

Research Article

Study on Young Athletes of Nutritious Food Formulation Based on the Characteristics of Physical Badminton

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Abstract: This study discussed badminton sport from the physical characteristics, the special physical ability is the basic skill and tactics, determines the sustainable development and competitive state technology. Sports nutrition food started late in China, but developed rapidly; the functional components of research and application in sports nutrition food has been expanding. From the winning factors of badminton sport, analyzes the existing problems of China's sports nutrition food and the prospect of market prospects and development trends of nutrition food in China movement.

Keywords: Badminton, physical characteristics, sports nutrition food

INTRODUCTION

Badminton is widely developing in the world, one of the frequent sports competition and in today's world, technology of badminton movement toward high-speed offensive, a comprehensive multiple development direction, fast is the core of the badminton, the only quick can grab time and placement, play time difference, break his opponent's balance, at the same time, according to the tactical needs fit upper limb movements, flexible, quickly back and forth to keep running and hitting, must do all kinds of rocket star, sudden stop, before and after, left and right movement to changing direction, with a twist, instant take-off action, which puts forward higher requirements on the athletes specific physical ability. Youth who after the training of badminton after the exercise, the body will be sports fatigue (Yu-He and Wen-Tao, 2007). If you do not pay attention to exercise fatigue, not timely eliminate fatigue, will not only hinder the increase exercise capacity, but also can cause sports injury and disease, causes the movement young people's physical and mental health hurt. A way of eliminating sports fatigue replenish nutrition at time, so in recent years and associate with the physical recovery after sports nutrition food consumptions and have a rapid growth trend (Yuebo and Qingkai, 2008).

MATERIALS AND METHODS

The characteristics of energy metabolism in badminton: The human body needs energy in a variety of sports, which respectively by three different energy supply system, namely ATP-CP system of energy supply system. The function of glycolysis system and

aerobic oxidation energy supply system. The characteristic of energy system is shown in Table 1.

In the badminton competition often require athletes to complete a lot of smash and high strength movement in seconds, this time mainly to lactic acid raw energy supply system, at the same time they also in its area of long time keep moving and knocking back the ball, come very naturally, cannot do without Oxygen energy supply, therefore, the badminton movement is aerobic exercise and anaerobic hybrid energy supply motion, is mainly by lactic acid and glycolysis.

Analysis on the characteristics of special physical badminton athlete's specific physical ability: The badminton movement is a strong confrontation, fast speed, changeable skills class for separated the net to the striking competition project, physical fitness is an important part of competitive ability and the key is to the badminton competition to win. Badminton special physical fitness is the comprehensive physical exercise capacity, obtained by congenital and acquired training and it has a close relationship with the body shape, physical quality, physiological function and health level (Yong, 2008).

Specific physical ability refers to the movement of the specific sports itself in the process of sports training and the special skill movement itself is similar in the characteristics of the practice and enhance the special movement, which required for the function of each organ system, the special physical ability training objective is to maximize the achievement of special athletes movement. If you want to find out the special features of badminton sport (Yong-Min and Baojun, 2000). At first, you must understand and analyze the Physical biological characteristics of badminton fitness, such as badminton competition to the human body n

Table 1: Energy system structure

Energy system name	The substrate	Storage (mol/kg)	Can synthesize ATP (mol/kg)	Time for sports	Supply of ATP reply substances and metabolites
Lactic acid original system	ATP	4-6		6-8 sec	CP
	CP	15-17	100		CP+ADP->ATP+C
Glycol sis system	Muscle glycogen	365	250	2-3 min	Muscle glycogen->lactic acid
	Muscle glycogen	365	13000	20-30 min	Sugar->CO ₂ +H ₂ O
Function of the aerobic system	Fat	49	No limit	1-2 h	Fat->CO ₂ +H ₂ O

material metabolism and energy metabolism, the characteristics of badminton athletes in the game when the fatigue and physical function decline, in the badminton competition, substance metabolism and energy metabolism characteristics of the athletes belong to which type, what is the relationship between exercise capacity and physical fitness of athletes.

Physical function: Physical function is the basis of physical activity, a function level directly affects the required movement of the capacity of a hand during exercise and many markers on it have strong genetic characteristics. Badminton competition time structure is composed of a high intensity exercise in short time and short time interval alternating. The kinematic density is rarely exceeding 45%, many between 26 and 45%. The movement of time in this density is from dozens to more than 100 composed of paragraphs, of which 1 to 10 sec paragraph accounted for 80% or so, only about 20% are sustained for more than 11 sec, the time structure of the way this game determines the characteristics of energy metabolism. In the badminton competition, the average heart rate of athletes can reach between 180 BPM and 200 times/min, in order to enable them to be energetic in the long time of intense competition, under extreme load, require the badminton players have a good heart and lung function, usually by measuring the quiet of pulse number and the number of pulse after loading and the length of recovery time. The badminton movement mainly lactic acid and glycolysis, need for ATP-CP content is very high, can be evaluated by the urinary creatinine index.

RESULTS AND DISCUSSION

The demand of the society of sports nutrition and health promotion: The idea of establishing sports nutrition and sports nutrition food development in the western countries. In 1994, the Congress of the USA passed "the dietary supplement health education activities" act and the formal definition: when a product (in addition to tobacco) to promote health and contains vitamins, minerals, amino acids, herbal, plant amino acids and other nutrients or health care use components, similar form of drugs, such as tablets, capsules, powder, oral liquid food namely dietary supplements. The act promotes the rapid development of American dietary supplements, at the same time, also increased the sports nutrition food market share.

