THE EFFECTS OF DIET AND NUTRITION ON ATHLETES PERFORMANCE

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ABSTRACT*: *Introduction： *A reasonable and balanced diet is related to the physical and mental health of athletes, and it is also vital to the improvement of sports performance. This article takes the university and national players of athletics as the research object.* ***Method:*** *By means of literature review, logical analysis, discussion with players, and expert interview methods, the athletes and coaches of the national athletics team were visited and investigated. On the basis of the guidance of players and coaches, this paper summarizes the present situation of the athletic players' of Pakistan with detailed data. This paper constructs a model of the factors influencing the performance of national players and analyzes the nutritional factors that affect the performance of national-level athletes of Pakistan during the daily training period.* ***Results:*** *The investigation found that: (1) Problems in the nutrient and energy intake of running athletes: The general energy intake of running athletes is insufficient; the intake of carbohydrates and protein is too low. The intake of grains, potatoes, and beans is below the recommended intake, the intake of dairy products is severely lacking, the intake of vegetables and fruits does not meet the recommended intake. (2) Lack of nutrition knowledge: Their understanding of nutrition is not deep enough, and bad eating habits are common. Athletes are interested in nutrition knowledge, but the publicity and education efforts are not enough. (3) Lack of professional sports nutritionist guidance and lack of a relatively complete diet management system and supervision system.* ***Conclusion:*** *Based on this article we conclude that the education channels for athletes' nutritional knowledge are not broadened, the eating habits of athletes are not good, the team has lack of professional sports nutritionists to monitor athletes' diet status, to correct bad eating habits, establish a dietary nutrition analysis system for athletes, carry out personalized energy balance and dietary guidance for athletes, and implement scientific meals.*

Keyword: Nutritional Values, university, and national Athletes, Performance

1.INTRODUCTION

Sports performance is not only affected by heavy exercise training and other factors, but a reasonable diet and nutritional supplements also play a very important role. It can be said that diet and nutrition are important factors affecting sports and athletes' performance. For this reason, many countries have a great interest in nutrition. They want to know whether the results of exercise can change their nutritional requirements or the adjustment of diet can help improve sports performance etc. [1]. Experts from academia all over the world are very concerned, and at the same time, on some issues, the experts have already made their opinions. However, there are different opinions on how to configure and arrange the nutrition diet according to different sports and athletes in a different geography, environment, climate, time, and athletes' respective physiological characteristics and conditions. To sum up, let's briefly discuss these issues, focusing on endurance training for colleagues' reference [2].

Many athletes have been training hard for months or even more than ten years to participate in the competition, but they often suffer from injuries when the competition comes. Such as extreme fatigue， fatigue fracture and other phenomena. In fact, this is not because athletes have poor resistance, but because there is no scientific grasp of the methods of taking rest and nutrition [3].

We know that high-volume training is necessary to master and improve technology, but on the other hand, it also weakens the athlete's physical strength. Take the sweat discharged from the human body during training. Song said that due to vigorous exercise, the large amount of sweat discharged from the body is removed. In addition, there are minerals such as salt, calcium, and iron. If sweat is lost too much, minerals in the body will be greatly reduced. To ensure the balance of human body functions, minerals such as calcium and other minerals cannot be supplemented, and bones will inevitably become weaker gradually. As a result, fatigue fractures occur." Muscles and blood are also consumed during strenuous exercise, and the consumption rate is more than twice that of ordinary people. If the supply of various nutrients that make up muscles and blood is not available, not only will it not be possible to improve technology, but it will cause physical decline and "extreme fatigue" of the human body [4].

Therefore, in training or competitions, in order to achieve good results, not only a large amount of exercise is very important, but also nutritional supplement is also very important. It can be said that diet and nutrition are important parts of sports.

2. THE RELATIONSHIP BETWEEN ATHLETES AND NUTRITION

For long-term training with a large number of exercises, the human body will inevitably consume a lot of energy, in order to maintain the balance of the human body. It is necessary to fully intake various nutrients in the diet to be "filled." So what are the main nutrients necessary for the human body: mainly include: protein in addition to 8. Cloud water in muscles, the main component is red blood cells, and red blood cells are mainly composed of protein. When athletes exercise vigorously, the consumption of protein in muscles and blood is twice that of ordinary people. Some people wake up the next day after vigorous exercise with feelings of muscle pain, exhaustion, and even "sports anemia", which is mostly caused by excessive consumption of human protein. Athletes should consume at least 2 grams of protein per 1 kilogram of body weight per day. During strength training, protein needs to be increased [5].

Calcium: Calcium is very important for the growth of human bones, and there will be a small amount of calcium in muscles. It is related to muscle contraction. Calcium also has a great influence on the normal activities of nerves. Frequent

"fatigue fractures" and cramps during exercise are mainly due to insufficient calcium.

Iron: Iron is directly related to human endurance. Hemoglobin and muscles contain iron. When the human body's iron content is insufficient, "anemia" decreased endurance, fatigue, etc. will occur. Iron is mostly excreted in sweat and should be added more in summer [6].

