European Journal of Physical Education and Sport Science
ISSN: 2501 - 1235
ISSN-L: 2501 - 1235
Available on-line at: www.oapub.org/edu

DOI: 10.46827/ejpe.v11i2.5416 Volume 11 | Issue 2 | 2024

PHYSICAL STATUS OF MALE ATHLETES OF THE SAIGON UNIVERSITY BADMINTON TEAM, VIETNAM

Duong Ngoc Truong[i]
Faculty of National Defense-Security Education & Physical Education,
Saigon University,
Vietnam

Abstract:
The purpose of the article is to provide accurate, scientific and comprehensive information on the physical status of male athletes of the Saigon University Badminton team. The article uses document synthesis, interviews, and statistics. The research subjects included 15 male athletes of the badminton team of Saigon University. The selected results are 8 physical evaluation tests including: 20-meter sprint from a high start (seconds); standing high jump (centimeters); shuttlecock throw (centimeters); single rope jumping for 1 minute (times); lateral movement 5 times around the badminton court (seconds); forward, backward movement 5 times around the badminton court (seconds); movement around 4 corners of the badminton court 10 times (seconds); movement around 6 corners of the badminton court 10 times (seconds). The assessment results show that the testing performance of physical tests for male athletes of the Saigon University Badminton team is consistent and highly representative.

Keywords: badminton, current, fitness, player, Saigon University, Vietnam

1. Introduction

Badminton is one of the most popular sports in Vietnam, known and participated by many people for recreation and health improvement. Badminton is relatively easy to play and inexpensive, so it attracts many participants, from children to the elderly, both men and women, with a variety of training venues: it can be played outdoors, indoors, in parks, etc. In addition, besides the above purposes, badminton has also gradually become a competitive sport in the official list at the Olympics, Sea Games, Asian Games, etc.

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. In training and competition, badminton often has activities about speed, strength, and power speed, which are expressed through the

[i] Correspondence: dntruong@sgu.edu.vn

actions of hitting the shuttlecock, chopping the shuttlecock. Static muscle tension in badminton activities is rare or only occurs for a very short time. Changes in the physiological functional state in badminton training and competition depend on the intensity and duration of movement. Therefore, athletes, in addition to techniques, need to have good physical strength, agility, good health, speed, accuracy, and good observation.

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). 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). 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 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) and Schmidt, 1991 (Schmidt Richard, A., 1991). 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). 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 physical status is the basis for selecting methods and exercises suitable for the physical level of the athlete, which is an extremely important and necessary task. With this in mind, we chose the article: "Physical status of male athletes of the Saigon University Badminton team, Vietnam."

The purpose of the article is to identify tests to evaluate the physical status of male athletes of the Saigon University Badminton team in Vietnam.

2. 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 physical 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).

2.1 Research subjects

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

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).

3. Research results

3.1. Determination of physical assessment tests for male athletes of the Saigon University Badminton team

In order to determine the physical assessment tests for male athletes recruited from 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 physical training for badminton athletes such as: Nguyen Hac Thuy (1997); Vietnam Badminton Team Training Board (2000); Banh My Le, Hau Chinh Khanh (2000); Nguyen Hac Thuy, Nguyen Quy Binh (2000); Gunalan, D.P (2001); Nguyen Van Duc (2002); Tran Van Vinh, Dao Chi Thanh, Phan The De (2003); Nguyen Tien Tien (2005); Nguyen Xuan Binh (2005); Le Hong Son (2006); Chau Vinh Huy (2007); Nguyen Xuan Thanh (2007); Pham Viet Thanh (2011); Dam Tuan Khoi (2012); Le Nguyet Nga, Nguyen Quang Vinh, Nguyen Thanh De (2016), etc.; refer to the experience of coaches, experts, take turns to reduce some inappropriate tests, the article has selected the physical evaluation tests in accordance with the physical characteristics of badminton and the practical conditions of male athletes of the Saigon University Badminton team.

