

only those will be competitive commodity producers who quickly master new technologies and technical means for the implementation.

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NUTRITIONAL SUPPLEMENTS: THEIR HARMS AND BENEFITS (ХАРЧОВІ ДОБАВКИ: ШКОДА І КОРИСТЬ)

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В статті представлено основні види харчових добавок, їх значення для життя людини, користь і шкода харчових добавок.

Ключові слова: харчові добавки, мінерали, вітаміни.

In the article the main types of nutritional supplements are presented and their importance for human life, the benefits and harms of nutritional supplements are displayed.

Keywords: nutritional supplements, minerals, vitamins.

Nutritional supplements are any dietary supplement that is intended to provide nutrients that may otherwise not be consumed in sufficient quantities; for example, vitamins, minerals, proteins, amino acids or other nutritional substances. Products are usually ingested in capsule, tablet or liquid form.

Nutritional supplements are used for many purposes. They can be added to the diet to boost overall health and energy; to provide immune system support and reduce the risks of illness and age-related conditions; to improve performance in athletic and mental activities; and to support the healing process during illness and disease. However, most of these products are treated as food and not regulated as drugs.

The Natural Nutritional Foods Association estimated that in 2003 nutritional supplements amounted to a \$19.8 billion market in the United States. By category, vitamins provided \$6.6 billion in sales, herbs \$4.2 billion, meal supplements \$2.5 billion, sports nutrition products \$2.0 billion, minerals \$1.8 billion, and specialty and other products totaling \$2.7 billion. The nutritional supplement industry provides a huge array of products for consumer needs [1].

Vitamins

Vitamins are micronutrients, or substances that the body uses in small amounts, as compared to macronutrients, which are the proteins, fats, and carbohydrates that make up all food. Vitamins are present in food, but adequate quantities of vitamins may be reduced when food is overcooked, processed, or improperly stored. For instance, processing whole wheat grain into white flour reduces the contents of vitamins B and E, fiber, and minerals, including zinc and iron. The body requires vitamins to support its basic biochemical functions, and deficiencies over time can lead to illness and disease.

Vitamins are either water-soluble or fat-soluble. Water-soluble vitamins dissolve in water and pass through the body quickly, meaning that the body needs them on a regular basis. Water-soluble vitamins include the B-complex vitamins and vitamin C. Fat-soluble vitamins are stored in the body's fatty tissue, meaning that they remain in the body longer. Fat-soluble vitamins include vitamins A, D, E, and K.

Vitamins can be natural or synthetic. Natural vitamins are extracted from food sources, while synthetic vitamins are formulated in laboratory processes. The only vitamin for which there is a noted difference between the natural and synthetic forms is vitamin E. The natural form is labeled d-alpha-tocopherol while the synthetic form is named dl-alpha-tocopherol, with the extra "l" signifying laboratory production. Natural vitamin E has been shown to be slightly more absorbable by the body than the synthetic version, although for other vitamins no significant differences in absorption have been noted [2].

Minerals

Minerals are micronutrients and are essential for the proper functioning of the body. Minerals can either be bulk minerals, used by the body in larger quantities, or trace minerals, used by the body in minute or trace amounts. Bulk minerals include sodium, potassium, calcium, magnesium, and phosphorus. Trace minerals include iron, zinc, selenium, iodine, chromium, copper, manganese, and others [1].

Herbs

Herbal supplements are added to the diet for both nutritional and medicinal purposes. Chinese medicine and **Ayurvedic medicine** from India, two of the world's oldest healing

systems, use hundreds of herbal medications. The medicinal effects of herbs are getting scientific validation; about one-fourth of all pharmaceuticals have been derived directly from plant sources, including **aspirin** (found in willow bark), codeine (from poppy seeds), paclitaxel (Taxol), a patented drug for ovarian and **breast cancer** (from the Pacific Yew tree), and many others [1].

Meal supplements

Meal supplements are used to replace or fortify meals. They may be designed for people with special needs, or for people with illnesses that may affect digestion capabilities and nutritional requirements. Meal supplements may contain specific blends of macronutrients, or proteins, carbohydrates, fats, and fiber. Some meal supplements consist of raw, unprocessed foods, or vegetarian or vegan options, or high protein and low fat composition. Meal supplements are available to support some popular diet programs. Meal supplements are often fortified with vitamins, minerals, herbs, and nutrient-dense foods [3].

The benefits and harms of nutritional supplements

Some nutritional supplements can cause upset stomach and allergic reactions, including rashes, flushing, nausea, sweating, and headaches.

People take dietary supplements for a number of reasons, including to:

- Maintain their general health
- Support mental and sports-related performance
- Provide immune system support

Література:

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