Vitamin BI: It can quickly convert rice, pasta, and other food into energy. It is an essential nutrient for continuous muscle exercise. When insufficient energy will drop, It will cause muscle fatigue, and sometimes even confusion.

Vitamin C: It can regulate the balance of the human body, promote energy metabolism, and has a great influence on the endurance of the human body.

Vitamin E: It can improve the utilization rate of oxygen in the human body, and is most closely related to the endurance of the human body. During the game, in order to maintain the best competitive state, strengthening endurance is indispensable. It takes 50 mg per day [7].

3. EXERCISES AND NUTRITIONAL BALANCE

3.1 Nutrition suitable for exercise

Athletes' nutrition (diet) should be increased or decreased according to the amount of exercise. At the same time, attention should be paid to the difference between drinking and eating. Because many nutrients such as calcium and iron are excreted in sweat. At the same time, various nutritional supplements should be considered in the diet; that is, the amount of exercise is balanced with human nutrition [8].

Some athletes do not pay much attention to their diet. It is unhealthy to eat a full meal if they like it, and eat less or not to eat if they don't like it, causing eating disorders. This is unhealthy of course, it contains the same kind of nutritious vegetarian food, and it is not advisable to eat too much, so it is better to eat more food with different nutrients [9].

Table 1. Athlete's Essential Nutrients

Normal student		**Heavy sports exercise training or summer training period**	**Winter strength training period**
Calories	2400-2500 calories	3700-4000 calories	3000-3200 calories
Protein	70-80 gram	120-140 gram	140-160 gram
Calcium	70 milligram	1200-1400 milligram	1000 milligram
Iron	10 milligram	18-20 milligram	15 milligram
Vitamin B1	1 milligram	2-5 milligram	2 milligram
Vitamin B2	1 milligram	2-5 milligram	2 milligram
Vitamin C	50 milligram	200-300 milligram	500 milligram

3.2 Nutrition during exercise

In the summer season, athletes lack sleep and lose their appetite. In this case, athletes have to withstand a certain amount of intensive exercises. If there is no healthy diet, exercises cannot be sustained. To make the athlete's diet healthy and rational. I think the following arrangements are within reason [10].

Breakfast: After getting up, do slight exercises to improve appetite. It is best to have a wide variety and quantity for breakfast. However, the current living conditions are different, so no matter how simple it is, pay attention to the following points:

A. Dairy products (milk, yogurt) and eggs are required.

B. At least two small bowls (tea bowls) should be eaten for meals;

C. Cooked kelp, small fish, etc. (can enhance appetite and supplement minerals).

D. Vegetables and fruits.

E. Eat food containing various proteins regularly.

F. Eat fortified nutritious food.

Lunch: No matter what the conditions are for lunch, it must be noted:

A. According to the lunch break, on the basis of considering supplementing the energy required for afternoon exercises, exhale and use food that can make the body digest and absorb as soon as possible [11].

B). Eat rice, pasta, etc. to ensure energy.

C). There must be sufficient protein, calcium, iron, vitamin B, vitamin C in the food.

D). Intermittent food: When the training time is longer. Nutritional supplements during training should be considered, and short-term "intermittent food" should be arranged. Resume night labor as soon as possible. Between meals should be based on various sports and health drinks (or add a small number of cakes), and the amount of food should be increased or decreased according to the amount of sweating [12].

Dinner: Dinner is very important to restore the balance of human nutrition

A. If you sweat a lot, you should increase the soup and soup-based food.

B. Take care to avoid eating food with excessive oil content.

C. Food should focus on meat, fish, and eggs to ensure protein supplements.

D. Increase the consumption of fortified milk powder rich in calcium, iron, and vitamins.

E. Increase the consumption of kelp and small fish to supplement minerals other than salt.

4. EXERCISE AND NUTRITIONAL NEEDS

Reasonable nutrition is one of the important factors for athletes to achieve excellent results. So how can the athletes' camping buckwheat be reasonable? Famen said: When an athlete's nutrition (energy, nutrition, vitamins, trace elements, and body fluids) reaches six balances. Chi's Yingqiao is healthy and reasonable. Generally speaking, nutritional requirements are directly proportional to body weight. Athletes' energy requirements increase with increasing exercise intensity and time. Such as training ability, training intensity, training frequency, athlete's training water and basal metabolism, etc., are undoubtedly several factors that depend on the energy required by an athlete [13]. In the process of aerobic energy supply, each release of silicon 5 dry calories need to consume 1 liter of oxygen. Athletes with high levels of oxygen generally need 50 kilos to seven calories a day during training. It should be pointed out that in addition to the physical load; the athlete's nervous system consumes part of the energy in the highly exciting world.

Part of the energy, especially during the pre-match preparation period and during the competition, the athlete's energy consumption before the competition will increase by twice. High-intensity rest load and high nervous system excitement determine the maximum daily energy consumption. Sports-related to long-term physical load (such as road cycling, marathon, skiing, etc.) can consume as much as 7000 to 8000 kcal per day and night during intense training. The 12-hour energy consumption of marathon and swimmers is about 7000 kcal, so when the energy consumption reaches the limit of the digestive system, it is impossible to drink an ordinary diet to balance the energy [14].

