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Development of Selection Criteria for the University of Danang Student Badminton Team

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Abstract
This study developed a set of scientifically based selection standards for the badminton team of the University of Danang using conventional sport science research methods. The standards consist of ten indicators, including six physical fitness and four technical skill indicators, all demonstrating high reliability, and serve as a basis for improving student performance and enhancing team selection quality.

1. Introduction

In recent years, the continuous advancement in technical skills, tactical proficiency, and physical performance of badminton athletes nationwide has placed increasing demands on the professional capacity of teachers and coaches involved in badminton instruction and training. Consequently, improving training effectiveness and competitive performance of university badminton teams has become a critical task, particularly in the context of systematic and scientific athlete selection.

Recent studies in sport science emphasize that athlete selection plays a decisive role in long-term performance development, as it provides a foundation for identifying individuals with suitable physical, technical, and motor characteristics for a specific sport. Sports selection is currently regarded as a multidisciplinary process, integrating pedagogical, psychological, and biomedical approaches to evaluate athletes' potential and predict future performance outcomes.

Contemporary research also highlights that effective talent identification should focus not only on current performance levels but also on the assessment of key physical fitness and technical indicators that contribute to sustainable performance development. A structured, evidence-based selection system enables coaches to optimize training programs and enhance competitive success at both individual and team levels.

Based on these perspectives, the present study aims to develop scientifically grounded selection standards for the badminton team of the University of Danang, thereby contributing to the improvement of training quality and competitive performance among university students.

2. Methods

This study was conducted using a systematic methodological framework commonly applied in sport science research. Document analysis and synthesis were employed to establish the theoretical foundation and identify relevant concepts related to athlete selection and performance development. Expert interviews were conducted to collect professional insights and practical experience from coaches and specialists in badminton training. Pedagogical testing was applied to assess students' physical fitness and technical skill levels based on predefined indicators. Pedagogical experimentation was implemented to examine the effectiveness of the proposed selection standards in practice.

Quantitative data obtained from the study were processed and analyzed using appropriate mathematical and statistical methods to ensure the reliability and validity of the research findings.

3. Results

3.1. Selection of Criteria for the Badminton Team of the University of Danang

3.1.1. Expert Interview for Selecting Badminton Team Criteria

To identify appropriate selection criteria for the Badminton Team of the University of Danang, an initial review of relevant literature and practical observation of commonly used selection indicators in athlete and student recruitment were conducted. Based on this preliminary analysis, a pool of potential physical fitness and technical performance indicators was established. Subsequently, expert interviews were carried out using a structured questionnaire to determine the most relevant and feasible criteria. Participants in the interview process included badminton experts, lecturers, and coaches with practical experience in training and athlete selection.

The interview results indicated that, among the 25 physical and technical indicators proposed, 10 indicators were rated highly by experts, with an agreement level of 75% or higher. These indicators were therefore selected for inclusion in the selection framework and are categorized as follows:

Category	Indicator	Unit	Testing procedure
Physical fitness	30 m sprint from standing start	s	Sprint 30 m from a standing start; time recorded.
	Standing long jump	cm	Jump forward from standing position; distance measured.
	Four-corner movement test starting from the center of the singles court	repetitions	Move from center to four court corners repeatedly for 20s.
	Lateral movement across the singles court	repetitions	Perform continuous lateral movements across the court for 20s.
	Standing badminton throw	cm	Throw shuttlecock forward from standing position; distance measured.
	Single-rope skipping	repetitions	Perform continuous rope skipping for 2 min; total counted.
Technical skills	High deep straight clear shots	successful shots	Perform 10 straight clear shots to target area; successes counted.
	Straight drop shots	successful shots	Perform 10 straight drop shots to target area; successes counted.
	Straight smash shots	successful shots	Perform 10 straight smash shots to target area; successes counted.
	High long serve	successful serves	Perform 10 high long serves to target area; successes counted.

3.1.2. Determination of Reliability and Informative Value of Selection Criteria for the Badminton Team of the University of Danang

3.2.1. Determination of the Reliability of Selection Criteria

To ensure the scientific validity of the proposed selection criteria for the Badminton Team of the University of Danang, the reliability of each indicator was examined. Reliability assessment was conducted to evaluate the consistency and stability of the selected physical fitness and technical skill indicators when applied repeatedly under similar testing conditions.

The reliability testing procedure aimed to confirm that the selected indicators produce consistent results and can be reliably used as objective measures in the selection and evaluation of student-athletes. The results of the reliability analysis of the selection criteria are presented in Table 1.

Table 1: Results of reliability testing of selection criteria for students of the Badminton Team of the University of Danang

Indicator	Test 1 ($\bar{X} \pm \delta$)	Test 2 ($\bar{X} \pm \delta$)	r	p
30 m sprint from standing start (s)	4.13±0.09	4.12±0.09	0.93	< 0.01
Standing long jump (cm)	247.7±10.52	248.6±9.70	0.97	< 0.01
Four-corner movement test starting from the center of the singles court in 20 s (repetitions)	3.19±0.68	3.29±0.70	0.84	< 0.01
Lateral movement across the singles court in 20 s (repetitions)	6.80±0.96	6.77±0.94	0.84	< 0.01
Standing badminton throw (cm)	796.8±41.97	797.5±41.79	0.99	< 0.01
Single-rope skipping for 2 minutes (repetitions)	290.16±14.11	288.94±16.23	0.96	< 0.01
High deep straight clear shots to the target area (10 attempts, successful shots)	9.48±0.88	9.45±0.87	0.81	< 0.01
Straight drop shots to the target area (10 attempts, successful shots)	8.71±1.02	8.77±1.01	0.85	< 0.01
Straight smash shots to the target area (10 attempts, successful shots)	8.97±0.86	8.08±0.92	0.86	< 0.01
High long serve to the target area (10 attempts, successful serves)	8.13±1.24	8.16±1.27	0.91	< 0.01

The results indicated that all ten physical fitness and technical skill indicators demonstrated high reliability, with correlation coefficients exceeding 0.80 and statistical significance at $p < 0.01$.

