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On the Importance of Strength Training to Sprint Eventin college track and field team training

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ABSTRACT. *Sprint is one of the events in track and field. In the college track and field team training, the coach should pay attention to the strength training of the sprinters, to further improve their sports level and competitive level sequentially. First, this paper introduces the motion feature of the sprint event briefly, then expounds the basis of the strength training of sprinters from the theoretical level, and finally specifically points out the importance of the strength training to the sprint events from the training practice level.*

KEYWORD: *Athletics; Strength training; Physical ability; Sprint*

1. Brief introduction of sprint

Sprinting is the general term for a race of 400 meters and under 400 meters, which requires the athlete to finish a specified distance in the shortest time. Sprinting is the foundation event of track and field sports, and at the same time occupies a very important position in other sports physical training. Sprinting involves starting, accelerating, intermediate running and finish running. Based on these links, sprint mainly has the following four technical features: (1) The athlete maintains a large fore rake in the upper body as he accelerates from the start.With the gradual acceleration of the running speed and the increase of the length of steps, the athletes' upper body will gradually uplift. (2) When running in the intermediate place, the athlete's limbs cooperate concertedly and the movement is relaxing. (3) The athlete's upper limbs swing actively, quickly and largely in the whole running.The skilled movement of high support after pawing of lower leg has great influence on the speed and balance of running. (4) For finish running, the athlete should maintain a high speed and rush to the end with a large fore rake in his upper body.

Sprint belongs to the ultimate strength sports, it requires high speed and explosive power of the athletes. Although sprint is a speed event, it also has high requirements on the strength of the athletes. Strength training should surpass the need for athletes' strength during the competition, but it should also conform to the technical specifications of the sport and be close to the requirements of the skilled

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movement [1]. There are many training methods for sprinters in the college track and field team, such as resistance to run, inclined bench press, deep jump, squat jump, load run and jump, etc. Among them, each training method has many different training contents, such as the frequently-used resistance running training, it includes uphill running, drag running, load running, water bubble and sand running, etc [2].

2. The importance of strength training to sprint event in college track and field team training

The strength training of sprinters is mainly the training of the muscle strength of the limbs especially the lower limbs. Based on the theory of physiology, this paper analyzes the importance of strength training to sprint event in college track and field team training.

2.1 Strength training can increase the maximum muscle cross-sectional area of sprinters.

The maximum muscle cross-sectional area is the cross-sectional area obtained by transecting all the muscle fibers of a muscle. Maximum muscle cross-sectional area is determined by the number and thickness of muscle fibers. It is usually expressed in square centimeter. In general, according to relevant research, the bigger the maximum muscle cross-sectional area is, the greater the muscle strength is, which are close to proportional relationship. In the training of college track and field teams, the coach should start from the basic strength of the athletes, increase their cross-sectional area of the muscles, and change the body shape[3].

2.2 Strength training can increase the percentage of fast muscle fiber of sprinters.

Skeletal muscle fibers in the human body can be divided into fast and slow muscles according to their contractility. Among them, fast muscle fiber can produce more contractile force than slow muscle fiber, the greater the contractile force is, the greater the contractile force of muscle is. In general, the percentage of fast muscle fiber in a person's limbs is the same as slow muscle fiber, but they also may be different because of the heredity and acquired factors, for example, the percentage of fast muscle fibers on the limbs of sprinters is much greater than that of slow muscle fibers. In the college track and field team training, sprinters can significantly increase the percentage of fast muscle fibers on their limbs through a series of strength training, so as to improve the muscle contractile force on their limbs, increase the speed and explosive force.

2.3 Strength training can increase the initial muscle length of sprinters.

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The muscle strength of sprinter's limbs has big relations with the initial length before contraction. According to relevant research, within a certain range, the longer the initial length of the muscle contraction is, the greater the degree of contraction produced by the muscle contraction. In the college track and field team training, sprinters can stretch the muscles of their limbs through strength training, and then the muscle spindles will sense the changes in the length of the muscle fibers and generate impulsion, and improve the retractable force of the muscle fibers to fight the tension through the stretch reflex mechanism, so as to strengthen the muscle contraction force. In addition, the human muscle itself is a kind of elastic tissue. Through a series of strength training exercises, sprinters are able to get the muscle to produce a greater contraction force in a repeated pattern of relaxation - pulling - relaxation - pulling.

3. Announcements on strength training for sprinters

In the sprint training of college track and field teams, in order to ensure and improve the training quality of sprinters and their physical health, we need to pay attention to the following problems.

First, strengthen the academic research and application of the strength training of college sprinters. Sprinting has always been an important highlights in track and field events. In recent years, as track and field coaches and experts from different countries deeply continue to research the winning rule of sprint competition, it is their consensus that the fast swinging force with the hip as the axis and the high coordination between related muscle groups are the most important special strength for sprinters [4]. College track and field team sprinters are different from the professional sprinters, they have their own physical quality, sports basis, training conditions, diet conditions, and so on, these are different from professional sprinters'. For that, the coach should adequately consider the actual situation of college sprinters, then make full use of the advantage of the educational resources in our school, and seriously study the strength training methods that are suitable for college sprinters. After getting certain research results, the coach should actively apply the research results to the strength training practice of the sprinters, find out the problems and correct in time.

Second, pay attention to combine the competition and training. At present, many colleges and universities in China hold sports games once or twice a year. At the same time, the number of sports events outside campus and track and field special competition is also numerous. College track and field sprinters can benefit more from participating in these on-campus and off-campus events than from daily strength training. For that, the coach should combine the competition and the training together to make the athletes' strength training environment become flexible and diverse. Based on the reality of the current high number of sports event which is related to track and field, coaches can use the competition field as the main battlefield for sprinters in strength training.

Third, pay attention to recovery after training. Strength training takes a lot of

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energy out of a sprinter. Sprinting strength training is a long-term process, which requires the sprinters to train for a long time. If a strength training makes them very tired in physical and mental, and the coach does not pay attention to the training recovery of the sprinters, it will definitely affect their subsequent training and affect their physical health. Therefore, the coach should adopt kinds of scientific and small recovery methods to restore the physical and mental fatigue of sprinters after strength training, and to ensure that functional sprinters can bear a long time of high load training, finally effectively guarantee and improve the training quality.

4. Conclusion

Sprint is an important event in the college track and field team. During the training, the coach should strengthen the strength training of the sprinters, so as to effectively enhance the strength of the muscles which are related to the sprint events, and improve the physical stability of printers during their exercising. As the coach of the college track and field team, we must attach great importance to the strength training of sprinters and affirm the importance of strength training to the improvement of sprinters' athletic level and economic level. During the strength training, the coach should pay attention to strengthen the academic research and application of the strength training of college sprinters, combine the competition and training, and the recovery after training.

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