



THE CURRENT STATE OF SEPAKTAKRAW TECHNICAL SKILLS AMONG 13-14-YEAR-OLD FEMALE ATHLETES IN DONG THAP PROVINCE, VIETNAM

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Abstract:

Sepaktakraw has become one of the most prominent sports in the SEA Games and ASIAD. As a team-based discipline, it demands that players possess well-developed fundamental techniques to perform accurate movements and implement intricate strategies in both offensive and defensive play. This study aims to develop a set of assessment tests to evaluate the technical skill levels of 13–14-year-old female Sepaktakraw athletes in Dong Thap Province, Vietnam. The research applied widely recognized scientific methods in the field of physical education and sports, such as document review, surveys, pedagogical assessments, and statistical analysis. The sample included eight female athletes aged 13 to 14 from Dong Thap. Findings from the study confirmed six reliable tests for evaluating technical performance. The results also revealed a consistent level of technical ability among the participants, reflecting the characteristics of the broader sample group.

Keywords: technical tests, female athlete, Sepaktakraw, 13 - 14 years old, Dong Thap Province, Vietnam

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1. Introduction

Sepaktakraw is a traditional sport originating from Malaysia and widely popular across Southeast Asian countries. It was first introduced in the 15th century within the royal court of Malacca (Malaysia). Throughout its history, Sepaktakraw has undergone various transformations and has been known by different names. Today, the sport has become favored by many citizens around the world, as evidenced by the establishment of the International Sepaktakraw Federation (ISTAF) and the Asian Sepaktakraw Federation (ASTAF). It has also become an official competition event in the Asian Games [1], [2]. In 1990, Sepaktakraw was introduced to Vietnam. Although it is not yet part of the Olympic program or officially included in university curricula, the sport has made a meaningful contribution to Vietnam's athletic achievements [3].

Sepaktakraw is played on a small court, similar in size to a badminton court. The rules of the game are generally similar to those of volleyball, with the key difference being that players are not allowed to use their arms or hands. During the match, athletes can take turns and alternate responsibilities. A Sepaktakraw match typically lasts around 40 minutes, with high-intensity rallies lasting only between 4 and 8 seconds. As a result, the sport is considered to fall within the moderate-intensity activity range [4], [5].

As with many other sports, in addition to factors such as physical fitness, tactics, and mental preparedness, technical skills play a vital role in determining athletic performance. Sepaktakraw is a sport characterised by complex rallies and rapid ball movement, requiring athletes not only to possess good physical strength, sound tactical awareness, and mental resilience, but also a strong technical foundation. No matter how physically fit an athlete may be, without technical proficiency, effective performance is not possible, especially in Sepaktakraw, where a high level of skill and precision in movement is highly demanded. Therefore, to achieve high performance in Sepaktakraw, athletes are equipped with comprehensive and well-developed technical skills.

In Sepaktakraw, there are basic techniques that athletes must master before attempting more complex ones. These fundamental skills focus on the ability to control the rattan ball as accurately and effectively as possible. Most parts of the athlete's body can be used to control the rattan ball, except for the arms and hands, making the techniques for controlling the ball with other body parts quite challenging.

In Dong Thap, although Sepaktakraw has grown in popularity, the performance of the provincial Sepaktakraw team has not reached high levels compared to other regions, particularly among 13-14-year-old female athletes. This is due to both objective and subjective factors such as training time, physical development, and technical proficiency. However, the key factor affecting performance lies in the initial training process for developing physical fitness and technical skills, which has not been sufficiently effective.

Currently, the evaluation of an athlete's technical development relies on subjective observation, lacking a scientific basis and accuracy. As a result, the potential of athletes has not been fully developed, leading to missed sporting talents and ineffective coaching. For these reasons, I have chosen to pursue a research direction with the title: *"The Current State of Sepaktakraw Technical Skills Among 13-14-Year-Old Female Athletes in Dong Thap Province, Vietnam"*.

2. Methodology

2.1 Research Methods

2.1.1 Document Synthesis Method

This method involves referencing sources from both domestic and international authors to form the theoretical foundation, construct scientific hypotheses, define research objectives, and verify the results of the study.

