

Research on Physical Fitness Training of Youth Basketball Players

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Abstract: With the successive holding of basketball competitions at home and abroad, basketball has become one of the most popular sports for young people. As the main reserve force for professional basketball teams and national teams, young basketball players are the core and key to the sustainable development of basketball. Especially under the current high intensity and short interval competition intensity, the physical fitness and physical fitness of young basketball players become a powerful guarantee for competitive performance. In view of this, on the basis of literature research, combined with the characteristics of physical and mental development of young people, this paper discusses the significance of physical fitness training for basketball players at this age, and further analyzes the problems in this process, aiming to provide reference and help for the improvement of physical fitness level of young basketball players.

Keywords: youth; basketball players; physical training

1. Introduction

In the basketball game of the new century, the constant changes in the rules of the game and the increasingly fierce offensive and defensive confrontation have led to the development of a single physical confrontation in the basketball game into a comprehensive battle of strength, speed and endurance of the players. Physical fitness is not only the basis of basketball technical movements and tactical cooperation, but also the guarantee of giving full play to the training effect, especially for young athletes whose bodies are developing, their physical fitness and other basic quality becomes a direct factor influencing the use of techniques and tactics in future games [1,2]. However, at present, physical training has not received enough attention in basketball programs, and there are still unreasonable and unscientific concepts of physical training for youth basketball players. The sustainable development of basketball cannot be achieved without the optimal supplementation of youth reserves, so it is crucial to improve the physical fitness of youth basketball players effectively. Based on this, this paper explores the misconceptions in combining the actual training situation of youth basketball players and explores suitable physical training countermeasures to provide reference for cultivating more high-quality youth basketball players.

2. Overview of the connotation of basketball physical training

Physical training is a way and method for athletes to improve their physical quality through continuous practice, and it is also an efficient form for them to strengthen their physical functions. Scholars Huang Bin and Jia Simin pointed out in "Exploration of Physical Fitness Training Theory" that "the connotation of physical

fitness training should be the training of the human body system to improve the ability to walk, run, jump and throw [3]. Physical training has its systematic characteristics, that is, the overall and comprehensive nature of training. Physical fitness training should be combined with the characteristics of sports and human body system, through multidisciplinary support, cross-disciplinary, and learn from the integration of other fields of excellence and advanced experience, targeted on physical fitness training in the human motor system bone, joint, muscle and sports assistance system, the process of sports training of the large system of excellence." By sorting out and summarizing the views of existing studies, the author believes that basketball physical training aims to intervene and influence the athletes' bodies with the use of diversified means and methods, and then improve their sports level and special skills, specifically including a series of trainings on strength, speed, endurance, agility, flexibility and coordination, etc., which are further divided into general physical training and special physical training according to the standards and requirements of basketball programs. According to the standards and requirements of the basketball program, it is further divided into two forms: general physical training and special physical training.

3. The importance of physical training for youth basketball players

3.1. Promote physical health

Youths are in their prime physical development period, and maintaining a healthy physical condition is necessary for daily training and key games. From the perspective of biological composition, physical training aims to stimulate the body functions of athletes in many aspects during the training process, and certain exercise loads wake up the major muscle groups of the athletes' bodies, so that the body makes timely changes. The combination of aerobic training and anaerobic training can not only improve the function of skeletal, muscular and ligament organs, but also improve the function of respiratory system and cardiovascular system, which can improve the body's resistance to diseases to a certain extent and promote the healthy development of youth basketball players, thus extending their sports life [4,5].

3.2. Strengthen the special quality

Basketball game with the development of the trend, its game intensity is also increasing, the athletes can only adapt to the high intensity confrontation of the competitive game under the all-round development of strength, agility, endurance, speed, bouncing and other special qualities. Youth is not only in the golden stage of physical development, but also a sensitive period for the development of special qualities, the implementation of systematic and continuous "gram weight" load stimulation for youth basketball players during this period, so as to constantly improve and update the body functions of athletes, comprehensively strengthen the level of strength of youth basketball players, improve speed and endurance qualities, and make flexibility and coordination ability to be improved. The systematic and scientific physical training is an effective way to optimize the ability of the body function system, and is a powerful measure to improve their comprehensive sports ability [6].

