

# THE INFLUENCE OF SPECIALIZED PHYSICAL FACTORS ON THE PERFORMANCE OF FEMALE ATHLETES IN VIETNAM HIGH-LEVEL VOLLEYBALL TEAM

Le Tri Truong<sup>(1)</sup>

## Abstract:

From the research's result, the paper focuses on analyzing the influence proportion of specialized physicality on the performance achievement of female athletes in Vietnam high-level volleyball team. The performance achievement is the total score of a player assessed through the software (Volleyball Information System - VIS) of the Federation of International Volleyball (FIVB).

**Keywords:** Specialized physicality, proportion, training, high-level, volleyball, test, VIS.

## INTRODUCTION

In long-year training, physicality training for volleyball players must be associated with skills perfection, professional athletic skills, especially specialized physicality for athletes in highly-specialized training period. In order to perform this task well, it is necessary to clarify the relationship between these factors and performance achievement, especially influence proportion of specialized physicality on the specialized positions of female high-level volleyball team; thereby, having high-effective orientation in training.

## RESEARCH METHODS

In the research process, we use the following methods: Document analysis and synthesis method, pedagogical observation method, pedagogical examination method, Statistical mathematical method.

## RESULTS AND DISCUSSION

### 1. Determine the multi-factor correlation among specialized physicality tests

Through scientific methods, we have selected 8 specialized physicality tests for female athletes in Vietnam high-level volleyball team. Specifically:

- In-place jumping with hand reaching (times).
- Pine-sharp running (s).
- Jumping and reaching the board (cm).

- Zig zag running (s).
- 1kg stuffed ball throwing.
- Abdomen folding (times).
- Combination movement (s).
- VIS points (points).

In order to determine the influence proportion of the specialized physicality on the performance achievement of high-level female volleyball athletes, the topic has clarified the correlation among specialized physical factors. The determination of the correlation among specialized physical factors was assessed through 8 tests on 87 high-level female volleyball athletes. The result is shown in Figure 1.

From the results obtained in Figure 1, it is shown that the specialized physicality tests of high-level female volleyball athletes have a strong correlation with the lowest  $r$  value obtained is 0.72 and the highest is 0.99.

### 2. Determine the influence proportion of the specialized physical factors on the performance achievement

The determination of factors' influence proportion is conducted according to the multivariate linear regression model. Specifically, here is a 7-variable regression model corresponding to 7 tests. It means that determining the VIS score depends on 7 specialized physicality tests of Vietnam high-level female volleyball athletes. The result is presented in Table 1.

(1) PhD, Bac Ninh Sports University; Email: letrituong\_volley@yahoo.com

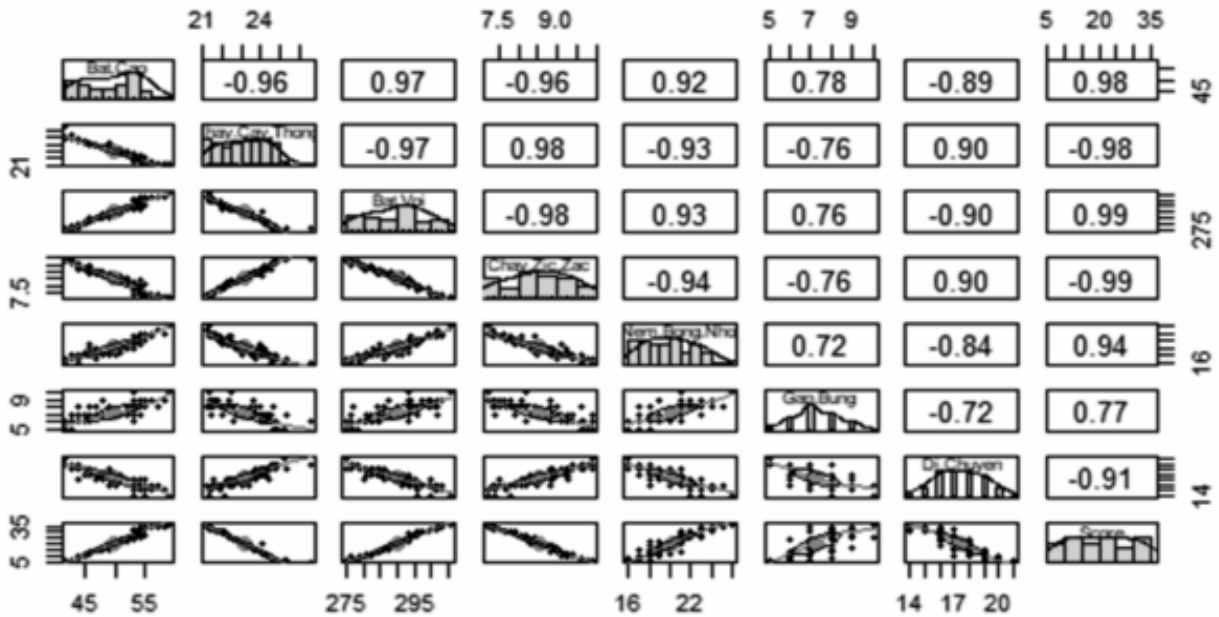


Figure 1. Multi-factor correlation among specialized physical tests for high-level female volleyball athletes (n = 87)

