

# **The Dynamic Analysis on Li Na's Winning Technical Index in Australian Open from 2013 to 2014**

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**Keywords:** Li Na; Australian Open; Winning; Index;

**Abstract.** The research of Li Na's effect of the skill application in the Australia Open during 2013-2014 is analyzed by the means of literature analyzed and date statistic. The research through the statistical analysis of dynamic data on Li Na two Australian Open tennis technique, tactical index analysis, and learned that Li Na won the 2014 Australian Open tennis champion, who mainly the key technique, the tactical index is Second Serve Points Won, Average Second Serve Speed, Receiving Points Won, Winners and Double Faults. These five indicators obviously advantage, which is significant differences with rivals.

## **Introduction**

As of January 2014, Li Na won the 9 WTA and 19 ITF singles champion; 4 times into the Grand Slam Tennis Women's singles final, finally, Li Na was harvest two champion; February 17, 2014, Li Na's World Ranking has come to the second of the world.

Competitive tennis involves physical, technique, tactical, mental quality and so on, play every hand from those will affect the athlete strength. It can objectively reflect Li Na competitive strength in the game through the two Australian Open data indication. So to Li Na's success and achievements should be both attributed to the different competitive strength of the level of individual and analyze its winning competitive rules more persuasive.

## **Subject**

Li Na and other WTA players; Karatantcheva, Govortsova, Cirstea, Goerges, A Radwanska, Sharapova, Azarenka, Konjuh, Bencic, Safarova, Makarova, Pennetta, Bouchard, Cibulkova.

## **Research methods**

### **Literature method**

This thesis consults 10 articles of literature about WTA singles tennis technique and tactics and so on, to provide reference for the study.

### **Mathematical statistics method**

Collection of Australian Open official website <http://www.ausopen.com> released data from 2013 to 2014, Li Na in the Australian Open 7 round of a total of 14 games, through the software SPSS16.0 test, by using the methods of comparative data analysis theory to explain that.

## Research results

### 2013 to 2014, a comprehensive analysis of the WTA tournament game of Li Na

Table 1 Li Na WTA competition results

	Shen Zhen	Sydney	Australian Open	Miami	Stuttgart	Madrid	Rome	French Open
2013	Champion	Semi-finals	Runner-up	Semi-finals	Runner-up	Round2	Round4	Round 2
2014	Champion	/	Champion	Runner-up	/	Round5	Round5	Round1

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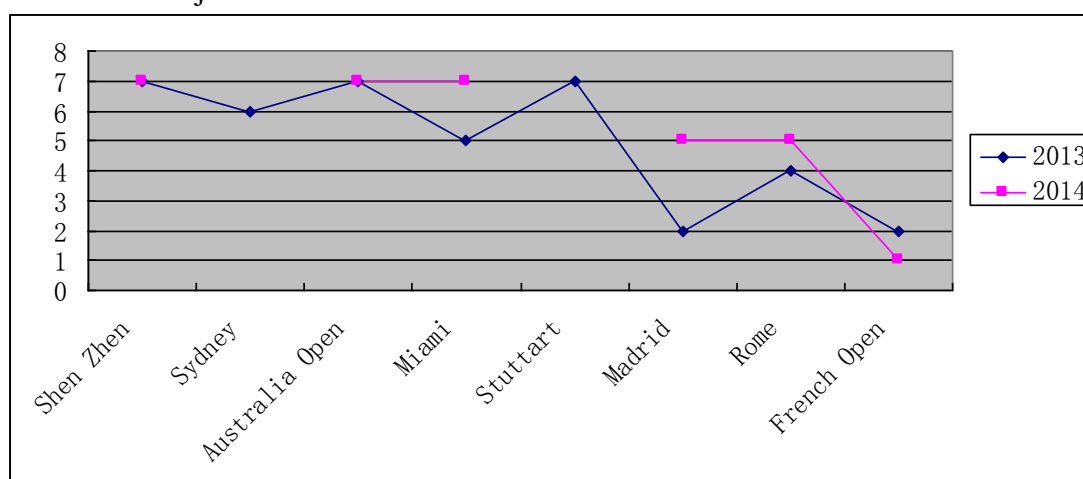


Figure 1 Li Na WTA competition performance trend

Drawn from the table, during two years Li Na is not different in the same games in competitive, and hard court more than red clay. (Hard court: Shen Zhen, Sydney, Australia Open, Miami; Red Clay: Stuttgart, Madrid, Rome, French Open.)

