

Research on the Theoretical System of Athletes' Physical Fitness Training Based on the Characteristics of Competition System

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Abstract: more and more countries have begun to invest a lot of manpower and material resources to develop their own competitive sports, resulting in increasingly fierce competition in the world sports arena. Scientific physical fitness training is an important training section to improve the body's athletic quality, and is an indispensable part in following athletes' professional career. Strong physical fitness is precious to athletes and is one of the keys to a breakthrough. Physical training methods and means are highly targeted, and athletes' nutrition and recovery are regarded as important components of physical training. In the usual technical and tactical training, coaches should pay attention to the standardization of basic technical actions of football players. Every detail in the training of athletes has become the key to the success of the competition. Physical fitness has become an increasingly prominent issue in the competition, and the scientific training of contemporary competitive sports has become more and more perfect. This paper studies the theoretical system of physical training of athletes based on the characteristics of competition system, in order to make coaches and athletes have a deeper understanding of physical training.

1. Introduction

From the perspective of training, physical fitness training is an important part of sports training. Any sports need physical support, and any training cannot do without physical training [1]. Modern sports training pays more and more attention to the combination with the characteristics of the event itself, and uses multi-disciplinary knowledge and methods to improve various abilities that athletes need most in competitions [2]. The level of athletes' special physical fitness depends on their physical form, physiological function, athletic quality and health level. Monitoring and feedback of athletes' special physical fitness is particularly important in training, and feedback information is the basic condition to realize feedback control. Without efficient physical training, it is difficult to guarantee the improvement of competitive ability in sports [3]. An important feature of modern competitive sports is to require athletes to constantly master the most advanced techniques and tactics. Physical fitness is an important component of athletes' competitive ability, and its development level determines athletes' competitive performance to a great extent [4]. Athletes must not only have sufficient physical fitness, but also need to be able to effectively combine with special characteristics. In the process of improving the quality of technology, at the same time do a good job in the development of physical fitness training, integrate more special technologies, and ultimately improve the efficiency and practicality of sports technology.

Physical training has promoted the progress of china's competitive sports level, and has been accepted by various national sports events and achieved good results. With good physical fitness, athletes can effectively reduce sports injuries and extend their sports careers [5]. The pursuit of athletes' body shape, function and physical quality in modern football has almost reached the extreme. The development of modern sports will make physical training increasingly prominent in competitive sports training [6]. Attaching importance to physical training will be the most cost-effective way to improve exercise. The characteristics of football projects are skill-oriented and have high requirements for accuracy, so athletes are required to have good stability and accuracy [7]. With the increasingly fierce competition of contemporary international competitive levels, athletic

performance does not entirely depend on the level of athletes' skills. Physical fitness has increasingly become a prominent issue in winning and losing games, and the scientific training of contemporary competitive sports has become more and more perfect [8]. This article studies the theoretical system of athletes' physical fitness combined with the characteristics of the game system, which can make coaches and athletes' subjective understanding of physical fitness more profound.

2. Basic Characteristics of Physical Training and Injury of Football Players

Sports training needs to aim at improving athletes' competitive ability and performance. Competitive ability and performance are very important components of sports training theory. There is a very close connection between the two, which can not only affect the whole training direction, but also realize the effective evaluation of the training quality during the competition. Modern sports training emphasizes more and more that starting from the rules of the event, emphasizing the use of multi-disciplinary knowledge and methods to improve the various abilities that athletes need most in competition. Physical fitness training is an organic whole. The formulation and implementation of training plans must have scientific basis, namely, the physiological basis of athletes and the requirements of football events. The goal of physical fitness training is clear, and the training effect will naturally be significant [9]. According to the characteristics of football events, the main factors that have an important impact on the performance level of athletes, which are both interrelated and mutually restrictive, are integrated into a whole. Before each physical training, athletes will be tested for their basic abilities. In the following training process, dynamic monitoring is adopted for many times to fully grasp the development of athletes' different qualities and abilities. There are many means of recovery after training to meet the athletes' energy needs during training and competition. It is helpful to improve the immunity of the body and keep athletes in good competitive condition.

In football, athletes have more physical contact with each other, strong antagonism and fierce competition in the air, which make athletes prone to various sports injuries during training and competition. Table 1 shows the power and fatigue index during repetitive anaerobic sprint. Table 2 shows relevant physiological indexes during repetitive anaerobic sprint.

Table 1 Power and Fatigue Index during Repeated Anaerobic Sprint Runs

Peak power (W)	Mean power (W)	Minimum power (W)	Fatigue index
797.5	623.8	518.6	408.9

Table 2 Relevant Physiological Indicators during Repeated Anaerobic Sprint Runs

Blood lactic acid (mmol/L)	Heart rate (b/min)	RPE
11.5	172.2	14.2

Sports injuries are generally closely related to the characteristics of sports events, skills and tactics, and are often related to factors such as sports training level and conditions. When the human body suffers from sports injury, it will make the body change in morphology, function and metabolism. Investigate the sports injuries of 50 soccer players, as shown in Table 3. The injury rate is 100%. It can be seen that the sports injuries of football players are very serious.

