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Analysis of Football Players' Endurance Training

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Abstract

Because football players need to consume a lot of physical energy in the game, the endurance training of football players is very important. Therefore, the endurance training of football players should focus on fast sprints, block and other aspects; endurance training should be conducted in combination with football skills and tactics. The training is carried out in conjunction.

Keywords

football, endurance quality, training.

1. Introduction

Football player training includes skill, tactical, physical, and psychological training, etc. Endurance training is the basis of skill and tactical training. In order to carry out targeted training for football players, we must first understand the characteristics and sports characteristics of football. Football matches are characterized by fierce confrontation, rapid conversion between offense and defense, and long duration. The sports of football players can be divided into walking, jogging, and running at medium speed, running with the ball, and running backwards. The alternating appearance of these five forms of sports produces different intensities of exercise time and intermittent time, and various football skills must be completed at different distances.

2. The Characteristics of Football

Football matches have large venues, long hours, complex techniques, diverse tactics, and fierce competition. From the perspective of characteristics of football games, the most prominent performance of running on the football field is fast start and run, and quick and reasonable coordination. In football matches, most running is just short-distance sprints or jogging, it means that continuous running ability is not particularly needed for football players. According to statistics, the running distance of each player (except the goalkeeper) in a football match is about 10000m, football players are in the state of irregular variable speed movement from beginning to end, among them, the high-intensity fast runs 30-80 times, each time the distance is 5-50 meters, the duration time is 1-8 seconds.

The direct source of energy is adenosine triphosphate (ATP), the ultimate source of energy of muscle activity is the aerobic oxidation of sugars and fats. ATP is supplied by three different energy sources. The first is the phosphagen energy supply system, second, start the lactic acid original energy supply system and aerobic oxidation function system, therefore, football has different requirements for the three major energy supply systems, it is an sport that combines anaerobic and aerobic metabolism for energy. Most of the energy of football is provided by the ATP-CP system, but the production of anaerobic energy is also very important, which is required for high-intensity sport. In the football match, first-class players need conduct more than 200 sprints within 3s; this energy is provided by the anaerobic system. In football, the concentration of lactic acid is different from that of some track and field events, and it is more

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concentrated in aerobic energy supply and non-lactic acid anaerobic energy supply. Therefore, the energy supply during football matches is focus on aerobic and non-lactic acid anaerobic energy supply, anaerobic glycolysis capacity is relatively low, and football players do not need strong anti-lactic acid ability.

From the perspective of the skill movements of football players and track and field athletes, the running of track and field athletes is generally straight, have rhythmic breathing, controlled by the subcortical center, body movement is in a state of and the efficiency of muscle work is high; while football players' running is dynamic, changing with the conditions on the field, sometimes start suddenly, sometimes stop suddenly, and sometimes change direction. In addition to constantly controlling own inertia, football players must also overcome the impact of external forces such as collisions, and every run is accompanied by very purposeful tactical actions.

During the entire competition, the football players' breathing is not rhythmic, and the muscles involved in the activity are mostly the cerebral cortex, and both muscle and nerve consumption is relatively high. Therefore, football is an intermittent sport with high intensity and strong resistance. From the perspective of energy supply characteristics, football players mainly need a fast energy system and the ability to quickly recover in the various parts of the game, as well as the ability to repeatedly generate maximum strength for complete long-distance running. If this long-distance continuous running is often used, it is bound to make football players to adapt to endurance in muscle contraction, muscle fiber type, metabolic energy supply, and movement rhythm; this is extremely unfavorable for completing various key skill movements of rapid explosive force in football matches.

3. The Composition of Football Players' Endurance Quality

3.1. Classification of Endurance Quality

For a long time, people have equated general endurance with the aerobic capacity of an athlete's organism, and believe that aerobic endurance is the basis of anaerobic capacity, and anaerobic capacity must be built on the basis of aerobic capacity. Obviously, the above point of view is correct from the overall perspective of athlete training and development, because the final elimination of anaerobic metabolism products in training must rely on aerobic metabolism. However, it should be clear that the division of general endurance is relative to the needs of specific characteristics, it is composed of multiple functional characteristics and other endurance factors, and is not only related to the activities of aerobic energy metabolism mechanism. For football players, too much aerobic training is increased, the proportion of training content is not appropriate, and it has an adverse effect on the athletes' rapid skill, and change the structure muscle tissue, reduces the ability to effectively complete speed strength training.

