Research on the Attack and Defense Techniques of Chinese Women's Basketball Team and the Top Four Teams in the First Women's Basketball World Cup

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Abstract—**Research purposes: Chinese women's basketball team won the sixth place in the First Women's Basketball World Cup, producing the equalizer as in the sixth place in the previous Women's Basketball World Championships. Although the level of Chinese women's basketball team is rising on the whole, there is still a certain gap between the Chinese women's basketball team and the top four teams in the World Cup from the perspective of attack and defense. It is expected to find out the difference between the Chinese women's basketball team and the top four teams in the World Cup, so as to train the women's basketball team members in a scientific way and achieve the improvement of strength. Research methods: Starting with offensive and defensive techniques, this paper has made an analysis of the Chinese women's basketball team and the top four teams in the World Cup. Firstly, it analyzed the physical indexes of Chinese women's basketball team and the top four teams in the World Cup. Secondly, it uses SRS method to analyze the offensive and defensive techniques of Chinese team and the top four teams in the World Cup, and found out the reasons for the gap between the Chinese team and the top four teams. Research results and conclusions: According to the data analysis, the main reasons for the gap between the Chinese women's basketball team and the top four teams in the World Cup mainly lie in age, weight, low offensive rebound score, low free throw percentage, low defensive rebound ability and stealing ability. Therefore, this paper has put forward some countermeasures to improve the offensive and defensive skills of Chinese women's basketball team, including strengthening basic skills training, strengthening psychological pressure resistance training and model training, improving the players' ability of controlling and strain capacity, and learning from the training methods and concepts of strong foreign teams, hoping to effectively improve the offensive and defensive abilities of Chinese women's basketball team members.**

Keywords—women's basketball team; attack and defense techniques; Chinese team; top four teams in the World Cup

I. INTRODUCTION

In recent years, the development of basketball is very rapid, and the competence of basketball matches is developing in the direction of bigger and faster defensive sizes against strong attacks. In the international women's basketball match, there is a trend of feminization. Women not only have scoring ability, but also can change tactics in time [1]. In this Women's Basketball World Cup, China and Japan fought for the final eight. Chinese women's basketball team played well in offensive intensity and defensive hardness, withstood the pressure brought by the Japanese team at the last moment, and finally beat the Japanese team 87-81 and entered into the final eight. However, in the following matches, they lost successively, which shows that there is still a gap in overall strength between the Chinese women's basketball team and other world strong teams. Therefore, in-depth analysis of the offensive and defensive skills of the Chinese team and the top four teams can summarize the offensive and defensive characteristics of the four teams, but also can infer the development trend of the women's basketball team today, find out shortfalls Chinese women's basketball team should make up, and provides reference for the training and perfection of Chinese women's basketball team.

II. RESEARCH OBJECTS AND METHODS

A. Research Subjects

In this paper, Chinese Women's Basketball Team and the top four teams in the First Women's Basketball World Cup (the United States, Spain, Belgium and Australia) are the research objects.

B. Research Methods

1) Observational statistics: By watching the videos of the first Women's basketball World Cup about Chinese team and its opponents, the top four teams and their opponents, statistical tables are designed, statistical data are analyzed according to the needs, and search for information on the official website for comparison.

2) Rank Sum Ratio Method : Rank sum ratio (RSR) has the characteristics of continuous variables in 0-1 interval. In the interval, the larger the value, the better the evaluation object is. This paper divides the RSR value into five levels. The larger the RSR value, the stronger the offensive and defensive ability of the team. As shown in "Table I":

TABLE I.   LIST OF RSRS AND LEVEL EVALUATION CRITERIA

Level	A	B	C	D	E
Value	≥0.8	0.6-0.79	0.40-0.59	0.20-0.39	

3) Documentary method: In order to make the results of this study more realistic, searching for keywords related to "Chinese Women's Basketball Team, offensive and defensive ability, attack and defense techniques" in HowNet and school libraries for information retrieval, collecting relevant data from the official website of China Basketball Association, and studying a large number of literature books related to attack and defense techniques of basketball, which provides data and theoretical support for the study of this paper.

