

## Research Article

### The Complementary Research of Exercise Training Food and Physical Education

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**Abstract:** This study starts from the illustration of exercise training food and physical education and combines the introduction of complementary theory; it discusses the effectiveness of exercise training food to the supplement and lifting of athletes' physical function in physical education. Exercise training food can give efficient support to athletic physical function and improve the validity of physical education.

**Keywords:** Exercise training food supplement, physical function

#### INTRODUCTION

Exercise training food and physical education are two different matters. Physical education is an interactive teaching activity, in which teachers play key and active roles while students are received objects. But in this process, teachers are relied on teaching programme and help students to study and grasp part of physical knowledge and study relative physical skills. Meanwhile, in the teaching process they help students to form a good exercising habit and consciousness, keep a good health and develop in an all-around way. Exercise food is also called exercise nutrition food, which is related to exercise. This kind of food is defined as something that can supply special dietary, adjust metabolic status and help to improve stamina (Barrow and Milburn, 1986). From this we can know that exercise training food also belongs to the category of health food. In recent years, exercise training food markets is rapidly developing at home. Researches about exercise training food are paid more attention nowadays.

**Classification of exercise training food:** There is no strict definition to exercise training food. Therefore, the classification of exercise training food is complicated. At home and abroad, there is no relative standard. European and American countries usually classify exercise training food according to purposes of using this food. It mainly includes several types:

**Exercise adapting food:** The function of this kind of food is to adjust athletic nervous excitation. It can help athletes to enter the playing condition as soon as possible, such as common functional factor caffeine. It can also have effects on central nerve system and make people keep in excitatory state.

**Exercise protecting food:** Joint injury is the most common athletic injury. The main purpose of this kind of food is to promote joint health and reduce joint injury caused by overusing. Its main functional factor includes necessary aliphatic acid, pantothenic acid, VD, Ca, protease, glucosamine, chondroitin, sulfonylurea, S-adenosylmethionine, collagen, soy is of lavones (Morrow *et al.*, 1994).

**Energy supplying food:** This kind of food mainly supplies finite energy before exercise and at the interval of exercise, usually in the form of beverage. The functional factor includes glucose, triphosadenine, bicarbonate, creatine, carnitine.

**Antifatigue food:** In the fifth International Exercise Biochemistry Academic Conference in 1982, fatigue was defined as: in the physiological process the body can't continue a specific level or exercise intensity. Antifatigue food is the highlight of research at home and abroad (Fullmers *et al.*, 1991). The main purpose is to mitigate the change of physiological function and comprehensive reaction of body caused by fatigue. The recipe of antifatigue additive has a great variety, for example, Liang Junrong's antifatigue food has functional factor like lentinan, taurine. Chen Zhijin's linderane tea has great function of antifatigue.

**Power increasing food:** This kind of food has great protein and amino, aiming at improving protein synthesis. Besides, some substance can promote muscle synthesis and muscle contraction. For example, creatine, chromium, boron, VC and Zn are functional factors of this kind of food.

**MATERIALS AND METHODS**

This experiment takes the dynamic grouping in Xuchang University into the research.

**The concept of physical education:** Physical education is one of ways to achieve the goal of exercise. It is the basic form of physical work, a educational process with purpose, plan, organization according to a certain outline. It aims at imparting knowledge, technique and skill to participants, developing body and health, cultivating volitional quality shown in Fig. 1. The characteristic is that during the whole process participants are occupied in various physical exercise. Through the connection of body and conceptual work, they grasp physical knowledge, skill and technology and cultivate moral quality, develop body and strengthen their physique. It needs to follow the common rule of knowing things, developing mind and body forming motor skill and changing physiological functional activity.

**The concept of complementary principle:** Complementary principle is put forward by physicist Bohr in 1927 (Hooper, 1991). As a theory in physics, the function of this principle is that it can describe characteristic of quantum process and explain wave-particle dualism. But Bohr use the principle from the perspective of philosophy, so it has the meaning of epistemology. Complementation is a new way of seeing things. It mainly penlights people to find complementarily in the opposition. So it is superficial to consider complementarily as mutual complementation of two things with deficiency. Whether to nature or philosophy, the true value of complementary principle lies in that it reveals the complete description of things need combined action of two relative things and explains it as a way of existing in Fig. 2.

