

# Research on Influencing Factors of Basketball Players' Decision-making Speed and Accuracy Based on Sports Training Management

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**Abstract:** Aiming at the connotation and manifestation of basketball special speed, this paper tries to analyze the factors affecting basketball special speed reasonably and accurately. By discussing the technical and tactical characteristics of basketball, this paper puts forward the decision-making speed of basketball players under the same level and different types of pictures from the research ideas of sports training management and sports psychology. This paper attempts to summarize more scientific and reasonable special speed training methods and means, and provide meaningful reference for basketball teaching and training. Studies have shown that the greater the amount of information collected by basketball players over a relatively long period of time, the faster the decision-making and the higher the stability. Basketball players place more emphasis on accuracy in the selection and processing of information, gradually establish and improve the performance evaluation system of sports training management, improve the level of sports training management in China, and realize the scientific management of sports training management in China.

## 1. Introduction

Sports training management is an important part of competitive sports. It is a planned sports activity specially organized under the unified guidance of coaches and under the scientific supervision of scientific researchers to improve athletes' competitive ability and performance. Sports training management is the main content of competitive sports [1]. Sports training management is the most important and effective way for athletes to acquire competitive ability, and is the basis and core of competitive sports. In basketball, the use of all techniques and the implementation of tactics are accompanied by a complex psychological process, requiring athletes to have good special perception. All technical and tactical actions of athletes are accompanied by complex thinking activities [2]. Athletes of different projects are no longer blindly pursuing absolute speed. As far as basketball is concerned, athletes pay more and more attention to relative speed, that is, the combination of speed and technology. Therefore, the special speed training has become increasingly prominent in daily training. If athletes focus on grasping sensory movement information and care about how to do it, they will focus on speed and make quick decisions. The corresponding decision will have certain risks. The problem faced by athletes is to strike a balance between the time allowed and the time required, which forces the athlete to constantly adjust its speed-accuracy decision criteria [3].

In 2013, small-scale competition training improved the aerobic ability and technical skills of basketball players proposed by relevant scholars [4]. Since then, basketball performance indicators during the ACB regular season from 2003 to 2013 have been proposed by relevant scholars [5]. Since 2018, the body characteristics of adult male basketball players: the difference between competitive level and competition position has been studied by relevant scholars [6]. Since motion decision-making is a very complex process, there is no complete concept of motion decision-making process in theory. Most of the studies focus on a certain stage of the decision-making process or decompose the decision-making process into perceptual level. The research mainly focuses on information search and perceptual prediction. For such antagonistic and open sports as basketball, sports decision-making ability is particularly important [7]. The decision-making ability of sports is based on automated procedural motion technology, which is highly flexible and autonomous, and can be improved through sports training management. This

ability is malleable. The study of reaction speed, movement speed and displacement speed in basketball special speed quality, sports training management is a multi-factor comprehensive process [8]. Management plays a role in the collection and integration of various elements in sports training management. In this paper, the research on the comprehensive training of the connection speed, starting speed and basketball special speed between technical movements will be the innovation point, and the connotation of basketball special speed will be re-analyzed. And scientifically determine the test indicators of basketball special speed. Conduct research based on cognitive processes [9]. Because in the basketball game, the environment in which the athlete is located is open, competitive and uncertain, and the information such as the position and movement of the opponent and the opponent are constantly in motion. The athlete cannot accurately determine the probability of the various actions the opponent may take next. It is even more difficult to construct an optimal decision model based on the absolute rational person [10].

## 2. Materials and Methods

Sports decision-making can be defined as the process of perceiving information, processing information and choosing action under the guidance of specific goals. The research paradigm of sports decision-making is "expert-novice paradigm". Long-term basketball practical training, professional training and the accumulation of experience in many competitions have improved the cognitive processing ability of the athletes' group to make specific basketball decisions and enriched the content of memory. Improve the accuracy of decision-making, so that athletes can quickly make classification analysis and judgment, which is a top-down processing method. The decision-making process for high-level basketball players is to complete the task as quickly as possible while ensuring the correct rate. Under the condition that the basic speed quality and the technical level are basically adapted to each other, the specific speed will be correspondingly developed for each certain index of the basic speed quality. Therefore, the general speed and the special speed are inseparable.

