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Technical status of men 's badminton team athletes at Saigon University, Vietnam

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Abstract
The purpose of the article is to provide accurate, scientific and comprehensive information on the techniques of male badminton athletes at Saigon University. The article uses the methods of document synthesis, interviews and statistics. The research subjects included 15 male athletes of the badminton team of Saigon University. The selected results are 06 technical evaluation tests including: 20 backhand serves into the service box (shot); 20 forehand serves into the service box (shot); 20 overhead backhand shots into the service box (shot); 20 overhead forehand shots into the service box (shot); 20 drop shots into the service box (shot); 20 smashes into the service box (shot). The assessment results show that the testing performance of technical tests for male athletes recruited from Saigon University is consistent and high.

Keywords: Badminton, current, technique, player, Saigon University, Vietnam

Introduction

Badminton is the most popular sport in Vietnam, especially in Ho Chi Minh City. It is a fascinating sport that is suitable for people of all ages and is often played as a casual outdoor activity in the yard or on the beach. Badminton originated between the British and Indians and then spread throughout the world (Dam Tuan Khoi, 2012) [5]. The sport was introduced to Vietnam in 1960, later than some other sports such as football, volleyball, and athletics. However, it has quickly developed throughout the country. The development of badminton is in line with the economic conditions of Vietnam, as well as the physical structure, fitness, and moral qualities of the Vietnamese people. In addition, badminton is an official Olympic, Sea Games, and Asian Games sport, and it is also on the list of key sports for Vietnamese sports (Banh My Le, Hau Chinh Khanh, 2000) [2].

Badminton is a non-cyclical sport that operates in a situational manner. Movements in badminton are constantly changing in structure and intensity, depending on the actions of teammates or opponents. The nature of badminton is that the racket touches the shuttlecock for the shortest possible time, but the body is active for a long time with a fast, changing, and powerful speed. At the same time, athletes must know many different movement techniques to touch the shuttlecock with the racket and control it accurately (Tran Van Vinh, Dao Chi Thanh, 2003) [23].

With its high level of competition, constantly changing and unexpected situations, badminton techniques are very diverse and rich. This richness is doubled in competition. The situations are very diverse and decisive, and the objective conditions for performing techniques are also more complex, such as: The spin of the shuttlecock (speed, direction of flight, spin, direction of spin), the intentions and resistance of the opponent, the position of oneself and teammates, etc., leading to the variation of techniques (Kerry Ann and Lieshout, 2002) [9]. To suit the circumstances of the situation, athletes cannot mechanically apply the basic technical elements that have been trained, but also have to create new technical techniques, which are essentially variations of basic techniques (D Cabello Manrique and J J González – Badillo, 2003) [4]. The techniques in badminton are usually a combination of movements that require high accuracy and a very delicate sense of power, in order to accurately control the shuttlecock. The flight path of the shuttlecock is created with a variety of features, such as spin (spin, direction of spin), speed (can be very fast and powerful in smashes or very slow and light in drop shots) (M K Chin, A S Wong, R C So, O T Siu, K Steininger, D T Lo, 1995).

To attain the optimal badminton achievement, it is required that the process of learning and training are done carefully, systematically, and continuously from the early age Singer, 1980 (Singer Robert N., 1980) [21] and Schmidt, 1991 [20] (Schmidt, R.A., 1991) [20]. Hence, the coaches need the learning method and training that can be used as a guide for badminton coaches in Indonesia, in order to control the learning and training process to achieve the goal effectively and efficiently (Subarjah, H., 2018) [22]. To train techniques, there are many methods, models, and exercises used by coaches. The nature of badminton is that the racket touches the shuttlecock for the shortest possible time, but the body is active for a long time with a fast, changing, and powerful speed. At the same time, athletes must know many different movement techniques to touch the shuttlecock with the racket and control it accurately. Therefore, accurately evaluating the technical status is the basis for selecting methods and exercises suitable for the technical level of the athlete, which is an extremely important and necessary task. With the importance of this, we chose the article: "The Current State of the Techniques of Male Athletes of the Badminton Team of Saigon University, Vietnam."

The purpose of the article is to identify tests to evaluate the current state of the techniques of male athletes of the Badminton Team of Saigon University, Vietnam.

Research method

The article uses the following research methods:

Literature review and analysis method to collect information about the theoretical basis related to the article as a basis for selecting evaluation tests and discussing research results.

Interview method to collect opinions from experts,

professionals, and lecturers to select technical evaluation tests for research subjects.