**The cognition of relationship of physical education and exercise training food:** Complementary principle explains the scientificity of coexistence of physical education and exercise training food. Other information revealed in this analysis can't be ignored, too. The component element of exercise training food and physical education is the same, but constitution- the order of activities is different.

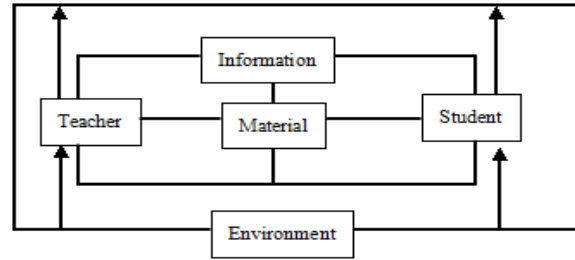


Fig. 1: System organization of physical education

The nutrition support of athletes is to supply nutrient through scientific and comprehensive dietary nutrition, so that it ensure athletes' metabolism and development demand, as well as special nutrition demand under strict training of body (Barrow and Milburn, 1986). It can promote the elimination of sports fatigue and recovery of body and contribute to athletes' stamina, improve nutriology measurement and method when athletes' are in the best playing condition. Athletes' nutrition includes basic nutrition, common rule of sport nutrition, nutrition aiming at athletes.

**RESULTS AND DISCUSSION**

**Carbohydrate is the origin of athletes' necessary energy:** In order to prevent excessive accumulation of fatigue caused by the consumption of energy substance, we need to supply some carbohydrate that can offer energy and consume little oxygen in time (Janero, 1991). Because body need more oxygen to decompose axunge than sugar, we need to pay special attention to decreasing axunge and sugar at the adapt ion stage shown in Fig. 3. Carbohydrate supplementation in the exercise process can keep blood glucose level and delay fatigue. Carbohydrate supplementation after the exercise process can be good for resynthesis and fill of muscle glycogen and hepatic glycogen. Besides, moderate carbohydrate supplementation can stimulate the secretion of insulin and composition of muscle protein to increase immunity.

**The supplement of water and mineral substance:** When athletes are doing large amount of exercise, it's necessary to allay tiredness and muscle spasm, supply microelement mineral substance being excreted. It can maintain water-salt balance and acid-base equilibrium. Once bode fluid is lost and not supplied in time, it will

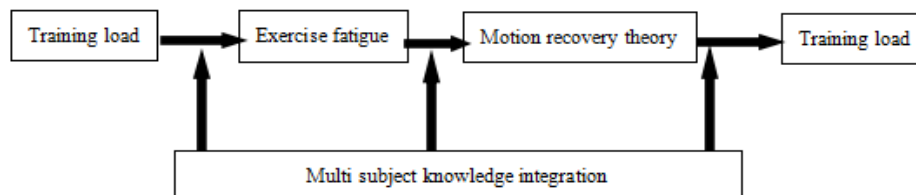


Fig. 2: Recovery system

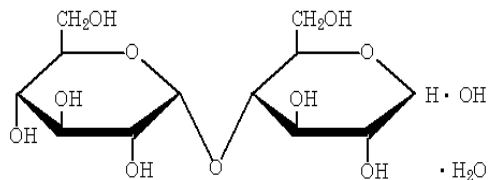


Fig. 3: Carbohydrate-maltose

severely influence normal physiological function and athletic ability. The purpose of supplying body fluid is to prevent the over-concentration of blood and hem concentration will increase viscosity and influence blood flow and increase the burden of heart.

### CONCLUSION

The supplement of necessary of mineral substance has close relation with athletic ability. Besides, when athletes are doing exercise, it's necessary to supply K, Na and Mg, they can improve the sustaining and exercising ability. It can prevent cramp caused by long-time running. Due to a lot of exercise training, overmuch sweat and excretion will make mineral substance eliminate, which lead to the shortage of K,Na, Mg and cause the imbalance of body. Therefore,

appropriate supplement of K, Na, Mg is the guarantee of achieving success.

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