SPORT TK-EuroAmerican Journal of Sport Sciences

https://revistas.um.es/sportk Online ISSN: 2340-8812

Received: **30/05/2025.** Accepted: **28/09/2025.** Published: **31/12/2025**

Proposed criteria for classifying physical fitness levels of high school students according to the General Education Program of Vietnam

Nguyễn Mạnh Toàn[1], Nguyễn Thị Hà[2]*, Hà Minh Dịu[2]

[1] Hanoi University of Physical Education and Sports, Vietnam.

[2] Hanoi Pedagogical University 2, Vietnam.

* Correspondence: Nguyễn Thị Hà; nguyenthihagdtc@hpu2.edu.vn

ABSTRACT

This study aimed to propose criteria for evaluating and classifying the physical fitness of high school students in accordance with the requirements of Vietnam's General Education Program for Physical Education, while also examining the feasibility and urgency of these criteria within the practical context of student assessment. The research employed methods of document analysis and synthesis, interviews, social surveys, and pedagogical testing to achieve its objectives. A total of 30 experts, lecturers, teachers, and scientists, together with 900 students, participated in testing the scientific basis of the selected assessment tools, including their reliability and validity, during the selection and trial implementation of tests used to evaluate and classify students' physical fitness. The study ultimately identified six criteria for evaluating and classifying the physical fitness of high school students, and these criteria were validated through trials that confirmed their feasibility and urgency in practice. When applied regularly, these criteria can accurately assess and classify students' physical fitness, thereby meeting the requirements of Vietnam's General Education Program for Physical Education.

KEYWORDS

Criteria; Assessment; Physical Fitness; High School; Students

1. INTRODUCTION

In recent years, Vietnam has made remarkable progress in many fields, particularly in physical education and sports, as well as in the physical training of students at all levels of the education system. The State has invested in facilities and equipment to support the training process, resulting in notable achievements. For example, 100% of high schools now include physical

education classes in the curriculum established by the Ministry of Education and Training. Schools also participate in sports activities organized by local authorities, the Department of Education, and the Department of Culture and Sports at the district and county levels. The movement promoting physical exercise and sports in general, and physical training in particular, among students at all levels has become increasingly widespread.

However, the effectiveness of physical education in schools still faces several limitations and weaknesses. The teaching of physical education and sports often remains formalistic, and students' physical capabilities are relatively limited, partly due to inadequate training equipment and facilities. In many places, the management, direction, and organization of training content implementation are not well coordinated or effective. Additionally, both in-class and extracurricular physical education curricula are not always aligned with the psychological and physiological characteristics of students, leading to unsatisfactory learning outcomes. Therefore, it is necessary to identify appropriate solutions to enhance the overall effectiveness of physical education and to improve students' physical fitness in particular. Addressing this issue is an urgent responsibility for educational administrators, policymakers, and society as a whole.

The health of the population has consistently been a priority for the Party and the State, as it plays a crucial role in improving the quality of the country's human resources. With appropriate policies, steady economic growth, and increasing public awareness, the physical fitness and stature of the Vietnamese population have improved significantly in recent years. Several studies have documented these positive trends (Chí, 2001; Dân, 2005; Dũng, 2010; Dương, 2020; Hải, 2000; Lan, 2016; Ngọc, 2011; Institute of Sports Science, 2003). However, when compared with international standards, the physical fitness and stature of the Vietnamese population still lag behind those of many countries in the region. If this situation is not addressed promptly, it may negatively affect national human resource development and hinder the country's industrialization, modernization, and international economic integration processes.

Currently, the assessment and evaluation of students' physical fitness remain undervalued and do not receive adequate attention. In many schools, facilities fail to meet the required standards, and there is no appropriate or consistent mechanism for evaluating the physical fitness of high school students. Moreover, changes in the socio-economic environment have influenced individuals' physical capabilities, highlighting the need to establish updated physical training standards for Vietnamese high school students to replace the existing system. The current physical fitness standards, issued under Decision No. 53/2008/QĐ-BGDĐT, have been in effect for more than 15

years and are no longer appropriate for present conditions (Ministry of Education and Training, 2008).

So far, in our country, several studies have been conducted on the physical development of students of different ages (An, 2023; Chí, 2001; Diệp, 2017; Dung, 2010; Dân, 2005; Hop, 2022; Khoa, 2019; Lieu, 2016). These studies mainly focus on strategies to improve the quality of physical education and the physical development of students. Based on the research of Duong Nghiep Chi (2001), the sports sector and the Ministry of Education and Training have studied and issued regulations on the assessment and classification of students' physical fitness, covering ages 6 to 20 (Ministry of Education and Training, 2008). However, in practice, several shortcomings have been observed in the application and implementation, such as:

- The facilities of many schools, especially secondary schools in mountainous and remote areas, do not meet the required standards, making implementation difficult.
- The assessment and evaluation of physical fitness for high school students are still undervalued and have not received adequate attention.
- There is no suitable mechanism for implementing, assessing, and classifying the physical fitness of students in conjunction with evaluating their academic performance in physical education.
- The standards for evaluating and classifying the physical training of high school students (three levels: Good, Satisfactory, Unsatisfactory) do not ensure accurate assessment and classification.