### Li Na from 2013 to 2014, the dynamic analysis of the Australian Open tactics index utilization effect

From table 2 statistic analysis; Li Na whose 14 technique index of Australian Open from 2013-2014 is not significant difference. It illustrate along with time, she still maintain a good competitive level.

14 technical data through the match results statistics; we summarize 5 kinds of category, category A: for the service class including Aces, First Serves In, First Serve Points Won, Second Serve Points Won, Double Faults, Fastest Serve, Average First Serve Speed, Average Second Serve Speed; Category B: for application of the technique and tactical, including Unforced Faults, Winners; Category C: for the Receiving, including the Receiving Points Won, Break Points Won; Category D: the tactics in the net, including Net Points Won; Category E: total score, including Total Points Won. This paper analyzes that;

#### Dynamic analysis of serve technique utilization effect

Serve technique into a group-category A, including Aces, First Serves In, First Serve Points Won, Second Serve Points Won, Double Faults, Fastest Serve, Average First Serve Speed, Average Second Serve Speed. According to table 2 learn that, Aces has decrease by 0.29 between two years,  $P > 0.05$ ; Double Faults decrease by 0.86,  $P > 0.05$ ; First Serves In decrease by 1.57%,  $P > 0.05$ ; First Serve Points Won rise 5%,  $P > 0.05$ ; Second Serve Points Won decrease by

2.15%,  $P>0.05$ ; Fastest Serve slow 0.57km/h,  $P>0.05$ ; Average First Serve Speed slow 1.43 km/h,  $P>0.05$ ; Average Second Serve Speed slow 0.42km/h,  $P>0.05$ . That is to say in the service technique, Li Na is instable in the index of Aces, First Serves In, First Serve Points Won ,Second Serve Points Won, Double Faults, Fastest Serve, Average First Serve Speed, Average Second Serve Speed, but all kind of index after SPSS inspection found no significant differences.

Table 2 statistics 14 technical indexes of 2013-2014 at the Australian Open, Li Na

	2013	2014	Dynamic Ratio	Significant	P Index
First Serves In	65.14	63.57	-1.57	0.157	$P>0.05$
Aces	2.86	2.57	-0.29	0.447	$P>0.05$
Double Faults	3	2.14	-0.86	0.531	$P>0.05$
First Serve Points Won	62.86	67.86	+5	0.655	$P>0.05$
Second Serve Points Won	50.86	48.74	-2.15	0.233	$P>0.05$
Fastest Serve	171.00	170.43	-0.57	0.020	$P>0.05$
Average First Serve Speed	159.86	158.43	-1.43	0.737	$P>0.05$
Average Second Serve Speed	139.71	139.29	-0.42	0.848	$P>0.05$
Net Points Won	59.86	66.57	+6.71	0.939	$P>0.05$
Break Points Won	68.29	54.29	-14	0.125	$P>0.05$
Receiving Points Won	53.57	51.71	-1.86	0.828	$P>0.05$
Unforced Faults	31.29	24.86	-5.71	0.298	$P>0.05$
Winners	23.43	21.71	-1.72	0.828	$P>0.05$
Total Points Won	72.57	66.86	-5.71	0.298	$P>0.05$

### Receiving

Receiving technique into a group-category B, including Receiving Points Won and Break Points Won. According to table 2 learn that, Receiving Points Won from 2013 to 2014 has decrease by 1.86%,  $P>0.05$ ; Break Points Won decreased by 14%,  $P>0.05$ . That is to say in the receiving technique utilization effect, Li Na is not only in Receiving Points Won has descent but also Break Points Won and that two index via the statistical T test, is not obvious in different.

