

THE ROLE OF BIOLOGICALLY ACTIVE SUBSTANCES IN THE HUMAN BODY

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Abstract: This article discusses biologically active substances, their functions in the human body, the role of biologically active substances in the body of teenagers, pregnant women, and athletes.

Key words: biologically active additives, carbohydrates, fats, vitamins, mineral substances.

As a person grows and develops, and he interacts with the external environment, his need for food increases. Nutrients entering the body are absorbed by the cells. In fact, tissue and cells are continuously renewed throughout life. So, at what cost?

It is known that when a person eats food, his body is supplied with necessary substances (such as protein, carbohydrates, fat). Some of these substances, for example, proteins, directly serve for the formation of new cells or the renewal of some parts of their composition. Proteins play an important role in human growth. When carbohydrates enter the human body, they provide the necessary amount of energy (strength) for his actions (walking, working). Fats do two things at once. On the one hand, it serves as a source of energy for the body due to the fact that it has a large energy reserve, on the other hand, it directly enters the composition of cells and tissues (for example, cell membranes). Therefore, depending on a person's age, ability to work, weather conditions in the area where he lives, the amount of nutrients that enter the body with food is taken from a few grams to several hundred grams. They are called macronutrients.

There are some nutrients that we eat that, even if they do not directly enter the cells and provide energy; they still need to be absorbed. Because they take an active part in the exchange of substances and energy in the body, prevent diseases by activating the immune system, enter into the composition of all biological fluids (blood, lymph, hormones, digestive juices, enzymes) and perform important tasks for life. Nutrients belonging to this group are called micronutrients (tiny nutrients) because they are measured in milligrams and even thousandths of milligrams.

How much do we need them? Vitamins, minerals, and many biologically active compounds are micronutrients, their absence (or insufficient amount) in nutrients causes disruption of vital processes and causes a number of diseases. The benefits of micronutrients are often overlooked. The reason for this is that most of our people think

that it is enough to eat consumer products (i.e. bread, pasta and similar flour products, sugar, meat, fats). However, healthy products for the body (melon, watermelon, cabbage, carrots, turnips, etc.), greens (such as chives, parsley, cilantro, celery, green onions) and fruits (apricots, apples, sweet cherries, cherries, pomegranates, peaches, pears, grapes, citrus fruits, dates) are also very necessary. If they are consumed in addition to daily meals, there may be no shortage of micronutrients in the body.

However, there is another side of the matter. The lack of fruits and vegetables on the table, as well as boiling everyday food at high heat, deep frying, eating in canned form, even using a microwave device for cooking sometimes do not give the expected result. In these cases, the natural vitamins and biologically active substances of the ingredients and products will eventually decrease, or even disappear completely. It should be remembered that if fruits and vegetables are collected and stored (for example, stored for the winter), the micronutrients in them decrease dramatically over time due to the influence of oxygen in the air. Therefore, in order for daily food to be biologically complete, first of all, greens that have not been boiled, withered or dried, freshly picked fruits and vegetables, and fresh fruit and vegetable products must be consumed together with the main meals. It should be said that the demand for micronutrients is also different.

For example, pregnant and lactating women need micronutrients more than healthy women. Athletes, heavy manual laborers, children of growing age, and people who have just recovered from illness also have the same condition. If a pregnant woman needs more nutrients for the formation of a child, those who are busy with hard work, especially athletes, require a large amount of these substances for continuous physical activity (due to the increased metabolism of substances and energy in the body).

Qayd qilingan omillar (oziq-ovqat, meva-cheva kabilar) tanani tabiiy kerakli moddalar bilan ta'minlashda anchagina qiyinchiliklar tug'diradi. Bu hol ayniqsa o'sish yoshidagi bolalar, homilador ayollar, tuzalayotgan bemorlar, doimiy mashqlar bilan band bo'lgan sportchilarda yaqqol seziladi.

Due to the strong growth and development of young people, their body requires a lot of additional nutrients. Moreover, it is also clear that most of the plant products grown in the current ecologically unfavorable weather conditions have significantly reduced micronutrients that are useful for us. The mentioned factors (food, fruits, etc.) make it difficult to provide the body with natural necessary substances.

