



Selecting tests to assess the current motor coordination ability of the male student volleyball team at the University of Finance - Marketing

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Abstract

Based on an assessment of the current motor coordination ability of the male student volleyball team at the University of Finance - Marketing, several limitations were identified, including the limited use of movement-game exercises and the lack of diversity in training formats. Consequently, training effectiveness has not met expectations. The study therefore selected six tests that received an overall approval rate of at least 80% from experts, coaches, and lecturers.

Keywords: Male student volleyball, motor coordination ability, test selection

Introduction

Movement games are purposeful, conscious activities designed to achieve predetermined outcomes under specified conditions. While performing game tasks, each participant, in a particular role, may engage in activities such as speaking, singing, answering, walking, running, jumping, throwing, clapping, striking, climbing, carrying, crawling, overcoming obstacles, and protecting themselves or teammates. In physical education, movement games serve both as an effective means and a training method that organically integrates coordinated activity with physical conditioning, and they are widely applied in sports training. Motor coordination ability is a complex set of movement prerequisites, required to varying degrees, for the successful performance of a particular sports activity. It is determined primarily by the ability to control movement through information processing and is formed and developed through training. Motor coordination ability is closely related to psychological qualities and other capacities such as speed, strength, and endurance.

However, a practical survey of the current training of the male student volleyball team at the University of Finance – Marketing showed that, owing to various objective conditions, the coaching staff had not incorporated movement games into training to develop physical qualities. It is therefore necessary to diversify exercise types, particularly movement games, as a means of developing motor abilities. Incorporating movement games into the training program for the University's male student volleyball team is essential.

The study employed the following methods: document analysis and synthesis, questionnaire survey, pedagogical testing, pedagogical observation, and statistical analysis.

Research object: Exercises for developing the motor coordination ability of the male student volleyball team at the University of Finance - Marketing.

Research Content

1. Selection of tests to assess the current motor coordination ability of the male student volleyball team at the University of Finance – Marketing

The following steps were undertaken to select tests for assessing the team's current motor coordination ability:

Step 1: Review theoretical studies, previous research, and relevant domestic and international literature to collect, compile, and systematize previously used tests.

Step 2: Based on the preliminary selection, survey experts, coaches, and lecturers knowledgeable about the research topic to identify the most appropriate tests.

Step 3: Examine and evaluate the reliability of the tests.

2. Collection, compilation, and systematization of tests assessing the motor coordination ability of the male student volleyball team at the University of Finance - Marketing

After reviewing relevant studies, the research team analyzed and synthesized the literature and identified 32 tests for assessing the motor coordination ability of the male student volleyball team at the University of Finance - Marketing. To select tests appropriate to the research object and participants, a questionnaire was developed and distributed to experts, coaches, and lecturers knowledgeable about volleyball. The 32 shortlisted tests formed the basis of the questionnaire (the questionnaire form is presented in Appendix 1). In addition to the 32 tests, each questionnaire included an open-ended question allowing respondents to propose other tests they considered appropriate or highly appropriate.

The selection survey used a five-point Likert scale: 5) Highly appropriate, 4) Appropriate, 3) Neutral, 2) Inappropriate, and 1) Highly inappropriate.

The respondents comprised 18 lecturers, five volleyball administrators/coaches, and seven experts. Their composition is presented in Table 1 and Figure 1.

Table 1. Percentage distribution of survey respondents

Respondent group	Round 1 questionnaires				Round 2 questionnaires			
	Distributed	Percentage (%)	Returned	Percentage (%)	Distributed	Percentage (%)	Returned	Percentage (%)
Lecturers	18	60	18	60	18	60	18	60
Administrators/coaches	5	17	5	17	5	17	5	17
Experts	7	23	7	23	7	23	7	23
Total	30	100	30	100	30	100	30	100