### Techniques and tactics

Technical and tactical classified as category C, including Unforced Faults and winners. According to table 2 can be obtained, Unforced Faults reduced 6.43,  $P>0.05$ ; winning points less than 1.72 point,  $P>0.05$ . That is to say in the techniques and tactics, Li Na Unforced Faults has decreased and winners less, but via T test, which illustrated no significant different.

### Volley tactics

Volley tactics classified as category D, which in the 14 technical indexes is refers to the Net Points Won. According to table 2 can be obtained that the Net Points Won has increased from 59.86 to 66.57, an increase of 6.71%,  $P>0.05$ . That is to say, Li Na in the volley scoring rate has reminded, at that time still is not obvious.

### Total Points Won

Li Na from 2013 to 2014 the total scores less than 5.71 minutes,  $P>0.05$ . That is to say, Li Na total scores have decreased in Australian Open of two years, but it is not obvious.

## Analysis Australian Open 2013-2014 Li Na and rival of 14 indexes of dynamic

Table 3 statistics 14 technical indexes of 2013-2014 at the Australian Open, Li Na and rivals

	Li Na	Rivals	Dynamic ratio	Significant	P index
Aces	2.71	1.29	+1.42	0.286	P<0.05
Double Faults	2.57	4.64	-2.07	0.496	P<0.01
First Serves In	64.36	58.71	+5.65	0.644	P>0.05
First Serve Points Won	65.36	56.64	+8.72	0.924	P<0.05
Second Serve Points Won	49.79	33.79	+16.00	0.134	P<0.01
Fastest Serve	170.71	171.79	-1.08	0.022	P>0.05
Average First Serve Speed	159.14	155.93	+3.21	0.001	P>0.05
Average Second Serve Speed	139.50	131.71	+7.79	0.189	P<0.01
Net Points Won	63.21	68.29	-5.08	0.170	P>0.05
Break Points Won	61.29	39.07	+22.22	0.276	P<0.05
Receiving Points Won	52.64	40.57	+12.07	0.075	P<0.01
Winners	22.57	13.07	+9.5	0.648	P<0.01
Unforced Faults	28.07	24.57	+3.5	0.049	P>0.05
Total Points Won	69.71	56.86	+12.85	0.194	P>0.05

### Dynamic analysis of serve technique utilization effect

Serve technique into a group-category A, including Aces, First Serves In, First Serve Points Won, Second Serve Points Won, Double Faults, Fastest Serve, Average First Serve Speed, Average Second Serve Speed.

According to table 3 learn that, Li Na and opponent about the two Australian Open match situation. In Aces, Li Na contrast opponent was higher than 1.42, P<0.05; Double Faults relative to the opponent less 2.07, P<0; First Serves In relative to rivals 5.65%, P>0.05; First Serve Points Won than opponent 8.72%, P<0.05; Second Serve Points Won more than rivals 16%, P<0.01; Fastest Serve compared with rival slow 1.08km/h, P>0.05; Average First Serve Speed faster than rival 3.21km/h, P>0.05; Average Second Serve Speed is faster than opponent 7.79 km/h, P<0.01.

### Receiving

Receiving technique into a group-category B, including Receiving Points Won and Break Points Won. According to table 3 learn that, Receiving Points Won is more than the opponent 12.07%, P<0.01; Break Points Won compared to opponent more than 22.22%, P<0.05. That is to say in the receiving technique utilization effect, Receiving Points Won of Li Na difference compared with the opponent is very obvious; At the same time, Break Points Won difference obviously with opponent.

### Techniques and tactics

Technical and tactical classified as category C, including Unforced Faults and winners. According to table 3 learn that, Li Na is compare her opponent Unforced Faults more than 3.5, P>0.05; winner of Li Na more than his opponent 9.5 points, P<0.01. That Li Na in the Unforced Faults compared with competitors is not obvious, but at the winner, Li Na advantage over rival is very obvious.

### Volley tactics

Volley tactics classified as category D, which in the 14 technical index is refers to the Net Points Won. According to table 3 can be obtained at the Net Points Won, Li Na compare her rival less than

5.08,  $P>0.05$ , that is to say at this aspect Li Na with the opponent is not obvious in the T test.

