

# CRITERIA FOR SELECTIVE 10-11 YEARS OLD FEMALE TABLE TENNIS ATHLETES IN HO CHI MINH CITY

Nguyen Quang Son<sup>1</sup>; Nguyen Quang Vinh<sup>2</sup>

## Abstract:

From the results of the study, the article focused on identifying morphological, physiological, technical, tactical criteria, neuro-psychological and physiological functions and establishing criteria for selective 10-11 years old female table tennis athletes in three different levels. Contributes to the initial selection of athletes in the entire multi-year training course of table tennis.

**Key words:** Criteria, norm, selective, athletes, table tennis.

## INTRODUCTION

Selective is the key to decide the athletic achievement and save the training costs as well as the athletic training effort. To develop, foster and perfect the criteria for selecting table tennis athletes in terms of morphology, physiology, techniques, tactics, neuro-psychological and physiological functions of the athletes' bodies following a process and in a rigorous and scientific system that is in line with the development of modern table tennis is considered a very important and necessary work.

## RESEARCH METHODS

During the study we used the following methods: References; Interview and discussion; Functional testing; Pedagogical examination; Neuropsychological examination; Mathematical statistics.

Researchers: 27 talented female athletes in table tennis from 10 to 11 years old in Ho Chi Minh City, have been practicing for 3 to 4 years.

## RESULTS AND DISCUSSION

**1. Determine the norms of morphology, physiology, techniques, tactics, neuro-psychological and physiological functions in the recruitment of 10 - 11 year old female table tennis athletes**

Using the method of analyzing and synthesizing documents, interviewing methods and determining the informing function, reliability and examining the pair correlation

between the norms, the criteria for selective female table tennis athletes from 10 to 11 years old were determined into two groups:

### *Conditional norms group:*

Physical norms: 30m running with sprint start (s); Throw shuttlecock far away (cm); Rope skipping in 1 minute (times); Hit the ball against the wall in 1 minute (times); Move to pick up 21 balls x 3m (s).

Technical norms: Diagonal line forehand loop in 1 minute (times); Diagonal line forehand and backhand push into the 1/8 box on table in 1 minute (times); Serve 20 balls alternately into the 30 x 30cm box near the net and at the bottom of the table (times) (10 forehand and 10 backhand).

Tactical norms: Diagonal line forehand and backhand loop in 1 minute (times); Attack 20 shots of serve and first attack (times) (spin down, dodge and loop 10 balls, move to the right and loop 10 balls) (times).

Norms of neuro-psychological functions: Single reflection test(ms); Selective reflection test(ms); Synthetic focusing test (bit per second); Ability to process information (p).

Norms of physiological functions: Heart function; Vital capacity (ml / kg); VO2 max (ml/min/kg); RPP; ACP.

*Extended norms group:* Types of nerve; Criteria for tactical awareness, training spirit of athletes; Genetic factors from parents, and the family's sporting tradition.

1. PhD, Ho Chi Minh City University of Physical Education and Sport

2. Associate Prof. Dr, Ho Chi Minh City University of Physical Education and Sport

Table 1. Selection criteria according to each norm of female table tennis athletes aged 10-11

