**What are dietary supplements and their role in human life!**

The concepts of dietary supplements for weight loss, dietary supplements for improving potency, dietary supplements for the liver, and dietary supplements for joints have suddenly burst into our reality—sometimes we are offered dietary supplements, or dietary supplements, for everything in the world! What does the abbreviation “BAA” mean, how can we distinguish truly useful supplements, who might need them, when and how should they be used?

**What are dietary supplements?**

A dietary supplement (abbreviated as DS) is a special food product consumed in small, specific amounts in addition to a person's usual diet and is a concentrated source of nutrients, vitamins, minerals, fiber, proteins, fats, carbohydrates, etc. In English-language literature, the equivalent of the term biologically active supplement is dietary supplement.

Biologically active supplements contain natural or nature-identical substances, occupy an intermediate position between food and medicine, and are intended for disease prevention, improving performance, and quality of life.

The purpose of using biologically active supplements is to correct and supplement the diet, because every day we have to eat processed, canned, refined foods, from which we do not get the necessary amount of amino acids, vitamins, minerals, macro- and microelements. An insufficient amount of these beneficial substances reduces the body's resistance to various diseases, slows down metabolic processes, and causes a person to age faster. Therefore, even healthy people can use dietary supplements.

However, it is wrong to consider dietary supplements a panacea for all diseases. After all, they do not cure, but only complement the main treatment and are not included in the register of medicines. Dietary supplements are designed to maintain physiological norms and functions of the body, so they cannot have miraculous results. Dietary supplements should not be used as the main treatment for diseases such as hypertension, diabetes mellitus, bronchial asthma, and other complex ailments, but only as a supplement to the main therapy as recommended by a doctor.

Pay attention to the names of the ingredients if you are taking several dietary supplements. The ingredients in different dietary supplements may be repeated, so they will enter the body in excess.

**Types of biologically active supplements**

Depending on the technological process used to produce a biologically active supplement, the following types are distinguished:

Concentrates of natural food substances – bee products, mumiyo, yeast, algae, fish roe and liver, mineral spring water, mineral salts;

Traditional seasonings (spices), herbs and mixtures for making teas, dried fruits, pickles, fermented products;

Vitaminized foods and foods enriched with specific strains of lactic acid bacteria (kefir and yogurt) in a specified concentration;

Concentrates of food substances and plants – extracts, tinctures, syrups, pastes, briquettes, balms;

Highly concentrated and pure standardized extracts, artificial and synthetic vitamin preparations, phospholipid, polypeptide, and glycoprotein complex preparations, the production of which is similar to the pharmacological production of medicines;

Products obtained using bioengineering.

Nutraceuticals are additional sources of nutrients, such as vitamins and essential amino acids.

Parapharmaceuticals are substances that perform adaptogenic functions, prevent pathogenic conditions, and are used as an adjunctive therapy to regulate the functional activity of organs and systems of the human body within physiological limits. Parapharmaceuticals include bioflavonoids, organic acids, glycosides, biogenic amines, regular oligopeptides, polysaccharides or oligosaccharides, etc.

Eubiotics and probiotics are live microorganisms that are representatives of the normal microflora of the human gastrointestinal tract, most often bifidobacteria and lactobacilli, which have a positive effect on human health and immunity.

In the literature, one can find synonymous and other terms used in the context of health, nutrition, healthy lifestyles, and food safety, namely:

Dietary supplement;

1. Biologically active food supplement;
2. Functional food product;
3. Food supplement.

A dietary supplement is a vitamin, vitamin-mineral or herbal supplements (separately and/or in combination) in the form of pills, tablets, powders, taken with food or added to food within physiological norms for additional consumption of these substances compared to a normal diet; dietary supplements may also contain protein, carbohydrates, amino acids, edible oils, and extracts of plant and animal materials that are considered necessary or beneficial for nutrition and overall human health (Law of Ukraine No. 2809-IV of September 6, 2005, “On the Quality and Safety of Food Products and Food Raw Materials”).

A biologically active food supplement is the same thing as a dietary supplement. This term is somewhat outdated, but it is used in a legal context when registering products for sale.

Functional food product – a food product that contains medicinal substances as a component and/or is intended for the prevention or alleviation of human disease. (Law of Ukraine No. 2809-IV of September 6, 2005, “On the Quality and Safety of Food Products and Food Raw Materials”).

