

Research on Scientific Methods and Guiding Concept of Youth Football Physical Training

Zhao Luo*

College of physical education, Hunan City University, Yiyang 413049, China

*2513375106@qq.com

Abstract

At the time of vigorously promoting the development of football in China, the cultivation of campus youth football talents has become a key link, and the physical training in football training will determine the height and distance of youth talent. In this paper, through the integration of literature, combined with the characteristics of physical and mental development of teenagers and the stage characteristics of sports ability development, the sports mode, competition mode and competitive performance characteristics of football are analyzed, and the scientific method and guiding concept of physical training under the background of campus football are explored, so as to guide the physical training of teenagers.

Keywords

Teenagers; Physical Training; Training Concept.

1. Introduction

In 2009, the "national youth campus football activity" launched by the State General Administration of sports of China, with the attention and help of all sectors of society, has made the rapid development of Chinese campus football and achieved remarkable results. With the further development of football, the research on youth football by sports researchers is also making progress. However, the research focuses mainly on the development status, existing problems, path thinking and talent training of youth football. From the perspective of sports training, it focuses on the technical and tactical aspects of football, focusing on the sports development of youth football. The research on the ability training is obviously insufficient. Therefore, on the basis of literature, combined with the characteristics of football events and teenagers' growth and development, this paper aims to explore the guiding concept of teenagers' football physical training under the background of campus football, so as to cultivate high-quality football talents for China.

2. Research on Physical Training of Youth Football

Physical fitness is the basic sports ability of athletes, and it is an important part of athletes' competitive ability. Its level depends on the development of body shape, body function and sports quality. Physical training usually includes general physical training and special physical training. Physical training can improve athletes' sports quality and competitive performance, optimize athletes' energy supply system, motor innervation system, sports direct participation system and various sports auxiliary systems, so as to help athletes show the best competitive level in the competition.

2.1. Characteristics of Physical and Mental Development of Adolescents

Adolescence is an important period of human growth and development. In this stage, the human skeleton contains more cartilage, more water and organic matter, less inorganic salt, and the

skeleton is elastic and weak, which is not easy to fracture completely in case of external force, but prone to bending deformation; the articular cartilage is relatively thick, the joint capsule and ligaments have great extensibility, and the muscles around the joint are slender, which shows that the range of motion of the joint is larger than that of adults and has good flexibility. Psychologically, teenagers like to try new things and lack perseverance. During the training period, they should try their best to change the training methods, means, environment and forms, and combine teaching with fun, so as to enhance their motivation.

2.2. Sensitive Period of Teenagers' Sports Ability Development

There are also differences between different sports abilities and different genders in the key stage of the formation of human sports ability in adolescence. In the aspect of strength quality, the development sensitive period of girls is 10-12 years old, while that of boys is 12-14 years old. However, due to the incomplete development of teenagers' body regulation system, it is not suitable to carry out excessive strength training. The best sensitive period of developing speed quality and sensitive quality is 7-13 years old; In terms of endurance quality, girls' development sensitive period is 12-14 years old, boys' development sensitive period is 14-16 years old, through training can improve cardiopulmonary function and other physiological functions; in terms of flexibility quality, due to the large range of joint activity of teenagers, flexibility training can be carried out in the sensitive period of 5-10 years old. It can be seen that teenagers have different sensitive periods of sports quality development in different age stages. We should follow this objective law in training, so as to achieve the best training effect.

2.3. Research on Football Physical Training

As early as the 1990s, the "12 minute test" was used by the football association to judge whether players could play football. It can be seen that at that time, Chinese sports workers only regarded endurance quality as the physical fitness level of football players. European countries believe that the physical training of football should not be limited to the running training on the track and field, its training concept and training principle is to strengthen the training of special core competitive ability on the football field, combined with sports physiology, sports anatomy, sports biomechanics and other multidisciplinary knowledge, so as to make the training plan more purposeful and in line with the special characteristics of football.

In recent years, due to the development of competition rules and the deepening of football understanding, subtle changes have taken place in football matches. Players' various physical reserves determine the direction of the game: strength quality is reflected in physical confrontation, the height of jumping for the ball and shooting ability, speed quality reflects the speed of dribbling and catching up in attack and defense, and endurance quality is also reflected. Now in 90 minutes or even 120 minutes of competition, athletes need to keep running to win the game. Agility is reflected in dribbling, getting rid of the coordination ability of defenders. Flexibility is reflected in the athletes' stride and joint flexibility of intercepting the key ball. It is the comprehensive embodiment of athletes' various physical qualities in the game that makes the physical fitness level add charm to the football game with complex techniques and ever-changing tactics.

For athletes of different sports levels, ages and positions, physical training also shows the characteristics that vary from person to person. According to the special characteristics of football, the requirements of football competition on all aspects of athletes' competitive ability are more strict and comprehensive. In a football match, the players not only need to make several short distance high-intensity sprints, attack and defense exchanges, jump for the ball and physical confrontation, but also need to continue to play the existing technical ability and pre match tactical arrangement in the 90 minute high-intensity fierce match, showing the game characteristics of "physical ability is the foundation, technology is the key". Therefore, the level of physical fitness has become a key factor in football matches.

