

Research on Technical Diagnosis Method for Table Tennis Players

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Introduction

The direct aims of training activities are to change and develop players' competing ability and to make players' competing ability divert from present state to specific objective state. Competing ability is the skill that players must possess in practice and match and is the combination of players' physical, technical, intellectual and psychological abilities. But now there is still no method of quantitative analysis for technical ability.

The purpose of this paper is to provide a scientific diagnosis method according to characteristic of table tennis matches and to supply reference for coaches when they arrange training programme and control training process.

Methods

1. Subjects World champion players
2. Methods Evaluation of sections target

The norm of evaluation of sections target as following (%):

a) Singles

- * Section of attack after service: Scoring rate 60-70, Pass 60, Good 65, Excellent 70, and Utilizing rate 15-25.
- * Section of receiving service with attack: Scoring rate 30-50, Pass 30, Good 40, Excellent 50, and Utilizing rate 15-25.
- * Section of stalemate: Scoring rate 45-55, Pass 45, Good 50, Excellent 55, and Utilizing rate 45-55.

b) Doubles

- * Section of attack after service: Scoring rate 60-70, Pass 60, Good 65, Excellent 70, and Utilizing rate 25-30.
- * Section of receiving service with attack: scoring rate 55-65, Pass 55, Good 60, Excellent 65, and Utilizing rate 35-40.
- * Section of stalemate: Scoring rate 45-55, Pass 45, Good 50, Excellent 55, and Utilizing rate 35-45.

Results and Discussion

We made technical diagnosis of 20 matches for Chen Jing from August to September just before 24th Olympic Games. Table 1 shows the result of technical diagnosis for Chen Jing from August to September.

Table 1 Result of technical diagnosis for Chen Jing from August to September in 1988

	Section of attack after service		Section of receiving service with attack		Section of stalemate	
	Scoring rate	Utilizing rate	Scoring rate	Utilizing rate	Scoring rate	Utilizing rate
X	69	26	49	26	46	48
Norm	60-70	25-30	30-50	15-25	45-55	45-55

Table 2 Result of technical diagnosis for Chen Jing in 24th Olympic Games

	Section of attack after service		Section of receiving service with attack		Section of stalemate	
	Scoring rate	Utilizing rate	Scoring rate	Utilizing rate	Scoring rate	Utilizing rate
Horahov	50	24	75	24	50	52
L.H.F.	83	17	67	17	48	66
X	61	21	72	21	49	58
Norm	60-70	25-30	30-50	15-25	45-55	45-55

Table 3 Comparison of technical strength between Chen Jing/Jiao Zhimin and Hyun Junghwa/Yang Yongja before 24th Olympic Games

	Section of attack after service		Section of receiving service with attack		Section of stalemate	
	Scoring rate	Utilizing rate	Scoring rate	Utilizing rate	Scoring rate	Utilizing rate
C/J	64	26	57	34	51	40
H/Y	68	21	56	32	49	48
Norm	60-70	25-30	55-65	35-40	45-55	35-45
t	-0.482		0.141		0.333	
P	>0.10		>0.10		>0.10	

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Table 4 Section of receiving service with attack: Scoring rate
(Time)

87.2	56	(Against Yugoslav players in 39th World Championship)
87.2	46	(Against Polish players in 39th World Championship)
88.2	28	(England Open Match)
88.2	55.6	(Match in National Team)
88.6	44	(China Open Match)
88.8	61	(Wei Hai Cup)

Table 5 Section of stalemate: Scoring rate
(Time)

87.2	33	(Against Yugoslav players in 39th World Championship)
87.2	52	(Against Polish players in 39th World Championship)
88.2	33	(England Open Match)
88.2	45	(Match in National Team)
88.6	52	(China Open Match)
88.8	52	(Wei Hai Cup)

Table 6 Section of attack after service: Scoring rate
(Time)

87.2	62	(Against Yugoslav players in 39th World Championship)
87.2	62	(Against Polish players in 39th World Championship)
88.2	63	(England Open Match)
88.2	60.6	(Match in National Team)
88.6	69	(China Open Match)
88.8	68	(Wei Hai Cup)

Chen Jing's mean of scoring rate in section of attack after service 69% and in section of receiving service with attack 49% are good. This shows that Chen Jing is strong at the first three balls, her strong point is conspicuous. Her mean of scoring rate of stalemate 46% reaches the target of pass, so she has no conspicuous flaw in 3 sections.