III.   BRIEF INTRODUCTION TO THE FIRST WOMEN'S BASKETBALL WORLD CUP

A. Brief Introduction to the First Women's Basketball World Cup

The predecessor of the Women's Basketball World Cup is the Women's Basketball World Championship, which was renamed "the Women's Basketball World Cup" in 2018. The Women's Basketball World Championship is an international basketball match held by the International Basketball Federation. It began in 1953 and has been held every four years since then. At present, it has held 17 sessions [2]. The women's basketball match in 2018 was held in Spain, from September 22 to 30, 2018. In the Women's Basketball World Cup, the United States beat Australia 73-56 to win the championship, Australia won the second place, and Spain beat Belgium 67-60 to won the third place. China missed the finals and won the sixth place.

B. Analysis of Physical Indexes of the Chinese Team and the Top Four Teams

Basketball level is constantly improving, so the requirement for the physical quality of basketball players is higher and higher. The better the physical quality of athletes, the higher the corresponding technical level they can master. Therefore, the research on the height, age and weight of athletes is also more important [3]. The following is a comparative analysis of the height, age and weight of Chinese, American, Australian and Spanish female basketball players.

1) Height comparison and analysis: From the data in "Table II", it can be seen that the average height of Chinese women's basketball team is 184.3 cm, ranking second among the five teams; the average height of the United States is 187 cm, ranking first; the average height of Australia is 183.7 cm, ranking fourth; the average height of Spain is 183.6 cm, ranking fifth; the average height of Belgium is 184, ranking third. Based on the above data, it can be seen that the height of the Chinese team and the other four top four teams is almost the same as that of the other three teams except for the difference of 2.7 cm between the Chinese team and the American team. Generally speaking,

height is not the main factor affecting China's failure in the World Cup.

TABLE II.   AVERAGE HEIGHT STATISTICS OF THE CHINESE TEAM AND THE TOP FOUR TEAMS IN THE WORLD CUP

Country	Average Height (cm)	Ranking
China	184.3	2
USA	187	1
Australia	183.7	4
Spain	183.6	5
Belgium	184	3

2) Age comparison analysis: From the data in "Table III", it can be seen that the average age of Chinese women's basketball team is 25.5a; the average age of American team is the same as Belgium team, at 27; the average age of Australia team is 27.5; the average age of Spanish team is 26. In the above average age ranking, the United States ranks first, and China ranks fifth. The average age of Chinese women's basketball team is relatively young. At present, the average age of the top four teams in the World Cup is in the range of 26-28. Compared with the four teams, the average age of Chinese women's basketball players is younger, so that they lack certain experience in matches, with relatively low on-the-spot performance, and the athletes do not reach the best sports age. But according to the collected data, although the average age of the Chinese team is young, the age range of the old, middle and young generation is obvious. Generally speaking, Chinese women's basketball team still has great room for improvement of strength. From the age data of the top four teams, the average age of the four teams is between 26 and 28. Taking data of age and height into account, the members of the top four teams have better physical condition, and have the dominant players in terms of height and age, which will help them to occupy a greater advantage in attack or defense.

TABLE III.   AVERAGE AGE STATISTICS OF THE CHINESE TEAM AND THE TOP FOUR TEAMS IN THE WORLD CUP

Country	Average Age	Ranking
China	25.5	5
USA	27	2
Australia	27.5	1
Spain	26	4
Belgium	27	3

3) Body weight comparison analysis: According to the data in "Table IV", the average weight of Chinese players is 76.4 kg, that of American players is 79.6 kg, that of Australian players is 77.8 kg, that of Spanish players is 77.4 kg, and that of Belgium players is 76 kg. The average weight of American players is the highest, and that of Belgium players is the lowest. In basketball matches, weight represents the strength to a certain extent. In terms of the average weight of the Chinese team, it belongs to the lower ranking team in the five teams. The average weight of the Chinese team is relatively light, and it is difficult to compete

with the other players physically in the field, but also unable to attack and defend by relying on their own weight. Only the team occupies a certain advantage in body weight, which can support it in the field of strength struggle.

TABLE IV. AVERAGE WEIGHT STATISTICS OF THE CHINESE TEAM AND THE TOP FOUR TEAMS IN THE WORLD CUP

Country	Average Weight (kg)	Ranking
China	76.4	4
USA	79.6	1
Australia	77.8	2
Spain	77.4	3
Belgium	76	5

Although the development of modern basketball is not only a giant sport, for women basketball players, only when their height, weight and age are in the best condition, can their physical quality support them to carry out more technical movements, and at the same time, can they cooperate with the whole team to achieve more tactical play [5].

