

## **ENHANCING ATHLETES' REGAINED PERFORMANCE THROUGH RATIONAL NUTRITION**

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### **Abstract**

The paper deals with the issues of effective organization of rational balanced nutrition of sportsmen with the aim of increasing their physical efficiency, improving recovery processes and increasing sports results

**Key word:** sports working capacity, post load recovery, rational balanced nutrition, products of high biological value, vitamin and mineral complexes, additional food supplements.

### **Introduction**

Sports nutrition - in the broad sense of the word - is the nutrition of athletes in general, in the narrow sense of the word - a special group of nutritional supplements, produced mainly for people who lead an active lifestyle, engaged in sports professional athletes in preparation for competition.

Acceptance of sports nutrition is primarily aimed at supplementing the diet with all the necessary micro and macro elements that a person does not receive from natural foods to improve athletic performance, increase strength and endurance, health, increase muscle volume, normalize metabolism, achieve optimal body weight and, in general, aimed at improving the quality and duration of life.

Today's professional sport is unthinkable without continuously increasing training and competition loads that often exceed athletes' physical abilities. With this in mind, there is a need to develop not only modern technologies of the system of training highly qualified

athletes, but also effective means and methods that increase their overall and special performance and improve post load recovery. It is well- known that athletes in the process of training and competitive activities consume much more energy during the day than the total population. The highest level of mobilization of all body systems requires the quickest and fullest recovery of energy and plastic resources spent.

## **Main part**

Today it is clear that the role of sports pharmacology among the various and effective methods of recovery of athletes has begun to gradually decline. This is due, on the one hand, to the large number of high-profile doping scandals that have shocked the sporting community over the past decade and, on the other hand, to WADA's growing annual anti-doping list. Therefore, the abandonment of drugs and the transition to a comprehensive, rational system of nutrition, including natural nutritional supplements and substrates to enrich athletes' daily diets, is a natural trend in modern sport. Athletes' balanced diet is one of the most important ways to improve their physical performance and combat fatigue. Many papers on the general issues of nutritional support for athletes have formulated the following objectives:

1. Providing the body with energy resources and plastic materials to compensate for the balance of substances.
2. Provision of essential substances with high biological activity (vitamins, trace elements, etc.), which are part of enzymes, hormones, mediators and other substances regulating biological processes.
3. Provision of substances with pharmacological activity (bioflavonoids, biogenic stimulants, etc.).
4. Water supply to the body due to losses associated with physical activity (additional losses of 1-1,5 l/day and more).
5. Regulation of body weight (both in terms of increase and decrease).
6. Maintenance of microbiocenosis of the gastrointestinal tract (GIT).
7. Ensuring body deoxidation (food fibers and other natural enterosorbents).

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Daily food ration of an athlete shall be prepared taking into account general hygienic rules, as well as sex, age, body weight, peculiarities of a sport, preparation stages, climatic and geographical conditions, etc., and meet the basic requirements, namely:

- Be complete (contain all necessary nutrients in quantities sufficient to meet the body's needs under heavy physical activity);
- Balanced (adequate proportions of nutrients);
- Compact (food should not take up a large volume and should not stretch the stomach);
- Well assimilated;
- Have high flavor qualities;
- Environmentally friendly, free of drugs and stimulants.

Conventional foods are complex natural mixtures by their chemical composition, biological and nutritional properties. One may recall that Hippocrates, the "father of medicine", also considered food to be a cure. After 2.5 millennia, his views became the precursor of a rational diet and the basis for the use of pharmacologically oriented pharmacological substances, which are part of a specialized or sports functional nutrition. It is known that athletes with a set of regular foods cannot be compensated for the huge (6000-8000 kcal) daily energy costs and the associated costs of plastic substances. Also, athletes have a great need for vitamins and minerals, which is not always compensated by the traditional diet. All this is due to the fact that during intensive and extensive daily training there is practically no time left for normal assimilation of basic nutrients in the GIT. As a result, long-term disorders in metabolism reduce the rate of recovery of energy and plastic resources in the body, which in turn leads to a gradual decrease in athletic performance and a decrease in athletic performance. This fact was the impetus for the emergence and spread in sport practice of a specially selected group of products of high biological value (HBV). These include, in particular, natural products of beekeeping, milk and dairy products, etc. Vitamin and mineral complexes occupy a special place among PPBTS. Most of them can be attributed to pharmacological preparations, because they contain synthetic vitamins and salts of different purity. However, such complexes primarily serve to correct the diet, make up for deficiencies, as well as enrich the body of athletes with vitamins, macro-and micronutrients

needed in various sports to create optimal conditions for mobilization and utilization of energy substrate, to make up for the loss of salts and to activate protein metabolism. Besides vitamins and minerals, biologically active substances include essential amino acids, polyunsaturated fatty acids, phosphatides and other fat-like substances. Advantages of PPBTS consist in food orientation, high nutritional density, homogeneity, a variety of convenient forms of preparation and transportation, good taste and reliable hygienic qualities that allows to use them in the organization of nutrition for athletes. In practice of sports PPBTS are used for the decision of following concrete problems:

- Nutrition at a distance and between training sessions;
- Acceleration of recovery processes after training and competition;
- Regulation of water-salt metabolism and thermal regulation;
- Correction of body weight;
- Directed development of muscle mass of an athlete;
- Reducing the volume of daily rations during competitions;
- Changing the qualitative orientation of daily ration depending on the direction of training loads or in preparation for competitions;
- Individualization of nutrition, especially under conditions of high nervous emotional stress;
- Urgent correction of unbalanced daily diets;
- increasing the multiplicity of meals under conditions of multiple workouts.

In addition to the basic daily diet, which includes PPBTS,

Sports nutrition means the use of additional dietary supplements (e.g. protein bars, energy drinks, protein-carbohydrate cocktails, etc.). Despite the fact that many questions on the organization and practical use of means of rational nutrition in the practice of sports have already received specific answers, but there are still a number of pressing problems that require close attention and quick solutions:

1. The low level of competence of a sufficiently large group of people involved in the practical implementation of various nutrition-related programmes for athletes at various levels.
2. Acute deficiency in sports nutrition information provision.

3. Lack of a selection system and performance evaluation criteria for newly created and implemented sports nutrition products and dietary supplements.
4. Absence of any accepted and approved anti-doping evaluation of the sport nutrition products and methods, i.e., their safe use in sport.

### **Discussion.**

It is important that the principle of complex application of restorative agents is constantly carried out in all parts of the training process: macro-, me so- and micro cycles, as well as during the training day. Food ration in athletes should be made on the basis of clear scientifically grounded recommendations, providing not only compensation for energy consumption, but also providing the body with the necessary quantity and quality composition of food, which would accelerate the recovery of the body after physical activity and the transition of the athlete's body to a qualitatively higher sports level. An important principle of sportsmen's nutrition is their energy balance - compensation for the energy spent on muscular activity. One of the basic principles of building athletes' rational nutrition is to balance proteins, fats and carbohydrates. It is carbohydrates that are the main source of energy during the training loads of athletes. Their content in the food determines the presence of glycogen in muscles, and the exhaustion of its reserves, along with dehydration of the body, is one of the main factors limiting athletes' performance. An important feature of athletes' nutrition should be considered compliance with a rational ratio of vitamin status and minerals, as well as their balance with proteins, fats and carbohydrates.

### **Conclusions**

Thus, the nutrition of athletes should not only compensate for the amount of energy and nutrients consumed, but also help to improve athletic performance and accelerate its recovery from stressful physical activity. Therefore, the ratio of essential nutrients in athletes' diets varies from athletes of different specializations during different periods of the training cycle. In the training period, when performing sports exercises that contribute to the increase of muscle mass and the development of strength, in the nutrition of athletes should

increase the protein content to 16 - 18% of calories, at long and intense physical activity aimed at increasing endurance, athletes' nutrition should be characterized by a high content of carbohydrates (60 - 65% of calories, the method of carbohydrate saturation). During the competition period it is necessary to include easily digestible products with high fat content and large amounts of fiber, and more importance to give urgent recovery through nutrition. In the recovery period, athletes' diets should provide an acceleration of anabolic processes and promote recovery of carbohydrates, minerals and vitamins in the body. It is advisable to use specialized products of high biological value (PCBP) containing easily digestible proteins, carbohydrates, as well as vitamins, macro- and microelements. Nutrition regime for athletes at two workouts a day should include 5-6 meals: breakfast - 30% of the total calorie intake, PPBT after the first workout - 5%, lunch - 30%, PPBT after the second workout - 5%, dinner - 25%, second dinner - 5% (lactic acid products, bun, etc.). In conclusion, it should be noted that an optimally balanced diet plays an important role in improving performance and should be considered as a necessary prerequisite for achieving high sports results. It is unthinkable to assimilate high training loads in modern sports without additional regeneration measures. But only their comprehensive use allows you to achieve the goal, so nutrition cannot be considered as the only means of recovery, and should be used in conjunction with other medical and biological means and methods, ie with vitaminization, some medications, physical factors and hygienic activities.

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