3. Guiding Concept of Youth Football Physical Training

Competition results are closely related to training concept. Zhang Qingchun once pointed out that the backwardness of competition results must be accompanied by the backwardness of training concept. One of the main reasons for the backwardness of Chinese football players' competitive ability is the backwardness of Chinese football training concept, especially the backwardness of youth football training concept. Therefore, it is urgent to build an advanced training concept, which is also an important way to change the backward situation of Chinese football.

3.1. Strengthen the Awareness of Physical Training

Physical fitness level is one of the important factors restricting the development of youth football technology. Timely and dynamic physical fitness test is the key link of youth physical fitness development level. It is also the starting point of sports training process and the important basis of scientific training plan. In the process of physical training, the physical fitness level of teenagers is tested regularly, such as 60 meter run, vertical jump, 5-minute run, yoyo test, blood lactic acid test, functional action screening and other indicators. According to the test results, qualitative and quantitative evaluation can objectively and accurately help coaches understand the physical development of teenagers, so as to standardize the intensity and measurement of training, and provide reference for further training. It has a positive effect to develop athletes' physical training.

In the implementation process of youth football training, most football coaches and physical education teachers lack of awareness of physical training, ignore the significance of physical training, and can not reasonably balance the relationship between physical training and technical and tactical ability, so they allocate more energy and time to the technical and tactical training of youth, which leads to the physical level becoming the limitation of the development of youth football competitive ability. Obstacles to the exhibition. In addition, young people's psychological quality is weak, and they lack perseverance in boring and arduous physical training. It is difficult to see their training effect in a short time, so they are slack in spirit. Therefore, in the practice of youth football physical training, it is very necessary to improve the understanding of physical training of PE teachers and students, and enhance the will quality of students, so as to make the youth develop in many aspects, such as physical quality, technical level and psychological quality, and realize the goal of physical and mental health development of young people.

3.2. Scientific Application of Physical Function Training

China was the first to put forward the training principle of "three requirements and one large scale", that is, "be strict, be difficult, start from actual combat and train with a large amount of exercise". The training principle of "three requirements and one big" guides the development of China's competitive sports, but its disadvantages also gradually cause the reflection and exploration of scientific researchers. With the gradual research of physical training, more and more researchers pay attention to physical function training. Yan Qi integrates the views of domestic and foreign physical training experts, and establishes a pyramid model of functional physical training, which includes three levels. The first level requires athletes to have high-quality physical function movement mode, basic physical flexibility and stability; The second level requires athletes to have the explosive power, speed, sensitivity, reaction, strength and other functions required by competitive sports; the third level requires athletes' body to meet the needs of the special competition.

In football special technology, any technical action is composed of basic body action mode, such as walking, running, jumping, throwing, kicking, pushing and pulling, squatting, rotating and so on. Therefore, in the youth stage, before the football special exercise, we need to carry out the

functional action screening. On the basis of determining the perfect body movement function, we need to carry out the training of breathing, body posture, joint flexibility and stability, action control and basic action mode, so as to make the body have the basic joint flexibility and stability, trunk stability, and master the correct body base. This movement mode, through the system of physical training to improve the economy in the process of action, reduce the loss of strength in the process of action, form the best transmission effect of the power chain; in addition, high-quality movement mode to avoid the occurrence of compensatory action, ensure the human muscle or muscle group in the best state of work, reduce the incidence of sports injury.

3.3. Different Treatment of Position and Physical Ability

There are 11 players in each team in the football match. The number of participants is large, and the division of position is clear. It can be roughly divided into goalkeeper, defender, avant-garde and forward positions. The working functions and roles of football players in different positions are different, so their physical characteristics are also different. In the aspect of body shape, the average height, weight and Quetelet index of goalkeeper are higher than that of guard, guard is higher than that of forward, and forward is higher than that of avant-garde; in the aspect of physical function, the aerobic capacity of avant-garde is significantly higher than that of other players, and its maximum oxygen uptake is significantly lower than that of other players; In terms of sports quality, the goalkeeper's knee extension ability and grip strength are the best, the defender's hip flexion ability and back muscle endurance are the best, and the forward's speed quality is better than other players.

Due to the difference of position division of football players on the field, football players in different positions have different requirements in competitive ability. Jens bangsbo, a foreign scholar, has studied the positional physical fitness of football players: the goalkeeper is mainly reflected in the ability of jumping to catch the ball and diving for the ball, the center back and forward need a lot of sprint, fast running, jumping and heading, which requires a higher form of anaerobic energy supply. The middle field players have the most running distance, but the intensity is low, so it belongs to the oxidation energy system. It can be seen that from the perspective of physical fitness, players in different positions have different activities, which leads to significant differences in the ways and methods of physical training.

3.4. Effective Prevention and Timely Treatment of Sports Injury

Football technology is complex, fierce confrontation, the whole body often needs to change position, high-speed running to complete the technical action, so the risk of injury is high. Football injury can be divided into acute injury and chronic injury, chronic injury is common in joint strain, mostly in the ankle, knee, hip and shoulder joint and other parts; acute injury is generally caused by poor quality of sports ground, lack of preparatory activities, lack of self-protection consciousness and fouls. It can be seen that the risk of injury in football is high, and the preparation activities before sports and the treatment and rehabilitation training after injury are indispensable.

