

Research Article

Effect of Dietary Nutrition and Fatigue Recovery Study on Volleyball Sports

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Abstract: This study analyzed the characteristics of volleyball match and every system of energy supply and the order of energy materials which is decomposed. Then we concluded the course of substance and energy metabolism in the volleyball match and analyzed the possible causes of sports fatigue. At last to improve the capacity of sports man we give some advice such as the methods of volleyball train and supplying some nutrient matter in the training. Volleyball game is intense antagonism sports item, with the characteristics of high extensive mass, highly technical intensity motion, high density, fierce confrontation, etc.

Keywords: Energy metabolism, sports fatigue, volleyball game

INTRODUCTION

The physiological basis of Volleyball project is athletes body nature and substance and energy metabolism in scientific training, first of all, volleyball as a collective project, which is the focus of the two sides competing for time and space on internet. Substantial metabolism and energy metabolism is the base of every apparatus activities, nutrition arrangement instructed by the knowledge about the regularities of metabolism is very significant.

Physical fitness not only can enhance physical quality but also can promote physical and mental health (Grandjean, 1997). However, during the process of having sports, people consumed a large amount of nutrients with accumulation of metabolism, which made the movement ability of the human body dropped and result in the physical fatigue. Therefore, when people have sports, at the same time, they should also pay attention to the supplement of nutrition, according to the effects that different sport items have on the metabolism with different degree and according to the different needs of nutrition under different conditions, try to make scientific and reasonable nutrition supplement plan, so as to help the body to maintain a good state and improve the athletes' abilities.

It is also a kind of intermittent movement that body movement is separated by a short break in short time. Volleyball is actually made up of many transient and quick ball activities (such as ball, smash, serve and block, etc.) and low intensity for a long time without the ball activities (such as preparing posture, judgment, mobile, etc.) and a short rest (such as pause, substitution, bureau between rest and into the ball, etc.) of the intermittent movement. According to the characteristics of volleyball, this study simple analyzed

the volleyball sports fatigue recovery and puts forward Suggestions on the athletes' nutritional meals.

MATERIALS AND METHODS

Generally, the metabolism process of the medium long distance runners is very stable, the anaerobic metabolism of sugar is gradually replaced by the aerobic oxidation of sugar, the process of energy consumption and synthesis is basically in a state of equilibrium, because the total energy of consumption is very large, the heat is from the decomposition of glycogen in liver and muscle, therefore, food had better have the sufficient source of heat with rich sugar, vitamin C and vitamin B, protein is the main composition of tissue cells and the adolescents are in the growth and development period, so the demand on protein is more, the amount of various amino acids needed by weight calculation is more than adults, the amount for adolescent protein supply is counted for 12-15% of the total calories, in order to meet the need of body's protein, in the normal meal, athletes can eat more fish, eggs and soy products, etc, which should also contain the right amount of fat to reduce the volume of food and reduce the burden on the gastrointestinal tract, the demand for protein, fat, sugar should be according to the weight ratio as 1: 1: 7, according to the heat, the percentage should be 9.5: 22: 68.5, in addition, the supplement of the trace elements should pay more attention, although it contains small amounts in the body, it plays an important role in the human body metabolism process and has played a significant role in maintaining the normal function of the body (Li, 2008). The main trace elements in the human body mainly include: iron, sodium, potassium, chloride, calcium, phosphorus, zinc, manganese, copper, iodine and so on. The training amount of the

Table 1: Survey of nutrition study

The application and introduction of high technology in athletics sports in our province	13	37.1%	20	57.1%	2	5.7%
Whether it is sufficient with the science and technology personnel that are engaged in college sports nutrition work in our province	24	68.6%	10	28.5%	1	2.8%
The degree of understanding the athlete nutrition knowledge	15	42.8%	20	57.1%		%

medium long distance is large, for athletes, the phenomenon of lacking water is more, especially in a hot environment, during each specific interval they should supply 100~200 mL fluid, the rehydration should also be in a small amount with many times after training, it should be no more than 800 mL in an hour, due to sweating, the loss of salt and electrolyte, athletes had better drink fluid contained glucose, salt and electrolyte, which can supply water and trace elements, secondly, the dining time for the adolescent athletes must have a certain interval with the training and competition, the dining time should set a period of time regularly, otherwise, it will easily lead to the disorder of digestion, which will seriously affect the elimination of fatigue after the training of adolescents.

Maintaining a healthy lifestyle, scientifically adjusting the exercising load and having adequate sleep is an important method to eliminate fatigue, athletes should maintain a healthy and reasonable life in the fitness process, maintain good sleeping conditions and healthy diets (Liu, 2009). Once the phenomenon of exercise fatigue is occurred, people should timely make adjustments to the exercise, appropriately reduce the load of the training and make scientific and reasonable training plan and method, so as to accelerate the recovery of physical fatigue.