Statistical methods to process and analyze the data obtained, the article uses basic statistical formulas such as: Mean, standard deviation, coefficient of variation, relative error of the mean, Pearson correlation coefficient (reliability), Spearman (communication).

Research subjects

Subjects for testing and evaluating the current state: 15 male athletes of the Badminton Team of Saigon University.

Interview subjects: 30 people (4 managers, 6 badminton coaches, and 20 lecturers teaching Physical Education in general and badminton in particular in Ho Chi Minh City).

Research methods

1. Determination of technical assessment tests for male athletes recruited from Saigon University

In order to determine the technical assessmenttests for male athletes recruitedfrom Saigon University, the project shall be carried out according to the following procedures:

- **Step 1:** Collecting and completing tests that have been used (inside and outside the country) in training skillfully for badminton athletes such as: Nguyen Hac Thuy (1997) [13]; Vietnam Badminton Team Training Board (2000) [1]; Banh My Le, Hau Chinh Khanh (2000) [2]; Nguyen Hac Thuy, Nguyen Quy Binh (2000) [14]; Gunalan, D.P (2001) [8]; Nguyen Van Duc (2002) [16]; Tran Van Vinh, Dao Chi Thanh, Phan The De (2003) [23]; Nguyen Tien Tien (2005) [15]; Nguyen Xuan Binh (2005) [17]; Le Hong Son (2006) [10]; Chau Vinh Huy (2007) [3]; Nguyen Xuan Thanh (2007) [18]; Pham Viet Thanh (2011) [19]; Dam Tuan Khoi (2012) [5]; Le Nguyet Nga, Nguyen Quang Vinh, Nguyen Thanh De (2016) [11]; refer to the experience of coaches, experts, take turns to reduce some inappropriate tests, the article has selected the technical evaluation tests in accordance with the technical characteristics of badminton and the practical conditions of male badminton players at Saigon University.

- **Step 2:** Eliminate less feasible tests, with little value for selected articles, there are 16 technical evaluation tests for research subjects.

- **Step 3:** Collecting opinions of managers, training quickly and lecturing by questionnaire. 30 interviewed subjects including: 4 managers, 6 badminton coaches and 20 lecturers teaching Physical Education in general and badminton in particular in Ho Chi Minh City. (the topic is issued twice every 4 weeks)

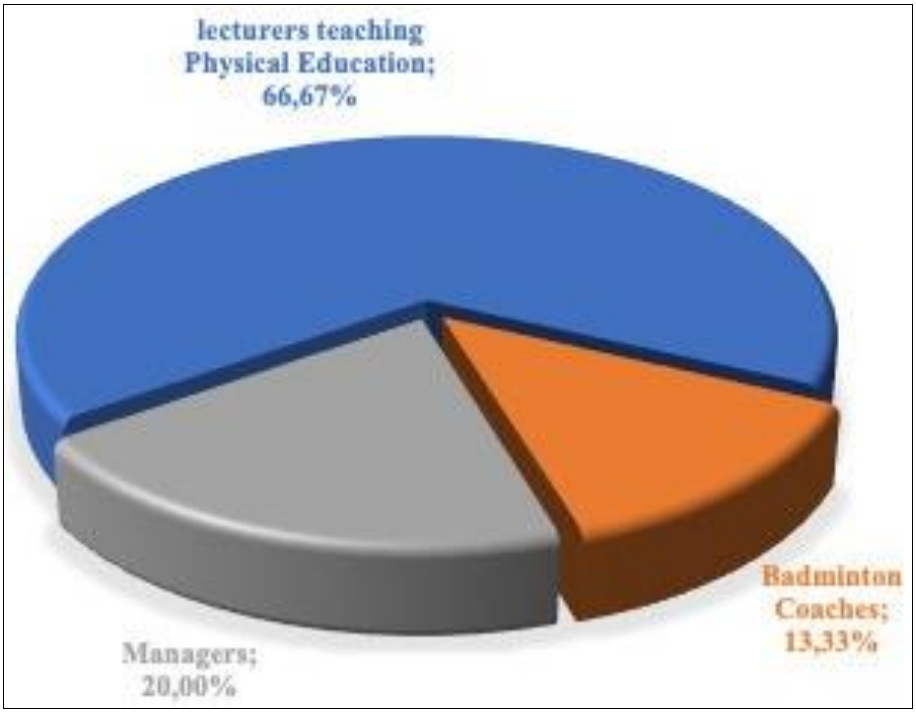

Chart 1: Percentage of interviewed subjects for tests

The content of the interview is to determine the priority level of the tests at 3 levels:

- Normally used (3 points)
- Less used (2 points)
- Not used (1 point)

Table 1: Interview results to determine the technical assessmenttests of male students of the badminton team of Saigon University

No.	Test	1st attemp (n=30)		2nd attemp (n=30)	
		Total score	Percentage (%)	Total score	Percentage (%)
1	Left-handed service 20 times into the service box (shot)	81	90.00	80	88.89
2	Drop shot diagonally 10 times into the service box (shot)	68	75.56	67	74.44
3	Cross-court smash 20 times into the service box (shot)	69	76.67	70	77.78
4	Move and hit the shuttlecock into the service box 10 times (shot)	71	78.89	69	76.67
5	Drive along the side 10 times into the service box (shot)	62	68.89	63	70.00

6	High service with the right hand 20 times into the service box (shot)	80	88.89	81	90.00
7	High lift with the left hand 20 times into the service box (shot)	82	91.11	83	92.22
8	High lift with the right hand 20 times into the service box (shot)	83	92.22	84	93.33
9	Drop shot diagonally 20 times into the service box (shot)	85	94.44	84	93.33
10	Drive with the right hand 20 times into the service box (shot)	77	85.56	76	84.44
11	Deep lift 20 times into the service box (shot)	68	75.56	67	74.44
12	Low service 10 times into the service box (shot)	62	68.89	61	67.78
13	High service 10 times into the service box (shot)	68	75.56	67	74.44
14	Deep lift with the right hand 10 times into the service box (shot)	68	75.56	69	76.67
15	Cross-court smash 20 times into the service box (shot)	64	71.11	65	72.22
16	Drop shot with the left and right hands 10 times into the service box near the net (shot)	66	73.33	67	74.44

Based on the results of the interviews in Table 2.1 above, the paper selects tests that have been selected by over 80% of the respondents. The paper selects 6 technical tests to assess the skills of male badminton players of the Saigon University badminton team.

- **Step 4:** Verify the reliability and informativeness of the tests.

Verification of the reliability of the tests

The assessment was conducted on 15 male badminton players of the Saigon University badminton team and was tested twice, with the two times being 7 days apart. The test conditions between the two times are the same. The reliability of the tests is determined by the degree of similarity of the results of repeated testing on the same subject in the same condition. To verify the reliability of the tests, the topic proceeds to calculate the pair correlation coefficient of each test between the results of the first and second tests. With the condition that the correlation coefficients must ensure sufficient reliability $r \geq r05$. Represented by Table 2.2.

Table 2: Reliability coefficients of technical tests for male athletes of the Saigon University badminton team (n=15)

No.	Test	1st attemp	2nd attemp	r	P
		$\overline{X} \pm S$	$\overline{X} \pm S$		
1	Left-handed serve 20 times into the service box (shot)	10.07 ± 1.10	10.08 ± 1.16	0.86	< 0.05
2	High serve with the right hand 20 times into the service box (shot)	12.53±0.74	12.47±1.13	0.83	< 0.05
3	High lift with the left hand 20 times into the service box (shot)	12.17 ± 0.91	12.43 ± 1.19	0.85	< 0.05
4	High lift with the right hand 20 times into the service box (shot)	13.27 ±1.16	13.13 ± 1.51	0.86	< 0.05
5	Drop shot diagonally 20 times into the service box (shot)	10.67± 1.11	10.58 ± 1.20	0.83	< 0.05
6	Drive with the right hand 20 times into the service box (shot)	11.33 ± 1.54	11.49 ±1.50	0.91	< 0.05

Therefore, the results of the reliability test presented in Table 2.2 show that the selected tests have met all the conditions to ensure the required reliability when most tests have $r \geq 0.80$ at the significance level $P < 0.05$. With the results of the reliability test above, the article has selected 6 technical assessment tests for male athletes of the Saigon University badminton team.

Testing the informativeness of the tests

The informativeness of a test is the degree of accuracy of the test in measuring to determine a characteristic (quality, ability, characteristic, etc.). The informativeness of a test for a given feature is determined by the correlation coefficient between the test results and the central factor.

In this paper, to test the informativeness of the technical assessment tests for male athletes of the Saigon University badminton team, the topic was conducted to calculate the correlation coefficient between the test results and the competition results. The correlation coefficient is calculated using Spearman's rank correlation method. The results of the test are presented in Table 2.3.