Water is one of the two major nutritional components. During exercise, due to the increase of lung ventilation and the loss of sweat, it is necessary to increase water supplement. A large amount of water is lost during exercise, reaching more than 2 liters per hour in hot weather. In heavy exercise training, water should be added in time to avoid affecting performance or heat stroke. But in terms of relative endurance events (marathons, triathlons), supplementing water is not necessary, and everyone agrees on this point. What I want to say here is that whether the time and amount of drinking water are reasonably arranged during higher-intensity training or longer endurance running competitions is related to the needs of athletes and the key to affecting sports performance. It is also the improvement of athletes' training level and important aspects and links to create good results [15].

Regarding athletes' demand for protein, we say that protein is not only particularly important for muscle composition but also for the production of enzymes and hormones. Any stressful physical activity will increase the consumption of protein, especially because the body cannot store protein, so athletes must consume a lot of protein every day. The daily protein requirements of athletes vary with the amount of training, training intensity, and athletes' special events [16]. No matter what the protein that athletes need every day should be 1 per kilogram of body weight. One 1.5 or 2 to 4 grams, especially when training for strength and speed and long-term intense physical load. Athletes' intake of protein will continue to increase. The practice has proved that if an athlete consumes a slightly excessive amount of protein during training, it will be beneficial and harmless to the further improvement of his sports performance, but it must not be too excessive, because protein consumes more oxygen in the metabolic process, and aggravates the liver and kidneys [17].

5. NUTRITIONAL NEEDS OF ENDURANCE ATHLETES

Endurance athletes need nutrition during training or competition. As early as the end of the 1930s, Scandinavian physiologists' research showed that carbohydrates can enhance endurance. The theoretical basis of this study is inseparable from the use of muscle glycogen components in muscles as energy sources for exercise. At the same time through the observation of endurance exercises, when the content of liver glycogen in the muscle decreases to a very low level. Athletes will become exhausted and cannot continue to maintain the intensity of exercise. This view confirms the role of carbohydrates [18].

According to this theory, one week before the competition, a high-volume training and supplementation of high-CHO foods are carried out, and then two or three days of large-volume training and eating low-CHO foods, and then a few days after the athletes gradually reduce the amount of exercise and eat some foods high in CHO. In this way, the muscle glycogen content can reach a super constant level to extend endurance ('Ho supplementation has been shown to have a positive effect on avoiding overtraining and drinking with low CHO [19].

Recently, interest in CHO has focused on the importance of the daily diet of endurance athletes who have to undergo intense training every day. According to data, those who adopt a typical North American diet method are mobilized (CHO accounts for 40% of energy). Glycogen is difficult to recover between daily endurance training sessions. After training for Sanyao, glycogen stores are almost exhausted [20]. It can only be inferred that this will cause chronic fatigue and fail to achieve the effect of training. If you take a diet containing 0-ring CHO next, the liver powder content before training on the next day can be restored to a normal level. From this point of view, a white diet containing high CHO is suitable for endurance athletes who train with a large amount of exercise. Said to be desirable. For those athletes who do not need a large amount of exercise, the demand for CHO is relatively low; generally speaking. CHO containing 50-55% of energy is more suitable [21].

In the past, some athletes drank some sweet drinks or ate sweets before training or competitions, thinking that they could get the fastest energy supplement. In fact, it is not good; this is harmful because too high CHO will stimulate the secretion of insulin, which will weaken the metabolism of fat. It will eventually lead to hypoglycemia. Three CHO supplements with a 60` before training will not have any consequences for exercise that lasts an hour and a half or a shorter time [22]. The performance is neither improved nor reduced. In training; supplementing with glucose is more likely to reduce the glucose content in the blood to the lowest point than using a placebo (a preparation that does not produce a psychological effect) or fructose. The symptoms of hypoglycemia have not been found at all, so it will not affect the performance. Many athletes are affected by psychological factors taken in. In addition, you can take appropriate amounts of vitamin C, B, BZ, A: potassium, sodium, calcium, magnesium, phosphorus, or eat nutrient-fortified foods and other minerals and trace elements before the game [23].

For ultra-long-distance endurance training or competitions such as marathon road cycling races, the "glycan filling method" can be used, which has been proven to help increase endurance, and the effect is still optimistic [24].

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6. CONCLUSION

With the development of sports nutrition, people will get more thorough answers to the questions raised at the beginning of the article. In any case, there are a few suggestions in this article for reference: endurance athletes' diet should contain high CHO ingredients (the specific amount depends on exercise intensity and time); appropriate protein supplement. Vitamins and minerals are supplemented according to routine requirements and they have no obvious effect on improving performance; fluids should be supplemented during training; a large amount of choro supplementation in endurance events of at least two hours is helpful to improve athletic performance.

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