

# Nutrition Issues in Sports

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**Abstract** The article highlights the issues of sports nutrition for athletes. Questions about the formation of the diet of judo wrestlers, taking into account an individual approach, are revealed. Adequate nutrition is essential for normal growth and development, maintaining health and well-being, reducing the risk of disease and injury, and optimizing athletic performance [10]. Individual dietary needs are influenced by a number of factors, such as age, gender, body weight, and height [10,11]. In addition, a number of sport-specific factors: the type of sport, the volume and intensity of training, which also affect the diet, which cannot be constant due to the periodization of the training load by days, weeks or months of the competitive or pre-competitive season. Athletes have special nutritional needs, which typically cover wholesomeness, rationality, calorie content and variety of food.

**Keywords** Rational nutrition, Sports, Judoists, Energy consumption

## 1. Introduction

Additional problems that athletes face are irregular meals, large portions, food composition and dietary supplements. An effective athlete nutrition system should take into account two main components: energy consumption and energy consumption. One of the main indicators is the replenishment of the spent energy, as well as adequate and balanced intake of macro- and micronutrients necessary, primarily for the full development of young athletes and the achievement the most effective sports result [6]. Importance nutrition for plastic processes, muscle structure has been demonstrated scientists 50 years ago [3]. To manage the training process, the coach must systematically receive information about the condition of athletes and their tolerance training load, diet and metabolic characteristics in body, and by comparing sports results with metabolic changes in organism, to judge the degree of adaptation to physical activity [8]. Current evidence suggests that the effectiveness individual approach to catering in sports is very high. WITH with the help of properly organized nutritional and metabolic support (NMP) it is possible to increase the level of functioning of the athlete's body, however, building a power system is a complex issue that requires a comprehensive solutions [2]. In the simplest classification, the power system includes two main parameters: energy consumption and consumption. Energy consumption is individual characteristics of energy expenditure, associated not only with the processes of supporting the life of a teenager, taking into account his gender and age, but also

with individual energy losses in the process performance of specific (sports) activities, taking into account the volume, intensity and direction of realized loads [1]. The process of consumption depends on the quantity, quality and balance of food components consumed by a person from the outside, as well as the state of the functional systems of the body responsible for the absorption of food. At a high level of catering, both of these parameters are examined in as much detail as possible.

In the practice of sports, the main method for assessing consumption is the assessment actual nutrition. At the stage of studying the actual diet, very it is important to get as much information as possible about what and how much to eat athlete. At this stage, not only the diet of the athlete is studied, but also his taste preferences. There are several basic assessment methods actual nutrition: analysis of menu layouts, which are the main document for assessing the qualitative and quantitative composition of food rations in the conditions of collective nutrition. Weight method based on weighing all products intended for cooking, waste, prepared food and food leftovers. Questionnaire- survey method, surveys are held throughout the week, with an exact indication of the number and name products, the basis of the method is keeping a diary [9]. For accurate determination of the energy value and composition of BJU, as well as individual minerals and vitamins in food use the laboratory method as the most accurate, but associated with great difficulties in applying in practice. In addition, the method requires significant funds and labor, and, as a rule, used in scientific research. To date, there are a number of objective methods of direct and indirect assessment of athletes' energy expenditure. "gold standard" for definition of daily energy expenditure is - Doubly Labeled Water (DLW), which was first introduced in 1982 to assess energy consumption,

including in the real conditions of everyday life. The method is based on ingestion of 2 special isotopes, the excretion rate of which is measured by urinalysis and then mathematically analyzed. To date, DLW is the best method and can measure the energy expenditure of physical activity and thermogenesis in activities of daily living (NEAT). In fact, this is the most accurate method that establishes the energy consumption of all metabolic components separately [12]. Thus, accounting and analysis of energy costs is an important component effective training process. Prolonged physical activity without adequate energy recovery through a balanced diet nutrition leads to various negative consequences for the athlete, which significantly affect its current state, result and health status. This problem is especially pronounced in children. and youth sports. Nutritional deficiencies can lead to the occurrence of alimentary-dependent disorders. Consequences of data disorders can manifest themselves in growth retardation, insufficient development body weight, the development of protein-energy malnutrition, impaired regulatory mechanisms and activities of many organs and systems, weakening natural and acquired immunity [6]. Lack of energy intensity diet, imbalance, diet will lead to inadequate adaptations in response to the selected type of load, which will negatively affect indicators of functional readiness and sports success [13]. Intentional consumption of insufficient amounts of carbohydrates in order to reduce calorie intake for weight loss always there is a risk of carbohydrate deficiency. In addition to energy expenditure, an important aspect of athlete nutrition is balanced diet for the main food components. As a result Numerous studies have found that the ratio of proteins, fats and carbohydrates in the athlete's diet should correspond to 1:0.8-1:4, the ratio of the main nutrients (B: F: U), taking into account the calorie content, provided by each nutrient is 16%/28%/56%, which can be defined as the formula for optimal nutrition for young athletes various specializations [5]. To maintain the endurance of athletes at the proper level it is necessary to consume protein 1.2-1.4 g/kg/day, taking into account the fact that the carbohydrate component should provide increased energy consumption, which in junior athletes is 3500-4000 kcal per day. The situation is similar among representatives of strength sports and combatants, the recommended intake is 1.4-1.5 g / kg / day, which is at least 50% higher than the protein requirement for non-athletes. However, there are a number recommendations that greatly exceed these values and up to 4 g/kg/day. Such recommendations should be taken into account great care. There is evidence that consumption from 2-4 g/kg/day can provoke negative manifestations: impaired renal function and negative calcium balance [5]. The need for carbohydrates insignificant load - about 4-5 g / kgMT / day, with moderate (1-2 hours per day) - 5-6 g / kgMT / day, moderately-high loads (2-4 hours) - 6-7 g / kgMT / day, high (more than 4 hours a day) - 7-8 g / kgMT / day [5]. With a power load, the need for carbohydrates is greater, with aerobic exercise less. Needs for fats in athletes are only

