

## The effect analysis of Zhang Jike's return serve with backhand side-twisted at the 2/3 court right - 2012 London Olympic table tennis singles

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**Abstract:** with the methods of literature review and mathematic statistics, the paper analyzes the effect of Zhang Jike's return serve with backhand side-twisted at the 2/3 court right, providing some references to the enrichment of receive methods. The study holds that there is more stability and more chances of direct score for Zhang Jike with backhand side-twisted than with forehand drive. However, the positioning defect after the side -twisted receiving may lead to the passive situation.

**Keywords:** table tennis, 2/3 court right, backhand, return serve.

### 1. INTRODUCTION

As an important part of table tennis technique, return serve experiences a process from simple to complex with more means, methods, and more difficulty. Accordingly, the research concerned is being more in-depth. In a table tennis competition, players generally use forehand drive or drop shot to return serve within the limit of 2/3 court right. However, recent years excellent world-class players more often use backhand side-twisted to return serve instead. The study takes Zhang Jike, the grand slam winner, as an example to explore the technique and tactics of return serve he used with backhand side-twisted at the 2/3 court right in the 5 matches of 2012 London Olympic table tennis singles.

### 2. RESEARCH OBJECT AND METHODS

#### 2.1 Research object

The technique and tactics of return serve for Zhang Jike who used a backhand side-twisted at the 2/3 court right in 2012 London Olympic table tennis singles.

#### 2.2 Research methods

Based on the literature review of table tennis technique and tactics, 5 matches of 2012 London Olympic table tennis singles being selected, the study will interview Liu Guoliang, the men's national coach. Data collection and intelligent analysis system for table tennis authorized by Shanghai university of sport has

been used to calculate and analyze Zhang Jike, Wang Bo, Samsonov, Jiang Tianyi, Ovtcharov, and Wang Hao, who used backhand side-twisted to return serve.

Scoring rate = forehand (backhand) direct score / total receive  $\times 100\%$

Utilization rate = forehand (backhand) utilization times / total receive  $\times 100\%$

Success rate = forehand (backhand) success times / forehand (backhand) utilization times  $\times 100\%$  [1].

### 3. RESULTS AND ANALYSIS

#### 3.1 Comparison of success rate of return serve between forehand drive and backhand side-twisted for Zhang Jike at 2/3 court right

Within the limit of 2/3 court right, table tennis players usually receives with forehand drive when the opponents serve the ball out of the table, for the purpose of the use of forehand advantage and the smooth connecting of the next stroke, so that they can take control of the opponents and finally score. From the statistics of Zhang Jike's return serve, he has been found to break through the usual way players do, and use backhand side-twisted instead. In addition, the average success rate of backhand side-twisted is higher than that of the forehand drive, giving full play the advantage of backhand.

Table 1 is the comparison of success rate of return serve between forehand drive and backhand side-twisted for Zhang's 5 matches at 2/3 court right. It

shows that the success rates are 49% and 84% respectively, which means that there is more technical stability for him to use backhand than to use forehand. It should be noted that Zhang has a success rate of 82% in the competition versus Wang Hao by using 31 backhand side-twisted to return serve with 7 missing,

only 1 for forehand drive. In the competition against Jiang Tianyi, Zhang had a success rate of 94%, with 1 missing in 15 times. This breaks not only the players' habitual thinking, but the oneness with forehand drive only within the limit of 3/2 court.

Table 1 Success rate of return serve between forehand drive and backhand side-twisted for Zhang Jike

Opponents	forehand drive			backhand side-twisted		
	success	failure	success rate	success	failure	success rate
Wang Bo	0	0	0	17	3	85
Samsonov	4	2	67	24	6	80
Jiang Tianyi	8	2	80	15	1	94
Ovtcharov	3	3	50	15	4	79
Wang Hao	1	1	50	31	7	82
Average	3	2	49	20	4	84

### 3.2 Comparison of scoring rate and utilization rate of return serve between forehand drive and backhand side-twisted for Zhang Jike at 2/3 court right

