

## Research Article

### Study on Food Nutrition Supplement of Juvenile Track and Field Training

Xianfeng Zhang

Xi'an Physical Education University, Xi'an, China

**Abstract:** The study focuses on training characteristics and development trend of modern track and field and provides some reference for the track and field training in our country, not only conducive to the suppression of the part project in Chinese track and field landslide, but also can help to change the overall level of China's backward condition in track and field. Scientific training and nutrition support is the key to effective young track and field athletes training.

**Keywords:** Food supplement, nutrition support, track and field training

#### INTRODUCTION

Athletics is the most century sports event, besides, one of the most popular sports in the world. In the previous Olympic Games and other major competitions, track and field possessed the most medals, all countries in the world attach great importance to the development of track and field sports and regard it as an important sign to measure the overall level of sports of a country, so there is the saying goes "Whoever gains the support of Athletics will definitely gain the whole world". Physical quality of track and field athletes apart from congenital and acquired factors related to training, to a great extent, depends on the quality and quantity of nutrient intake, with a reasonable diet and proper nutrition supplement played a crucial role in recovery after athletes had high intensity and large amount of exercise movement on the track and field, in which track and field athletes can keep the good state of the material basis (Wiggins and Wiggins, 1997). In the Olympics of 1992, plasma amino acid level of Kingsbury was measured in athletics, judo several athletes. When 12 women athletes body in fatigue, although in the next day can still insist on training, but plasma leucine, quiet when isoleucine, valine and valley ammonia amide decreased significantly, it shows that, during high intensity exercise, the level of plasma amino acid will be decline sharply, if make an appropriate nutritional intervention, certainly it will affect the competitive level of athletes, the study of Feng Weiquan pointed out that in carrying on aerobic endurance exercise, suck up the leucine from the blood in the liver and muscle increased, so that the plasma leucine concentration decreased, falling about strength and degree of motion and movement time. In the traditional track and field training, are generally follow the high volume of training, low strength training principle, with the continuous application of the

training mode, in track and field competition has not achieved the expectant effect, it can be seen, it was wrong to training mode, there will even be a certain minus effect (Musaiger and Ragheb, 1994). Often high training volume, low training intensity training, very easy to cause muscle fatigue of athletes, to a certain extent, it will affect the nervous system of athletes, thus lowering the track and field sports training effect, especially for the part of track and field sports items, in which need the athletes have very strong explosive force, it has a very serious impact. When athletes in low intensity training, it is easy to prone to fatigue of the nervous system and then produce the consciousness and unconsciousness of the fuzzy problem, cannot fully excavate the potential of athletes.

#### MATERIALS AND METHODS

In the track and field sports, China did not have the more vague understanding of the two aspects: first, the more vague understanding of track and field sports. With the continuous development of sports events, the corresponding training concept are changing gradually, most coaches do not understand the new situation of training concepts, or even simply do not know the new concept of training, still take the traditional training mode, not urge the athletes to enhance their level. Secondly, the more fuzzy of track and field athletes' nutritional supplements. In China, most coaches in the design of training intensity, widespread lack of rational problem. When training for athletes, often cannot accurately grasp the training content, training methods in the use of time, there are also inappropriate questions, unable to obtain good training effect. In addition, when in the explicit training volume and training nutritional supplement, also lacking a kind of rationality, affecting the training effect (Combs, 1998).

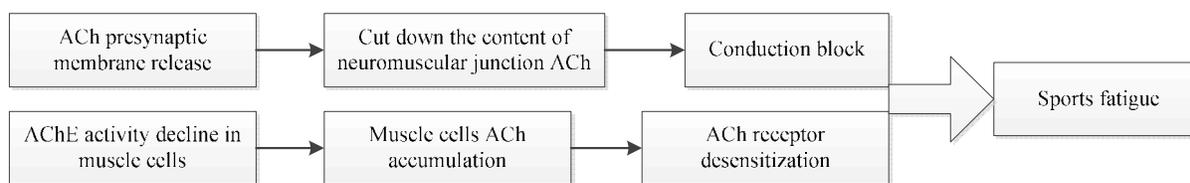


Fig. 1: ACh, AChE with sports fatigue

Exercise fatigue is a popular research topic in recent years, the sport fatigue refers to the process in motion, the body of function capability or efficiency decrease, could not be maintained in a certain level of physiological process, from the sports fatigue occurs in the parts of the body, mainly divided into two kind of central fatigue and peripheral fatigue, the reasons of the body produce peripheral fatigue can be summarized as follow: The decrease in muscle glycogen and creatine phosphate metabolism, material the accumulation of metabolic substances, neuromuscular transmission block, but the mechanisms of CNS fatigue is still not very clear. Several hypotheses at present exist include:

- Exercise increased the content of prostaglandin and other muscles in a series of substances, these substances can be combined with particular receptors and muscle, then by feeling the nerve to the brain.
- Exercise can lead to the levels of decreased blood glucose decreased and the content of brain glycogen decreased, which will lead to the central energy sources to reduce and make energy supply cells of the central nervous system defects, reduced excitability and ultimately lead to reduced exercise capacity (Corley *et al.*, 1990).

Central fatigue is an important factor in the ability of the body movement ability of track and field athletes, neurotransmitters in brain or metabolite changes obviously when central fatigue, such as 5-HT, blood ammonia, Acetylcholinesterase (AChE), malondialdehyde, etc., usually take this change of several substances as evaluation index of body fatigue.