3.2. The Main Factors that Determine Endurance Quality

3.2.1. Work Energy Guarantee System Capacity

The energy metabolism process in football players is basically non-lactic acid, which belongs to the non-lactic acid system for energy supply. Every time a football player has a high-intensity short-distance running with specialized skills and tactics, generally does not exceed 8s, so the running has ended before entering the energy supply phase of the lactic acid system, and there is sufficient time to repay the non-lactic acid oxygen in the interval Debts, so that the ATR-CR system can be restored and work again immediately. In addition, football games are often stopped due to factors such as the ball going out of bounds, players breaking the rules, restarting, offside, substitutions, player injuries, etc., which also creates conditions for the recovery of the player system. Of course, It cannot be eliminated that the football players have the possibility of running at high intensity without interruption in the competition, at this time,

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the lactic acid system is started to supply energy, and the blood lactic acid value can be as high as it is, but during the game interval, under the action of the aerobic system, its concentration will drop.

From the perspective of exercise physiology and bio kinetics, compared with the blood lactic acid value, the low blood lactic acid concentration of football players after a game is consistent with the characteristics of football itself. Therefore, in order to improve the speed endurance of football players (speed endurance in football is understood as the ability to overcome the speed reduction caused by fatigue under the conditions of confrontation, especially in the process of non-cyclical exercise), it is necessary to strengthen ATP-CP system energy-based anaerobic metabolism physical training.

3.2.2. The Effect of Saving Work Ability and Using Skill Potential

The effect of saving work ability and using skill potential is closely related to many aspects of athlete training, such as the level of aerobic capacity; the absorption of oxygen; the ability of the blood to transport oxygen to working muscles; the ability to exert oxygen in breathing; the ability to coordinate muscles and muscles; the effect of exercise technology using physical fitness result; the degree of muscle relaxation when completing the action, etc., the improvement of this ability needs to be solved through the completion of many tasks in the training. Comprehensive development of exercise quality and proficiency is the fundamental way to solve the problem, and aerobic capacity is the basis for ensuring work saving.

Athlete's psychological quality, even if an athlete with good skills and abilities and perfect special skills wants to perform well in a football game, he must fully anticipate the difficulties in the game and the discomfort caused by the imbalance in the body. It is an aspect that cannot be ignored to improve the mobilization endurance quality. For example, the insufficient endurance produced by anaerobic metabolism will cause athletes to "reject" the idea of work, and those who can bear the discomfort after fatigue exercise will definitely be able to perform more exercise well. Although it is difficult to make a definitive analysis of such mental factors, mental factors do play an important role in competition and training. For this reason, we should encourage athletes to establish the belief in winning, so that they have the special characteristics of "aggressive" in skill movements during the run and finish, and should combine good psychological qualities such as good quality training, good work style and strong will.

4. Endurance Training of Football Players

4.1. Development of Training Principles for ATP-CP Energy Supply System

Through non-lactic acid endurance training, muscle fibers can be enlarged, phosphoric acid energy storage can be increased, and oxidase activity in muscles can be increased. Namely football players' fast muscle fibers can increase, and lactate dehydrogenase activity can be the highest, which is more conducive to the release and reduction of ATP.

The maximum intensity should be used, and the exercise pair should be about 10s. Each interval should be between 25s and 30s. The amount of exercise is as large as possible. Therefore, it is very important to choose an appropriate rest interval to restore the ATP-CP system as much as possible to meet the requirements of exercise volume. However, if the rest time is too long, it will affect the amount of exercise. If it is too short, the system will not recover. When exercising in large numbers, the lactic acid system participates in energy supply, which fails to achieve the purpose of training.

4.2. Training Principles for Developing Aerobic Energy Supply System

The principle of aerobic metabolism training includes two important factors: one is to improve the function of blood circulation and respiratory system, to reach the overload of the

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cardiovascular system, to stimulate and increase the stroke per stroke, while the aerobic capacity is to ensure the output and the heart. Output; the second is to improve muscle aerobic metabolism. Allow muscles to get more nutrients from blood circulation, increase enzyme activity, improve metabolic regulation, and ensure a sufficient supply of energy for long-term exercise. The key to aerobic endurance training is to choose an appropriate training intensity. Generally speaking, medium-intensity load training is used as the most important means to improve aerobic capacity. High-intensity load training is used to develop special endurance with this aerobic and anaerobic mixed training.

