

Study on the Technical Characteristics and Basic Training of Junior Sprinters on the Way

Jilu Zha

Jiangnan University, Wuhan, Hubei, 430056, China

Abstract: Teenagers have a strong ability to imitate, and they are in a period of rapid development of the central economic system. This period is also a sensitive period for the formation of preliminary stereotypes of technical actions. Sprinting is the basic project of all sports, and running on the way is an important part of the development and maintaining the maximum speed of long distances in the sprinting process. Therefore, through the upper limb swing technique, lower limb support technique, the ratio of support time to flight time, step length and center of gravity Analysis of the kinematics indicators of Xi'an, summarized the technical characteristics of young sprint training players in some training institutions in Xi'an, explored the factors that affect the basic training of young sprinters' skills on the way, and based on the research conclusions, proposed corresponding improvement measures in order to improve their technical movements, Create excellent results to provide theoretical basis.

Keywords: Junior sprinter, Technical characteristics, Training model

1. Introduction

Sprinting is a track and field sport where the body performs the maximum load intensity of the muscles under anaerobic conditions. It is also the most intensely contested sport in the previous Olympic Games and other world competitions. However, from the achievements of Chinese sprinters participating in related competitions, it can be seen that my country's sprint athletic ability has gradually reached the limit of athletes' human function in recent years, and it is difficult to make continuous breakthroughs in the near future. With the continuous scientific development of sports research in the world and in my country, many sports scientific research scholars have noticed that the current sprint competition performance is difficult to break through not because the current training system is not standardized, but because the athletes are in the process of basic training in the youth. Ignoring certain training links, leading to incomplete and lack of athletic ability in certain aspects of the athletes in the later stage, and finally manifested as lag in athletic ability. Therefore, to continuously break through the limits, improve performance, fully understand the technical movements of each stage of the sprint process, and correct the problems in basic training are very important measures to improve sports performance. Practice has proved that the adolescent period is the critical period of growth and development. During the training process, athletes who are in the basic training period not only have a strong ability to imitate, but are also a sensitive period for their technical mastery and preliminary formation. They follow the natural growth and development of the body. Correctly master technical movements based on the developmental laws, 4 can lay the foundation for reaching the peak of personal sports in adulthood. The midway running link plays a role in the entire sprint process and maintains the long distance from the maximum speed. It is an important component of the complete sprint technique and has a direct impact on the final sports performance. Therefore, in order to become an excellent high-level sprinter, it is very important to strengthen the analysis and diagnosis of the technical characteristics and basic training of midway running in his youth.

2. The Current Situation of Sprinting

Although modern sprint training techniques are gradually improving, there is still a certain gap between our country's youth sprint training methods and foreign training methods. There are still many shortcomings that need to be improved. As far as I know, on the one hand, the swing of the legs The upper swing leg is not folded in time, the swing range of the two legs is not properly controlled, and the swing is not coordinated. On the other hand, the support leg is not pushed back strongly, and the landing method is not proficient, so that the next step is too small. Increase unnecessary time and affect

the athlete's speed. These problems cannot be completely solved by long-term training alone, because if the method is improper, the more you practice, the more likely it is to form wrong memory stereotypes. Therefore, in the basic stage of sprint training, young people must receive correct guidance and training and master reasonable techniques. Generally speaking, sprinting can be divided into three stages: accelerated running, midway running and finish running. After accelerating, it is midway running. As the longest and fastest stage in the entire race, midway running is also the most important stage to determine the youth sprint performance. Running on the way requires maintaining the highest speed for a long time, so in the sprint teaching of teenagers, the training of midway running technology should be the focus, and attention should be paid to every detail in the process.