A food additive is any substance that is not normally considered a food product or its ingredient, but is added to a food product for technological purposes during the production process and which ultimately becomes an integral part of the product (Law of Ukraine No. 2809-IV of September 6, 2005, “On the Quality and Safety of Food Products and Food Raw Materials”). Food additives are well known to us by their designations and codes, such as E121 or E123.

Standardized biologically active supplements

Standardized supplements have specified declared amounts of active ingredients. Supplements are manufactured by food, pharmaceutical, and biotechnology companies. Biologically active supplements are subject to mandatory sanitary and epidemiological examination (certification). During the examination, the composition, active ingredients, formulation, quality and safety indicators of the product, scope of application, recommendations for use, contraindications, and materials for toxicological, hygienic, and biological assessment are checked.

It is better to buy dietary supplements at a pharmacy, where they have all the necessary documentation and are stored in appropriate conditions.

**Biological supplements for women**

Biological supplements for younger women

Women physiologically lose a certain amount of iron, an important trace element, every month. Low iron levels in a woman's body lead to anemia (low blood count), which can be detected by a complete blood count (CBC) from a finger prick. Anemia disrupts all bodily processes because cells do not receive enough oxygen, which is transported in our body by iron molecules in red blood cells (erythrocytes). Therefore, when signs of iron deficiency are detected, it is important for younger women to take iron supplements.

In order for iron to be absorbed properly, vitamin C must be present and there must be no digestive disorders. Incidentally, medications taken to relieve heartburn can interfere with the body's absorption of iron.

Signs of anemia in women can also be caused by a deficiency (insufficient amount) of vitamin B6 (pyridoxine), vitamin B9 (folic acid), and vitamin B12 (cyanocobalamin), especially against the background of prolonged intestinal disorders. To prevent the development of deficiency states, your doctor may prescribe vitamin supplements containing B vitamins, as well as probiotics that normalize the intestinal microflora.

Recently, biotin, the so-called beauty vitamin, has become quite popular. After all, vitamin H (B7, biotin) ensures beauty, health, and good condition of hair and skin.

**Biological supplements for pregnant women**

Pregnant women need to eat plenty of vegetables, greens, and fruits. However, to ensure the normal development of the child's nervous system, starting at the stage of planning a pregnancy, doctors prescribe folic acid (vitamin B9).

**Biological supplements for older women**

In the period preceding menopause, as well as during menopause, drugs containing phytoestrogens are prescribed to reduce unpleasant vegetative-vascular symptoms (“hot flashes”). Phytoestrogens, which are chemically similar to estradiol (the most active female sex hormone), can have both an estrogenic effect and, conversely, reduce the concentration and weaken the action of the body's own female sex hormones. In general, the results of studies on the effects of phytoestrogens on the body are quite controversial and require further study. These substances are also widely used in cosmetics for older women.

Calcium supplements and vitamin D are recommended for the prevention of osteoporosis (decreased bone density and, accordingly, increased fragility and brittleness of bones). Read our article for more information on the prevention of osteoporosis and joint pain.

Omega-3 unsaturated fatty acids – eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) – are found in large quantities in fish and seafood. Alpha-linolenic acid (ALA) of plant origin, found, for example, in flax seeds and oil, is also well known. Omega-3 unsaturated fatty acids are necessary for good health, elasticity of blood vessel walls, reduction of chronic inflammation, and the release of anti-inflammatory substances by the body. If you don't eat enough fish, your doctor might suggest omega-3 fatty acid supplements.

Chondroprotectors (or biological supplements for joints) mainly contain chondroitin sulfate (CS) and glucosamine (GA), hydrolyzed glycogen. The purpose of chondroprotectors is to protect joints, prevent their premature destruction and aging, and preserve their functional mobility. The components of chondroprotectors—substances of natural origin—are found in cartilage, aspic (boiled collagen forms gelatin), and seafood. Accordingly, for example, a biologically active supplement with shark cartilage is of natural origin. Glucosamine and chondroitin sulfate are nutrients for chondrocytes and building materials for hyaluronic acid, which forms a gel-like structure and is an important “shock-absorbing” component of intra-articular fluid, as well as, for example, skin. Cosmetic anti-wrinkle products often contain hyaluronic acid, but it should not be overused. Collagen is the main protein in human connective tissue, forming a framework similar to springs in a mattress, holding the structure of tissues, such as the skin, together.