

Research on the Techniques and Tactics of the World Top Badminton Men's Double Combination by Coding Technology

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Abstract: This paper aims to apply digital coding technology and badminton men's technical and tactical statistics and analysis system, analyze data of men's doubles competition, provide statistical results of hitting skill hitting position and line, conduct correlation analysis of technical and tactical applications between oneself and opponents, and analyze historical events. In addition, the data is analyzed to provide an effective basis for athletes to develop combat plans before the game, timely and targeted adjustment of technical and tactics, and make comprehensive summary after the match.

1. Introduction

As a traditional competitive sport in China, badminton is an elegant sport with profound cultural connotations. At present, the International Badminton Federation has implemented new scoring rules. The new rules have a greater impact on the ball, which requires athletes to pay attention to the offensive consciousness and the ability of continuous offense, as well as to enter the state as soon as possible, and have good psychological quality. Technology is an important determinant of athletes' competitive ability. Tactics refers to the tactics and actions taken in order to defeat the opponents or to show the expected results of the competition. Badminton, as a skill-dominated antagonistic event, plays a decisive role in technology and tactics. It is of great significance to study the technical and tactical characteristics of men's doubles. Therefore, in order to comprehensively enhance the overall strength of Chinese men's doubles, it is necessary to scientifically study the characteristics of badminton competitive tactics and formulate training plans and actual combat plans comprehensively, systematically and pertinently.

2. Construction of digital coding technology analysis system

2.1. Structural framework of the system

The badminton men's doubles match analysis system mainly includes five modules: coding module, information acquisition and input module, information conversion module, data analysis module and information output module, as shown in Figure 1 below.

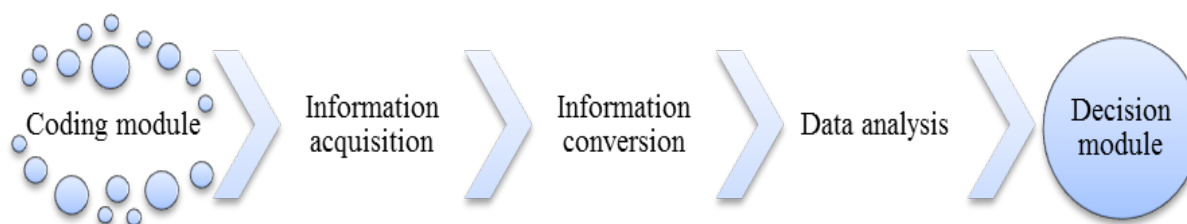


Figure1. Structure framework of the analytical system

The functions of each module in the system are shown in Table 1 below.

Table1. Classification of tax-related security threats

Module	Function
Coding	Convert the important information in badminton matches into corresponding codes
Information acquisition	Establish a docking window between the match and the system, and enter the match information according to the coding rules.
Information conversion	Converting code into corresponding information and storing it in the system in the form of data
Data analysis	Statistical and analysis of competition data to get the dynamic law
Decision module	Comprehensive analysis of data and output decision-making conclusions

2.2. Digital coding and index definition

The coding of the system includes players on the court, batting position, technique, line, landing point and quality. The badminton field area is divided into 24 technical and tactical statistical areas, each half field is divided into 12 areas. The specific division method is as follows: referring to the position of the players facing the ball on the ground, the field area is divided into front field, midfield, midfield and back field in the longitudinal direction, and the field area is divided into left, middle and right in the horizontal direction. The cross combination of the two can divide the half field into 12 areas, as shown in Table 2 below.

Table2. Field area division of data analysis system

Code	Area	Code	Code	Area	Code
1	Left front	2	Middle front	3	Right front
4	Left middle	5	Midfield	6	Right middle
7	Left rear	8	Mid back	9	Right rear
10	Left middle rear	11	Centre back	12	Right middle rear

When players face the net, the width of the left, middle and right sides of the field is the left, middle and right areas.

2.3. Coding of the players

The system represents the corresponding on-court players by numbers. In the singles match, the first serve code is 0 and the catch code is 1. In the doubles match, the code of the two players in the first serve is 0, and the code of the two players on the ball is 1, 1. The grip mode is an important basic information output system for athletes. The player code for the left hand grip is L, and the player code for the right hand grip is R.