Table 1. Influence proportion of the specialized physical factors of Vietnam high-level female volleyball athletes

No	Test	Regression coefficient	Influence proportion(%)	Rank
1	In-place jumping with hand reaching (times)	0.1556	15.56	4
2	Pine-sharp running (s)	0.1602	16.02	3
3	Jumping and reaching the board (cm)	0.1618	16.18	2
4	Zig zag running (s)	0.1630	16.30	1
5	1kg stuffed ball throwing (m)	0.1366	13.66	5
6	Abdomen folding (times)	0.0864	8.64	7
7	Combination movement (s)	0.1265	12.65	6
<b>Total (%)</b>			<b>99.02</b>	

From the results shown in Table 1, the influence of the test results on the performance achievement of female volleyball athletes is different and it accounts from 8.6 to 16.3%.

Next, the research has determined the coefficients and the influence proportion of the specialized physicality tests. The results are presented in Table 2 and Table 3.

From the coefficient and the influence proportion of the specialized physicality test obtained in Table 2, it is allowed to convert to the influence proportion and fluctuation range of each test with the reliability at 90%. The result is shown in Table 3.

Thus, through the analysis, we have assessed the influence proportion of specialized physical factors on the performance achievement of Vietnam high-level female volleyball athletes. In which, abdomen folding test has the lowest proportion (8.64%) and zig zag running has the highest proportion (16.30%)

The determination of the influence of each test by percentage will allow to expand the application in a more specific way in the training of Vietnam high-level female volleyball athletes. For example, when developing a standard score board in each test will allow to accurately assess the rankings of each athlete in

**Table 2. Results of determining the influence coefficient of the specialized physicality tests of Vietnam high-level female volleyball athletes**

No	Test	Regression coefficient	Range	
			Minimum	Maximum
1	In-place jumping with hand reaching (times)	0.1556	0.1506	0.1610
2	Pine-sharp running (s)	0.1602	0.1516	0.1720
3	Jumping and reaching the board (cm)	0.1618	0.1566	0.1671
4	Zig zag running (s)	0.1630	0.1579	0.1678
5	1kg stuffed ball throwing (m)	0.1366	0.1292	0.1443
6	Abdomen folding (times)	0.0864	0.0685	0.1036
7	Combination movement (s)	0.1265	0.1168	0.1357

**Table 3. Determination result of the influence proportion and fluctuation range of each test (the reliability at 90%)**

No	Test	Influence proportion (%)	Fluctuation range (%)	
			Minimum	Maximum
1	In-place jumping with hand reaching (times)	15.56	15.06	16.10
2	Pine-sharp running (s)	16.02	15.16	17.20
3	Jumping and reaching the board (cm)	16.18	15.66	16.71
4	Zig zag running (s)	16.30	15.79	16.78
5	1kg stuffed ball throwing (m)	13.66	12.92	14.43
6	Abdomen folding (times)	8.64	6.85	10.36
7	Combination movement (s)	12.65	11.68	13.57

combination with the influence proportion table. In addition, it can also be used to adjust the training process to suit the level of athlete's development using the VIS system to rank female athletes in Vietnam high-level volleyball team according to each specific skill.

**CONCLUSION**

Through scientific methods, the research has synthesized 7 specialized physical tests for volleyball players. At the same time, the influence proportion of specialized physical tests on performance achievement (VIS points) of Vietnam high-level female volleyball athletes is determined. Conversion into the influence proportion of each test at fluctuation range and the reliability at 90%.

**REFERENCES**

1. Nguyen Huu Hung (2001), *Physical training for volleyball players*, Physical Training and Sport Publisher, Hanoi.
2. Klesep. Iu.N, Airianx A.G (1997), *Volleyball*, (Translated by: Dinh Lam, Xuan Nga, Huu Hung, Nghiem Thuc), Physical Training and Sport Publisher, Hanoi.
3. Bui Trong Toai (1996), "Initial determination of the physicality testing system for female volleyball athletes", *Scientific research of Physical Training and Sport*, University of Physical Training and Sports II.

(Received 1/11/2019, Reviewed 5/11/2019 Accepted 25/11/2019)