Step 2: Eliminate less feasible tests, with little value for selected articles, there are 18 physical 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)

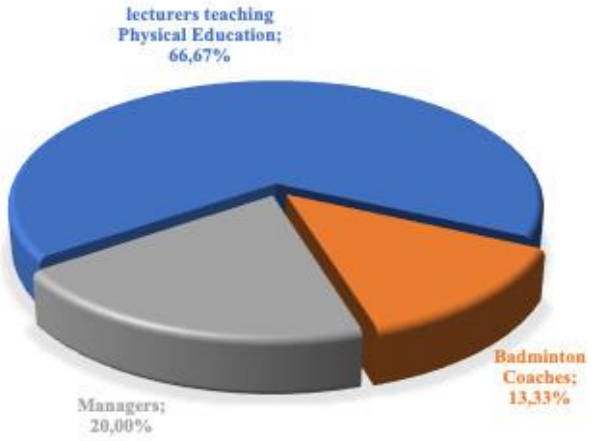

Chart 1: Percentage of interviewed subjects for tests

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 physical assessment tests of male athletes of the Saigon University Badminton team

No.	Test	1st attempt (n=30)		2nd attempt (n=30)	
		Total score	Percentage (%)	Total score	Percentage (%)
1	**20-meter sprint from a high start (seconds)**	**74**	**82,22**	**75**	**83,33**
2	Standing long jump (centimeters)	70	77,78	69	76,67
3	**Standing high jump (centimeters)**	**81**	**90,00**	**82**	**91,11**
4	60-meter sprint from a high start (seconds)	68	75,56	67	74,44
5	800-meter run (seconds)	62	68,89	61	67,78
6	5-minute run (as much as possible) (seconds)	66	73,33	85	94,44
7	**Shuttlecock throw (centimeters)**	**83**	**92,22**	**84**	**93,33**
8	**Single rope jumping for 1 minute (times)**	**79**	**87,78**	**78**	**86,67**
9	**Lateral movement 5 times around the badminton court (seconds)**	**76**	**84,44**	**75**	**83,33**
10	Movement to pick up the shuttlecock at various positions on the court (seconds)	69	76,67	68	75,56
11	**Forward, backward movement 5 times around the badminton court (seconds)**	**80**	**88,89**	**81**	**90,00**
12	Hand grip strength (kilograms)	64	71,11	63	70,00
13	**Movement around 4 corners of the badminton court 10 times (seconds)**	**79**	**87,78**	**80**	**88,89**
14	Double rope jumping for 2 minutes (times)	60	66,67	61	67,78
15	**Movement around 6 corners of the badminton court 10 times (seconds)**	**86**	**95,56**	**85**	**94,44**
16	Single rope jumping for 30 seconds (times)	66	73,33	67	74,44
17	Push-ups for 1 minute (times)	68	75,56	69	76,67
18	Crunches for 1 minute (times)	70	77,78	71	78,89

Based on the results of the interviews in Table 1 above, the paper selects tests that have been selected by over 80% of the respondents. The paper selects 8 physical tests to assess the skills of male athletes of the Saigon University Badminton team.

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

a. Verification of the reliability of the tests

The assessment was conducted on 15 male athletes 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 ≥ r05. Represented by Table 2.

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

No.	Test	1st attemp	2nd attemp	r	P
		$\overline{X}$ ± S	$\overline{X}$ ± S		
1	20-meter sprint from a high start (seconds)	3.71 ± 0.22	3.73 ± 0.22	0.98	< 0.05
2	Standing high jump (centimeters)	42.80 ± 2.73	42.93 ± 2.55	0.92	< 0.05
3	Shuttlecock throw (centimeters)	761.33 ± 1.99	762.00 ± 1.78	0.80	< 0.05
4	Single rope jumping for 1 minute (times)	126.87 ± 5.94	127.07 ± 4.30	0.96	< 0.05
5	Lateral movement 5 times around the badminton court (seconds)	19.20 ± 0.93	19.24 ± 0.99	0.94	< 0.05
6	Forward, backward movement 5 times around the badminton court (seconds)	23.13 ± 0.76	23.35 ± 0.73	0.93	< 0.05
7	Movement around 4 corners of the badminton court 10 times (seconds)	118.73 ± 9.00	119.13 ± 8.12	0.82	< 0.05
8	Movement around 6 corners of the badminton court 10 times (seconds)	130.67 ± 9.22	129.20 ± 8.98	0.83	< 0.05

Therefore, the results of the reliability test presented in Table 2 show that the selected tests have met all the conditions to ensure the required reliability when most tests have r ≥ 0.80 at the significance level P < 0.05. With the results of the reliability test above, the article has selected 8 physical assessment tests for male athletes of the Saigon University Badminton team.

b. 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 physical 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 3.