3.2.2. Determination of the informativeness of selection criteria for the Badminton Team of the University of Danang

The informativeness of a test refers to its accuracy in measuring and reflecting a specific characteristic, such as quality, ability, or performance capacity. To examine the informativeness of the selected indicators, Spearman's rank correlation coefficient was calculated between the results of each test and the athletes' rankings obtained from round-robin competition outcomes. The results are presented in Table 2.

Based on the synthesis of relevant literature, expert interviews, reliability testing, and informativeness analysis, the study identified a set of ten valid selection criteria for male students participating in the specialized badminton program at the Faculty of Physical Education, University of Danang. These criteria comprise six physical fitness indicators and four technical skill indicators, as follows:

Physical fitness indicators (n = 6): 30 m sprint from standing start (s), Standing long jump (cm), Four-corner movement test starting from the center of the singles court in 20 s (repetitions), Lateral movement across the singles court in 20 s (repetitions), Standing badminton throw (cm), Single-rope skipping for 2 minutes (repetitions)

Technical skill indicators (n = 4): High deep straight clear shots to the target area (10 attempts, successful shots), Straight drop shots to the target area (10 attempts, successful shots), Straight smash shots to the target area (10 attempts, successful shots), High long serve to the target area (10 attempts, successful serves)

Table 2: Informativeness test results of selection criteria for the Badminton Team of the University of Danang

Indicator	R	p
30 m sprint from standing start (s)	0.89	< 0.05
Standing long jump (cm)	0.84	< 0.05
Four-corner movement test starting from the center of the singles court in 20 s (repetitions)	0.86	< 0.05
Lateral movement across the singles court in 20 s (repetitions)	0.78	< 0.05
Standing badminton throw (cm)	0.71	< 0.05
Single-rope skipping for 2 minutes (repetitions)	0.80	< 0.05
High deep straight clear shots to the target area (10 attempts, successful shots)	0.78	< 0.05
Straight drop shots to the target area (10 attempts, successful shots)	0.70	< 0.05
Straight smash shots to the target area (10 attempts, successful shots)	0.72	< 0.05
High long serve to the target area (10 attempts, successful serves)	0.77	< 0.05

3.2. Development of the scoring scale and classification standards for selecting the Badminton Team of the University of Danang

After establishing the reliability and informativeness of the selected indicators, a scoring scale and classification standards were developed for the selection of athletes for the Badminton Team of the University of Danang. The scoring system was constructed based on the distribution of performance results for each indicator and was used to categorize candidates according to predefined performance levels. The results are presented in Tables 3 and 4.

Table 3: Scoring scale for selecting athletes for the Badminton Team of the Faculty of Physical Education, University of Danang

Indicator	1	2	3	4	5	6	7	8	9	10
30 m sprint from standing start (s)	4.30	4.26	4.21	4.17	4.13	4.08	4.04	3.99	3.95	3.91
Standing long jump (cm)	227	232	237	242	248	253	258	264	269	274
Four-corner movement test starting from the center of the singles court in 20 s (repetitions)	3	4	4	4	4	6	6	6	7	7
Lateral movement across the singles court in 20 s (repetitions)	6	6	7	7	8	8	9	9	10	10
Standing badminton throw (cm)	716	736	756	777	807	817	837	858	878	898
Single-rope skipping (repetitions)	262	269	276	283	290	297	304	311	318	325
High deep straight clear shots to the target area (10 attempts, successful shots)	6	6	7	7	7	8	8	9	9	10
Straight drop shots to the target area (10 attempts, successful shots)	6	6	7	7	8	8	9	9	10	10
Straight smash shots to the target area (10 attempts, successful shots)	6	7	7	7	8	8	9	9	10	10
High long serve to the target area (10 attempts, successful serves)	5	5	6	7	7	8	8	9	10	10

Scores range from 1 (lowest performance) to 10 (highest performance)
Values highlighted in bold represent the average benchmark level

Table 4: Classification of individual factors and overall selection criteria for the Badminton Team of the University of Danang

No.	Factor	Excellent	Good	Average	Poor	Very poor
1	Physical fitness	54–60	42–<54	30–<42	18–<30	0–<18
2	Technical skills	36–40	28–<36	20–<28	12–<20	0–<12
3	Overall score	90–<100	70–<90	50–<70	30–<50	0–<30

Classification is based on the sum of standardized scores obtained from the physical fitness and technical skill indicators.

Higher scores indicate better suitability for team selection.

4. Conclusion

1. The study successfully identified a system of selection criteria for the Badminton Team of the University of Danang, comprising a total of ten indicators. These

include six physical fitness indicators: 30 m sprint from standing start, standing long jump, four-corner movement test starting from the center of the singles court in 20 s, lateral movement across the singles court in 20 s, standing badminton throw, and single-rope skipping for 2 minutes; and four technical skill indicators: high deep straight clear shots, straight drop shots, straight smash shots, and high long serves, each assessed over ten attempts.

2. In addition, a scoring scale and comprehensive classification standards for badminton team selection were developed. The validation results demonstrated that the proposed scoring system accurately reflected students' learning and competitive performance. Students classified at higher levels based on the total selection scores achieved better training and competition outcomes, whereas those with lower classification levels showed correspondingly poorer performance. These findings confirm the scientific validity and practical evidence of the proposed selection criteria and classification system.

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