

Review on the Research Progress of Speed Quality Training Method of Hurdle in Track and Field

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Abstract

Track and field has a long history of development, but also the number of participants in the previous Olympic Games, won the most medals of a competitive sports. Therefore, both the academic and sports circles are very concerned about the development of track and field. In view of this, this paper uses the methods of literature, CNKI and logical analysis to make a comprehensive analysis of the current situation and Countermeasures of speed quality training methods in hurdle race, and on this basis to explore its future development trend, in order to provide reference for China's track and field training.

Keywords

Track and field; Hurdle; Speed quality; Training methods; Research progress.

1. Introduction

Hurdle race is a kind of track and field sport based on Sports frequency and coordination ability, with speed quality as the core. It plays an extremely important role in track and field sports technology. Hurdle race is a kind of track and field sport with great difficulty in technical action and requires athletes to use their whole body for coordination and cooperation. Not only that, speed quality plays an important role in completing hurdle race Very important position, if the lack of the required speed quality will not be able to complete its difficult and complex technical movements, it is precisely because of the important role of speed quality in track and field, then reasonable and effective training methods become very important. In the daily Hurdle Training, speed quality accounts for a very large proportion, especially in high-level athletes. In the high-intensity track and field training of high-level athletes, it is mainly aimed at the quality required in different events as the focus of training, and the Hurdle Training is used to improve the speed quality of athletes. At this stage, the speed quality training methods of hurdle race are comprehensively analyzed, aiming to improve the performance of hurdle race and provide reference for track and field training.

2. A Review of the Research on the Development of Hurdle

Hurdle race was born in England as a shepherd family in the middle of 17th century. It has been more than a hundred years ago. In this century, the rules and training methods of hurdle running events have changed dramatically. In 1860, the world's first hurdle race appeared. At that time, the hurdle running rules were not mature, and there was no uniform hurdle distance and height of hurdle Standards, until the early 19th century, the content of hurdle running began to change profoundly, not only from the technical movement of hurdle running, but also the training methods and means are constantly changing and standardized. In his master's thesis of Jin Xiaoyu (2018), the famous American hurdler Eck, who was in the late 19th century, started the first step of modern hurdle technology by improving the technique of double arm back swing and straight line crossing in the course of practice. In the fourth Olympic Games,

American athlete forsythmson changed the traditional technique of standing up and passing the hurdle, and created the first half bend technology, which laid a solid foundation for the modern offensive technique. Thomson of Canada further improves the power support point of the forward leaning of the upper body in the competition, which leads to the insufficient forearm extension of the swing leg. Li Baichen (2015) pointed out that in 1961, western German athlete Raul continued to innovate and put forward the "folding knife" hurdle technology on the basis of Thomson. Once proposed, it has been widely used by athletes from all over the world, which greatly overcomes the inherent disadvantages of inadequate forward leaning. The technological innovation of hurdle running in each stage is a profound change in track and field history. It has evolved from the initial hurdle technology to the deep integration of speed and technology. The continuous improvement of hurdle passing technology, the gradual shortening of step length, the increasing range of forward leaning movement and the continuous improvement of starting Center indicate that the hurdle technology is developing into the hurdle technology. Many experts and scholars abroad have pointed out that the constraints of hurdle running technology cannot be considered from the technical level. The key is how to combine the hurdle running technology and physical quality organically, and to study the scientific nature of coordinating the operation of various functional elements of the body when the technical action of hurdle is completed. In the early years, foreign experts used the technique of action imaging to track the track of hurdlers in real time, and then analyzed the slow motion of the series of hurdle movement imaging and found out the reasons for restricting the factors. Liang Qingju (2010) pointed out that it was only at the end of the 18th century that China began to introduce hurdle race. By 1926, China's hurdle running performance began to be ahead of Asian countries, especially in 110 meter hurdles, a number of excellent hurdlers such as Cuilin and Zhou LIANLI appeared. But by the end of 1980s, the level of hurdle running technology in China began to decline, which had a significant gap with the achievements of world excellent hurdlers. Back in the 1990s, Li Tong, a famous hurdler in China, has achieved 13.37 in 110 meters of world track and Field Championships, marking that the technical level and training methods of hurdle race in China have started to rise a new step, and also indicates that the field race project in China has entered the world competition for the first time. From the new millennium, there are a number of excellent 110 meter hurdle runners, such as Liu Xiang and Chen Yanhao. Yan Zhipu (2012) pointed out that, especially Liu Xiang, a hurdler in China, broke the world record with 12.91 and 12.88 in 2004 Athens Olympic Games and 2006 IAAF competition respectively, which opened a new chapter for China to enter the world first class hurdle race. These achievements are the excellent achievements of many athletes, coaches and experts and scholars in China, and also the achievements of continuous improvement and improvement of hurdle technique and Hurdle Training methods, which marks that the Chinese Hurdle Training method has entered the world. Hurdle race is a similar way of sports training which is consistent with people's running and jumping in life, so it has strong sports value and development significance. However, because the hurdle running movement introduced into China is late, there is still a certain gap with the world-class level. In the process of evolution and development, there are some researches on the training of hurdle running technology, especially in the training methods and training methods.

