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# DEVELOPING PHYSICAL FITNESS ASSESSMENT STANDARDS FOR MODULES 1 AND 2 FOR VOLLEYBALL MAJORS IN THE SPORTS TRAINING PROGRAM AT HANOI UNIVERSITY OF PHYSICAL EDUCATION AND SPORTS

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## ABSTRACT

By employing scientific research methods commonly used in sports science, this study has established physical fitness assessment standards for Modules 1 and 2 for students majoring in Volleyball within the Sports Training program at Hanoi University of Physical Education and Sports. This process involved selecting assessment tests, verifying their validity and reliability, and developing a comprehensive scoring system for evaluating physical fitness levels

**Keywords:** Establish, Evaluation criteria, Physical fitness level, Volleyball major, Sports Training

## 1.0 INTRODUCTION

The development of training proficiency, driven by the long-term effects of physical workload, leads to functional and structural adaptations within the body's organs and systems. Therefore, in physical education and sports coaching, assessing overall training levels—and physical fitness in particular—is essential for both athletes and learners.

Testing and evaluating training proficiency (TP) to propose scientific and appropriate coaching methods is highly regarded and was early adopted and researched by sports scientists in Vietnam. Numerous studies have established individual or comprehensive assessment standards for the training proficiency of athletes across various sports.

In the practical teaching of Sports Training majors at Hanoi University of Physical Education and Sports, the Faculty regularly conducts physical fitness assessments throughout the training process. However, the current assessment standards have been in use for many years. Furthermore, these standards were originally developed for Physical Education majors, creating a discrepancy in the target subjects and reflecting outdated criteria that may no longer be suitable for the current context.

Based on the aforementioned analysis, with the aim of establishing a set of physical fitness assessment standards for Sports Training majors, we have selected the following research topic: “Developing Physical Fitness Assessment Standards for Modules 1 and 2 for Volleyball Majors in the Sports Training Program at Hanoi University of Physical Education and Sports.”

## 2.0 RESEARCH METHODOLOGY

  

- Study Design: Cross-sectional descriptive study

- Study Period: From September 2025 to April 2026.

- Sampling Method: Convenience sampling.

- Research Content: Survey Questionnaire on the Selection of Physical Fitness Assessment Tests for Modules 1 and 2 for Volleyball Majors in the Sports Training Program at Hanoi University of Physical Education and Sport

+ Participant Information: Year of Birth, Gender, Work Unit, Position, Educational Level

+ Selecting physical fitness assessment tests for Modules 1 and 2 for Volleyball majors in the Sports Training program at Hanoi University of Physical Education and Sports.

- Data Collection Methodology: Data is collected through a survey questionnaire administered via Google Forms, utilizing a combination of online and face-to-face methods. Respondents are asked to provide information on two primary areas: general demographic data and the selection of specialized physical fitness tests for volleyball majors.

- Research Participants and Timeline: The study is conducted on a sample of 30 volleyball students (15 males and 15 females) majoring in Sports Training at Hanoi University of Physical Education and Sports. The research period spans the 2025–2026 academic year.

## 3.0 RESEARCH RESULTS

1. Selection of Assessment Criteria for Physical Fitness (Modules 1 and 2) for Volleyball Majors in the Sports Training Program at Hanoi University of Physical Education and Sports (HUPES)

Based on a review of specialized literature, expert documents from both domestic and international sources, and previous research findings, the study initially identified 10 potential fitness tests for Modules 1 and 2 for Volleyball majors in the Sports Training program. Following interviews with experts, lecturers, and coaches, 5 assessment tests were selected as follows:

Test 1: 9 - 3 - 6 - 3 - 9 m Shuttle Run (s)

Test 2: Vertical Jump with Approach (cm)

Test 3: "Pine Tree" Agility Run / T-Drill (s)

Test 4: One-handed 1kg Medicine Ball Throw for Distance (m)

Test 5: 2-minute Jump Rope (reps)

2. Establishing Physical Fitness Assessment Standards for Modules 1 and 2 for Volleyball Majors in the Sports Training Program at Hanoi University of Physical Education and Sports

  

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To establish a scientific basis for applying the 2-sigma rule and the C-scale in developing physical fitness assessment standards for Modules 1 and 2 (Volleyball majors in the Sports Training program), a normality test was conducted. The results of the distribution analysis are presented in Tables 1 and 2.

