined "dietary supplement" using several criteria. A dietary supplement<sup>3</sup>:

- is a product (other than tobacco) that is intended to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin, a mineral, an herb or other botanical, an amino acid, a dietary substance for use by man to supplement the diet by increasing the total daily intake, or a concentrate, metabolite, constituent, extract, or combinations of these ingredients.
- is intended for ingestion in pill, capsule, tablet, or liquid form.
- is not represented for use as a conventional food or as the sole item of a meal or diet.
- is labeled as a "dietary supplement."
- includes products such as an approved new drug, certified antibiotic, or licensed biologic that was marketed as a dietary supplement or food before approval, certification, or license (unless the Secretary of Health and Human Services waives this provision).

Thus, nutraceuticals (as per the proposed definition) differ from dietary supplements in the following aspects:

- Nutraceuticals must not only supplement the diet but should also aid in the prevention and/or treatment of disease and/or disorder.

- Nutraceuticals are represented for use as a conventional food or as the sole item of meal or diet.

A ray of "cure preference" in the mind of common patients revolves around nutraceuticals because of their false perception that "all natural medicines are good." Also, the high cost of prescription pharmaceuticals and reluctance of some insurance companies to cover the costs of drugs helps nutraceuticals solidify their presence in the global market of therapies and therapeutic agents.

The use of nutraceuticals, as an attempt to accomplish desirable therapeutic outcomes with reduced side effects, as compared with other therapeutic agents has met with great monetary success.<sup>4,5</sup> The preference for the discovery and production of nutraceuticals over pharmaceuticals is well seen in pharmaceutical and biotechnology companies. Some of the pharmaceutical and biotechnology companies, which commit major resources to the discovery of nutraceuticals include Monsanto (St Louis, MO), American Home Products (Madison, NJ), DuPont (Wilmington, DE), Abbott Laboratories (Abbott Park, IL), Warner-Lambert (Morris Plains, NJ), Johnson & Johnson (New Brunswick, NJ), Novartis (Basel, Switzerland), Metabolex (Hayward, CA), Genzyme Transgenic, PPL Therapeutics, Interneuron (Lexington, KY).

However, with all of the aforementioned positive points, nutraceuticals still need support of an extensive scientific study to prove "their effects with reduced side effects."<sup>6,7</sup> This can be achieved by the enactment of FIM proposed Nutraceutical Research and Education Act (NREA).<sup>8</sup> The NREA includes the creation of a Nutraceutical Commission (NUCOM) specifically for the review and approval of nutraceuticals and the creation of a nutraceutical research grants program specifically for clinical research. As per FIM, the key elements of NREA should include a mechanism to create the exclusive rights to claims necessary for private investment in research and development, and the creation of appropriate channels for the review, approval, and regulation of new products and claims. We believe that in so doing the NREA should keep in check the cost of nutraceuticals and thereby assure access for everyone.

## CONCLUSION

When a functional food aids in the prevention and/or treatment of disease(s) and/or disorder(s) (except anemia), it is called a nutraceutical. The proposed definition can help form distinction between functional foods, nutraceuticals, and dietary supplements.

## REFERENCES

1. Brower V. Nutraceuticals: poised for a healthy slice of the healthcare market? *Nat Biotechnol.* 1998;16:728-731.
2. Zeisel SH. Regulation of "Nutraceuticals." *Science.* 1999;285:185-186.
3. FDA/CFSAN resources page. Food and Drug Administration Web site. Dietary Supplement Health and Education Act of 1994. Available at: <http://vm.cfsan.fda.gov/~dms/dietsupp.html>.
4. Nelson NJ. Purple carrots, margarine laced with wood pulp? Nutraceuticals move into the supermarket. *J Natl Cancer Inst.* 1999;91:755-757.
5. Whitman M. Understanding the perceived need for complementary and alternative nutraceuticals: lifestyle issues. *Clin J Oncol Nurs.* 2001;5:190-194.
6. Heyland DK. In search of the magic nutraceuticals: problems with current approaches. *J Nutr.* 2001;131(9):2591S-2595S.
7. Elizabeth AC. Over-the-counter products: nonprescription medications, nutraceuticals, and herbal agents. *Clin Obstet Gynecol.* 2002;45(1):89-98.
8. DeFelice SL. FIM Rationale and Proposed Guidelines for the Nutraceutical Research & Education Act - NREA, November 10, 2002. Foundation for Innovation in Medicine. Available at: <http://www.fimdefelice.org/archives/arc.researchact.html>.