Improve the standard of living was negatively correlated with nutritional status: With China's rapid

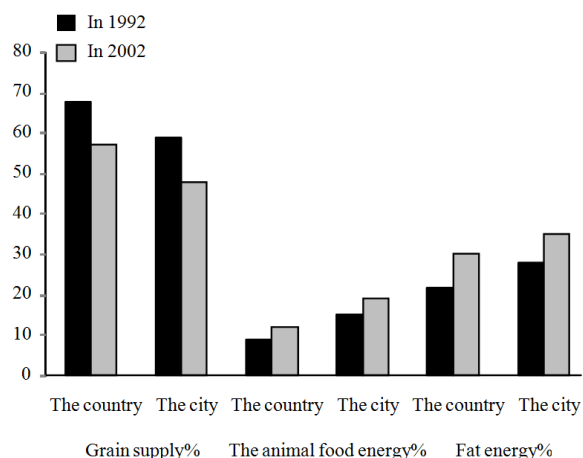


Fig. 1: Changes of eating patterns in Chinese people

economic development, the living standards of people gradually improve. From 1979 to 1991, China got rid of poverty, solved the problem of food and clothing. From 1992 to 2000, achieved an overall well-off. From 2001 to 2007, the comprehensive construction well-off society solid ahead. From 1978 to 2007, the per capita net income of rural residents an average annual growth rate of 7.1%, urban residents per capita disposable income of the average annual growth of 7.2%; Engel's coefficient of rural residents (food expenditure accounts for the proportion of total consumption expenditure) decreased from 67.7 to 43.1%, urban households fell from 57.5 to 36.3%. The level of income and consumption rapid increased, but instead is more unreasonable. The proportion of cereal the nutritional status is less and less, which is based on carbohydrate, the ratio of animal food and fat is getting higher and higher, which for the cardiovascular and metabolic diseases hidden danger (Fig. 1).

The physique of teenagers is sliding year by year, compares the 3 years of 2005, 2000 and 1995, youth fitness is in decline, respectively. The specific performance of speed, endurance, flexibility, the explosive force, strength, vital capacity of the students were decreased year by year. Among them, in addition to the speed quality of 50 m sprint decreased less, the rest of the quality decline significantly. Student nutrition state of polarization, one is obese students increased, on the other hand, is that students malnutrition. From 1995 to 2005, all the students in the detection rate of obesity are 2 to 3 times the speed of increase. The coexistence of unhealthy eating habits of

students brought about by the lack of nutrition and nutritional imbalance, mainly reflected in: first, 20 under the age of iron deficiency, iron deficiency anemia prevalence rate of 6~29%; second, the insufficient calcium intake, calcium intake recommended intake of students only 40.6%; third, vitamin intake is inadequate.

With the understanding of motion characteristics of human body physiological metabolism, the domestic and foreign definition of sports nutrition food changed a lot. In Europe and the United States and enhance immune function, disease resist infection, antioxidant, the enhancing effect of joint health, in the central nervous system and other aspects and anti exercise fatigue of nutrition of product positioning of concentration on; product forms including drinks, tablet, powder, nutrition bars etc. In recent years China developed sports nutrition food products of different forms of functional diversity.

Study on the functional components of sports nutrition food:

Amino acids and peptides: Recent studies have shown that many of the plant are source of protein and derived bioactive peptides obtained after enzymatic such as, peanut polypeptide, soybean polypeptide and corn polypeptide with functional properties of protein better than the original, the experiments also confirmed the absorption rate of peptide is higher than amino acid, more easily, more quickly through the intestinal mucosa is absorbed by the human body than amino acids for the people; branched chain amino acid oxidation *in vivo* during exercise can account for about 60% of the total amino acids for energy, timely replenishment of branched chain amino acids for long time and high intensity exercise has provided material basis of oxygen metabolism process, used to repair and reconstruct the damaged muscle, so as to save the other amino acid consumption, is conducive to the improvement of the retention of nitrogen storage in body, in order to make the athletes keep plenty of physical strength and good athletic state; Glutamine peptide is an important

regulator of various proteins and immune function *in vivo*, glutamine peptide can reduce the stress state of the intestinal mucosa structure damage and improve the intestinal mucosal barrier function; the study confirmed that peanut peptides with antioxidant, enhance immunity and blood pressure reduction; soybean oligo peptide, high F value oligopeptide, corn peptide, polypeptide, pilose antler the sea cucumber peptide, male silkworm moth active peptide, jellyfish collagen peptide and collagen peptide has been shown to have anti fatigue effect.

CONCLUSION

With the living standard improving continuously, the popularity of the national fitness campaign, the Beijing Olympic Games and Guangzhou Asian Games successfully held, people's health awareness has been improved further, the first health has been placed in the fashionable life. The people of the safety convince, nutrient flavor and efficacy increasingly attention, the market demand on sports nutrition food will be more and more high. Therefore, the development of sports nutrition food, can improve the nutritional level of fitness crowd and promote the overall national physique, will have huge market potential and economic benefits.

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