TABLE V. STATISTICAL ANALYSIS ON RSR OF OFFENSIVE INDEXES OF CHINESE TEAM AND THE TOP FOUR TEAMS IN THE FIRST WOMEN'S BASKETBALL WORLD CUP

Team	Offensive Rebound	Assist	Fault	RSR	Ranking	Grade
China	10.32	20.73	15.07	0.52	5	C
USA	14.68	27.00	16.74	0.91	1	A
Australia	11.47	21.35	16.03	0.73	2	B
Spain	11.02	18.27	17.93	0.68	3	B
Belgium	10.73	16.21	15.82	0.60	4	B

From the data in "Table V", it can be seen that RSR of Chinese team is 0.52, and its offensive ability belongs to Grade C. The RSR of the U.S. team reached 0.91, and its offensive ability belongs to Grade A. Among the indicators of offensive rebounds, assists and faults, the other two indicators are above the other teams except the fault indicator, which shows that the team's ability is strong. The RSRs of Australia, Spain and Belgium are 0.73, 0.68 and 0.60 respectively. According to the grade standard, they are in Grade B. In this Women's Basketball World Cup, these three teams have won the second, third and fourth place respectively, which proves that all three teams have reached the level of B.

B. Analysis on RSR of Defense Techniques of the Top Four in the First Women's Basketball World Cup and Chinese Team

From the data in "Table VI", it can be seen that the RSR of China team is 0.58, which belongs to Grade C according

IV. ANALYSIS ON RSR OF ATTACK AND DEFENSE TECHNIQUES OF THE TOP FOUR IN THE FIRST WOMEN'S BASKETBALL WORLD CUP AND CHINESE TEAM

Basketball is a game in which more points are scored within a set time. Judging from the overall competitive settings of basketball, the victory of the game mainly concentrates on the team's offensive and defensive situations, and these two aspects are particularly important [6].

A. Analysis on RSR of Attack Techniques of the Top Four in the First Women's Basketball World Cup and Chinese Team

In basketball matches, if the integrals of two teams are the same, the net score will determine the rank of the game. This reflects the importance of attack in basketball matches, accelerates the pace of the game, and enhances the viewing of the game. Therefore, this paper begins with the analysis of attack techniques.

to the ranking standard; the RSR of American team is 0.88, belonging to Grade A, Australian team is 0.76, belonging to Grade B; the RSR of Spanish team is 0.69, belonging to Grade B; and Belgium team is 0.61, belonging to Grade B. Among the four indicators of the U.S. team, except for "defensive foul" and "score loss", other data are above those of other teams, indicating that the U.S. team has strong defensive ability and is the most defensive team among the five teams. Among the four indexes of Australia, Spain and Belgium, except for the two indicators of "defensive foul" and "score loss", the other data are mostly second to the United States, which shows that there is still a certain gap between the three teams, especially the Australian team, who lost to the United States by 56-73 in the final. Throughout the four indexes of the Chinese team, there is a big gap between the other four teams, indicating that the Chinese team still lacks certain training in defensive ability.

TABLE VI. STATISTICAL ANALYSIS ON RSR OF DEFENSE INDEXES OF CHINESE TEAM AND TOP FOUR TEAMS IN THE FIRST WORLD CUP

Team	Defensive Rebound	Defensive foul	Steal	Score loss	RSR	Ranking	Grade
China	36.82	10.73	6.00	76.30	0.58	5	C
USA	48.75	22.58	12.00	64.20	0.88	1	A
Australia	42.13	20.13	10.32	67.52	0.76	2	B
Spain	40.57	20.46	10.00	69.30	0.69	3	B
Belgium	38.64	19.34	8.84	71.40	0.61	4	B

C. Reasons for the Gap Between Opponents' Defense Techniques and the Chinese Team's Defense Techniques

From the data in "Table VII", it can be seen that there is a certain gap between the strength of the Chinese women's basketball team and the top four teams in the World Cup, especially in the free throws and offensive rebounds. There are significant differences between Chinese women's basketball team and the top four in the World Cup in free throws and assists, and there are very significant differences in offensive rebounds. This shows that the main reasons for the gap between the Chinese women's basketball team and the top four in the World Cup are the low score of offensive rebounds and the low percentage of free throws.