Chen Jing won the gold medal of Women's Singles in 24th Olympic Games. Table 2 shows diagnosis result of the semi-finals and the finals of Women's Singles in 24th Olympic Games for Chen Jing.

Chen Jing's mean of scoring rate in section of attack after service 61% in the semi-finals and the finals reaches the target of pass her mean of scoring rate in section of receiving service with attack 72% is excellent and of stalemate 49% is pass.

We hold that table tennis matches both relate with players' level, play and with opponents' level, playing style and play. It goes on through disrupting opponents' effective techniques, carrying out players' effective techniques, controlling and anti-controlling, attacking and defending, it's a dynamic and changeable process, Some techniques may be restricted and some may be got full play when matching with different opponents. If techniques can be compensated in 3 sections, the player can win, otherwise the player will lose. The player who went into semi-finals and finals have almost same level, even if some won and some lose. The winner is very difficult to be all excellent in 3 sections and the loser is not all passed in 3 sections. This depends on who can get full play of her (his) strong-point to compensate her (his) weak-point. Chen Jing can gain the gold medal of Women's Singles in 24th Olympic Games just because she got full play of her strong-point of the first 3 balls, disrupted her opponents' tactics, carried out compensation in 3 sections.

Evaluation of sections target makes complex and random techniques of table tennis quantitatively. It can make coaches know the details of how the players utilized their techniques so that the coaches arrange training programme more effectively. It's an important reference to forecast the players' results.

In order to know details of Chinese players and foreign players before 24th Olympic Games, we used evaluation of sections target to diagnose techniques of Chinese players Chen Jing/Jiao Zhimin and South Korea players Hyun Junghwa/Yang Yongja, compared the results of diagnosis so as to know their technical strength

Chen Jing/Jiao Zhimin's scoring rate in section of attack after service is 4% lower than that of Hyun Junghwa/Yang Yongja, in section of receiving service with attack 1% higher, in section of stalemate 2% higher. There is no significant difference in scoring rate of 3 sections between 2 doubles examined by statistics. This shows that 2 doubles' technical strength is almost same. They all belong to the first class table tennis players in the world, they are all qualified for medal in 24th Olympic Games. The result is that Chen Jing/Jiao Zhimin got the silver medal, Hyun Junghwa/Yang Yongja got the gold medal.

Diagnosing players technical strength quantitatively with evaluation of sections target makes it possible to compare players both in China and abroad, especially to compare players who never matched each other. In this way we can know technical details of both sides, we can make effective plan and tactics for match.

Chen Longcan/Wei Qingguang took part in Men's Doubles in 24th Olympic Games. It's a no answer question before, that how is their technical state and tendency before the Olympic Game? But now we diagnose their techniques with evaluation of sections target, the answer shows clearly before us.

GRAPH 1: Section of attack after service: Scoring rate

GRAPH 2: Section of receiving service with attack: Scoring rate

GRAPH 3: Section of stalemate: Scoring rate

From these graphs, we can know that Chen Longcan/Wei Qingguang's 3 sections of techniques are on rising tendency. They have reached optimum state. This shows that 2 players have coordinated more and more by tacit agreement, their double techniques are more mature. They are qualified for medal in Olympic Games.

Chen Longcan/Wei Qingguang struggled hard and finally won the gold medal of

Men's Doubles in the Olympic Games.

The results and technical tendency graph diagnosed with evaluation of sections target make players' technical tendency quantitative, objective and clear. It's an important reference for coaches to control training process, arrange training programme and exercise amount, and to cultivate and maintain players' good form.

Conclusions

1. Evaluation of sections target can make complex and random ball games to be analysed quantitatively, it finishes the indistinct qualitative method.
2. Evaluation of sections target makes it possible to compare players both in China and abroad, especially to compare players who never matched each other.
3. Evaluation of sections target makes players' technical tendency quantitative, objective and clear.
4. Evaluation of sections target makes it possible to make comprehensive study of competing ability of table tennis players.