3. Technical Characteristics of Running on the Way

The role of the arm in the running on the way is a factor that cannot be ignored in the process of investigating the problem of running on the way. During the running phase, the arm function is an important way to maintain the balance of the trunk. It can prevent the excessive forward leaning of the body during sprinting, and on the basis of stabilizing the body's center of gravity, it can strengthen the effect of the force between the human body and the ground. In this way, in the mid-run stage, big and powerful becomes the main feature of upper limb swing. From the American sprint coach Winter's research on this issue, the positive correlation between the hand movements and the leg movements during the mid-run stage is the main result he found in the process of exploring this problem. In conclusion, from the perspective of the positive correlation between the two, in the mid-running phase, the faster the athlete's arm swings, the faster the leg movement will be. In this way, in the mid-running phase, the athlete's upper arm can swing strongly. By extending the forward swing distance of the legs, the increase of the athlete's step length per step becomes an effective way for the athlete to improve their own speed. Some scholars mainly explored the front swing angle of the arm in the process of exploring the upper limb swing of some excellent domestic athletes during the running phase. For example, in the process of investigating female sprinters, scholars found that Chinese athlete Chen Yu's maximum arm swing angle during the mid-run stage is 76.4°. Ma Xiaoyan's arm swing angle is 35.78°. Her back swing angle during the running phase is 59.96° [2]. In the process of comparing with foreign athletes, scholars regard the problem of excessive backswing, which is divided by the performance of Chinese athletes in the middle of the sprint, as an important factor that affects the skills of Chinese sprinters. From the perspective of the human body's theophysical characteristics, this problem of scholars' expenditures will cause athletes to have insufficient forward movement motivation during the running phase. In this way, in the adjustment process of modern sprint training techniques, the emphasis is on forward swings. Training skills have begun to be applied in sprint training.

From the perspective of my country's traditional sprint training methods, attention to the role of kickback is a main feature of the traditional training model. In the traditional training mode, the degree of the athlete's back kick is one of the most important details in the training process. In this mode, in sprint competitions, when some athletes make back kicks, the preferred stage angle has been reached. With the deepening of biomechanics research by scholars, some scholars have found that judging from the characteristics of sprint competition, when the angle of the knee joint is close to 180°, athletes will be unable to move their legs. Adapt to the problem of forward speed of the body's center of gravity. During the running phase, athletes may experience muscle strain. Therefore, in the application of modern sprint training techniques, in view of the kickback problem in sprinting, coaches often require athletes to control the angle between the thigh and the horizontal plane between 15° and 20° during training. Furthermore, under the cooperation of the supporting leg and the swinging leg, the energy consumption of the athlete can be saved through coordinated movements. In the process of exploring the problem of sprinting, after the supporting foot leaves the ground, the stage of landing on the swinging leg and foot is called the flight stage of the athlete in the sprint process. At this stage, the athletes, on the basis of relaxing the leg muscles that play the role of kicking back, complete the landing action by swinging the thigh forward and upward. In the airborne phase of sprinting, the pulling force exerted by the athlete's pelvic girdle muscle contraction is used for other purposes, which is an important factor in helping the athlete complete the leg swing. In this way, in the process of sprinting, the "shearing and twisting" of the athletes' legs becomes an effective way to increase their speed during the running phase.

4. Technical Training for Sprinting

Back kick and front swing. When swinging forward, the athlete's swinging leg should quickly swing forward and upward while ensuring proper strength. Before swinging, when lifting off the ground, if the swinging leg is not folded in time, the time for the swinging leg to swing forward will become longer. Therefore, in order to swing better and faster, we need to speed up the folding of the large and small legs, and the tighter the folding Well, the tighter the fold, the faster the swing. With the active cooperation of the swinging leg, the kicking leg should be quickly straightened and kicked off the ground forcefully, because if there is a lack of a certain degree of kicking, the athlete will easily land on the ground, and the range of steps will be correspondingly reduced. The correct back kick action should be coordinated by the forward swing action of the swing leg. The toe kicks off the ground. During this time, it must be stretched quickly to the ankle and knee joints. The swing leg swings quickly and strongly to improve the back kick. In addition, the kicking action has high requirements on strength and speed. The kicking direction should be as positive as possible, and the kicking angle should be controlled in a small range. When the kicking action is over and the supporting leg is about to leave the ground, swing the leg. Swing to the highest position in the front, the calf sags naturally and almost parallel to the kicking leg, at this time the swinging leg thigh is about 15 degrees from the horizontal.