Table 2 shows a direct scoring rate of 3% and utilization rate of 10% with forehand drive return serve in Zhang's 5 matches at 2/3 court right. Instead, there was a direct scoring rate of 14% and utilization rate of 51% with backhand side-twisted return serve, 11% scoring rate higher, presenting a big advantage in direct scoring with backhand side-twisted. Zhang broke the habit of forehand drive and used backhand side-twisted instead, with 41% utilization rate higher. It also

became his major return serve style at 2/3 court right. Especially in the competition versus Wang Hao and Wang Bo, the scoring rate reached 21% and 18% respectively, higher than that with forehand drive. In addition, in competition versus Wang Hao, Wang Bo and Ovtcharov, it was null for Zhang's forehand drive to return serve, while 21%, 18% and 16% respectively for his backhand side-twisted to return serve. It suggests that when it becomes more difficult to score immediately to use forehand drive if the opponents take closely control of serve and are well prepared for the player's forehand drive, the return serve with backhand side-twisted can score unexpectedly.

Table 2 Scoring rate and utilization rate of return serve between forehand drive and backhand side-twisted for Zhang Jike

Opponents	forehand drive		backhand side-twisted	
	Scoring rate	Utilization rate	Scoring rat	Utilization rate
Wang bo	0	0	18	59
Samsonov	5	10	6	48
Jiang Tianyi	10	24	7	38
Ovtcharov	0	14	16	43
Wang Hao	0	4	21	68
Average	3	10	14	51

### 3.3 Linkage analysis of return serve for Zhang's 2nd and 4th stroke with backhand side-twisted at 2/3 court right

Table 3 show the result of the linkage of return serve for Zhang Jike's 2<sup>nd</sup> and 4<sup>th</sup> stroke with backhand side-twisted at 2/3 court right. The result is that he took

control of the 4<sup>th</sup> stroke with backhand side-twisted 22 times, with 30 times in passive situation. There is a possibility of 42% to create chance for the 4<sup>th</sup> stroke to take control after the side-twisted returning serve, with a smooth link between the 2<sup>nd</sup> and 4<sup>th</sup> stroke. The analysis holds that there is a high spin at the time of Zhang's backhand side-twisted return serve so that it makes the opponent difficult to grasp the chance to attack. Furthermore, it is no easy thing getting used to this technical and tactical change. However, it is found a percentage of 58% in passive situation after the backhand side-twisted. The reason lies in the deficiency of the standing position at the 2/3 court after the side twist, for the player could only use backhand when he failed to get back to the original position if the opponent returned a body hit, which made the player

into a passive situation. When the opponent returns serve backhand at a big angle, it is difficult for the player's movement of the footwork to stand sideways immediately or backhand drive. Instead, he can only go back to the backhand position blocking, which easily brings the player into passive situation. Therefore, when using backhand side-twisted to return serve at 2/3 court right, it must be both a return with high quality and a timely restore to the original position, so that a smooth linkage for the next stroke is guaranteed.

It is also seen from Table 3 that there is a loss of 45% at the time the 4<sup>th</sup> stroke was under active control. We think it is because Zhang was much too worried to cause the deformation of action brought from the wrong time of hitting ball and missing footwork, thus leading to the low quality return or the loss.

Table 3 Linkage analysis of return serve for Zhang's 2<sup>nd</sup> and 4<sup>th</sup> stroke with backhand side-twisted at 2/3 court right

Opponents	the 4 <sup>th</sup> stroke (active)			the 4 <sup>th</sup> stroke (passive)		
	score	loss	total	score	loss	total
Wang Bo	2	1	3	0	4	7
Samsonov	3	2	5	0	8	8
Jiang Tianyi	2	1	3	0	2	2
Ovtcharov	1	1	2	1	2	3
Wang Hao	2	3	5	2	3	5
Total	12	10	22	4	23	30

### 3.4 Result analysis of ball placement for Zhang Jike's return serve with backhand side-twisted at 2/3 court right

Table 4 shows the result of ball placement for Zhang Jike's return serve with backhand side-twisted at 2/3 court right. It can be seen that there is an average of 68% utilization rate for Zhang to return serve to the middle route, and 21% and 11% to the opponent's backhand and forehand respectively. In general, the placement of his return serve at the center mostly and then the backhand position avoided the opponent to forehand counter loop. In actual competition, Zhang played different placement ball in terms of the different characteristics of every player. For example, in the competition against Jiang Tianyi, Zhang returned the serve at the center, with a 53% utilization rate, and a

percentage of 20% higher of placement ball at the backhand position of the opponent than the forehand position. It is believed that the opponent was a shake-hand holder, which made the oncoming ball from the middle difficult to play.