3. Research Summary on Speed Quality in Hurdle Race

Nie Yujiang (2017) pointed out through field investigation that hurdle is a sport with high requirements for athletes' physical quality, especially in the athlete selection stage, which mainly depends on the observation and experience of coaches. However, this selection method is not scientific enough today. The reason is that it does not pay enough attention to the internal physiological structure of athletes, so it is necessary to systematically study athletes' physical quality Structure is an important link in the selection of athletes nowadays, which promotes the

scientific and healthy development of hurdles in China. Li Yuangui (2016) in the article "a brief talk on the training of 400m hurdle race" thinks that 400m hurdle race can effectively improve the speed quality of athletes, especially in the 110m hurdle race, the speed endurance quality of athletes is higher, once the lack of good speed quality is unable to create excellent results in the competition. Chen Xue (2020) pointed out that the main technical movements of hurdle race are the active lifting of the swinging leg and the orderly swing of the knee and ankle joints, so as to reduce the ups and downs of the body's gravity center and effectively improve the technical movements of hurdle race. Meng Xin (2020) pointed out according to a survey report that at present, it is not the most important problem to restrict the physical quality and sports ability of Chinese hurdlers. The most important thing is how to strengthen the speed quality training of hurdlers. Therefore, hurdlers must have a certain level running speed quality as the premise. Not only that, Ke Xiaolan (2019) also thinks that in the hurdle training, we should try to avoid staying too much on the hurdle step, so as to use the saved time to quickly pass the hurdle frame, reduce the braking distance from the ground, shorten the time on the hurdle, and also reduce the time on the ground when getting off the hurdle, which is inseparable from the good speed quality of Hurdle Runners. Chinese athlete Liu Xiang can well play his potential and good hurdle skills, rely on his good physical conditions and physical quality to achieve the basic ability of physical function required by Hurdle Training. Zhou Gang (2016) pointed out in his article on hurdle running that there are still many problems in China's Hurdle Runners, such as lack of sports ability, nonstandard training methods, and lack of speed quality, which lead to slower stride frequency, larger running range between hurdles, and longer time for each step off the ground. Therefore, in view of the shortcomings of our excellent hurdlers, we should re-establish the step point of hurdle running, improve the speed quality of athletes, in order to achieve the ideal effect of hurdle running. Wang Qiang (2017) made a linear analysis of the time and speed of the hurdler's crossing action, and made a detailed analysis of the speed of each link. He came to the conclusion that a good action speed has a great relationship with the convergence stage of the hurdle step, especially when the athlete passes each hurdle, he will have a good help to the stride action. It further established the important role of speed quality in hurdle running. In addition, Wang Qiang (2011) also pointed out that the speed between the hurdles from the attack to the next hurdle stage is also an important factor affecting the connection of hurdle steps. Once lacking, the whole hurdle step will appear fragmented and scattered. Therefore, it is necessary to strengthen the athletes' special physical training, so as to improve the athletes' speed quality of completing hurdle actions. Through sorting and analyzing the relevant literature on the speed quality of hurdlers in the field, we can see that hurdlers should pay attention to the training of speed quality in the process of continuous development. According to a physiological and anatomical index of the United States, it can be found that every muscle physiological cross section contains red muscle fiber, so we can infer that every step of hurdlers is closely related to the speed quality. Speed quality index is inseparable. As an extremely important part of Hurdle Training, speed quality is obvious for the mastery of hurdle technology and the improvement of sports performance. Therefore, in-depth analysis of speed quality in Hurdle Training has important theoretical and practical significance.

4. A Review of the Current Research on the Training Methods of Hurdle Running Speed Quality

Xie Wei (2020) thinks that the current hurdler lacks the necessary speed quality. If the appropriate Hurdle Training method is adopted at present, it is very important to develop the speed quality of athletes and effectively improve the athletes' sports performance. The enhancement of speed quality can effectively control the muscle fatigue and the accumulation of blood lactate in the sprint stage of the back course, thus restricting the thigh lifting. It causes