**Table 1. Normality test results of physical fitness assessment scores for Modules 1 and 2 of male volleyball students in the Sports Training program.**

| No. | Test | Assessment Results $\bar{x} \pm \delta$ | Cv |
|---|---|---|---|
| 1 | 9 - 3 - 6 - 3 - 9 m Shuttle Run (s) | 8,81±0,40 | 4.06 |
| 2 | Vertical Jump with Approach (cm) | 271,5±9,98 | 5.20 |
| 3 | "Pine Tree" Agility Run / T-Drill (s) | 26,71±1,06 | 0.88 |
| 4 | One-handed 1kg Medicine Ball Throw for Distance (m) | 24,52±1,26 | 0.87 |
| 5 | 2-minute Jump Rope (reps) | 214,2±12,12 | 0.90 |

**Table 1. Normality test results of physical fitness assessment scores for Modules 1 and 2 of female volleyball students in the Sports Training program**

| No. | Test | Assessment Results $\bar{x} \pm \delta$ | Cv |
|---|---|---|---|
| 1 | 9 - 3 - 6 - 3 - 9 m Shuttle Run (s) | 9,1±0,46 | 5.02 |
| 2 | Vertical Jump with Approach (cm) | 256,5±9,88 | 5.40 |
| 3 | "Pine Tree" Agility Run / T-Drill (s) | 27,71±1,07 | 0.87 |
| 4 | One-handed 1kg Medicine Ball Throw for Distance (m) | 22,52±1,23 | 0.90 |
| 5 | 2-minute Jump Rope (reps) | 201,2±12,7 | 0.91 |

The results presented in Tables 1 and 2 indicate that the coefficient of variation (Cv) for all assessment criteria is less than 10%. Consequently, the test results meet the required statistical conditions and can serve as a reliable basis for establishing physical fitness classification standards using the 2-sigma ($\pm 2\sigma$) rule

### 2.1 Establishing Physical Fitness Assessment Classification (Modules 1 and 2) for Volleyball Majors in the Sports Training Program at Hanoi University of Physical Education and Sports

Based on the pedagogical test results, each physical fitness assessment criterion for Modules 1 and 2 is classified into five levels using the 2-sigma ($\pm 2\sigma$) rule: Excellent, Good, Average, Below Average, and Poor. The specific classification norms are presented in Tables 3 and 4. These tables serve as a highly convenient tool for evaluating and grading individual assessment criteria.

After conducting the practical tests to determine raw scores, lecturers should follow these steps to classify the students' physical fitness levels:

  

- Verify Test Results: Ensure that the results are recorded according to the specified testing protocols.

- Identify and Cross-reference: Select the specific test to be evaluated, cross-reference the raw score in the classification table, and determine the proficiency level according to the established standards.

### 2.2 Establishing the Physical Fitness Scoring Table (Modules 1 and 2) for Volleyball Majors in the Sports Training Program at Hanoi University of Physical Education and Sports

While the classification of individual assessment criteria allows for a specific evaluation of each component, the use of different measurement units makes it difficult to provide an accurate and comprehensive assessment of overall physical fitness for Modules 1 and 2. To address this, the study employs the C-scale scoring formula to standardize all diverse measurement units into a unified point system. The calculated results are presented in Tables 5 and 6.

**Table 3. Physical Fitness Classification Standards for Male Volleyball Students (Sports Training Major)**

| No. | Test | Standard Classification | | | | |
|---|---|---|---|---|---|---|
| | | Poor | Below Average | Average | Good | Excellent |
| 1 | 9 - 3 - 6 - 3 - 9 m Shuttle Run (s) | ≥ 9,60 | 9,59 - 9,20 | 9,19 - 8,40 | 8,39- 8,00 | ≤ 8,00 |
| 2 | Vertical Jump with Approach (cm) | ≤ 252 | 253 - 262 | 263 - 281 | 282- 291 | ≥ 291 |
| 3 | "Pine Tree" Agility Run / T-Drill (s) | ≥ 28,83 | 28,82 - 27,77 | 27,76 - 25,65 | 25,64 - 24,59 | ≤ 24,59 |
| 4 | One-handed 1kg Medicine Ball Throw for Distance (m) | ≤ 22 | 23 – 23.36 | 23.37 – 25.78 | 25.79- 27.04 | ≥ 27.04 |
| 5 | 2-minute Jump Rope (reps) | ≤ 190 | 191 - 202 | 203 - 226 | 227 - 238 | ≥ 238 |