Table 3: Testing the informativeness of physical assessment tests for male athletes of the Saigon University Badminton team (n=15)

No.	Test	r	P
1	20-meter sprint from a high start (seconds)	0.64	< 0.05
2	Standing high jump (centimeters)	0.67	< 0.05
3	Shuttlecock throw (centimeters)	0.71	< 0.05
4	Single rope jumping for 1 minute (times)	0.65	< 0.05
5	Lateral movement 5 times around the badminton court (seconds)	0.73	< 0.05
6	Forward, backward movement 5 times around the badminton court (seconds)	0.69	< 0.05
7	Movement around 4 corners of the badminton court 10 times (seconds)	0.72	< 0.05
8	Movement around 6 corners of the badminton court 10 times (seconds)	0.66	< 0.05

Based on the results in Table 3, the article found that the correlation analysis between the results of the physical assessment tests for male athletes of the Saigon University Badminton team has high informativeness, $P < 0.05$.

3.2 Assessment of the physical status for male athletes of the Saigon University Badminton team

To assess the current physical 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 ($\mathcal{E}$), the results of which are presented in Table 4.

Table 4: Physical status of male athletes of the Saigon University Badminton team (n=15)

No.	Test	$\overline{X}$	S	C_v	$\mathcal{E}$
1	20-meter sprint from a high start (seconds)	3.71	0.22	1.21	0.03
2	Standing high jump (centimeters)	42.80	2.73	5.77	0.04
3	Shuttlecock throw (centimeters)	761.33	1.99	1.14	0.01
4	Single rope jumping for 1 minute (times)	126.87	5.94	2.05	0.03
5	Lateral movement 5 times around the badminton court (seconds)	19.20	0.93	3.60	0.03
6	Forward, backward movement 5 times around the badminton court (seconds)	23.13	0.76	3.50	0.02
7	Movement around 4 corners of the badminton court 10 times (seconds)	118.73	9.00	2.50	0.04
8	Movement around 6 corners of the badminton court 10 times (seconds)	130.67	9.22	1.85	0.03

The data in Table 4 show that:

- *Test 20-meter sprint from a high start (seconds):* Average value $\overline{X}$ = 3.71; standard deviation S = 0.22; coefficient of variation Cv = 1.21 < 10%; The average value can represent the sample set because the relative error is $\mathcal{E}$ = 0.03 (≤ 0.05).

- *Test standing high jump (centimeters):* Average value $\overline{X}$ = 42.80; standard deviation S = 2.73; coefficient of variation Cv = 5.77 < 10%; The average value can represent the sample set because the relative error is ε = 0.04 (≤ 0.05).
- *Test shuttlecock throw (centimeters):* Average value $\overline{X}$ = 761.33; standard deviation S = 1.99; coefficient of variation Cv = 1.14 < 10%; The average value can represent the sample set because the relative error is ε = 0.01 (≤ 0.05).
- *Test single rope jumping for 1 minute (times):* Average value $\overline{X}$ = 126.87; standard deviation S = 5.94; coefficient of variation Cv = 2.05 < 10%; The average value can represent the sample set because the relative error is ε = 0.03 (≤ 0.05).
- *Test lateral movement 5 times around the badminton court (seconds):* Average value $\overline{X}$ = 23.13; standard deviation S = 0.76; coefficient of variation Cv = 3.50 < 10%; The average value can represent the sample set because the relative error is ε = 0.02 (≤ 0.05).
- *Test forward, backward movement 5 times around the badminton court (seconds):* Average value $\overline{X}$ = 23.13; standard deviation S = 0.76; coefficient of variation Cv = 3.50 < 10%; The average value can represent the sample set because the relative error is ε = 0.02 (≤ 0.05).
- *Test movement around 4 corners of the badminton court 10 times (seconds):* Average value $\overline{X}$ = 118.73; standard deviation S = 9.00; coefficient of variation Cv = 2.50 < 10%; The average value can represent the sample set because the relative error is ε = 0.04 (≤ 0.05).
- *Test movement around 6 corners of the badminton court 10 times (seconds):* Average value $\overline{X}$ = 130.67; standard deviation S = 9.22; coefficient of variation Cv = 1.85 < 10%; The average value can represent the sample set because the relative error is ε = 0.03 (≤ 0.05).

The results show that the coefficient of variation (C_V), a parameter that reflects the variation between individuals in the sample set, indicates that all the physical evaluation tests of the research subjects have a high degree of consistency (C_V < 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 physical tests of the research subjects all have a coefficient of variation C_V < 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 (ε ≤ 0.05), which shows that the mean value of the scores has a high degree of representation.

