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**ПИЩЕВЫЕ ДОБАВКИ И ИХ ПРЕИМУЩЕСТВА**  
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**DIETARY SUPPLEMENTS AND THEIR BENEFITS**  
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**Резюме.** В современном мире биологически активные добавки быстро набирают популярность, однако не все люди понимают, что такое БАДы, кому они необходимы и когда их принимать. В статье представлена актуальная информация о том, что такое добавки, в каких случаях их нужно принимать, приведена классификация и описаны самые распространенные БАДы.

**Ключевые слова:** биологически активные добавки, сбалансированное питание, здоровье, эффективность.

**Resume.** Biologically active additives are rapidly gaining popularity. But not all people understand what the dietary supplements are, if they are needed and when they can be taken. The article presents up-to-date information on what additives are and when they need to be taken. The classification and the most common BAA are described.

**Keywords:** biologically active additives, normal diet, health, effectiveness.

**Relevance.** Today dietary supplements are popular all over the world. There are many discussions and debates around this current topic. Some people prove that BAA do harm to the organism, others believe that supplements improve health, cure many diseases, the rest does not pay attention to the biological additives, considering them useless and irrelevant. This work was carried out to provide scientific information about the dietary supplements and improve knowledge about the biologically active additives.

**Aim:** to explore reliable information about dietary supplements, physiological effect on the human body and study their harm and benefit to the human health.

**Objectives:**

1. To give the definition of “Biologically active additives”.
2. To learn the first biologically active additive history.
3. To give a classification of BAA.
4. To explore a physiological effect of dietary supplements.
5. To determine effectiveness of BAA.
6. To ascertain whether biologically active additives should be taken.
7. To determine whether you can avoid using dietary supplements.

**Materials and methods.** Biologically active additives (BAA) are supplements to food. They are used as an additional source of food fibers, vitamins, minerals and amino acids to eliminate their deficit and optimize the diet. These supplements are not medicines and can be bought at any chemist's without prescription.

Biologically active additives (BAA) are supplements to food. They are used as an additional source of food fibers, vitamins, minerals and amino acids to eliminate their deficit and optimize the diet. These supplements are not medicines and can be bought at any chemist's without prescription. Of all the alternative therapies most often used biologically active additives, primarily because they are over-the-counter drugs, relatively inexpensive and can be purchased without consulting a doctor.

The creator of the first biologically active supplement Carl Renborg was a chemist. In the 20th century he worked at the Chinese office of the American company and then he went to the Chinese prison. The detention conditions were poor. Carl Renborg began experimenting with eating rusty sawdust and bamboo. Surprisingly, he survived. He started to study Chinese traditional medicine. After his returning to America, he came up with the first food supplement based on alfalfa. Later, his BAA's company was created.

Any classification of BAA is conventional. But there are the most popular ones.

**Vitamins.** Vitamins are useful, but in very limited amounts for the body normal functioning. Almost all of them can't be synthesized by our organism, and the best source of vitamins is considered food. **Minerals.** Minerals are inorganic elements that are necessary for bodily functions such as growth, bone health and water-salt balance. For example, minerals include calcium, magnesium, iron, zinc, chromium, etc.

**Amino acids.** Eight of 20 proteinogenic amino acids are essential, because they can't be synthesized by the human body and must enter together with food. They are responsible for metabolic processes and energy exchange, ensuring the functioning of the body. Amino acids directly affect the nervous system by regulating mental activity, mood and sleep. Amino acids are found in the following products: 95% - eggs, milk and dairy products; 90-70% - fish and meat (chicken, beef); 70-40% - flour products; 60-30% - cereals, rice, nuts, vegetables and legumes.

**Essential fatty acids.** There are two classes: omega-3-unsaturated fatty acids and omega-6-unsaturated fatty acids. Both groups are essential to the human body. They are not synthesized and should enter the body together with food. Fatty seafood, vegetable oils, peanuts, flax and sesame seeds are the best fatty acids food source. Essential fatty acids are important for the cardiovascular system: prevent the development of atherosclerosis, improve blood circulation.

The main effect of omega - 3 is ability to strengthen the structure of cell membranes. Omega - 6 provides skin health, reduces cholesterol, improves blood clotting, relieves inflammation, relieves pain. Omega-9 promotes glucose uptake and thereby prevents the development of diabetes, also prevents the development of breast cancer.

**Probiotics.** Probiotics are used for therapeutic purposes to normalize intestinal microflora. The most known probiotics are bifidobacteria and lactobacilli.