Survey of nutrition study: In dietary nutrition work, the Average required nutrients for the Athletes dietary and recommended intake is the reasonable basis for the nutrition researchers to determine and evaluate the athletes dietary. In the survey, 57.1% of the coaches had little idea about Chinese athletes dietary nutrients and suitable food intake, which made it difficult for the coaches to make accurate, practical assessment on the athletes' dietary and may have deviation to guide the athletes' dietary. Among them, 51.4% of the coaches can fully understand the application of its own researching technical innovation and researching result on nutrition and recovery field in our province, 55.3% of the coaches can basically understand. 88.5% of the coaches can understand the application level of college athletes' nutritional supplements, among them, 60% of the coaches fully understand all kinds of problems appeared in the practice of college nutritional supplements in our province (such as: whether the using method is scientific, whether it acts as the substitute for doping, whether all kinds of products are jumbled together with good quality or bad quality). (57.1%) of the coaches have little idea about the application and introduction of high technology in athletic sports in our province, 5.7% of the coaches have no idea about it. 88.5% of the coaches think the college athletes in our province are lack full understanding and knowledge about sports nutrition and short of the guidance from

the athletic nutritionists, while the administrative personnel and the chef can basically understand the attention to the degree of the balanced nutrition. Among them, 57.1% of the coaches can basically understand the situation whether the athletes can read the related books about sports nutrition, so as to understand some knowledge of the latest sports nutrition both at home and abroad (including some effects of the latest sports nutrition, using method and purchasing channels, etc.) 68.6% of the coaches can fully understand whether it is sufficient with the science and technology personnel that are engaged in college sports nutrition work in our province as shown in Table 1.

Other matters that need attention: After physical fitness, people should have reasonable diets with a focus on the balanced nutrition. Physical exercise can promote digestion and increase appetite, with the loss of the water in the body, it also can increase the degree of thirst. But after the exercise, trying to avoid overeating and people should pay attention to choose some basic foods in the diet. Because after physical exercise, the environment of the body is in the acidic environment, if the intake of acidic food or drink is much, it will increase the degree of fatigue to a certain extent, which is not beneficial for the recovery of the fatigue. Drinking water should also follow the way of few amount by many times.

Establishing good eating habits for athletes: Athletes should fully understand the importance of supplying reasonable dietary, change the past concepts and establish healthy eating habits (Paul, 2003). For example: the athletes must pay attention to avoid partial eclipse in the diet, eat more vegetables, so as to ensure vitamin A, B, C that body needed; if the content of calcium is deficient, athletes should eat more animal offal, seafood and dairy products to ensure the demand of calcium and phosphorus. Athletes should reflect more with their coaches about the shortcomings of the reasonable dietary supplement and adjust the appropriate dietary to meet their actual needs, so as to establish the good practical foundation for the reasonable diet structure system.

RESULTS AND DISCUSSION

The nutrition of volleyball players:

Branched-chain amino acid: Some of the branched-chain amino acids (leucine, isoleucine, valine) can enter the brain through the blood-brain barrier, which can keep the central nervous active. When the basketball players do some strenuous exercises, because the catabolism is increased, it results in the obvious

decrease of the branched-chain amino acids and the increased amount of the free tryptophan in plasma. Tryptophan has the inhibitory effect on the central nervous system, which can make person produce drowsiness, it is the main reason to cause basketball players have central nervous fatigue after a heavy load of training. Basketball players who take some beverage with the branched-chain amino acid after a heavy load of training can significantly improve the central nervous working state.

Sugar and electrolytes: During basketball athletes have training and competition, because of the increased body temperature and excessive perspiration, it can cause dehydration and the loss of electrolyte (mainly included sodium, potassium, magnesium, calcium and some other plasma). Dehydration can cause the reduction of blood volume and increase the burden of the heart; the loss of electrolyte will affect the cell membrane potential and have some problems with the nerve excitability transmission, which can make the athlete's sports ability declined. Therefore, during exercise, athletes must use reasonable method to supply fluid as soon as possible. Rehydration should choose drinks with sugar and electrolyte, containing 0.9% sodium chloride and 0.5% glucose, a certain amount of potassium chloride and potassium-magnesium aspartate is the best. The principle of rehydration is with small amount by many times, generally, before the sports athletes can take 400~500 mL, during the pause of the completion, athletes can take 150~300 mL, after the exercise, the rehydration should take a small amount by many times. Athletes should pay special attention to one thing that, generally, it is not suggested to take mineral water during the sports, which will soon reduce the plasma osmotic pressure and increase the amount of

urine, leading to the loss of water (Feng, 2000). In addition, it is suggested to drink water before you feel thirsty, because the body has been in 3% dehydrated state, which is difficult to supply water at this moment.

CONCLUSION

In volleyball game, the main and direct aim of participating in sports activities is to promote physical and mental health. But physical fatigue is an inevitable product of fitness activities. Only reasonable nutrition supplement and active recovery means can achieve the ideal effect of super compensation and constantly improve the exercising capacity, so as to promote physical and mental health ultimately.

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