This condition is especially noticeable in children of growing age, pregnant women, patients who are recovering, and athletes who are busy with constant exercises. In order to eliminate such difficulties and inconveniences, the achievements of modern biochemistry and biotechnology have been used, and a complex of special substances, which are taken along with the main food, consisting of a complex of vitamins, mineral

substances and many biologically active substances, have been produced. They are collectively known as biologically active additives (BAA).

The complex of biologically active additives is mainly obtained from the leaves, flowers, roots and fruits of plants, sometimes bacteria, microbes and some animal organs and mineral raw materials are used in their preparation as well. The term biologically active substances (BAS) has entered nutrition science (the science of food) in recent years. In fact, even in ancient times, doctors from China, India, and Arabia used biologically active additives in the treatment of many diseases. Now, biologically active substances are used in almost all countries. So, what is the reason? *First of all*, the population of the earth has increased dramatically, and it is difficult to provide them with food containing all the necessary substances.

The second reason is that the edible food of our ancestors was mainly prepared of plant products, they were mostly eaten “alive”, i.e. in their natural state without boiling or drying, so the need for micronutrients was not felt. Nowadays, products that are almost devoid of necessary substances are used after strong biotechnological processing. In addition, the existing ecological imbalance increases the demand and need for micronutrients.

Nowadays, there are a lot of conveniences in human life, the successive discovery of sweet and high-calorie foods, and the increasing number of “dead” foods (that is, boiled, fried, dried, canned) harming the characteristic of “harmony with nature” inherited from our grandfathers. Biologically active additives are very useful in eliminating such imbalances, they are very diverse and have many physiological and biochemical properties.

Useful properties of biologically active additives are as follows:

It compensates for food components (vitamins, macro and microelements, irreplaceable amino acids, fatty acids) that are lacking in the body for various reasons. Increases tolerance to various harmful factors of the external environment (high or low temperature, pressure, radiation, lack of oxygen, weightlessness, speed, strong physical loads). The immune system prevents diseases by strengthening its function:

- It ensures that the exchange of substances and energy that occurs constantly in the body is appropriate;
- Removes toxic substances and slag (mucus) formed during vital processes in tissues and cells from the body;
- It preserves useful microflora in the gastrointestinal system, ensures that pathogens do not multiply, and eliminates dysbacteriosis;
- It regulates nutrition during the physiological characteristics of the body (pregnancy, breastfeeding, growth, old age, periods of mental distress);

- It prevents and treats various diseases (cardiovascular, nervous, gastrointestinal, endocrine system diseases, cancer, obesity, etc.);

Different external and internal environmental conditions of the organism (when going to regions of the globe with a time difference of 10-12 hours, when going on long-term trips) ensure the rapid adaptability of the organism.

The question arises, are there any aspects of bioactive additives that are different from the medicines we drink?

Under the influence of biologically active additives, the activity of the body approaches the physiological norm. It has no adverse effect on the human body (if it does not exceed the norm, of course). Under the influence of drugs, the activity of the body deviates from the physiological norm. That is, if synthetic drugs have a positive effect on a certain organ in the human body, they have a negative effect on the functioning of several other organs, especially the liver, kidneys, etc. Firms and companies in many countries (for example, Tian-Shi and others) are accelerating the production of biologically active additives in recent years and are constantly promoting their products. This can also be a clear proof of our opinion.

However, it should be remembered that nutrients (foods) in the composition of biologically active additives are in high concentration, that is, they are much denser than in the composition of plant or animal organs. The human body is not indifferent to the intake of the same substance in low and high concentrations. That is, if a low concentration heals the body, a high concentration can cause harm. As our grandfather Abu Ali ibn Sina said, "nutrients of the same size affect everyone differently depending on the human body."

To sum up, it is necessary to take into account the specific characteristics of the organism, its demands and wishes, as well as its physiological and biochemical capabilities. Everyone should have at least a general idea of the chemical composition and energy value (calorie) of the products they eat and drink. Accordingly, it is necessary to take into account the opinion of relevant experts when using biologically active additives. In itself, this thing is important for a person to achieve a full healthy lifestyle.

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