3.3. Improve competitive performance

Adequate physical reserve is the basis for basketball players to withstand high load and high intensity training and competition, while a certain degree of sports load training is also the fundamental motivation to improve competitive performance, in a stable competitive state team skills and tactics to play efficiently. Youth basketball players are at the peak of physical development, physical training as the basic project of basketball should be paid more attention in this age group of athletes[7]. Excellent physical fitness level makes youth athletes always have the strength and speed to capture the favorable timing and favorable position, get rid of the defense and steal, so as to complete the transition of offense and defense and shoot and score, and achieve a steady improvement of competitive performance.

3.4. Mastering complex and advanced techniques

Physical training is a prerequisite for efficient execution of tactics and a key to fill the shortage of one's own skills, and it can be said that without the guarantee of physical fitness, one cannot play the advantages of techniques and tactics. The essential purpose of physical training is to use effective methods and means to

improve the coordinated development of the whole body organs and functional systems of athletes, so that they have excellent special sports competition ability. Modern basketball has a unique charm due to the difficult requirements of technical movements under the fierce confrontation and the mutual constraints on the choice of strategies in the ever-changing arena, which have different requirements on the technical ability, tactical cooperation and psychological state of the athlete's organism, such as the strong desire to attack under the position offense is supported by outstandingly skillful technical movements and flexible attacking means; stealing Fast break process requires athletes through their own rapid movement, outstanding explosive power and good coordination of the comprehensive use of the field to form more than one attack situation. Overall, the only way for youth basketball players to fully develop their athletic qualities is through systematic and scientific physical training in order to strengthen the level of strength, improve the quality of speed and endurance, and then master the complex and advanced technology and tactics [8,9].

4. Prevention of sports injuries

Nowadays, more and more athletes can't play the proper level of competition due to the torture of injury and disease, and there are even serious sports injuries, so that professional athletes at their peak have no more sports opportunities, and their careers fall to the bottom in a flash, which shows that injury and disease is a huge hidden danger in the athletes' sports career. Youth are in an important stage of physical development, their muscles and bones have not yet developed, in the intense daily training and competition, it is more necessary to strengthen their joint control, stability and flexibility through physical training, in order to avoid causing muscle, joint, ligament and other injuries, always guarantee the youth athletes a high level of competitive status, to extend their sports career.

5. Problems in physical fitness training of youth basketball players

5.1. Lack of correct understanding and advanced concept of physical fitness training

For a long time, China's solidified concept of emphasizing skills but not physical fitness has put the type of physical fitness-oriented projects in competitive sports at a disadvantage. In basketball, the fast rhythm of offense and defense and strong physical confrontation make it a comprehensive project combining technology and physical fitness, so the physical fitness quality of young athletes has high requirements. However, nowadays, most coaches think that technical and tactical training can completely replace physical training, and even think that technical and tactical training includes the content of quality training, and there is no need to conduct special physical exercises, so physical training has been covered by wrong concepts, and it is difficult to guarantee the strength endurance and basic strength of young athletes. In addition, due to the backwardness of the training concept, some coaches pay too much attention to the physical fitness of athletes, and separate physical fitness training from technical and tactical training, without organically integrating the two, and the effect of physical fitness training under the lack of scientific system planning is not satisfactory [10].

5.2. Lack of systemic physical training plan

Long-term systematic, scientific and reasonable physical training is a necessary guarantee for the improvement of athletes' quality and endurance, but in the physical training of youth basketball players, their growth and development speed is fast, and most coaches make training plans and arrangements only based on their own years of coaching experience or training experience, without following the objective law of youth physical and mental development, and lacking in-depth analysis of their athletic ability. Due to the lack of theoretical knowledge of coaches, there is a certain degree of blindness in the training plan, and the lack of precision in the training process and the disconnection between the front and back practice contents lead to the poor overall training effect. The long-term and stage-specific characteristics of physical training require coaches to formulate training plans according to the actual situation of each athlete and implement the principles of gradual and individualized training in order to improve the physical quality of each athlete accordingly.