Strategic management evaluation of sports training management is a problem involving multi-factor and multi-level comprehensive evaluation. The purpose of this study is to scientifically analyze and quantify the weights of various factors in the evaluation of strategic management of sports training management. Before the skill and tactics teaching, watch the screened classic Basketball Offensive and defensive tactics video. Teaching videos are selected from the NBA Finals and the classic video collections of fast breaks, assists, breakthroughs and steals in NBA matches. In the early stage of teaching, we mainly watch the scene of successful attack. In the course of watching, we should cooperate with the instructions to ask the students to watch the position of the offensive and defensive players in passing, breaking through and shooting moments. Pay attention to the empty space on the field, and repeat the play and the frame during the passing, breaking and shooting, and ask the athletes to watch repeatedly to strengthen the understanding and understanding of the successful mode of attack. We can control the brain function areas within the cognitive system that are specifically responsible for attention execution, and facilitate the allocation of cognitive resources to key stimuli. Based on past research experience, it can be speculated that the P1 component mainly reflects the neurological characteristics of the motion decision-making stage, that is, the inhibition of the non-attention position information or the performance of the attention position. Basketball training decision judgment is shown in Table 1.

Table 1 Decision-making judgment of basketball training

	Cognitive decision making	Intuitive decision making
Pass the ball	8.22±0.65	9.18±1.43
Dribble	10.23±1.20	9.75±0.72
Shoot	9.72±1.52	8.62±0.61

Sports training management resources in China are divided into tangible resources such as human resources, financial resources, material resources, as well as intangible resources such as

organizational structure, relationship resources, information resources, image resources and property rights. Among all the resources of sports training management in our country, the most fundamental resource is infrastructure. Providing enough sports training management venues for sports training managers is the basis of promoting the development of sports training management. Competence view emphasizes that sports performance depends on individual's psychomotor ability. The concept of knowledge emphasizes the importance of knowledge associated with a particular sport in sports performance. It is believed that the difference between skilled and beginners is that skilled people have more knowledge about specific sports tasks. The concept of information processing emphasizes the application process of knowledge. It is believed that the difference in the performance of skilled and beginners is mainly due to the differences in information selection and decision-making. If the information selected by the athlete is appropriate and processed effectively, the decision-making effect will be good. Studies have shown that visual selection and attention to processing ability is an important psychological quality of athletes. Selective attention is an important guarantee for athletes to achieve excellent results in competitions. Among the many psychological factors affecting athletes, selective attention plays an important role in the outcome of the game.

### 3. Result Analysis and Discussion

Athletes are the core subjects of sports training management. Man is the main body of society, and the ultimate goal of society is to realize the all-round development of man. Sports training management is also the same. Sports training management is an educational tool to promote the all-round development of human beings. On the basis of normal teaching and training, decision-making teaching and training add the means of video teaching with language guidance, sports vision training and eye-hand coordination training. The content of teaching and training was reasonably sequenced and timed. As far as possible, the content includes all aspects of real sports decision-making, focusing on the training of special sports knowledge-specific cognitive ability-hand-eye action linkage and the integration of the three. According to the analysis of the reasons and the essence of the decision-making differences among different levels of basketball players, decision-making teaching and training mainly focus on the internal decision-making process of training basketball players. The training of basketball players' displacement speed is shown in Figure 1.