| Element                        | Targets                                                                                               | Points |       |       |       |       |       |       |       |       |       |
|--------------------------------|-------------------------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                |                                                                                                       | 1      | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    |
| Physical                       | 30m running with sprint start (s)                                                                     | 7.04   | 6.79  | 6.53  | 6.28  | 6.02  | 5.77  | 5.51  | 5.26  | 5     | 4.75  |
|                                | Rope skipping in 1 minute (times)                                                                     | 114    | 119   | 124   | 130   | 135   | 140   | 146   | 151   | 156   | 161   |
|                                | Throw shuttlecock far away (cm)                                                                       | 490    | 518   | 546   | 573   | 601   | 628   | 656   | 684   | 711   | 739   |
|                                | Hit the ball against the wall in 1 minute (times)                                                     | 36     | 40    | 43    | 46    | 49    | 53    | 56    | 59    | 63    | 66    |
|                                | Move to pick up balls<br>21 balls x 3m (s)                                                            | 80.51  | 75.15 | 69.78 | 64.41 | 59.05 | 53.68 | 48.31 | 42.94 | 37.58 | 32.21 |
| Tactical                       | Diagonal line forehand and backhand loop in 1 minute (times)                                          | 45     | 47    | 49    | 51    | 54    | 56    | 58    | 60    | 62    | 64    |
|                                | 20 shots of serve and first attack (times)                                                            | 9      | 10    | 11    | 12    | 13    | 15    | 16    | 17    | 18    | 19    |
|                                | Diagonal line forehand loop in 1 minute (times)                                                       | 39     | 41    | 43    | 45    | 48    | 50    | 52    | 54    | 57    | 59    |
| Technical                      | Diagonal line forehand and backhand push into the 1/8 box on table in 1 minute (times)                | 34     | 36    | 38    | 40    | 42    | 43    | 45    | 47    | 49    | 51    |
|                                | Serve 20 balls alternately into the 30 x 30cm box near the net and at the bottom of the table (times) | 7      | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|                                | Single reflection test(ms)                                                                            | 260    | 250   | 241   | 231   | 221   | 212   | 202   | 192   | 183   | 173   |
| Neuro-psy-chological functions | Selective reflection test(ms)                                                                         | 382    | 367   | 353   | 338   | 324   | 310   | 295   | 281   | 266   | 252   |
|                                | Synthetic focusing test (bit per second)                                                              | 6.4    | 6.14  | 5.87  | 5.61  | 5.35  | 5.09  | 4.82  | 4.56  | 4.3   | 4.04  |
|                                | Ability to process information (p)                                                                    | 1.24   | 1.27  | 1.3   | 1.34  | 1.37  | 1.41  | 1.44  | 1.48  | 1.51  | 1.54  |
| Physiological functions        | Vital capacity (ml / kg)                                                                              | 23.59  | 26.62 | 29.64 | 32.66 | 35.68 | 38.71 | 41.73 | 44.75 | 47.77 | 50.79 |
|                                | Heart function                                                                                        | 12.42  | 11.81 | 11.2  | 10.59 | 9.99  | 9.38  | 8.77  | 8.16  | 7.55  | 6.94  |
|                                | VO2 max (ml/min/kg)                                                                                   | 35.49  | 37.66 | 39.83 | 41.99 | 44.16 | 46.33 | 48.5  | 50.67 | 52.84 | 55.01 |
|                                | Approximate anaerobic capacity ACP                                                                    | 5.63   | 5.91  | 6.19  | 6.47  | 6.75  | 7.03  | 7.31  | 7.59  | 7.87  | 8.14  |
|                                | Absolute anaerobic capacity RPP                                                                       | 7.03   | 7.32  | 7.62  | 7.91  | 8.21  | 8.5   | 8.8   | 9.09  | 9.39  | 9.68  |

**Table 2. Correlation coefficient between the selective factors of female table tennis athletes from 10 - 11 years old and their achievements**

| No.                                         | Elements                      | 1     | 2     | 3     | 4     | 5     | 6     |
|---------------------------------------------|-------------------------------|-------|-------|-------|-------|-------|-------|
| 1                                           | Competition achievements      |       | 0.929 | 0.925 | 0.92  | 0.855 | 0.87  |
| 2                                           | Physical fitness              |       |       | 0.871 | 0.933 | 0.838 | 0.779 |
| 3                                           | Tactics                       |       |       |       | 0.928 | 0.731 | 0.866 |
| 4                                           | Techniques                    |       |       |       |       | 0.714 | 0.776 |
| 5                                           | Neuro-psychological functions |       |       |       |       |       | 0.809 |
| 6                                           | Physiological function        |       |       |       |       |       |       |
| Multivariate factor correlative coefficient |                               | 0.972 |       |       |       |       |       |

**Table 3. Affecting proportion ( $\beta$ ) of the selective factors of female table tennis athletes aged 10-11 with their achievements**

| No.      | Elements                      | Affecting proportion |            |
|----------|-------------------------------|----------------------|------------|
|          |                               | Coefficient          | % exchange |
| 1        | Physical fitness              | 0.1426               | 13.25      |
| 2        | Tactics                       | 0.272                | 25.17      |
| 3        | Techniques                    | 0.2661               | 24.48      |
| 4        | Neuro-psychological functions | 0.2619               | 22.4       |
| 5        | Physiological functions       | 0.105                | 9.13       |
| $\Sigma$ |                               |                      | 94.43      |

## 2. Building criteria for selective female table tennis athletes aged 10-11

### 2.1. Building criteria for recruiting female table tennis athletes aged 10-11 according to the conditional norms group

Based on the results of the pedagogical examination, the test has built the selection scale (C scale) and classified according to the total points. The results are shown in Table 1.