2.4. Classification and definition of system technology

The technology in the badminton competition is complex and variable, so it can be divided into front field technology, midfield technology and back field technology. The technical classification and definition of this system is mainly based on the following three points: one is the traditional method of technical definition; the other is the demand for information by coaches and athletes; the third is the speed and practicalization of technical and tactical statistics.

3. Analysis of badminton men's doubles combination by digital coding technology

3.1. Application characteristics of the competition data analysis system

Using coding technology, the main information of badminton matches is input into software in the form of letters, numbers and symbols. The important information is processed and processed, and the correlation analysis is carried out. The field information needed by coaches and players is output, which provides the corresponding basis for coaches' on-the-spot command and athletes' next technical and tactical arrangements. According to the different preparation time, the software can be

applied in three aspects: on-site guidance, pre-match preparation and post-match summary. From the perspective of information application, software can provide basic information and relevant information. Among them, the basic information refers to the technical and tactical information of each athlete in a match. Relevant information refers to the corresponding information of athletes' skills and tactics on the court.

3.2. Analysis of the indicator setting and overall technical characteristics

The overall technical characteristics of badminton men's doubles can be divided into offensive, defensive and Offensive-Defensive balance. For offensive players, the ratio of killing balls is higher, while for defensive players, the ratio of picking balls is higher. Therefore, offensive and defensive index can be used to define the overall technical characteristics of a combination. The attack-defense index can be calculated by the ratio of the frequency of killing and picking in one or more matches.

3.3. Analysis of the indicator setting and station characteristics

Position index reflects the position of men's doubles players when they hit the ball on the court. In this statistical analysis system, the batting position is used for the statistics of each bat, that is, the position of the field corresponding to the instantaneous batting racket. Therefore, the position index is replaced by the batting position index. Due to there is a positive correlation between the position of the batter and the position of the players on the court. Therefore, it is feasible to adopt the same substitution criteria.

4. Analysis of techniques and tactics in badminton men's doubles match

4.1. Analysis of serving techniques and tactics

Through the analysis of this system, statistics show that the number of serving areas in men's doubles is the most, the number of serving areas is the second, and the number of serving areas is the least. It shows that the service of men's doubles now mainly consists of the inside corner ball and the pursuit ball, combined with the outside corner ball and the sneaky flat and flat fastball in the back court, so as to lay the foundation for winning the next bat initiatively. On the other hand, too single serve is not conducive to reaching the goal actively in the later stage, so in doubles matches, we should try to avoid single serve landing point. In doubles matches, we should give priority to serve in the front area, combined with stealing in the back field, so that it will be more helpful to hit the ball in the back round.

4.2. Analysis of catching skills and tactics

In doubles matches, the service is mainly served by small balls in the front area. Therefore, the change and difficulty of receiving service should be increased as much as possible in order to win an attack opportunity for the next bat of the doubles team. Systematic analysis shows that in the tactics of serving and receiving, because the opponent's backcourt application is less and more sudden, the receiving side usually can't quickly withdraw the jump shot, but more use of hurdle interception technology; while backhand high-distance and backhand high-hang are also aimed at backcourt ball, the service of men's doubles steals the backcourt, and the opponent can basically respond by hurdling and killing the ball. Only when the opponent is not prepared enough, can he fall into passivity and make a transition with a high-altitude ball or a drop ball.

5. Conclusions

In today's increasingly competitive international badminton arena, to maintain its prosperity, it must start from actual combat, scientifically study the technical and tactical characteristics of our opponents and their opponents, and formulate training plans and actual combat plans comprehensively, systematically and pertinently. Using the digital coding technology with strong operability and systematic decoding technology, it is possible to make comprehensive and

systematic statistics and analysis of badminton match techniques and tactics. Through the quantitative analysis of technology and tactics in this system, it can provide reference for the formulation of combat plans, the adjustment of technology and tactics in competitions, and the comprehensive summary after competitions.

Acknowledgement

Research on the technical and tactical modes of the world badminton elite men's singles players - and swot matrix analysis on the preparation strategies of china's men's singles players for the 2020 Olympic Games.

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