Table 3: Testing the reportability of technical evaluationtests for male athletes recruitedfrom Saigon University (n=15)

No.	Test	r	P
1	Forehand serve 20 times in the service box (shot)	0.65	< 0.05
2	Backhand serve 20 times in the service box (shot)	0.67	< 0.05
3	Forehand high shot 20 times in the service box (shot)	0.66	< 0.05
4	Backhand high shot 20 times in the service box (shot)	0.73	< 0.05
5	Straight drop shot 20 times in the service box (shot)	0.69	< 0.05
6	Forehand smash 20 times in the service box (shot)	0.68	< 0.05

Based on the results in Table 2.3, the article found that the correlation analysis between the results of the technical assessment tests for male athletes of the Saigon University badminton team has high informativeness, $P < 0.05$.

2. Assessment of the current technical status for male athletes of the Saigon University badminton team

To assess the current technical status for male athletes of the Saigon University badminton team based on the data collected, the article calculated the following basic statistical parameters: average value ($\overline{X}$), standard deviation (S), coefficient of variation (C_v), and relative error (ε), the results of which are presented in Table 2.4.

Table 4: Current technical status for male athletes of the Saigon University badminton team (n=15)

No.	Test	$\overline{X}$	S	C_v	ε
1	Forehand serve 20 times in the service box (shot)	10:07	1.10	9.46	0.04
2	Backhand serve 20 times in the service box (shot)	12:53	0.74	8.74	0.03
3	Forehand high shot 20 times in the service box (shot)	12-17	0.91	8.72	0.05
4	Backhand high shot 20 times in the service box (shot)	13:27	1.16	7,55	0.04
5	Straight drop shot 20 times in the service box (shot)	10.67	1.11	9.25	0.04
6	Forehand smash 20 times in the service box (shot)	11:33	1.54	9-11	0.05

The data in Table 4 show that

Test forehand serve 20 times in the service box (shots): Average value $\overline{X}$ = 10.07; standard deviation S = 1.10; coefficient of variation Cv = 9.46 < 10%; The average value can represent the sample set because the relative error is ε = 0.04 (≤ 0.05).

Test backhand serve 20 times in the service box (shots): Average value $\overline{X}$ = 12.53; standard deviation S = 0.74; coefficient of variation Cv = 8.74 < 10%; The average value can represent the sample set because the relative error is ε = 0.03 (≤ 0.05).

Test backhand high shot 20 times in the service box (shots): Average value $\overline{X}$ = 12.17; standard deviation S = 0.91; coefficient of variation Cv = 8.72 < 10%; The average value can represent the sample set because the relative error is ε = 0.05 (≤ 0.05).

Test forehand high shot 20 times in the service box (shots): Average value $\overline{X}$ = 13.27; standard deviation S = 1.16; coefficient of variation Cv = 7.55 < 10%; The average value can represent the sample set because the relative error is ε = 0.04 (≤ 0.05).

Test straight drop shot 20 times in the service box (shots): Average value $\overline{X}$ = 10.67; standard deviation S = 1.11; coefficient of variation Cv = 9.25 < 10%; The average value can represent the sample set because the relative error is ε = 0.04 (≤ 0.05).

Test forehand smash 20 times in the service box (shots): Average value $\overline{X}$ = 11.33; standard deviation S = 1.54; coefficient of variation Cv = 9.11 < 10%; The average value can represent the sample set because the relative error is ε = < 0.05 (≤ 0.05).

The results show that the coefficient of variation (CV), a parameter that reflects the variation between individuals in the sample set, indicates that all the technical evaluation tests of the research subjects have a high degree of consistency (CV < 10%). This means that the variation between the research subjects is small. The relative error of the mean value of the sample ($\overline{X}$) of most tests is (ε < 0.05), so the sample is representative or has sufficient reliability.

In conclusion, the evaluation of the current status through the technical tests of the research subjects all have a coefficient of variation Cv < 10%, so the scores of the subjects are relatively uniform. However, the relative error in all tests is less than or equal to 0.05 ($\varepsilon \leq 0.05$), which shows that the mean value of the scores has a high degree of representation.

Conclusion

- The research identified 6 technical evaluation tests for male badminton athletes of the Saigon University badminton team as follows: 20 backhand serves into the service box (shot); 20 forehand serves into the service box (shot); 20 overhead backhand shots into the service box (shot); 20 overhead forehand shots into the service box (shot); 20 drop shots into the service box (shot); 20 smashes into the service box (shot)
- The evaluation of the current status of the test results of the technical tests for male badminton athletes of the Saigon University badminton team has good consistency and high representation.

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