2.1.2 Survey Method

This method seeks the opinions of experts, specialists, and coaches to identify technical assessment tests for 13–14-year-old female Sepaktakraw athletes in Dong Thap Province.

2.1.3 Pedagogical Testing Method

This method is used to test the technical assessment tests for 13–14-year-old female Sepaktakraw athletes in Dong Thap Province during the initial stage and pre-test phase.

2.1.4 Statistical Method

The data collected during the study is analyzed using statistical methods with SPSS 22.0 software.

2.2 Test Participants

Eight female Sepaktakraw athletes aged 13-14 from Dong Thap Province, Vietnam, participated in the test.

2.3 Surveyees

16 experts, specialists, managers, and university lecturers who have experience in Sepaktakraw training.

3. Results and Discussion

To assess the current state of technical skills of 13–14-year-old female Sepaktakraw athletes in Dong Thap Province, Vietnam, the study is conducted in two steps as follows:

- **Step 1:** Identify the technical assessment tests for 13–14-year-old female Sepaktakraw athletes in Dong Thap Province, Vietnam.
- **Step 2:** Evaluate the technical skills of 13–14-year-old female Sepaktakraw athletes in Dong Thap Province, Vietnam, with the chosen tests.

3.1 Identifying the technical assessment tests for 13–14-year-old female Sepaktakraw athletes in Dong Thap Province, Vietnam

To identify the technical assessment tests, the study was conducted through the following steps:

3.1.1 Step 1: Compile a list of technical assessment tests in Sepaktakraw from various sources and research studies by both domestic and international authors, including: Ha Kha Luan (1999) [6], Nguyen Xuan Hanh (2004) [7], Nguyen Hung Cuong (2014) [8], Le Tien Dung (2015) [9], Nguyen Xuan Thanh (2016) [26], Dang Ngoc Quang (2009) [10], Nguyen Xuan Thanh (2016) [11], Pham Viet Thanh (2019) [12], and Nguyen Cong Truong (2022) [13].

The study relied on two key principles to select the technical assessment tests:

- the tests are measurable, and
- the tests allow comparisons at individual, regional, and international levels [14].

Based on those principles, three criteria were set to select the tests:

- the tests are sourced from previously published research in reputable national or international publications;
- the tests require equipment or tools that are available in the area; and
- the tests are appropriate for the physical health of the age. After considering the criteria, eight tests were selected.

3.1.2 Step 2: Develop a questionnaire and conduct surveys with experts.

Two rounds of surveys were conducted with a 15-day interval between them. Both rounds utilized the same set of tests and were administered to the same group of respondents. The survey participants included 16 experts, administrators, and university lecturers, all of whom possess extensive experience in Sepaktakraw training.

To verify the consistency between the two rounds of survey results, a comparison was made using the Chi-square (χ^2) index, as shown in Table 1.

Table 1: Results of two surveys on the selection of technical evaluation tests of 13-14-year-old female athletes Sepaktakraw in Dong Thap province

Test		First (N = 16)		Second (N = 16)		χ^2	Sig
		Σ	%	Σ	%		
1	Juggling the shuttlecock with the instep for 1 minute (times)	58	72.50	59	73.75	0.04	0.84
2	Juggling the shuttlecock with the inside of the foot for 1 minute (times)	65	81.25	64	80.00	0.05	0.82
3	Double serves into the target area (points)	66	82.50	66	82.50	0.00	1.00
4	Team serves into the target area (points)	65	81.25	64	80.00	0.05	0.82
5	Sweeping kick attack into the target area (points)	52	65.00	51	63.75	0.03	0.85
6	Passing the shuttlecock into the target area (points)	65	81.25	64	80.00	0.05	0.82
7	Left-side attack on the target area (points)	74	92.50	73	91.25	0.10	0.75
8	Right-side attack on the target area (points)	74	92.50	73	91.25	0.10	0.75

Table 1 indicates that for all evaluation criteria across both survey rounds, the calculated chi-square values ($\chi^2_{\text{calculated}}$) are less than the critical value of $\chi^2_{\text{table}} = 3.84$ at a significance level of $\text{Sig} > 0.05$. This means that the differences between the two sets of results are not statistically significant. Therefore, there was a high level of consistency in the responses provided by the administrators, experts, and coaches across the two survey rounds.