slightly higher compared to the average person. Fats are essential for providing energy (1 g of fat per splitting gives approximately 9 kilocalories), growth processes and the vital activity of the organism. It has been established that the amount of fat in the diet under various kinds of loads can vary from 1.2 to 1.7 g/ kgMT /day [14]. In the works of foreign colleagues, great attention is also paid to the ratio B:F:U in the diet. An important difference is if in our literature, we meet the division by sports, then in foreign sources - by the level of physical activity. American specialists college of sports medicine (ACSM) in recommendations for carbohydrate intake is classified as "athlete" with the highest physical activity. This category contains a wide range of corridor of values 6-10 g/ kgMT /day, with an average weight of 80 kg, this can be 480-800 gr / day for adult athletes. Recommendations International Olympic Committee calls for an increase in intake to 12 g/ kgMT /day (960 g /day). Recommendations for carbohydrate intake for adolescents 14-18 years old involved in sports are about 400 g / day, which corresponds to the first category of sports (sports not associated with significant physical exertion) in the domestic classification [14]. In sports practice, much attention is paid not only to the number consumed proteins, fats and carbohydrates, but also their effective distribution throughout the day, depending on the volume and direction expected loads [14]. It is known that the nutrient timing renders positive effect on the athlete's body and is a means, increasing training and competitive readiness, adaptation to training loads, as well as a means of prevention overtraining. Training load can lead to the activation of both anabolic, and catabolic processes in the body of athletes. Stimulation anabolic processes will lead to an increase in muscle mass and increase in general and special performance. One of the important factors stimulating the predominance of catabolic processes is inadequate nutrition, which can later provoke a condition overtraining and injury [15].

A nutritional assessment is usually conducted by a dietitian and sports physician to examine whether an athlete is achieving specific health and sports nutrition goals? However, it is difficult to accurately assess athlete nutrition due to the influence of sport-specific factors such as training frequency, large portion sizes, and the widespread use of rapidly evolving sports foods and supplements. Dietary assessment can be costly (especially for a large number of athletes or teams), time consuming, and, unfortunately, due to these limitations, there are few studies. As a result, athletes with insufficient nutrition or with an improperly selected diet do not give high sports results, and in the worst case, morbidity increases, and working capacity decreases.

Many retrospective studies in the field of adequate nutrition, which rely on the athlete's self-report in food consumption, for example, "food diary") did not give positive results due to the fact that it is impossible to accurately calculate the amount of food consumed per day, its energy value [10,11].

Recent technological advances in the use of food

photography help dietitians track the nutritional patterns of athletes [4], but there is also a downside to this method, since it is impossible to calculate the energy value and gram of food consumed by an athlete. There is a need to conduct research to study the nutrition of athletes and develop an individualized approach to formulating an adequate diet, taking into account gender, anthropometric and functional indicators, as well as food preferences. There is currently no "gold standard" for measuring kilocalorie intake, the most common method for assessing an athlete's nutrition is to create a weekly menu. In most cases, the weekly menu is compiled without taking into account the nature of the training and the individual needs of the athlete in kilocalories.

Let's consider this problem on the example of judokas of Uzbekistan. As is known from literary sources, the average daily consumption of kilocalories of judo wrestlers is 4500-5500 kcal [7]. And it is also possible to calculate the energy consumption of an athlete individually, where it is more convenient to use data per 1 kg of body weight for calculation. The study of the weekly menu-layout of the judo federation showed that the diet was made for all athletes without regard to age, gender, weight category. The question arises, how much energy per day does a judoist spend during training and what type of training does he spend more on and how to calculate energy consumption after training? Analysis of literature sources did not give a clear answer.

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