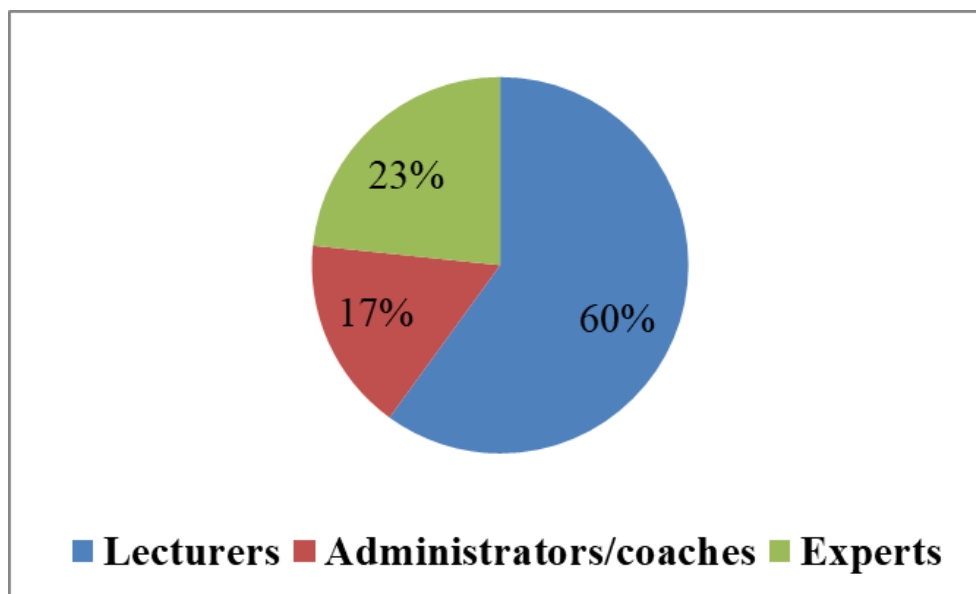


Fig 1: Distribution of survey respondents

Fig 1: shows that the survey involved 30 lecturers, coaches/administrators, and experts: 18 lecturers (60%), five coaches/administrators (17%), and seven experts (23%).

Table 2: Survey results for selecting tests to assess the current motor coordination ability of the male student volleyball team at the University of Finance – Marketing

No.	INDICATORS	Round 1 (n = 30)		Round 2 (n = 30)		Mean percentage across two rounds
		Total score	Percentage (%)	Total score	Percentage (%)	
	General physical fitness					
1	Fan drill (s)	82	82	83	83	82.5
2	9-3-6-3-9 run (s)	87	87	90	90	88.5
3	6 m × 10 shuttle movement	78	78	78	78	78
4	Cross jump for 10 seconds	77	77	78	78	77.5
5	Twenty jumps over a gym bench (s)	75	75	76	76	75.5
6	T-test run	79	79	77	77	78
7	Shuttle run	75	75	76	76	75.5
8	Continuous ball spikes (repetitions)	86	86	86	86	86
9	Illinois Agility Test	69	69	71	71	70
10	Zigzag run test (s)	78	78	78	78	78
11	30 m standing-start sprint (s)	79	79	78	78	78.5
12	Position 4 directional spike (successful balls)	78	78	77	77	77.5
13	Running vertical jump (cm)	83	83	81	81	82
14	Position 2 directional spike (successful balls)	77	77	75	75	76
15	505 Agility Test	78	78	79	79	78.5
16	Jump rope (s)	78	78	77	77	77.5
17	Twenty continuous vertical jumps	78	77	77	76	77
18	Sit-ups (repetitions/min)	74	74	76	76	75
19	Block jump (cm)	84	84	85	85	84.5
20	Pine-tree run (s)	77	77	79	79	78
21	Standing long jump (cm)	74	74	75	75	74.5
22	4 × 3 m lateral movement (s)	79	79	78	78	78.5
23	Combined activity test	74	74	76	76	75
24	General endurance	77	77	77	77	77
25	Two-handed forward medicine-ball throw (m)	75	75	77	77	76
26	Agility and flexibility (s)	78	77	77	76	77
27	Cooper Test (m)	78	78	77	77	77.5

28	Harvard Step Test	75	75	76	76	75.5
29	Hexagon jump test	77	77	79	79	78
30	Change-of-direction movement (s)	88	88	89	89	88.5
31	4.5 m lateral movement	76	76	76	76	76
32	Standing vertical jump (cm)	78	78	78	78	78

Based on observation, investigation, theoretical and practical research, and consultations with coaches, experts, and lecturers, the study initially proposed 32 tests of motor coordination ability. Following a survey of 30 experts and volleyball coaches and an examination of the tests' validity, six appropriate and reliable tests were selected to assess the motor coordination ability of the male student volleyball team at the University of Finance - Marketing.