TABLE VII.   STATISTICAL TABLE OF OFFENSIVE INDEXES OF CHINESE WOMEN'S BASKETBALL TEAM AND THE TOP FOUR IN THE WORLD CUP

	Free throws	Offensive Rebound	Assist	Fault
Top Four (x±SD)	13.2±2.0	12.8±1.0	20.6±5.0	17.4±2.3
Chinese team (x±SD)	9.37±5.8	7.0±2.4	21.6±8.0	14.7±3.8
Difference value	3.83	5.8	-1.0	2.7
t	1.098	-0.152	-0.658	0.564
p	0.026	0.007	0.028	0.108

a. Note: $P < 0.05$ indicates that there is a significant difference between the two; $P < 0.01$ indicates that there is a very significant difference between the two.

TABLE VIII.   STATISTICS OF DEFENSE INDEXES OF CHINESE WOMEN'S BASKETBALL TEAM AND WORLD CUP TOP FOUR

	Defensive Rebound	Defensive Foul	Steal	Score Loss
Top Four (x±SD)	37.65±5.1	17.02±5.02	4.33±3.28	69.15±6.4
Chinese team (x±SD)	34.72±4.3	16.12±3.54	5.0±1.94	84.6±20.2
Difference value	2.93	0.90	-0.67	-15.45
t	0.53	2.874	0.214	-0.645
p	0.048	0.020	0.039	0.211

a. Note: $P < 0.05$ indicates that there is a significant difference between the two; $P < 0.01$ indicates that there is a very significant difference between the two.

From the data in "Table VIII", it can see that there is a certain gap between the Chinese women's basketball team and the top four in the World Cup in defense, especially in the defensive rebound, but the overall gap is not large. There are significant differences between Chinese women's basketball team and the top four in the World Cup in defensive rebound, defensive foul and stealing. It shows that the main reasons for the gap between the Chinese women's basketball team and the top four in the World Cup are the weak defensive rebounding ability and stealing ability.

V.   MEASURES TO IMPROVE THE ATTACK AND DEFENSE TECHNIQUES OF CHINESE WOMEN'S BASKETBALL TEAM

A. Strengthening Basic Skills Training

For Chinese women basketball players, in order to improve their offensive and defensive skills, the first thing is to strengthen basketball basic skills training [7]. Basic skill is very important for a basketball player. At the same time, basic skill is the best way to exercise the physical quality of basketball players. Only with good physical quality, can more technical and tactical actions be carried out. It is physical quality that restricts an athlete's ability to play. If one can't break through her physical quality again, she can't develop further in technique [8]. Reviewing the matches and survey data of the Chinese women's basketball team in the World Cup, it can be seen that there is a big gap in physical fitness between Chinese team and the top four teams, especially in physical confrontation, and there is a big gap with these European and American countries. For Asian basketball players, with the growth of age, their explosive power and speed will gradually decline. These are objective factors, but the strength will increase with the exercise of the human body. Only by strengthening their own muscle strength, can they better protect their body joints from injury in competitions and daily sports. Generally speaking, if the Chinese women's basketball team wants to compete with other top four teams, it should first strengthen the training of basic skills and promote the enhancement of muscle strength.

B. Enhancing Psychological Stress Resistance Training and Modeling Training

Athletes' competition venues are divided into home and away venues, and most of them will bear more psychological pressure when they play away. For international competitions, only one team of more than 10 teams is at home court, but in the World Cup, any team has great psychological pressure, and Chinese team is no exception [9]. The best result of Chinese basketball was the sixth place in the world championship and the sixth place in the first World Cup. However, with the increase of people's expectations, people always keep stricter demands on athletes, which make athletes under great psychological pressure during the game. In addition, they need to face all kinds of unexpected problems in the game, including temporary personnel adjustment, tactical changes and so on. This requires Chinese women's basketball players to be more resilient to psychological pressure [10]. Therefore, it is suggested that Chinese women's basketball players should strengthen the training of psychological pressure resistance ability, and strive to improve the ability of serving key balls and scoring balls in psychological pressure resistance training, so as to

maintain high psychological pressure resistance ability in various competition environments and ensure the effective play of tactics.