Based on the survey results, the study selected tests that received a total score of more than 60 points in both rounds (equivalent to over 75% of the maximum score). Following this principle, the study identified six technical skill assessment tests appropriate for 13–14-year-old female Sepaktakraw athletes in Dong Thap Province, including:

- 1) juggling the shuttlecock with the instep for one minute (number of times),
- 2) double serves into the target area (points),
- 3) the team serves into the target area (points),
- 4) passing the shuttlecock into the target area (points),
- 5) left-side attack into the target area (points), and
- 6) right-side attack into the target area (points).

3.1.3 Step 3: Check the reliability and validity of the selected tests.

To determine the reliability of the selected tests, the study conducted two rounds of assessments with the athletes. The two testing sessions were separated by a five-day interval, and the testing conditions remained consistent across both rounds. After completing the assessments, the correlation coefficient (r) between the results of the two testing rounds was calculated for each test. The results are presented in Table 2.

Table 2: Reliability coefficient of technical evaluation tests of
 Sepaktakraw female athletes aged 13 - 14 in Dong Thap province

No.	Test	First		Second		Pearson reliability index	
		\overline{X}	S	\overline{X}	S	r	Sig
1	Juggling the shuttlecock with the inside of the foot for 1 minute (times)	54.50	3.54	54.13	4.08	0.97	0.01
2	Double serves into the target area (points)	26.25	1.85	26.38	2.12	0.93	0.01
3	Team serves into the target area (points)	26.63	1.65	26.88	1.54	0.97	0.01
4	Passing the shuttlecock into the target area (points)	26.25	1.56	26.75	1.64	0.95	0.01
5	Left-side attack into the target area (points)	27.50	1.94	27.75	1.48	0.96	0.01
6	Right-side attack into the target area (points)	28.13	1.83	28.50	1.50	0.93	0.01

The data presented in Table 2 show that all the technical assessment tests for female Sepaktakraw athletes aged 13–14 in Dong Thap province achieved a reliability coefficient greater than 0.9, with a significance level of sig = 0.01. This indicates that all the tests have a high level of reliability and are suitable for evaluating the technical skills of the research participants.

To examine the validity (predictive value) of the tests, the study calculated the validity coefficient by assessing the correlation between the technical test results and the athletes' actual performance (based on round-robin competition rankings). The Spearman correlation coefficient formula [15] was used for the analysis. The results are presented in Table 3.

Table 3: Correlation coefficients between the technical tests and the actual competition performance of female Sepaktakraw athletes aged 13–14 in Dong Thap province

No.	Test	r	P
1	Juggling the shuttlecock with the inside of the foot for 1 minute (times)	0.83	<0.05
2	Double serves into the target area (points)	0.75	<0.05
3	Team serves into the target area (points)	0.76	<0.05
4	Passing the shuttlecock into the target area (points)	0.72	<0.05
5	Left-side attack into the target area (points)	0.86	<0.05
6	Right-side attack into the target area (points)	0.84	<0.05

The results of the six technical tests demonstrate a significant correlation between the technical skill and the actual competition performance of the Dong Thap female Sepaktakraw athletes ($r > 0.4$ and $P < 0.05$). This indicates that these tests have a strong relationship with competitive outcomes and thus meet the criteria for validity. Therefore, they are suitable for evaluating the technical proficiency of the target athlete group.

Through the steps of document synthesis, expert consultation, reliability testing, and validation analysis, the study successfully identified six appropriate technical

assessment tests. These tests were selected based on their reliability, practicality, and relevance to the specific characteristics of the athletes and training conditions in Dong Thap province.