4.3. Methods of Endurance Training for Football Players

Endurance quality is composed of many factors, such as physiology, psychology, and special skills. Therefore, its various components should be promoted during training. It is the general guiding principle of endurance training. Establishing a certain fatigue background is the main way to cultivate endurance. The degree of fatigue is determined according to the athlete's training tasks, special characteristics, training period and training level; when choosing training exercises to expand energy system skills, the intensity and time of exercises must be strictly controlled. Only under the premise of rigorous training and practice intensity, the practice can work according to the predetermined skill range, thereby stimulating the expansion of skill ability. To improve anaerobic endurance training, interval training is the most commonly used training method. (Interval training should consider the practice time and interval rest) Time matching, where the blood lactic acid level is maintained at a low level within 20s, the interval training with low lactic acid value mainly develops the phosphoric energy supply system to improve speed quality. For example, during sprinting, the energy supply in the body is guaranteed by ATP-CP. Exercise training can increase the speed of energy supply and recovery, and at the same time increase the content. Therefore, when the athlete's speed quality improves, the lactic acid will be relatively reduced during running; to develop anaerobic endurance quality, try to achieve a high lactic acid level, increase the practice time and shorten the rest time appropriately.

We can take the following methods to train football players: Continuous load method: "Continuous load method is the main method to develop aerobic endurance, there is no interval" each load time should not be less than 30min" load time for athletes with a certain training level It can reach 60---100min". Repetitive training method: "It is to develop special or competition ability while developing aerobic endurance. The load intensity is relatively large. After each exercise should be fully recovered, it is repeated." (3) Altitude training: "Altitude training is training under hypoxic conditions. Due to the stress of the body under hypoxic conditions, it can promote the increase of red blood cells and hemoglobin, and the blood lactic acid can reach the level that plain training can't reach, thereby improving the body's anaerobic glycolysis and resistance to acidic substances." (4) Alternate running training: "Three groups of athletes will run alternately back and forth within the same distance, such as group A and group B on one side and group c on the other side. The exercise starts from the athletes of group A running to the side of group C. When group A ran to the side of group C, group c ran to the side of group B. Then, when group C reached, group B quickly ran to the side of group A, alternately running back and forth in turn, the distance could be set at 30 a Between 60m; the practice time can be controlled within 20---30rain, and the athlete's maximum oxygen uptake can be improved through alternate running exercises."

Endurance training should be closely integrated with football skills and tactics. When carrying out endurance training, the choice of training methods and means must not only conform to the training principles but also conform to the specific characteristics of football. It is not advisable to use the training methods of track and field athletes to train football players. For example, using repeated 30-meter sprints to develop ATP-CP system capabilities is not as effective as

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round-trip running, because the latter has brakes, turns and accelerates multiple times, and has more muscles involved in work, which is closer to a football game.

The physical training of football players should focus on explosive sprints (left and right), rushing and blocking. Anaerobic endurance and other quality training are linked with football skills and tactics training. While absorbing the essence of other training methods, it is necessary to integrate the characteristics, rules and requirements of football. Not only training the endurance quality, but also requires solving and running rationally, and cleverly combined with starting, emergency stopping, turning and changing directions, etc., so that the effect of physical training is not only reflected in the improvement of internal organs and motor organs, but also It should be reflected in the improvement of the actual combat level. For football players, the focus should be on collective cooperation, the rational use of techniques and tactics, and the cultivation of football awareness, while at the same time improving the athletes' various physical qualities. In a football game, there is no skill guarantee, and there is no good quality performance. Therefore, physical fitness training should be more combined with skill training.

5. Conclusion

Aerobic endurance training is the basis of anaerobic endurance training. Football players' endurance training should start with aerobic endurance training, and anaerobic endurance training should be based on a good development of aerobic endurance. In general, it is an important reference to determine the ratio of aerobic and anaerobic endurance training for football players throughout the year or for many years. At different ages, different training cycles or training stages, the ratio of aerobic and anaerobic endurance training should also be emphasized. The endurance training of football players should try to use training methods that are more consistent with the characteristics of the athletes' physical activities in football matches, and should be reasonably combined and matched.

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