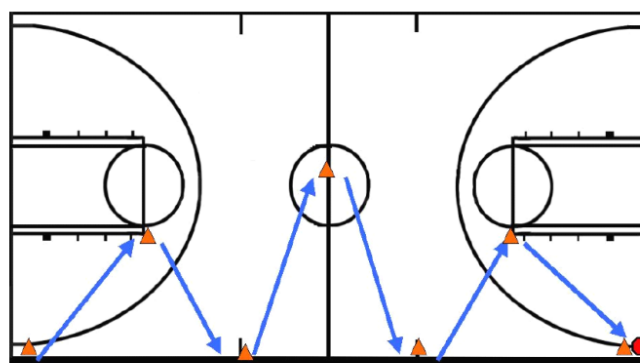


Fig.1. Training Diagram of Basketball Player's Displacement Speed

The decision-making of athletes in competition situation is very complicated. It involves not only the processing of physical characteristics of stimulus information, but also the involvement of endogenous cognitive processing. Therefore, in order to fully understand the characteristics and nervous mechanism of sports decision-making of high-level basketball players in Colleges and universities, special contest situations with better ecological validity must be used as decision-making materials. The eigenvalues of decision-making in competition situations are shown in Figure 2. The decision-making teaching training mode mainly focuses on the internal decision-making process of training basketball players, and requires basketball players to have a

good knowledge of special sports. In basketball, such as jumping, dribbling, fast layup, shooting and rebounding, the duration is short, and the action is mainly based on ATP conversion to CP power. From this analysis, in the basketball competition, athletes are mainly based on anaerobic energy supply. Basketball players must have the ability to continue and effectively complete the ball or without the ball and accelerate the run under high-intensity conditions. It can be seen that in the training implementation, the ability to maintain repeated short distance and high intensity intermittent movement, that is, anaerobic endurance, should be improved.

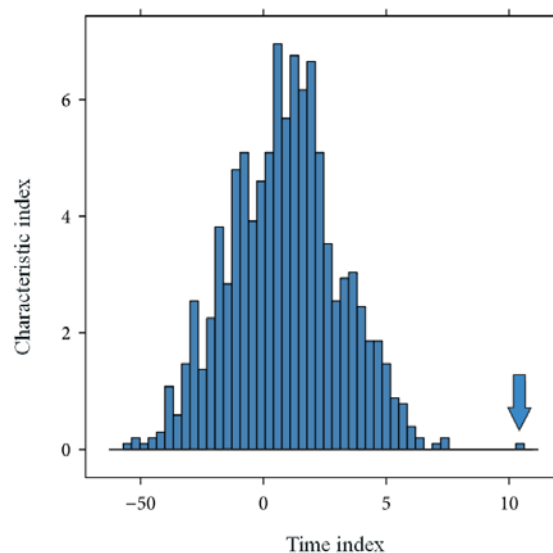


Fig.2. Feature Value of Sports Decision-making in Competition Situations

Under the cognitive decision-making task, the average amplitude of athletes group is higher than that of college students group, and the latency period is longer than that of college students group. It shows that expert athletes have obvious advantages. Compared with novices, the athletes group is highly sensitive to specific knowledge and skills because they often carry out special basketball training. Athletes can quickly extract the memory information of the brain and match the information on the field. Make the best type of attack judgment, so for them, the memory load is small, the amplitude is large, and the latency is long. Among the many psychological factors affecting athletes, selective attention plays an important role in the outcome of the game. Good selective attention performance is the key to the effective implementation of sports skills by athletes and an important psychological guarantee for achieving excellent results. Enables athletes to more effectively select, recognize, and interpret meaningful, predictive visual information and perform perceptual processing and decision making on this information. In the case of complex scene pictures, junior level athletes may not be able to effectively select and process information quickly, or be disturbed by unwanted information or other information of the opponent.

#### 4. Conclusion

This paper studies the influencing factors of basketball players' decision-making speed and accuracy in sports training management. The development of the strategic objectives of sports training management in China must have a clear strategic vision and mission, and build a target system that conforms to the internal and external environment and the laws of sports training management itself. Strategic objectives must follow the natural law of sports training management, should follow the law of sports development, but also follow the law of development of a sports subject. Athletes consume less mental resources to restrain the interference of other unrelated stimuli, directly extract the location information of attention, call the mental resources in memory storage quickly, and accelerate the speed of information extraction. Thus, the correct rate of decision-making and reaction speed can be improved. The accuracy and speed of sports decision-making can be used as an important reference for the selection of high-level basketball

players. In addition to normal technical and tactical training and psychological training, low-level basketball players become the training focus of high-level basketball players. Normal teaching and training can improve the basic skills and tactics of junior basketball players, master certain sports knowledge, and improve their sports decision-making.

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