Physiological effects of BAA are achieved by introducing to the organism nutrients which have marked biological activity in relation to a person. But BAA differ from synthetic to natural for different reasons: 1) the production purity can lead to the natural impurities absence, affecting the main component biological activity significantly, 2) synthetic drugs can contain trans-isomers, that can't be in natural raw materials and the human's body enzyme systems can react improperly, 3) the synthesized medicines are the racemic left-

and right-rotating isomers mixture. Only one isomers type has biological activity, 4) natural vitamins consist of numerous chemical compounds, while synthetic vitamins are represented by one chemical formula.

Most people who use BAA assume that they are healthy in general or safe and effective for the specific conditions treatment and prevention. However, the FDA does not require biologically active additives manufacturers prove their safety or effectiveness. Most additives have not been examined thoroughly.

BAA can be useful, but we need to pay attention not only to the compositions, but also to the manufacturers. There are thousands of additives on the market, and only a few of them can be helpful. Some dietary supplements combine incompatible substances. Most of the bioadditives contain undeclared medicinal components really harmful to our health. Thus, bioadditives for increasing potency often contain sildenafil - active ingredient «Viagra». The weight loss bioadditives 85% contain sibutramine (substance left the market in 2010 due to severe side effects on the cardiovascular system).

Dietary Supplement Health And Education Act, DSHEA 1994 defines as food additive any product (except tobacco) in the form of pills, capsules, tablets or liquid form containing vitamins, minerals, herbs, plant product, amino acids and other known substances, which is intended as a supplement to the normal diet.

Only BAA containing substances in the body are recommended for use in insufficient quantities. Therefore, the patients are advised to take the necessary tests first and assign the BAA program.

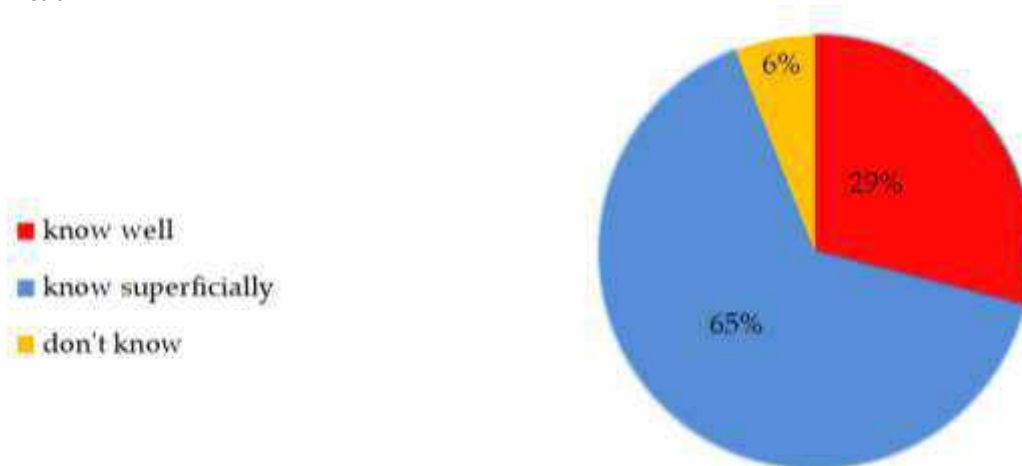
Instructions for selecting the BAA are as follows:

1. Consult a specialist.
2. Buy supplements only at the chemist's or licensed stores.
3. Study the available information on drugs properly.
4. Do not buy supplements "used for all diseases".

If the diet is balanced, supplements are not necessary. The main option for people is to include into the diet dairy products, vegetable oils and nuts, vegetables and fruits, different kinds of fish and liver constantly. BAAs are not considered medicines. They are used only for disease prevention or as supplements to essential drugs. Even vitamin supplements can cause addiction. This makes them ineffective. Therefore, it makes sense to alternate similar compositions. Do not use two or more parapharmaceuticals simultaneously, as in this case there may be an allergic reaction and incompatibility of substances.

The evidence for the safety and efficacy of biologically active supplements is growing rapidly as more and more clinically based studies are conducted. Information of such research can be obtained from the National Center for Complementary and Integrative Health.

**Results and their discussion.** We interviewed 279 students of Pediatric faculty and there are results. 94% of students know what dietary supplements are. 65% of students know what is it, but superficially. Awareness is highest among women (62% of all students). 13% of students consider that dietary supplements are medicines. 27% of students take supplements. 16% of students take BAA occasionally (when the disease occurs), 9% seasonally, 2% regularly. 74% of students consider supplements useless. 26% of students believe that dietary supplements help. Awareness is highest among women (14% of all students).



**Fig. 1** – Awareness among students of Pediatric faculty

### **Conclusions:**

1. The main source of nutrients is food. Balanced diet is a key to the health.
2. The doctor may prescribe dietary supplements, but only in some cases.
3. You should be critical of BAA, because not all of them help, some supplements can even do harm.

### **Literature**

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