Next, we have developed selection criteria that takes into account the impact of each factor of the recruitment of female table tennis athletes from 10 – 11 years old on their achievements, the results shown in tables 2 and 3.

The results in Table 2 and 3 show that all factors affect the athlete's performance. Among factors, tactics accounted for the highest proportion of 25.17% and physiological functions accounted for the lowest proportion of 9.13%. The total affecting proportion of factors is less than 100% (94.43%). The above shows that there are some other factors that affect the performance of the table tennis athletes that we have not studied yet.

Based on the grading scale, the classification criteria, the study developed the classification

criteria for the research group according to the affecting proportion, presented in Table 4.

**Table 4. The synthetic scorecard of classifying the selection of female table tennis athletes aged 10-11 according to the affecting proportion**

| Ranking   | Total score               |
|-----------|---------------------------|
| Excellent | $\geq 85.0$               |
| Good      | $66.1 \rightarrow < 85.0$ |
| Fair      | $47.2 \rightarrow < 66.1$ |
| Weak      | $28.3 \rightarrow < 47.2$ |
| Poor      | $< 28.3$                  |

### 2.2. Orientation for selective 10 - 11 years old female table tennis athletes according to the extended norms group

Based on the performance of testing norms, building criteria for the extended norms to recruit female table tennis athletes aged 10 - 11 shall be based on the following criteria:

*Types of nerve:* Near stable, near flexible, near exciting.

Based on the characteristics of the way athletes play we can choose the appropriate athletes such as: Athletes with the attack fighting style, the appropriate type of nerve is near exciting: Athletes with defensive fighting

style, appropriate type of nerve is near stable: the flexible nerve or near flexible is essential for athletes in general and table tennis athletes in particular.

*Criteria for tactical awareness, athletes' training spirit and genetic factors:*

- The athlete's potential development of form and actual physical, including height, balance and state of health.

Priority is given to athletes who have good performance but have the potential development (not developed yet).

- Ability to learn: Ability to learn movements (fast or slow), rhythm of movements, ability to combine movements. The athlete's flexible ability, polishing techniques (not restrained, reasonable and rhythmic), flexible ability to implement tactics in the competition.

Prioritize for the selection of athletes who learn rapidly technical movements, to repair fast-paced movements.

Choose flexible athletes, fast response in competitions.

- Qualities of will, strength and style in the training of athletes.

Priority is given to active, hardworking, persistent athletes in training and competition.

In conclusion: The results of the study have built the criteria for the selection of female table tennis athletes aged 10-11 in three different levels: building scorecard, classification table for each norm; the synthetic classification table and build the general selection scorecard which have the affecting proportion of the factors.

First, the C scale is used to evaluate each norm in each factor of the selection. In this way, the invisible selection criteria are considered equal; Not suitable for theoretical and practical training of athletes, but it is an easy way for coaches to test each specific norm in each athlete. Accordingly, propose suitable lesson plans to develop each norm that is still limited in the athletes.

Second, using the criteria to classify and select by each norm, each factor. This method is convenient for professionals to quickly, timely evaluate, classify, select athletes. But in this way, the coach can not generally recruit,

because the achievement of table tennis is a combination of medical, psychological, technical, tactical and physical elements of the athletes.

To overcome the disadvantages of the C scale and the classification criteria above, the research results have constructed a third way of selecting which concerns the affecting level of the elements of table tennis. By this way, the coaches can select each norm, each element and select generally with the affecting level of each factor on the athletes' performances.

## CONCLUSION

The results of the study have identified criteria for selective female table tennis players aged 10 - 11 according to the following two groups: conditional norms group (five norms of physical strength; three technical norms, two norms of tactics; 4 norms of neuropsychological functions; 5 norms of physiological function); Extended norms group (Type of nerve, tactical awareness, athletes' training spirit and genetic factors from fathers, mothers and sports tradition of the family). At the same time, the scoreboard has been set up according to the affecting proportion to be applied in the selective of female table tennis athletes aged 10-11.

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(Received 4/11/2017, Reviewed 15/11/2017, Accepted 28/11/2017.

Main responsible: Nguyen Quang Son  
Email: sonqn@upes.edu.vn