It can be seen from Table 4 that it is easier to score with 21% scoring rate when he returned serve to the middle of the opponent. On the other hand, the scoring rate is 8% and 3% respectively for him to return to the forehand and backhand position of the opponent. On most occasions, it had a strong spin when he returned serve to the middle so that he scored. In the competition against Ovtcharov, he even got a scoring rate of 40% for the middle placement ball.

Table 4 Result of ball placement for Zhang Jike's return serve with backhand side-twisted

Opponents	forehand position		middle position		backhand position	
	Scoring rate	Utilization rate	Scoring rate	Utilization rate	Scoring rate	Utilization rate
Wang Bo	12	12	24	76	0	12
Samsonov	4	17	13	63	0	21
Jiang Tianyi	13	13	0	53	7	33
Ovtcharov	7	7	40	80	0	13
Wang Hao	3	6	26	68	10	26
Average	8	11	21	68	3	21

### 3.5 Linkage analysis of return serve for Zhang Jike's 2<sup>nd</sup> and 4<sup>th</sup> stroke with backhand side-twisted to the different placements at 2/3 court right

Table 5 is the linkage result of return serve for Zhang Jike's 2<sup>nd</sup> and 4<sup>th</sup> stroke with backhand side-twisted to the different placements at 2/3 court right. It shows that there is null for him to return serve to the opponent's forehand position for him to take control, 1 in passive; 11 times in active action to return to the opponent's middle, 17 in passive; 6 to the opponent's backhand position with 5 in passive. It is found that Zhang more often returned serve to the middle route placement of

the opponent, which avoided the opponent to drive. However, there is only a percentage of 40% for the 4<sup>th</sup> stroke to take control. When he returned serve to the backhand position of the opponent, half of his balls were not played well during the confrontation, although he took control of the 4<sup>th</sup> stroke. On the contrary, the opponent grasped the chance to attack. In addition, there was only once for him to return serve to the forehand position of the opponent, for at the point the opponent could easily forehand counter loop to take control of the play. On the other hand, the placement at this point by the return could easily impede the opponent.

Table 5 Linkage of return serve for Zhang Jike's 2<sup>nd</sup> and 4<sup>th</sup> stroke with backhand side-twisted to the different placements

Opponents	forehand			middle			backhand								
	active	passive	total	active	passive	total	active	passive	total						
Wang Bo	+0	-0	+0	-0	0	+2	-0	+0	-4	6	+0	-1	+0	-0	1
Samsonov	+0	-0	+0	-0	0	+2	-1	+0	-6	9	+1	-0	+0	-3	4
Jiang Tianyi	+0	-0	+0	-0	0	+2	-0	+0	-0	2	+0	-1	+0	-2	3
Ovtcharov	+0	-0	+0	-0	0	+1	-0	+1	+2	4	+0	-1	+0	-0	1
Wang Hao	+0	-0	+1	-0	1	+0	-3	+1	-3	7	+2	-0	+0	-0	2
total	+0	-0	+1	-0	1	+7	-4	+2	-15	28	+3	-3	+0	-5	11

Note: "+" means score, "-" means loss.

## 4. CONCLUSIONS AND SUGGESTIONS

### 4.1 Conclusions

(1) There is a 11% success rate higher for Zhang Jike's return serve with backhand side-twisted than with forehand drive at 2/3 court right, which shows a more stability for him to use the technique to return serve within this limit.

(2) There is a higher scoring rate for Zhang's return

serve with backhand side-twisted, which creates the nervousness to the opponent and can more easily score immediately.

(3) There is only a percentage of 42% for the 4<sup>th</sup> stroke to take control after the return serve with backhand side-twisted at 2/3 court right.

(4) Zhang Jike more often returned serve with backhand side-twisted to the middle route placement of the opponent at 2/3 court right.

#### **4.2 Suggestions**

- (1) Zhang should have more drills on the use of forehand short ball and backhand long ball to return serve, in order not to be controlled by opponents
- (2) Zhang should go back to the original position immediately after the receive finishes, ready for the next stroke, so that he can avoid the opponent's playing body hit balls continuously when he stands on the right side of the table after he receives backhand side-twisted at 2/3 court right.

#### **REFERENCE**

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