

Research on Control Theory of Basketball Technical Training System Based on Functional Action Test Analysis

Peng Chen¹, Rui Tang^{2,*}

¹Physical Education Department of Sichuan Engineering Technical College, Deyang, Sichuan, 618000, China

²Foreign Languages Department of Sichuan Engineering Technical College Department, Deyang, Sichuan, 618000, China

*Corresponding Author

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Abstract: in the Development Trend of Modern Basketball Technical Training, the Theoretical Thoughts Such as System Theory and Cybernetics Are Getting Deeper and Deeper into It. through Expounding the Methods and Principles of Functional Action Testing, This Paper Applies Functional Action Testing to Evaluate the Physical and Technical Limitations of Basketball Players, and Combines the Corresponding Testing Methods with Common Technical Actions in Basketball. in Order to Ensure the Accuracy of Shooting, We Must Make Progress in Continuous Training and Gradually Increase the Difficulty in Training. Based on This, We Can Make a Set of Detailed and Reasonable Training Plan, Which Will Definitely Improve the Hit Rate in the Competition Field.

1. Introduction

The basketball teaching and training process is not only a process of imparting knowledge, but also a process of forming and acquiring skills. In this process, how to choose the best teaching and training approach, obtain the best teaching and training effect, and realize the best teaching and training control has always been a hot topic for colleagues to discuss for a long time [1]. The control of any system is based on the existence and normal circulation of all kinds of information and operates according to the predetermined target. Information is a special phenomenon and movement form existing in the movement process. The exploration on how to jump higher, how to run faster, and how to achieve better results has contributed to the emergence of a variety of training methods. However, more training methods mainly pursue the quantity of athletes' training and often neglect the quality of training [2]. The control process must understand the possibility space faced by things and the purpose and control conditions that must be achieved so as to transform things into certain goals [3]. Dynamic control system refers to understanding the basketball training process as having different states at different times and applying different technical training emphases in different states. The emergence of functional action tests has filled a gap in training methods. Some actions are used to evaluate the state of the body, providing reliable reference for athletes to know their own bodies and improve training quality.

2. The Theory of Basketball Training System Control

The program training of basketball training basic technology is itself a closed-loop control system. However, it is such a closed-loop control system that its greatest function is the elements related to basketball training or helpful to improve the quality of basketball training. Control is essentially a directional possible selection in a possible space of things [4]. Therefore, this is undoubtedly the advantage of system control training. It is also conceivable that system control training can integrate new breakthroughs that no single element has with training in another aspect. Basketball technical training is an extremely complicated system and practice process, which must be guided by various basic theories such as system theory and cybernetics in order to achieve the

best results. Functional action testing has formed a series of standardized testing methods and detailed scoring rules, and has been widely used in professional sports leagues abroad as an important supplement to traditional training methods [5]. On this basis, various decisions are made. The decision-making reaches the controlled object through the flow of information through different channels and acts on the controlled object to make the controlled object run under the control of this output information. This process is repeated continuously in this mode, so the system control combination training has better comprehensive effect and better results than single training.

3. The Imperfect Control Elements of Basketball Technical Training System

3.1 The Control System of Basketball Technical Training System is Not Perfect

Although the use of systematic control elements to train basketball skills has many benefits, due to the current development trend of basketball, it cannot but admit that it has many imperfect factors. Many control elements have their own specific positions and functions in training. Both offensive elements and defensive elements must be paid equal attention to, instead of being conservative by attack, so as to keep and promote attack and develop in a balanced way [6]. It belongs to the skill-oriented on-the-spot confrontation project combining physical ability and skills, and includes multiple movement structures. The controller can continuously adjust the control information according to the feedback information, and then output it again. In this way, the optimization of the control system can be gradually completed and the expected training goal can be finally reached in the circulation of the information in the control process. Therefore, the current basketball systematic training process system also needs to be more perfect. However, the application of each specific control element is not isolated. Whether attacking or defending, it is often necessary to comprehensively apply several control elements [7]. It can be seen that the more intense the competition, the more the players need to have a healthy and strong body, otherwise the best skills will be lost in the physical confrontation, so it is very important to know their own bodies.