The selected tests include:

- Juggling the shuttlecock with the instep for 1 minute (times),
- Double serves into the target area (points),
- Team serves into the target area (points),
- Passing the shuttlecock into the target area (points),
- Left-side attack into the target area (points),
- Right-side attack into the target area (points).

3.2. Technical skills of 13-14-year-old female athlete Sepaktakraw in Dong Thap province

To assess the current technical performance of the 13–14-year-old female Sepaktakraw athletes from Dong Thap province, the study conducted evaluations using the selected technical tests. The results, including the calculation of mean values, standard deviations, coefficients of variation, and relative errors of the mean values, are presented in Table 4.

Table 4: Technical performances of Sepaktakraw
 13-14-year-old female athletes in Dong Thap province

No.	Test	Result			
		\bar{X}	S	Cv%	✱
1	Juggling the shuttlecock with the inside of the foot for 1 minute (times)	54.50	3.54	6.49	0.05
2	Double serves into the target area (points)	26.25	1.85	7.06	0.05
3	Team serves into the target area (points)	26.63	1.65	6.21	0.05
4	Passing the shuttlecock into the target area (points)	26.25	1.56	5.95	0.05
5	Left-side attack into the target area (points)	27.50	1.94	7.04	0.05
6	Right-side attack into the target area (points)	28.13	1.83	6.52	0.05

The data in Table 4 shows:

- *Juggling the shuttlecock with the inside of the foot for 1 minute (times)*: The average performance achieved was 54.50 ± 3.54 , with a coefficient of variation (Cv%) of 6.49, which is under 10%. This indicates a high level of consistency in performance among the 13–14-year-old female Sepaktakraw athletes from Dong Thap province. The relative error (ϵ) of 0.05 further supports that the mean value is representative of the sample group.
- *Double serves into the target area (points)*: The average score reached was 26.25 ± 1.85 , with a coefficient of variation (Cv%) of 7.06, also under 10%. This suggests that the performance in double serves is fairly consistent among the athletes. With a relative error (ϵ) of 0.05, it indicates that the mean value accurately represents the sample set.

- *Team serves into the target area (points)*: The average performance achieved was 26.63 ± 1.65 , with a coefficient of variation (Cv%) of 6.21, which is less than 10%. This demonstrates a high level of consistency among the athletes. The relative error (ϵ) of 0.05 confirms that the mean value is representative of the sample group.
- *Passing the shuttlecock into the target area (points)*: The average score reached was 26.25 ± 1.56 , with a coefficient of variation (Cv%) of 5.95, also under 10%. This indicates that the performance in passing the shuttlecock into the target area is quite consistent among the athletes. With a relative error (ϵ) of 0.05, it supports that the mean value accurately represents the sample set.
- *Left-side attack into the target area (points)*: The average performance achieved was 27.50 ± 1.94 , with a coefficient of variation (Cv%) of 7.04, which is less than 10%. This shows a high degree of consistency in this skill of the athletes. The relative error (ϵ) of 0.05 also indicates that the mean value accurately represents the sample group.
- *Right-side attack into the target area (points)*: The average score achieved was 28.13 ± 1.83 , with a coefficient of variation (Cv%) of 6.52, which is also under 10%. This indicates a high level of consistency among the athletes. The relative error (ϵ) of 0.05 confirms that the mean value is a reliable representation of the sample group.

The analysis above shows that the mean values of most of the technical assessment tests for 13-14-year-old female Sepaktakraw athletes from Dong Thap province exhibit high consistency and accurately represent the sample group, as the relative error (ϵ) is 0.05. These results demonstrate that the research sample is reliable, consistent, and representative, allowing for further studies to proceed.

4. Conclusion

The study has identified six technical assessment tests for 13-14-year-old female Sepaktakraw athletes from Dong Thap province, including: Juggling the shuttlecock with the instep for 1 minute (times), Double serves into the target area (points), Team serves into the target area (points), Passing the shuttlecock into the target area (points), Left-side attack into the target area (points), and Right-side attack into the target area (points).

These tests show high consistency and accurately represent the sample group, as the relative error (ϵ) is 0.05, ensuring reliability, consistency, and representativeness.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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