5.3. Single physical training method and means

The means and methods of practice in basketball physical training in China are the main factors affecting its training effect. The training means clearly delineate the stimulated body parts, and the training methods directly

determine the trained effect of the body parts. At present, the physical training methods and means of youth basketball players have blindness and singularity, such as in endurance training simply through long runs, interval running, etc.; strength training to overcome their own weight push-ups, barbell and other resistance exercises; speed training only focus on movement and displacement speed, but ignore the speed of endurance under high-intensity confrontation, a single, boring and non-targeted training not only make The single, boring and untargeted training not only makes it difficult to improve the physical quality of young people, but also gradually generates negative resistance to physical training, so the training effect can be imagined.

5.4. Inadequate monitoring and management of physical training

The purpose of physical training is to have a good physical quality in order to win the game with a high level of competition, the data in the training process can make the most accurate interpretation of the physical function of young athletes, according to the changes in the data on the training plan and training intensity to make appropriate adjustments to achieve twice the result with half the effort. However, the current monitoring of youth physical training by basketball coaches is only based on the subjective feelings of each athlete, and often focuses on the content and quantity of physical training, without quantitative analysis of the practice effect under the data, which makes it difficult to effectively solve the existing problems in the physical training process without data support, and even more impossible to adjust the training program in time, resulting in a significant reduction of the training effect.

5.5. Unreasonable structure configuration of the coaching team

As early as Yao Ming's post-game interview in the NBA, he pointed out that "domestic teams do not have physical trainers, which is the biggest problem, coaches have to manage everything, and the lack of manpower makes it difficult to carry out special exercises". Excellent coaching team consists of technical and tactical coaches, physical trainers, nutritional rehabilitators and other related personnel. In the process of team training development, a clear division of labor and reasonable training can improve the athletic level of athletes, and the efficient cooperation and scientific guidance of coaching team members are the keys to improve the team's competition performance. However, nowadays, most teams are still not equipped with professional physical trainers, especially in the youth basketball training, physical training and technical and tactical training are the responsibility of the head coach, and for the head coach with rich technical and tactical experience, the theoretical system in physical fitness is relatively lacking, and the phenomenon of replacing physical training with technical and tactical practice is common, and the physical training for youth physical and mental development rules is even less. In this case, the improvement of the comprehensive competitive level of youth basketball players is hindered to some extent.

6. Optimization measures of physical fitness training for youth basketball players

6.1. Innovation of physical training concept and cognition

In basketball physical training, the coaches' attention to the athletes' physical fitness and their cognitive concepts always affect the practice effect, and an up-to-date teaching concept and systematic and comprehensive cognitive level have a crucial role in promoting the training process. On the one hand, coaches should correctly grasp the winning rules of basketball at the youth level and fully understand the practical role and important position of good strength, endurance, coordination and flexibility in the basketball competition. On the other hand, they should change the training concept of emphasizing technology rather than physical fitness, actively study theoretical knowledge and training methods of physical fitness training, differentiate special training for athletes based on modern training concepts, and realize the mutual integration and promotion of physical fitness and technical and tactical training by using diversified practice methods from the practical point of view, so that athletes can always maintain good competitive status.

6.2. Develop a systematic and scientific physical training plan

The physical fitness training plan is the key to ensure the overall training process is scientific and rational. The physical condition and athletic ability of young people are different, and their adaptability in training will also be different, so before the plan is made, we should fully understand the actual physical condition of young

athletes, analyze their athletic advantages and shortcomings, and design training goals that match the different abilities and levels of athletes. In the process of physical training, adhere to the principles of system and science, from shallow to deep reasonable planning, through timely adjustment, improve the training plan to solve the problem of irregularities in the technical movements of athletes, for the characteristics of sports teams to form a characteristic training program, to achieve the physical exercise content, methods, means and sports load and other aspects of the plan of the stages, hierarchy, to ensure the overall improvement of the special physical quality of young athletes. 4.3 Enrich physical training methods

6.3. Enrich physical training methods

For young athletes, daily basketball training itself is a difficult process, especially physical training, extremely easy to produce fatigue, which to a certain extent will affect the athletes training enthusiasm. In this regard, the use of diverse physical training methods based on the optimization of basketball training moderate is particularly important. Due to the nature of youth to pursue novelty and excitement, old and single physical training methods are difficult to stimulate their interest in practice, so coaches in training means and methods, according to the interests of young people to carry out a variety of targeted training, such as beach running, jumping, or cross-country running. At the same time, they should improve the athletes' correct understanding of physical fitness and motivate them to practice independently through the confrontation exercises under competitive games.