3. Assessment of the current motor coordination ability of the male student volleyball team at the University of Finance - Marketing

After identifying the tests, the study assessed the current motor coordination ability of the male student volleyball team at the University of Finance - Marketing.

Table 3: Current performance in motor coordination tests of the male student volleyball team at the University of Finance - Marketing (first assessment)

No.	Test	Mean	SD	CV (%)
1	Fan drill (s)	10.84	0.32	2.91%
2	9-3-6-3-9 run (s)	8.81	0.23	2.61%
3	Continuous ball spikes (repetitions)	7.50	0.77	10.25%
4	Running vertical jump (cm)	320.75	5.56	2.6%
5	Block jump (cm)	311.83	7.7	2.47%
6	Change-of-direction movement (s)	4.81	0.20	4.25%

The results presented in Table 3 show that:

Fan drill (s): The team's mean performance was 10.84 ± 0.32 s. The coefficient of variation, $CV = 2.91\% < 10\%$, indicates that the athletes' performances were relatively homogeneous.

Shuttle Run 9-3-6-3-9 run (s): The team's mean performance was 8.81 ± 0.23 s. The coefficient of variation, $CV = 2.61\% < 10\%$, indicates that the athletes' performances were relatively homogeneous.

Continuous ball spikes (repetitions): The team's mean performance was 7.50 ± 0.77 . The coefficient of variation, $CV = 10.25\% > 10\%$, indicates that performance was relatively heterogeneous, with a substantial difference between the highest- and lowest-performing athletes.

Running vertical jump (cm): The team's mean performance was 320.75 ± 5.56 cm. The coefficient of variation, $CV = 2.60\% < 10\%$, indicates that the athletes' performances were relatively homogeneous.

Block jump (cm): The team's mean performance was 311.83 ± 7.70 cm. The coefficient of variation, $CV = 2.47\% < 10\%$, indicates that the athletes' performances were relatively homogeneous.

Change-of-direction movement (s): The team's mean performance was 4.81 ± 0.20 s. The coefficient of variation, $CV = 4.25\% < 10\%$, indicates that the athletes' performances were relatively homogeneous. Overall, athletes' performances were homogeneous in five of the six indicators; only the continuous ball-spike test showed substantial variation ($CV > 10\%$).

Conclusion

To select tests for assessing the motor coordination ability of the male student volleyball team at the University of Finance - Marketing, the study collected, compiled, and

systematized domestic and international tests previously used for similar participants. The tests and indicators were screened to remove duplicates and those that could not be administered under existing conditions, followed by two rounds of questionnaire surveys with coaches, experts, and lecturers to select an assessment battery. Through these steps, the study selected six tests that objectively and reliably assess athletes' abilities and are suitable for the practical conditions of the University of Finance - Marketing in particular and Vietnam in general.

Nevertheless, the initial selection of 32 tests for surveying and assessing the development of motor coordination ability among the University's male student volleyball players had limitations because UFM lacked some testing equipment and the athletes' proficiency remained limited. After consultation through questionnaires, the coaches, experts, and lecturers selected only six tests: the fan drill (s), 9-3-6-3-9 run (s), continuous ball spikes (repetitions), running vertical jump (cm), block jump (cm), and change-of-direction movement (s). Although limited in number, these tests represent speed, strength, endurance, flexibility, mobility, and agility, thereby supporting a valid, appropriate, accurate, and practical assessment of volleyball-specific physical fitness.

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