3.2 The Process and Application of Basketball Technique Control Training Are Not Perfect

In the initial stage of sports training, its main feature is the most initial state. In the initial stage of sports training, it is the most suitable target establishment. According to the literature review, the basketball players in our country have different mastery of defensive footstep, dribbling technique, breakthrough technique and shooting technique, and their mastery of technique is not comprehensive. Basketball training is a kind of system formed by many factors participating in and interrelated with each other. However, this goal-oriented training method requires athletes to improve their own quality, and requires athletes to have their own requirements and self-discipline and their coaches to supervise their training. The control system is an organized system which is organically linked by various control elements, has certain functions and completes certain control tasks. Information is a prerequisite for the realization of control process and system functions in basketball training system [8]. Similarly, the training of a basketball team may win the championship, or it may only enter the top 6, or it may be ranked in the bottom. For example, some players' shooting movements are very standard, but when dribbling the ball, their body weight is too high, their handling of the ball is poor, and their overall movements are unstable. Some feel good about the ball, but they can't do the sliding step, backward step and attack step properly. In training, after being combined into subsystems, all technical elements in the system need to be organically combined as much as possible.

3.3 The Control Plan and Design of Basketball Training System Are Not Perfect

Basketball training control system is a relatively complex network system. However, the various elements in the system depend on each other, the connection between the various elements and the dredging of information, and the inseparable connection between the various elements. The system theory holds that the system structure often plays a greater role than the system content. The low-level elements do not directly affect the system. It must affect the main body of the system by

acting on the high-level elements, so the level of the system is proportional to the organization of the system. During strength training, too much attention is paid to lower limb strength training and the strength of upper limbs and trunk is neglected, which makes the athletes lack the ability to resist.

The basketball training control system is a complex network system, in which the components rely on the mutual connection and information circulation to jointly complete the control of the whole training process. The whole control system is divided into three major modules: the decision-making system, the decision-making scheme execution system and the training feedback information system (see Figure 1). These three modules together constitute the macro information control system of basketball training, and the three modules have their own tasks and functions.

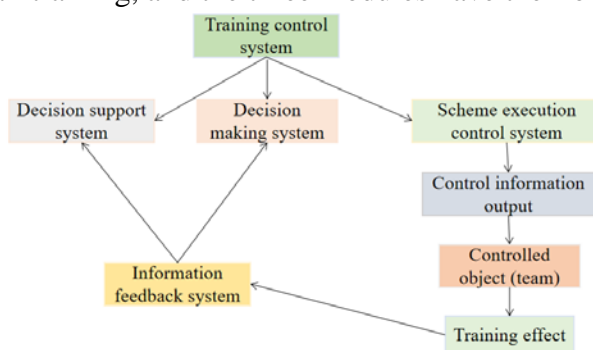


Fig.1 Pattern Diagram of Basketball Training Information Control System

Therefore, basketball training control system is also a system of information transmission, transformation and processing. The controller in the basketball training control system is mainly coaches, while the controlled are athletes and teams composed of athletes. Therefore, at the same time, it also shows that this training is a training method with clear objectives, and this method of reforming and reshaping the team personnel relying on the special control system needs many factors to complete. The two are analyzed and evaluated, then the plan is revised, and instructions are input again for correction and adjustment to maintain the normal state of training objectives.

4. Measures to Perfect Control Elements of Basketball Technical Training System

4.1 Improvement of Control System of Basketball Technical Training System

According to the control characteristics of the actual basketball technical training system, in the actual specific teaching and training process, it is necessary to determine the goal, and then according to the different links, design the exercise items of this link in a targeted way. For example, in the technical training of shooting, the ideal shooting percentage is the ultimate goal of the technical training. In addition to standardized shooting techniques and good sense of muscle differentiation, stable psychological self-control is especially critical. According to the fact that the basketball players travel on the court mainly by changing direction, the athletes' medullary joints, knee joints and stepping joints should be relatively flexible, so the athletes should perform well in the test. Coaches control the training process through the output of various control information and the reception of information by teams and athletes, and complete the transformation of teams and athletes through the circulation of information. In the training process, it is necessary to train the training target, in this training, the training target is the athlete's state target in this stage of training. It is challenging for people's self-control ability and has important practical significance for the realization of state goals.