4. Conclusion

- The research identified 08 physical evaluation tests for male athletes of the Saigon University Badminton team as follows: 20-meter sprint from a high start (seconds); standing high jump (centimeters); shuttlecock throw (centimeters); single rope jumping for 1 minute (times); lateral movement 5 times around the badminton court (seconds); forward, backward movement 5 times around the badminton court (seconds); movement around 4 corners of the badminton court 10 times (seconds); movement around 6 corners of the badminton court 10 times (seconds).
- The evaluation of the current status of the test results of the physical tests for male athletes of the Saigon University Badminton team has good consistency and high representation.

Conflict of Interest Statement
The author declares no conflicts of interest.

About the Author
Duong Ngoc Truong has been Dean Faculty of National Defense- Security Education & Physical Education, SaiGon University, Vietnam

References

Vietnam Badminton Team Training Board (2000), *Vietnam Badminton Team Training Plan 2000 – 2003*. 10.

Banh My Le, Hau Chinh Khanh (2000), *Badminton* (translated by Le Duc Chuong), Hanoi Sports Publishing House.

Chau Vinh Huy (2007), *Research on the physical development of young male badminton athletes from 16 to 18 years old in Ho Chi Minh City after one year of training*, Master's thesis in education.

D Cabello Manrique and J J González – Badillo (2003), *Analysis of the characteristics of competitive badminton*, Br J Sports Med 37: 62-66.

Dam Tuan Khoi (2012), *Developing a system of standards to assess the training level of senior badminton athletes*, Doctoral thesis in education, Institute of Sports Science, Hanoi.

Do Vinh, Trinh Huu Loc (2010), Sports measurement, Sports Publishing House, Hanoi.

Do Vinh, Huynh Trong Khai (2008), Statistics in Sports, Sports Publishing House, Hanoi.

Gunalan, D.P (2001), *Badminton coach manual*, Hanoi Sports Publishing House.

Kerry Ann and Lieshout (2002), *Physiology profile of elite junior badminton players in south Africa*, University Johannesburg.

Le Hong Son (2006), *Research and application of the system of exercises to develop professional fitness for young male badminton athletes aged 16 -18*, Doctoral thesis in education, Institute of Sports Science, Hanoi.

Le Nguyet Nga, Nguyen Quang Vinh, Nguyen Thanh De (2016), *Sports Talent Selection Science*, VNU Publishing House - Ho Chi Minh City.

M K Chin, A S Wong, R C So, O T Siu, K Steininger, D T Lo (1995), *Sport specific fitness testing of elite badminton players*, Br J Sports Med, 1995; 29: 153 – 157 doi: 10.1136/bjsm.29.3.153.

Nguyen Hac Thuy (1997), *Training on modern badminton techniques*, Sports Publishing House, Hanoi

Nguyen Hac Thuy, Nguyen Quy Binh (2000), *Physical training for badminton players*, Sports Publishing House, Hanoi.

Nguyen Tien Tien (2005), *Evaluation of training qualifications for badminton athletes in Vietnam*, Hanoi Sports Publishing House.

Nguyen Van Duc (2002), *Research on assessing the training level of male badminton players aged 12 – 15*, Master's thesis in education.

Nguyen Xuan Binh (2005), *Initial research to assess the physical ability level of athletes gifted in badminton of Dong Nai province aged 12 – 13 after 1 year of training*, Master's thesis in education at the University of Sports and Sports. Ho Chi Minh City

Nguyen Xuan Thanh (2007), *Research on assessing the training level of young badminton players aged 10 – 12 in the initial specialization period of Dong Nai province*, Master's thesis in education.

Pham Viet Thanh (2011), *Studying the development of professional fitness and basic techniques of male students specializing in badminton in the second and third years of Dong Thap University after one year of study*, Master's thesis in education of Bac Ninh University of Sports and Sports.

Schmidt, R. A. (1991), *Motor learning & performance: From principles to practice*, Human Kinetics Books.

Singer Robert N., 1980, *Motor Learning and Human Performance, an Application to Motor Skills and Movement Behaviors, Third Edition*, New York, London: Macmillan Publishing Co., Inc., Collier Macmillan Publishers.

Subarjah, H. (2018), The Influence of Ideas Exercise Model and Physical Fitness on Badminton Playing Skills, In *Proceedings Of the 2nd International Conference on Sports Science, Health and Physical Education,* ICSSHPE 2017, Vol. 1, pp. 460-465.

Tran Van Vinh, Dao Chinh Thanh, Phan The De (2003), *Training system for bridge training, TDTT* Publishing House, Hanoi.