6.4. Improve physical fitness testing and evaluation system

In the training process, perfect physical fitness training evaluation and testing is an effective way to understand the competitive state of youth basketball players' training. In different scenarios, coaches observe and record the youth athletes in training, such as running position, strength and speed, passing timing, stealing and ball acquisition methods, etc., and use statistical data for comparison and analysis to clarify the actual physical fitness training effect of youth basketball players, and make targeted training plan adjustment and improvement under digital detection. In addition, according to the athletes' competitive performance to give the corresponding evaluation, from the multi-element evaluation to form an evaluation system that can be tracked for a long time, to help the coaching team to analyze the existing problems, health risks, improve the details of physical training, optimize the overall training program, and promote the long and stable improvement of the training level.

6.5. Strengthening the construction of coaching staff

A basketball training team in a high level of competitive status cannot be separated from the leadership and guidance of an excellent coaching team, and the status and role of professional physical fitness coaches in their teams is irreplaceable. The state and the government should pay attention to the construction of the coaching team in youth basketball training, increase the introduction and training of professional physical coaches, and constantly carry out training for theoretical knowledge of physical fitness, so that they have rich practical experience and advanced theoretical level, and lay the foundation for the teaching of physical fitness training for youth. In addition, to establish the inspection and evaluation system of youth basketball physical trainers, through the reward and punishment mechanism to urge them to continuously learn advanced knowledge and keep abreast of the times, so as to continuously improve their special business level.

7. Conclusion

The comprehensive and competitive nature of basketball requires high physical fitness, technique and speed, and only by maintaining sufficient physical fitness can we show excellent performance in the game, achieve effective tactical cooperation and finally win the game. At the present stage, the development of athletes' physical training should be increasingly scientific and modernized, and the physical training for youth basketball players should continuously strengthen the construction of the coaching team, innovate the training concept of coaches, enrich the practice methods under the systematic training plan, and discover the problems through the scientific physical fitness testing and evaluation system to adjust and improve the training, so as to improve the physical training effect of youth basketball players, and to develop more physical fitness for our country and basketball career. To improve the physical training effect of youth basketball players and cultivate more

excellent reserve force for our country and basketball career.

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References

- 1 Tan FH. Talking about how to apply circular training method and improve the quality of secondary school physical education basketball teaching. *Talent*, 2019; **(28)**: 51.
- 2 Qian SJ. Talking about the use of circular training method in junior high school physical education basketball. *Contemporary Sports Technology*, 2019; 9**(25)**: 48-49.
- 3 Li W, Que Y-L, Shi Y, Feng HT. Frontier concepts and practical innovations in physical fitness training - an overview of the 2nd China International Physical Fitness Conference. *Journal of Beijing Sport University*, 2021; 44**(03)**:114-128.
- 4 Huang B, Jia S-M. Exploration of physical fitness training theory. *Journal of Physical Culture*, 2012; **(04)**: 64-68.
- 5 Zhang K. Research on the influencing factors and countermeasures of after-school basketball training in junior high schools in Shunyi District, Beijing. Capital Institute of Physical Education, 2019.
- 6 Wang QF. Discussion on effective measures to improve the quality of youth basketball training. *Contemporary Sports Technology*, 2020; 10 **(06)**: 29-30.
- 7 Huang QY. Experimental intervention study of FIFA11+ exercises on injury risk of youth basketball players. Mudanjiang Normal College, 2021.
- 8 Yin LM, He JinxianXg, Zheng PL. Analysis of the causes of sports injuries in basketball training and its preventive measures. *Sports Excellence*, 2020;39**(3)**:63-64.
- 9 Zheng YL. Physical training of youth basketball players in China. *Journal of China University of Geosciences (Social Science Edition)*, 2013; **(S1)**:157-159.
- 10 Zhou, H. Lan Y. Biochemical monitoring study on the physical training process of youth basketball players. *Journal of Beijing Sport University*, 2008; 31**(12)**:1662-1663.