In addition to psychological pressure training, women's basketball players should also carry out model training. According to the analysis of the tactics of the Chinese women's basketball team, most of the Chinese women's basketball team attacked with the center of the inside line as the tactical center, and at the same time attacked a certain position or route in the outside line, because such a dismissal is efficient [11]. But in the game, if encounter the defense of all dead corners, the outside players will be difficult to pass the ball to the inside players, or even may be stolen, so that the whole team is difficult to achieve effective attack. Therefore, in the training of Chinese women's basketball team, it is necessary to strengthen the training of changeable mode transformation, to train women's basketball players' on-the-spot adaptability, so as to make them better attacking in the face of different teams and in the transformation of attack and defense. At the same time, it is necessary to enhance the offensive ability of the team's interior line, cultivate the sense of cooperation between the outside and the inside line, make use of the better three-point long-range shooting ability of the Chinese women's basketball team, realize the tactical training echoing strong attack of the interior line with coordination of the interior line, and form a characteristic playing method on its own basis [12].

C. Improving the Ability of Control and Contingency of Players

For the basketball team, the trainer should grasp the training of talents at all ages in the team and carry out echelon construction. It is suggested to actively introduce high-level foreign athletes, and encourage domestic athletes to go abroad for competitions, which will help them accumulate experience in large-scale competitions, and promote the improvement of personal ability. The Chinese team should also pay close attention to training more talented people, save reserve strength for the Chinese team, and ensure the long-term development of the team [13].

In basketball teams, there will be replacement of old and new players. Compared with Chinese women basketball players in the world championships, Chinese women's basketball team players in the first Women's Basketball World Cup are a new team, so it is urgent to cultivate a core player of the team. Core players are not only the key scorers of a team, but also the soul and spirit of the team. The core players of the team should have different and more sensitive judgment and control abilities from other players, make further adjustments according to the situation of the game in time, so as to drive the whole team to win the game. At present, Chinese women's basketball team lacks such a player with strong control and adaptability, so it is necessary to strengthen the training of such players. In the cultivation of core players, it is necessary to integrate the characteristics of the players themselves with the overall tactics of the team, and cultivate core players in a targeted way. With the ability and consciousness of core players, it is possible to promote the ability and consciousness of the whole team, so as to improve the competitiveness of the whole team [14].

D. Learning from the Training Methods and Concepts of Strong Foreign Teams

From the data analyzed in this paper, it can be seen that in the first Women's Basketball World Cup, the top four teams all have strong physical fitness and competition ability. Physical fitness can be caught up with acquired exercise, but competition ability needs effective training methods to shape. The Chinese women's basketball team should adhere to the concept of "go global & bring in". "Go global" is to let Chinese women's basketball players participate in more foreign competitions, for it can increase opportunities to compete with strong foreign teams. For example, after domestic players undergo the toughing of WNBA League matches, they can reflect on their own problems in actual competitions, and then conducting targeted, systematic messaging to improve their combat capabilities. "Bring in" means that Chinese women's basketball team should selectively absorb the tactics and playing methods of some strong foreign teams, draw lessons from the training ideas of strong teams, and integrate them with the characteristics of Chinese women basketball players to form their own training and tactical playing methods exclusively for Chinese women's basketball team [15].

VI. CONCLUSION

Through the understanding of the past matches of Chinese women's basketball team, the present Chinese women's basketball team has made great progress compared with the previous women's basketball team, both in the offensive and defensive capabilities. The overall strength of Chinese women's basketball team is also constantly improving, but in this Women's Basketball World Cup, the Chinese team in the face of strong teams such as team of Europe and the United States, still couldn't give play to a greater strength, which shows that there are still many problems in the Chinese women's basketball team. Therefore, this paper analyzed the Chinese women's basketball team and the top four teams in the World Cup through RSR method. Firstly, it analyzed the physical quality of the Chinese women's basketball team and the top four teams in the World Cup, and found out the gap between the Chinese team and the top four teams in physical quality. Then, it analyzed the Chinese team and the top four teams from attack tactics and defense tactics, and found out the gap between the Chinese team and the top four teams in offensive and defensive techniques. At last, in order to promote the progress of the overall strength of Chinese women's basketball team, four suggestions are put forward, namely, strengthening basic skills training, strengthening psychological pressure training and model training, improving the ability of players to control and respond to competition, and learning from the training methods and concepts of strong foreign teams, hoping to help Chinese women's basketball team achieve better results in future international competitions.

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