the athlete to shake. Therefore, it is very important to strengthen the training of athletes' physical speed ability. Nieruilian (2019) points out that the speed factors that affect the performance of Hurdle Runners include the following three points: one is the physical quality of the athletes; the other is the technical factors of the athletes; the third is the psychological quality of the athletes. The speed ability in physical quality is the important foundation for athletes to complete the whole race. If the athletes do not have good physical quality, they can not play the technical advantages of sprint in hurdle running. Xuyuanli (2019) concludes that the hurdle ability of athletes should include the ability to use the hurdles to speed up running. This is something most athletes lack at present. Therefore, when training athletes, they should pay attention to the acceleration of their sports, so as to ensure the frequency of fast hurdle passing. At the same time, she pointed out that the deficiency of hurdle technique lies in the lack of coordination and unity of speed quality training, and the distance between hurdles is not further refined into three steps. At the same time, the first step is not taken as the key point of hurdle in the three-step running, which leads to the weakness of swinging leg and abnormal movement of the leg lifting after the attack. Yang Jiping (2017) believes that good speed quality training is the decisive factor to improve the performance of hurdlers, especially through the special speed training of hurdle running with certain rhythm, and at the same time, improving the rhythm of cycle step, step number and pace frequency, so that every hurdler can correctly grasp its speed rhythm to achieve scientific training. Shen Qun (2017) pointed out that the essence of hurdle running is to quickly cross the hurdle, but the speed of fast crossing is exactly what modern athletes lack. Hongjun (2015) thinks that 400m hurdle race is a sports project integrating acceleration and endurance. The quality of sports performance is closely related to the speed quality of the horizontal running between columns. Liu Shaohu (2017) and others believe that the reason why Chinese hurdlers lag behind the world's excellent athletes lies in the speed on the hurdles, especially in the time of finishing the whole hurdle. The reason why there is such a large difference is that foreign athletes pay attention to the training of speed quality in the training process of horizontal time, which reflects the speed quality of hurdle running projects. The importance of. Through the analysis of the literature and materials about the current situation of speed quality in the field of hurdle race, it can be seen that hurdler should pay attention to the training of different speed quality while improving their performance. Among the numerous research conclusions, speed quality has become the key factor restricting hurdle technology, whether it is the fast and slow of the hurdle, the active lowering of lifting and the fast down hurdle. The speed of landing, as well as the speed of running on the way, all reflect the importance of speed quality, which is related to whether the hurdle step can complete the technical action quickly and directly, so as to improve the performance of the sport.

5. A Review of the Latest Research on the Training Methods of Hurdle Running Speed Quality

Liu Shuai (2015) pointed out that the exercise function training method can effectively use all body functions and physical qualities of the human body, which can release the speed quality of athletes deeply, improve the physiological inertia of the whole body muscles, promote the improvement of the speed ability of athletes, so as to ensure the orderly progress of the sports. Ma Qian (2015) made the hurdle acceleration psychological phenomenon scale to train the subjects' psychological quality, and then improve the hurdle achievement and compressive ability of the athletes. Fangqingbo (2014) used the experimental method to train the subjects' beat, and got that regular beat training can make their speed quality reach an ideal state, thus effectively maintaining the stability of speed and improving the level of movement. Cai Aizhong (2020) thinks that the speed quality training of hurdle running should be combined with

strength technology teaching, stress on decomposition action teaching and step-by-step teaching. In the view of niufengqiu (2016), students should be strictly required to train in hurdle running training, and put forward the training mode combining development speed and speed endurance. Han JingZhan (2018) believes that the key to learning the correct hurdle technique is to improve the hurdle speed. Therefore, it is very important to select and arrange training methods reasonably for providing hurdle technology. Jing zhanbing (2018) thinks that while improving the athletes' fast running, continuous training is adopted to carry out continuous leaping movements for the interval between columns and height of the hurdle to improve the speed ability of athletes. Liu Yang (2017) proposed that scientific development of Hurdle Training methods is of great significance to speed, coordination and endurance in the process of Hurdle Training. Tong Wei (2016) thinks that special training of speed quality should be paid great attention to in hurdle running training, so as to improve the frequency of lower limb movement of athletes. Zhang he (2016) pointed out that the speed training and inter Hurdle Training of the two leg kick off starter should be used to ensure the reasonable and accurate hurdle running movement, and then improve the speed quality of the hurdle. Xu Chen (2015) thinks that the Hurdle Runners should be trained once every two days, and measures should be taken to improve the speed of the hurdle movement, thus improving the hurdle achievement. Nijunrong (2002) thinks that the most necessary training method for hurdle running is the speed linking training of hurdle running, thus improving the speed quality of athletes.

6. Summary

Through the relevant research on the training methods of hurdle running speed quality, it can be seen that at present, most experts and scholars are engaged in improving the starting speed, inter column running speed and hurdle speed. Although there are some methods about hurdle running speed quality training, it is still not mature. At this stage, there are still many aspects to improve the training methods for effectively improving the speed quality of hurdle running. Further detailed and detailed analysis and exploration are needed to provide more scientific, orderly and healthy training for hurdle race The theoretical reference and practical guidance.

Acknowledgments

This study was financially supported by the program of CWH202002. We thank anonymous reviewers for their helpful suggestions for improving the manuscript.

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