5-HT as a central neurotransmitter can also affect the people wake up! KEF! Sleep and mood, Newsholme put forward the relevant central mechanism of 5-HT and exercise fatigue, at first time proposed by 5-HT and may be regulated substances of central fatigue, they found that exercise had a significant effect on Synthesis and conversion of the neurotransmitter, they found that after the long time, exercise makes the brain 5-HT concentration increased, this may be because 5-HT is a neuronal inhibitory neurotransmitter, can reduce impulse from the central issue to outward, which lead to central fatigue, decreased exercise capacity, after repeated research has demonstrated that exercise can lead to increased central 5-HT. And 5-HT in some brain regions increased, which with central fatigue has 5-HT system with many functions of the brain are closely linked, these functions have positive

or negative effects on exercise capacity, 5-HT activity increased fatigue, probably by inhibiting the dopaminergic system activation degree, thus limiting the ability of motion, in addition, Wilson made experiments on human body, which have proved that, with 70% V02max intensity of long time running, taking 5. HT agonists, causes the movement time is shortened, compared with the control group the fatigue degree is high, but in the cardiovascular system (Nuviala Mateo and Lapieza, 1997).

**Thermoregulatory and metabolic functions without difference:** The changes of AChE and fatigue related "combination of the above research results, found that exercise-induced fatigue in the generation of the synaptic gap may be due to continual motion in long time and high intensity, repeated nerve impulse causes the ACh from nerve endings repeatedly release, thus with decreased the activity of AChE, lead to ACh release from being hydrolyzed, will long exist in the synaptic gap, resulting in choline recovery rates decreased, the decrease of ACh synthesis, at the same time located in the synaptic ACh and sustained role in cholinergic receptor, leading to receptor desensitization, induced cholinergic synapses cannot normally transfer" to sum up we can be attributed to the chart, leads to exercise fatigue mechanism of resolution because ACh! AChE change, as shown in Fig. 1.

## RESULTS AND DISCUSSION

**The experimental group objects:** Exercise training of juvenile athletes in treadmill form, 10 min adaptive training at 10 m/min speed after 3 days, were randomly divided into the quiet group (C) and exercise group (S) and Nutrition + exercise group (T) and weight "among all groups have no significant difference, as shown in Table 1.

**Training plan:** Formal training for 3 weeks, every week 6 days of training at every week, on Sunday have a good rest": the first week of 40 min, the 2<sup>nd</sup> week of 50 min, the 3<sup>rd</sup> week of 60 min, treadmill initial speed increasing to 20 m/min, once every 2 days increased

Table 1: Comparison between two groups

Group	0 h	1 h	6 h	24 h
Nutrition + exercise group (T)	T0	T1	T6	T24
Sports group (S)	S0	S1	S6	S24
Quiet group (C)	C			

Table 2: Three weeks training

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
The first week (40 min)	20	20	25	25	28	28
The second week (50 min)	28	30	30	32	32	33
The third week (60 min)	33	35	35	36	36	38

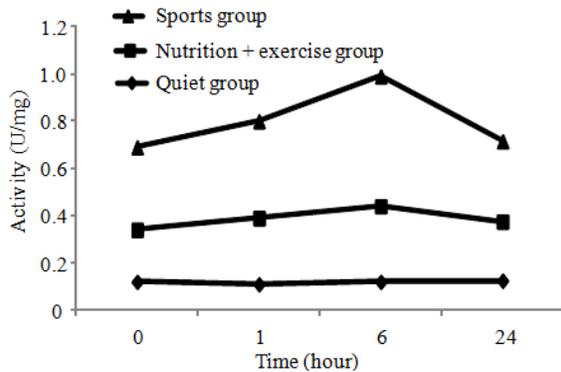


Fig. 2: Averages chart

a time and eventually increasing to 38 m/min, as shown in Table 2.

Nutritional supplement have an influence on Teenagers' track and field AChE (Averages Chart Fig. 2).

At this stage in the track and field training, special training is more and more prominent. In track and field competition, the athletes can make peacetime training results fully playing out, so that it can achieve better results in the competition. If you always take the traditional low intensity training mode, in the competition will not be able to give full play to the athletes' training results. Because in the process of the competition, the athletes physical quality has always been in the running state of high speed, therefore, if the normal nutritional food supplement, is also unable to play out, the training quality and special skills of athletes. In addition, if the player has been in low nutrition training, the corresponding physical condition also has been in the low intensity state, in the face of competition stimulation, it is likely to lead to the emergence of a certain pain athletes. So, when the track and field training, must handle the relationship between the amount of training and training of nutritional food supplement, urges the athlete in competition can give full play to their ability, to achieve better results.

### CONCLUSION

When the track and field training, we must strengthen the combination of training intensity and special food supplement, fully arouse the body's potential, in order to achieve better training effect. First

of all, to strengthen the special training content of fixed, not too narrow, but not everything from soup to nuts. When training, if use too much training mode, unable to realize centralized stimulation, will cause the neuromuscular response of athletes is relatively dispersed and confused. In addition, if we taking too much the training methods, the coach cannot effectively arrangement. At this stage the majority of track and field sports projects in the training, the minimum cycle is generally a week, it can be seen, a week's time is very short, if used too much training mode, simply cannot carry out effective arrangements, if reluctantly implementation will inevitably affect the training effect. Therefore, we must take some targeted training methods, the rational use of nutritional supplements, improve the athlete's body level effectively. Secondly, when carrying out the special physical quality training, we must strengthen the combination of actual combat. When the body quality action special design, as far as possible to maintain its correspond to special action, it can promote the improvement of training effect. When the special physical quality training, we must realize that, it is a kind of training, is also a kind of quality training and must be repeated in strict accordance with the relevant standard action, while the consolidation of some special technical actions, so we must ensure that the rationality of decomposition, the action design, implementation of training effect. In training, we must guarantee that the action of the standard, so that it can promote the enhancement of the level of athletes.

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