4.2 Improvement of Basketball Skill Control Training Process

Basketball skill control training process is a complete system engineering, in order to promote basketball teaching coaches to improve the training amount of athletes in practical work. For example, psychological simulation and instrumental intention still take shooting technique training as an example. Psychological simulation is to construct a good shooting state in the future on the basis of the existing shooting state by using people's imagination.

The so-called plan execution system refers to an information system formed by the decision-making plan formed by the training information control system, which consists of the information output to the controlled by the trained controller and the feedback of the controlled effect information. In this way, a kind of controlled object is formed from the decision maker to the decision executor. From macro to meso, and then to micro; A closed information control system (see Figure 2) that consists of the given information of the decision scheme, the conversion and output of the given information, and the feedback of the controlled effect information.

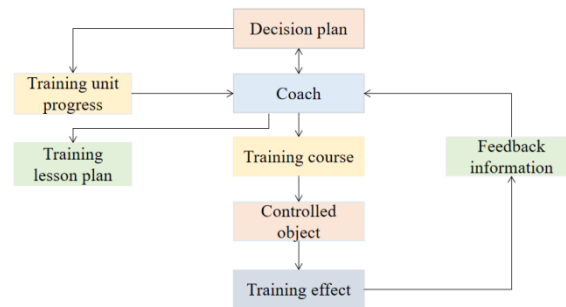


Fig.2 Pattern Diagram of Training Program Execution Control System

In order to test the symmetry of both sides of the body and the control ability of the lower limb muscles, straight-line squatting has certain requirements for the flexibility of quadriceps femoris and rectus femoris. Through the research and sorting out of the data, at the same time, aiming at the practical problems of the system training teaching, the improvement of the technical control training process. However, one thing must be confirmed, that is, in the decision-making system, coaches are still in a dominant position and play a key role in the whole decision-making system and process. For example, program teaching and pattern training are always carried out by checking and processing to revise the plan repeatedly and then carry out the teaching training. Therefore, the progress of basketball teaching training can be effectively controlled.

4.3 Improvement of Basketball Training System Planning

The perfect basketball training control planned by the basketball training system is the exchange of information, information exchange and information conversion between coaches and athletes, so as to complete the examination of athletes' training results by coaches, or to check whether athletes have played a role in improving the training results. For example, an overall good technical condition is the ultimate goal of an individual, and it is often difficult for an individual to reach the above-mentioned ultimate goal in a short or long period of time in the realization of the goal, so some instrumental intentions can be set. Due to the characteristics of basketball, no matter dribbling, shooting, passing, etc. have higher requirements on shoulder joint, so the basketball player's shoulder flexibility performance is acceptable in this test. Usually in the decision-making process, the coaches also plan the overall decision-making plan specifically, and then other personnel involved in the decision-making will examine and discuss the plan in a unified way. When necessary, they will put forward their own suggestions to improve the decision-making plan. At the same time, scientific improvement of training control can ensure the normal exchange of training information. From cybernetics, mastering athletes' athletic performance is systematic. The speed on the court is much faster than that of domestic players. This phenomenon reflects from the side that the lower limb muscle stretching ability of domestic players is poor, so the performance in the test is not ideal.

5. Conclusions

The study selected the application of some viewpoints of system theory and cybernetics in basketball technical training system, and analyzed the configuration of technical elements in the training system, the establishment and realization of objectives in the training process, and the control of input, output and feedback of training information from the perspective of quantitative

statistics and psychology. Through the physical function test, we can understand the basketball players' deficiencies in trunk stability, joint flexibility, muscle extension and core strength. We should attach importance to the training of special qualities and adopt diversified training methods in the daily physical training of the players. In order to promote the development level of each link of the training target and systematically control the predetermined direction transformation. Strengthen the training of weak links, correct mistakes in technical exercises, ensure one's health, avoid unnecessary injuries in competitions and training, and truly improve one's basketball level.

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