Vacated. When vacating, in addition to the aforementioned folding of the upper and lower legs, it is particularly important that when the vacant is about to hit the ground, you must actively and not passively land on the ground, that is, actively press the thigh, so that it can be used. A buffer to speed up the pace of sprinting. When flying in the air, both legs leave the ground. At this time, the control of the center of gravity is very important. If the center of gravity is not stable and the body leans too much with too much force, it is easy to fall. Therefore, it is necessary to practice more in the process of sprinting. Balance the movement, lower the center of gravity, get out of the misunderstanding of running with a high center of gravity, lean forward appropriately, and keep the center of gravity less up and down.

Buffer on the ground. When landing, the soles of the feet need certain skills. Generally speaking, because the force is mutual, if the soles of the feet are on the ground, then the impact force of the feet and the ground will directly act on the insteps. The landing sound is loud and very loud. It is easy to cause foot injuries. The correct landing posture should be to land on the outside of the forefoot. If you are landing on the outside of the forefoot, the arch of the foot can cushion the force, protect the sole of the foot and prevent athletes from being injured. When the feet are on the ground, try to make the soles of the feet close to the projection line of the center of gravity as much as possible. At the same time, it is necessary to buffer and bend. There is only one purpose of these two steps, which is to minimize the braking effect caused by the landing. The smaller the effect, the higher the forward horizontal speed of the teenagers in the sprint, and the more conducive to improving their speed.

Swing arm. The swing arm plays a very important role in the race. When swinging the arm, the shoulders are relaxed, and the head is straight and maintained in a straight line with the body. The angle between the two arms is about 90 degrees. When swinging forward, The angle between the two arms becomes smaller, and when swinging back, the angle between the arms becomes larger. When running on the way, do not swing your arms left and right, because the left and right swing arms are in a figure eight shape, so that the resistance of the swing arms is greater than the resistance of the front and rear swing arms. The front and rear swing is a rhythmic movement except the body, which is the resistance of two lines. , But a side of the "eight"-shaped swing arm, so that the resistance of the surface is greater than the resistance of the line, which affects the running speed. In the process of running on the way, special attention should be paid to the coordinated cooperation of the swing of the arms and the kick and the swing.

5. Conclusion

The full play of the supporting effect and swinging effect of the legs is the key technique in the mid-run stage of the sprint. The combination of swing technology and buffer technology is the main feature of midway running technology. The correct pendulum technique can allow athletes to provide faster speed for the midway running stage on the basis of shortening the flight time. In the process of sprinting, improving the back kick effect has a certain positive effect on the improvement of the athlete's stride length in the middle of the run.

References

- [1] Li Meng. *Research on the technical characteristics of young sprinters in some training institutions in Xi'an*. *Digital World*, 2018(11).
- [2] Qin Jianfeng, Zhao Jianhua. *Technical Research on the Midway Running of Teenagers' Sprint Training*. *Xueyuan*, 2016(5).
- [3] Luo Shaosong, Wang Xinqiang. *A Probe into the Midway Running Skills of Teenagers in Sprint Training*. *Neijiang Science and Technology*, 2007(5):133-133.
- [4] Wu Yinxiang. *Research and Analysis on the Technical Characteristics of Lower Limbs in Modern Sprints*. *Examination Weekly*, 2009, 000(039):395-396.
- [5] Liu Wenjun. *Research on the technical characteristics of midway running in modern sprint*. *Electronic Journal of New Education Era: Teacher Edition*, 2017(2).
- [6] Zeng Jianxun. *Probe into Technical Training of Midway Sprint Running*. *Journal of Guangxi Youjiang Teachers College for Nationalities*, 2004, 17(3):61-61.