#### **Total Points Won**

In the Total Points Won Li Na compared his opponents more than 12.85 points,  $P>0.05$ . That is to say, at the two Australian Open Li Na obtained total score more than her rivals, but it is not obvious.

#### **Enlightenment of Li Na technique and tactical remained stable in high level**

Li Na was born on 1982, in the present age, whether in tennis and other sports are over age stage. That is to say whatever body functions, physical level, Li Na is not dominant relative to her opponent, sometime she was in an inferior situations. In fact the body of Li Na function was good, although her along with the growth of the age, who has been maintained at the peak stage. At the same time as Li Na accumulated the match, who mental riper, strength stronger. This is praiseworthy for one's excellent conduct to an age of almost 32 year old athlete.

#### **Occupation spirit**

Since Li Na in the tennis sport has been all kinds of injuries, one of the most serious is knee injuries. Li Na has been in the same knee had 3 operation before she won the Championships of French Open in 2011. But Li Na basically attended the event insists on that to go to all lengths. This is mentioned in her autobiography.

#### **The level of coach**

Li Na has changed a number of coaches so far, including her husband Jiang Shan, Thomas, Mortensen and Rodriguez. Although Thomas led Li Na in her occupation career, help her became the first Chinese into the top fifteen players in year-end. In 2010, Li Na was under the guidance of Thomas and finally into the semifinals of Australian Open and won the Birmingham Champion. If as far as teaching result and the counseling effect is concerned, it is influence of Mortensen and Rodriguez on Li Na is significant and positive. French Open and Cincinnati match that two heavy championships proves that Mortensen and Rodriguez's coaching ability. Each coach has his own characteristics, and Li Na get progress is evident when her undergoing a number of coaches. Now Rodriguez is teaching Li Na.

#### **Family support**

When Li Na was a child, Chinese economy is very backward, that many people even don't know what tennis is. So at that time in China, tennis is not only rare but difficult to participate in. At that time Li Na's father some to take her out to the charge club play a game with a high level player, despite her family's economy is not very good. Because of family support, Li Na has insisted, and cause her rivals is high levels that her learned tennis technique so fast. In 2001, Li Na retired in the national team to back to the University, until director Sun Jinfang to talk to her back in private time, and later to allow players to "Dan Fei". "Dan Fei" means the country liberating player from constraint system into an occupation athlete. But it also means all expenditure or tedious trip need a team to work, even that you finish. To manage a team in need of a large sum of expenditure, If impossible to balance the input with output, it will be negative assets, or even bankruptcy, so this is a risk investment. And then Li Na's boyfriend Jiang Shan to support her, and Li Na mother also support her own dream, let Li Na put into tennis to be a occupation players and success at the same time her team gradually expands to professional.

#### **Commercial economy**

Li Na family economy is not good when her was childhood, when the country and the family for her to play tennis. But when Li Na's father died, her family economic has subversion. Li Na was trying her best to win the match because to change her family is in a bad economic state. Then Li Na won the Grand Slam also admits that the bonus is she a great momentum.

## Summary

From 2013 to 2014, Li Na has taken part in the Australia Open and has had fourteen matches. According to the difference examination (test), her fourteen dynamic indexes of fourteen items are stable. As far as I think, the skill of Li Na remained stable.

Comparing to Li Na herself, the data of her skill application effects change not-obvious during these two years. But compare to her opponents, most of the items have advantages. In conclusion, Li Na has the capability to win.

Li Na compare 14 indexes with her opponents in two years, the key point is Second Serve Points Won, Average Second Serve Speed, Receiving Points Won and Winners, serve the double fault less. The five advantage index is obviously has the dominant position for Li Na and help her reached the final game until won the 2014 Australian Open.

Li Na obtain such a high achievement is not accidental, in addition to a number of positive factors, a very significant point is that her own efforts. From unknown player to the public star until now one of the best players, who was experienced a lot of difficulties, a few top coach teaching.

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