For young football players, especially the students in campus football, first of all, we should do a good job in joint protection training in physical training, improve the stability and flexibility of joints, and form a correct movement mode, so as to avoid long-term strain or movement compensation of joints. At the same time, we should strengthen the study of sports injury prevention knowledge, and through effective and sufficient preparation activities and application of protection. Secondly, before training or competition, we should make full preparations to make the body and mind enter the working state, and reduce the occurrence of acute injury in sports, which is the central link of teenagers' prevention of sports injury; Finally, the youth who have sports injury should be "early diagnosis, early treatment", with scientific

and reasonable diet nutrition as a guarantee, so as to reduce the risk of football injury and maintain physical and mental health.

3.5. Long Term Development Principle of Young Athletes

There are two ways to obtain athletes' competitive ability: congenital and acquired. Congenital competitive ability is obtained through genetic effect, while acquired competitive ability is obtained through sports training activities, so that the improvement of competitive ability needs a long time of training to get obvious performance and improvement. Among them, the improvement of the level of physical fitness is based on the improvement of the physiological system function, and the high development of sports quality is a slow and lasting process, so the development of athletes needs long-term, many years of training planning.

Youth football physical training should not only be for the immediate development, but should link up the various stages of youth football training well, ensure that different levels of organizations complete their respective tasks, so that young athletes can maintain the systematic training and show the highest competitive level in the best competitive age range. Therefore, in order to transfer the talents trained in campus football to professional sports teams or professional football clubs, we must take a sound and systematic multi-year training plan as a guarantee. The long term athlete development principle is to avoid the premature specialization of teenagers, help prolong the sports life and maintain the sports state.

4. Conclusion

(1) Physical training plays a vital role in youth football training, and promotes the development of competitive sports and school sports. Physical training can not only help teenagers prevent sports injury, prolong sports life and improve competitive ability, but also enhance their enthusiasm to participate in sports, promote the healthy development of body and mind, and strengthen the awareness of lifelong sports.

(2) In the process of youth football training, we need to combine the special characteristics of football and the physical and mental development characteristics of youth to reasonably arrange the training of physical fitness, skills and other aspects of competitive ability, so as to integrate into the competitive level of athletes and give play to the ideal training effect.

(3) Youth football physical training should pay attention to physical diagnosis and strengthen the awareness of physical training, the scientific use of physical function training, the different treatment of physical position, the effective prevention and timely treatment of sports injury, the long-term development principle of athletes and other aspects to design a scientific and systematic physical training program and plan.

References

- [1] Spencer M , Pyne D , Santisteban J , et al. Fitness determinants of repeated-sprint ability in highly trained youth football players[J]. *International journal of sports physiology and performance*, 2011, 6(4):497-508.
- [2] Caswell S V , Ausborn A A , Ambegaonkar J P , et al. Epidemiology Of Anthropometric, Physical Performance And Injury Characteristics Among Youth Football Players: 2815 Board #101 May 30, 2[J]. *Medicine & Science in Sports & Exercise*, 2014, 46:759-760.
- [3] Cheng-Ji J , Kai-Yi Y U . Analysis on Knowledge Map of Hot Issues in Juvenile Football Research in China[J]. *Journal of Jilin Sport University*, 2018.
- [4] Jones S , Almousa S , Gibb A , et al. Injury Incidence, Prevalence and Severity in High-Level Male Youth Football: A Systematic Review[J]. *Sports Medicine*, 2019, 49(17).

- [5] Paulis J C , Puente A , Escudero I E , et al. Influence of the Number of Players and the Relative Pitch Area per Player on Heart Rate and Physical Demands in Youth Soccer[J]. *Journal of Strength & Conditioning Research*, 2015, 29(6):págs. 1683-1691.
- [6] A, Frisch, A, et al. Association between preseason functional tests and injuries in youth football: A prospective follow-up[J]. *Scandinavian Journal of Medicine & Science in Sports*, 2011.
- [7] Serra-Olivares J , Clemente F M , González-Víllora, Sixto. Tactical expertise assessment in youth football using representative tasks[J]. *Springerplus*, 2016, 5(1):1301.
- [8] J.D. Benítez Sillero, Silva-Grigoletto M E D , Herrera E M , et al. Physical ability of the youth football players of a profesional club[J]. *Revista Internacional de Medicina y Ciencias de la Actividad Fisica y del Deporte*, 2015, 15(58):289-307.
- [9] Philippaerts R M , Vaeyens R , Janssens M , et al. The relationship between peak height velocity and physical performance in youth soccer players[J]. *Journal of Sports Sciences*, 2006, 24(3):221-230.
- [10] Hausken S , Barker-Ruchti N , Schubring A , et al. Injury-Free Children and Adolescents: Towards Better Practice in Swedish Football (FIT project)[J]. *Research Ideas and Outcomes*, 2018, 4.