Table 3 Sports Injuries of 50 Football Players

	Number of injured	Number of uninjured	Total
Number	43	7	50
Percentage (%)	86	14	100

With the development of football, the physical fitness of athletes is becoming more and more important. From coaches of all teams to athletes, physical fitness training is given top priority. Athletes should maintain a specific range or quality of movement throughout the competition. Technical actions that violate biomechanical principles may increase muscle and ligament soft tissue damage. The test of soccer players' lower limbs' knee extension and bending can be used as one of the indexes of special strength evaluation. Comparison of muscle contribution rates by different methods is shown in Figure 1.

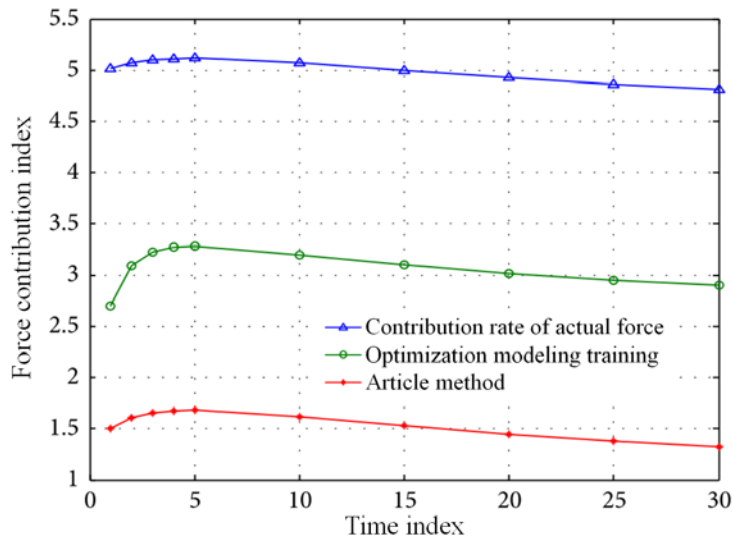


Fig.1 Comparison of Contribution Rate

If athletes have a strong physical strength to rely on, they can rely more effectively on the strength of the lumbar and hip primary muscles when starting quickly. Some movements are indirect, such as shooting and passing control. In football practice, athletes' body organ systems and sports parts cooperate in a certain time and space. If the sports team can pay full attention to the usual physical training and ensure that each member has a high level of physical training, the team's tactics will undoubtedly be better implemented, thus greatly improving the possibility of winning.

3. Theoretical System of Special Physical Training Design for Athletes

3.1 Construction of Target Design System

Sports teams need the team to pay full attention to daily physical training to ensure that each member has a high level of physical training. Training should be on par with competition, that is to say, the purpose of training is to meet the needs of competition. The development of endurance quality and the improvement of anti-fatigue ability of athletes' physical training are the basis for completing technical movements in various sports events. A series of physiological and biochemical changes in the human body during exercise are the objective reflection of the body on the exercise load it bears, that is, the body's stress ability to exercise training. In the analysis and design of physical fitness training content, it is necessary to do a good job in the analysis of special sports demand characteristics, to determine the scope of training, to clarify the links between various training content, to achieve the optimization of training process and training effect [10]. In normal technical and tactical training, coaches should emphasize the standardization of athletes' basic technical movements and the rationality of movements in tactical implementation, and standardize basic techniques in training. The mastery of any technical action cannot exist independently without coordination ability. The speed and quality of mastering technical movements and the degree of consolidation and improvement also depend to a large extent on the development and improvement of coordination ability.

3.2 Construction of Content Design System

Although physical training plays a unique role in improving human body's athletic ability and preventing sports injuries, it cannot deny the value of traditional strength training. Requirements determine objectives and objectives determine content. After the physical fitness training goal is determined, it can provide important basis and reference for the analysis of physical fitness training content. The training content is reflected through the training goal, which is used as the carrier to realize the training goal. With the rapid improvement of science and technology and competitive sports, more and more attention has been paid to the scientization of sports training. Complete all kinds of complicated and changeable movements in fast-paced and high-intensity competitions. The

high degree of coordination of athletes greatly affects the improvement of movement quality and technical level. Exercise load is the most core factor in the control process of physical fitness training. To improve athletes' physical function and competition level, appropriate load stimulation and reasonable training arrangements must be carried out. Physical training needs to integrate technical and tactical, mental and psychological training. Physical fitness training is the basis for athletes to maintain a good psychological state and further improve their competitive performance. The essence of sports training is to stimulate the training load and ultimately improve the economic level of athletes. Therefore, scientific and reasonable control of exercise load and reasonable training methods can achieve the most ideal training effect.

4. Conclusion

The training of athletes should not only focus on the skill training of athletes, but also strengthen the physical training of athletes. In particular, the training of physical function, so that sports skills and physical fitness develop harmoniously, in order to improve sports performance. The physical fitness of Chinese athletes has become a bottleneck restricting their development. The top priority is to require our managers and coaches to pay attention to athletes' physical fitness. Before determining an effective physical training program, first of all, it is necessary to know what are the decisive factors that affect the athletes' special technical ability. A full understanding of athletes' coordination ability in theory is helpful to find more effective methods to train and improve athletes' coordination ability in training. The training should be combined with special technical characteristics and carried out at a certain speed. Combined with the practice of physical training, it can make the coaches and athletes have a deeper understanding of physical training. In order to effectively improve the physical fitness of the players, it is necessary to develop training methods from the two aspects of feasibility and effectiveness to strengthen the training of specific endurance. In the actual training process, it is necessary to give full play to the training results obtained by athletes in traditional training, so as to improve the economy and effectiveness of special technical actions.

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