**Table 4. Physical Fitness Classification Standards for Female Volleyball Students (Sports Training Major)**

| No. | Test | Standard Classification | | | | |
|---|---|---|---|---|---|---|
| | | Poor | Below Average | Average | Good | Excellent |
| 1 | 9 - 3 - 6 - 3 - 9 m Shuttle Run (s) | ≥ 10,0 | 9,99 - 9,60 | 9,59 - 8,60 | 8,59- 8,20 | ≤ 8,20 |
| 2 | Vertical Jump with Approach (cm) | ≤ 237 | 238 - 247 | 248 - 266 | 267- 276 | ≥ 276 |
| 3 | "Pine Tree" Agility Run / T-Drill (s) | ≥ 29,85 | 29,84 - 28,78 | 28,77 - 26,64 | 26,63 - 25,57 | ≤ 25,57 |
| 4 | One-handed 1kg Medicine Ball Throw for Distance (m) | ≤ 20.1 | 20.2 – 21.3 | 21.4 – 23.8 | 26.9- 25.0 | ≥ 25.0 |
| 5 | 2-minute Jump Rope (reps) | ≤ 176 | 177 - 189 | 190 - 214 | 215 - 227 | ≥ 227 |

**Table 5. Standardized 10-point Scoring Table for Specialized Physical Fitness (Male Volleyball Students)**

| No. | Test | Grade | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 1 | 9 - 3 - 6 - 3 - 9 m Shuttle Run (s) | 7.8 | 8.0 | 8.2 | 8.4 | 8.6 | 8.8 | 9.0 | 9.2 | 9.4 | 9.6 |
| 2 | Vertical Jump with Approach (cm) | 296 | 291 | 286 | 281 | 276 | 272 | 267 | 262 | 257 | 252 |
| 3 | "Pine Tree" Agility Run / T-Drill (s) | 24 | 25 | 25 | 26 | 26 | 27 | 27 | 28 | 28 | 29 |
| 4 | One-handed 1kg Medicine Ball Throw for Distance (m) | 28 | 27 | 26 | 26 | 25 | 25 | 24 | 23 | 23 | 22 |
| 5 | 2-minute Jump Rope (reps) | 245 | 238 | 232 | 226 | 220 | 214 | 208 | 202 | 196 | 190 |

**Table 6. Standardized 10-point Scoring Table for Specialized Physical Fitness (Female Volleyball Students)**

| No. | Test | Grade | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 1 | 9 - 3 - 6 - 3 - 9 m Shuttle Run (s) | 8.1 | 8.3 | 8.5 | 8.7 | 8.9 | 9.1 | 9.3 | 9.5 | 9.7 | 9.9 |
| 2 | Vertical Jump with Approach (cm) | 232 | 237 | 242 | 247 | 252 | 257 | 261 | 266 | 271 | 276 |
| 3 | "Pine Tree" Agility Run / T-Drill (s) | 30 | 30 | 29 | 29 | 28 | 28 | 27 | 27 | 26 | 26 |
| 4 | One-handed 1kg Medicine Ball Throw for Distance (m) | 26 | 25 | 24 | 24 | 23 | 23 | 22 | 21 | 21 | 20 |
| 5 | 2-minute Jump Rope (reps) | 232 | 225 | 219 | 213 | 207 | 201 | 195 | 189 | 183 | 177 |

### 2.3 Establishing the Composite Scoring Table

Once all individual criteria have been converted into scores, a composite evaluation standard for Physical Fitness (Modules 1 and 2) must be established. This study utilizes 5 assessment tests, each graded on a 10-point scale, resulting in a maximum aggregate score of 50 points. By cross-referencing these results with the data in Tables 5 and 6, the study derives the composite classification for the physical fitness of the research subjects, as presented in Table 7.

**Table 7. Composite Physical Fitness Classification Standards for Volleyball Students (Modules 1 & 2)**

| No | Grading | Total Score (Maximum Aggregate Score = 50 points) |
|---|---|---|
| 1 | Excellent | ≥ 45 |
| 2 | Good | 40 - 44 |
| 3 | Average | 25 - 39 |
| 4 | Below Average | 15 - 24 |
| 5 | Poor | < 15 |

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Analysis of Results: The evaluation of physical fitness for Modules 1 and 2 among Volleyball students (Sports Training major) indicates a maximum potential score of 50 points. However, achieving this maximum aggregate score across all assessment criteria remains an extremely challenging task for most subjects.

The findings presented in Tables 5 and 6 provide a clear classification and corresponding scores for each individual test. This detailed breakdown is essential for both lecturers and students, enabling them to accurately assess current physical strengths and identify specific limitations. Such insights serve as a critical basis for implementing timely pedagogical adjustments to improve training efficiency.

## 4.0 CONCLUSION

The research has successfully established a comprehensive physical fitness evaluation system for Volleyball majors (Modules 1 and 2) at the Hanoi University of Physical Education and Sports (HUPES). The system comprises five specialized assessment tests and a standardized composite scoring table based on the C-scale. This framework provides a scientific and objective basis for grading, allowing both instructors and students to monitor training progress and implement timely pedagogical adjustments

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