

Functional Evaluation for Table Tennis Players

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According to the clinical material of the past thirty years, we have made analysis of and summarized how to assess the functions of ranking table tennis players. The contents are as follows

The Physiological Features of Table Tennis Player

1. High tension of the central nervous system

A player during the match, whose cerebral cortex being in tense state, whose attention being quite concentrated should exactly analyse and decide what the changing tactic and technique of adversaries (it takes 0.3–0.5 sec for a ball to come). It demands the player's cerebral cortex to concentrate highly and quickly transform, especially the visual center must be in the tense state. Another factor is the emotion of the player in the match when he meets a strong opponent.

2. High technique

It is due to the fast striking speed, various gyration (more complicated than other ball games), the difference of ball placement within the table range that players should have overall technology and excellent technique (capable to attack, to cut the ball and be an all-out player). In the match, the player should keep the situation under control according to the variety of it and have a good grasp of the matching rhythm (the different speed, strength, gyration, etc.) to win the game.

3. Heavy load

A world competition often lasts for 9 days, and a ranking player will attend 30 matches or so. One match of three games will last 48'08" for the longest, if excluding the time of gathering the ball, the density will be 81.3 per cent. In the three games, the player has to wave his arm 1246 times and after the game, the pulse rate will be 102 bpm. Team competition is held three times per day including 9 matches 27 games, if excluding the time of gathering the ball, the real matching time is 86'24" to 327' and waving arm 2718 to 11314 times. If the player should move 1 meters and a half in each setback, then he will move 4077 to 16970 meters one day.

The load is even heavier when attending a world match. It always brings players various effects such as the busy schedule, the strong opponent, the changing of diet and sleep habit, new environment and time difference. It is beyond estimation for a player how he goes over physical and mental trail and pressure. It demands that every player should have strong will, overall technology, and all-round quality, especially the speed, sensibility, harmony and stamina of speed,

Table 1 Pulse rate, Blood Pressure and 3,000 m results

CLASS	MORNING PULSE (bpm)	BLOOD PRESSURE (mmHg)	3,000 m RESULTS	
			m	f
EXCELLENT	36-54	100-120/60-70	10'	13'
MIDDLE	54-66	120/70-80	11'	14'
BAD	over 60	over 120/90 or pulse pressure below 20	12'	15'

Table 2 Heartbeat and Heart Transfusion

	MALE	FEMALE
HEARTBEAT (ml)	86.1 ± 16.79	69.3 ± 16.8
TRANSFUSION (/min)	4.99 ± 1.15	4.16 ± 1.25

(mean ± S.D.)

Table 3 Pulmonary function

	VITAL CAPACITY (ml)	MAXIMUM BREATHING CAPACITY (l/min)	RESULTS		
			1"	2"	3"
MALE	4281	120.1	89.6	97.1	98.8
FEMALE	2904	79.3	89.5	97.3	98.9

Table 4 Reaction and Sensibility of Ophthalmic Electric

Speed of Welding Arm (sec)	Speed of Thumb Reaction (sec)	Sensibility of Ophthalmic Electric
0.524 ± 0.42	0.31 ± 0.025	3.5 ± 0.31

(mean ± S.D.)

Table 5 Classification of Body Quality

	PULLING-UP (times)	PUSH-UP (times)	ROPE-SKIPPING (30")	BENDING TOWARDS AT TWO ENDS
EXCELLENT MALE	30	50		40
FEMALE	7	30	200	30
MIDDLE MALE	20	40	150	30
FEMALE	4	20		20
BAD MALE	10	20	100	20
FEMALE	2	10		10

Contents of Assessment

1. Form and general qualities

- 1) Height: male 168–180 cm; female 158–170 cm
- 2) Weight: male 60–78 kg; female 55–65 kg
- 3) The difference between right and left upper arms measurement: male 2.39 cm; female 2.20 cm
- 4) The difference between right and left lower arms measurement: male 1.88cm; female 1.55cm
- 5) Build: well-proportioned, relatively long and leg, relatively light weight
- 6) Field of vision: normal or broader than common.

2. Special qualities

- 1) Classification of the functions of heart and blood vessel:
Table tennis players' PWC170: Male is 1405 ± 27 kg·m/min, female is 938 ± 26 kg·m/min.
Heart Apex Beat Curve (ACG): Table tennis players' $\overline{SF\overline{W}}/\overline{RF\overline{W}}$ is 7.47 ; 2.88 which is similar to endurance players' 7.07 ± 2.23 , evidently beyond power players' 5.24 ± 1.08 and speed players' 5.27 ± 1.43 .
- 2) Check up pulmonary functions: The vital capacity, maximum breathing capacity and vital capacity time of table tennis players. If compared with swimmers, runners and others, except the vital capacity is a little lower than others, all are stronger than them. Females' have not reached their due pulmonary function.
- 3) Check up nervous system
- 4) Assessment of body quality

3. Psychological quality

Vivacious players are fit for attackers while quiet ones for defenders. Nevertheless any type of players must have high level of self control and be brave, confident, resolute, sober-minded in the hot match, patient and able to play independently.

4. Assessment of comprehensive quality

Table tennis players must have comprehensive body quality and special quality as well as agility, speed, endurance, exposure force and coordinating power. Besides, they must also have a complete nervous system, always in speed conditions, noble moral level and very well self control.