On the other hand, due to socio-economic development, there have been noticeable impacts on individuals' physical capabilities. Therefore, it is essential to establish new physical training standards for Vietnamese students to replace the existing ones, which have been in use since Decision No. 53/2008/QĐ-BGDĐT (dated September 18, 2008) and are now over 15 years old, making them unsuitable for the current context. Based on these considerations, this study aims to develop criteria for evaluating and classifying the physical fitness of high school students in accordance with the requirements of Vietnam's General Education Program for Physical Education, as well as to examine the feasibility and urgency of these criteria in practical assessment contexts.

2. METHODS

2.1. Design and Participants

The study employed document analysis and synthesis, interview methods, social surveys, and pedagogical testing. Document analysis and synthesis were conducted following the approach proposed by Toan and Ton (2015) to establish the theoretical and scientific foundations for the development of the evaluation criteria. A total of 930 participants were involved in the research process, including 30 experts, lecturers, teachers, and scientists, and 900 high school students. The experts contributed to the consultation, selection, and evaluation of the proposed criteria and assessment tools, while the students participated in the testing and trial implementation of the selected physical fitness assessments.

2.2. Procedure and Instruments

Interviews with experts, lecturers, teachers, and scientists were used to collect professional opinions regarding the relevance, feasibility, and urgency of the proposed criteria. Social surveys provided additional practical information related to the applicability of the assessment system.

Pedagogical testing was carried out to examine the scientific basis of the selected assessment tools, including their reliability and validity, through the selection and trial implementation of tests used to evaluate and classify students' physical fitness.

2.3. Statistical Analyses

Quantitative data were processed using statistical mathematics methods as described by Lẫm and Thành (2015). The analyses included Likert scale scoring, percentage calculations, mean values, standard deviation, chi-square comparison, and correlation coefficients. All statistical analyses were conducted using statistical software (SPSS, version 26), with the level of significance set at $p < 0.05$.

3. RESULTS

3.1. Evaluation Criteria and Physical Fitness Classification aligned with the Physical Education Curriculum

Through a review of relevant specialized documents (Thìn, 2022; An, 2023; Keating et al., 2019; Guthold et al., 2019; The Association of Southeast Asian Nations [ASEAN], 2023), and based on the objectives and requirements of the 2018 general education program for physical education as well as the physical education program for the research subjects, the study also investigated the current situation of physical fitness assessment and evaluation among high school students. Based on

these analyses, 10 criteria (tests) were selected to assess and classify the physical fitness of high school students in accordance with the requirements of the 2018 general education program for physical education (Ministry of Education and Training, 2018).

To select physical fitness assessment tests for high school students that meet the requirements of the 2018 general education program in physical education, the project conducted expert consultations through indirect interviews and direct workshops. The participants included 30 experts, lecturers, teachers, and scientists. The research process involved interviews and workshops with these experts to determine the appropriate physical fitness assessment tests for high school students. The content of the consultations focused on the suitability and feasibility of the proposed tests, considering requirements related to facilities, human resources, and professional standards, including: the degree of suitability and feasibility under general school conditions; the feasibility of implementing the tests under existing conditions.

In addition, a Likert scale was used to assess the level of agreement among participants. The results of the first and second interviews are presented in Tables 1 and 2, respectively.

Table 1. Results of the first interview on the suitability of physical fitness assessment tests for high school students in Vietnam (n = 30)

Test	Interview results ranked by priority										Average score
	Level 5		Level 4		Level 3		Level 2		Level 1		
	n	%	n	%	n	%	n	%	n	%	
1. Grip strength (kg)	2	6.67	0	0.00	10	33.33	11	36.67	7	23.33	**2.30**
2. Push-ups for 30 seconds (reps)	24	80.00	3	10.00	1	3.33	2	6.67	0	0.00	**4.63**
3. Lie on your back and do crunches (reps/30s).	25	83.33	4	13.33	0	0.00	1	3.33	0	0.00	**4.77**
4. Sit and with (cm)	0	0.00	2	6.67	10	33.33	0	0.00	18	60.00	**1.87**
5. Jump distance from a standing position (cm)	30	100	0	0.00	0	0.00	0	0.00	0	0.00	**5.00**
6. Run 30m from a high start (s)	24	80.00	5	16.67	0	0.00	1	3.33	0	0.00	**4.73**
7. Run 4×10 meters (s)	26	86.67	2	6.67	1	3.33	1	3.33	0	0.00	**4.77**
8. Run at your own pace for 5 minutes	2	6.67	3	10.00	7	23.33	11	36.67	7	23.33	**2.40**
9. Run 1000m (minutes)	25	83.33	4	13.33	1	3.33	0	0.00	0	0.00	**4.80**
10. Run 1000m (men), 500m (women) (s)	3	10.00	3	10.00	5	16.67	10	33.33	9	30.00	**2.37**

Table 2. Results of the second interview on the suitability of assessment tests and physical fitness classification for high school students in Vietnam (n = 30)

Test	Interview results ranked by priority.										Average score
	Level 5		Level 4		Level 3		Level 2		Level 1		
	n	%	n	%	n	%	n	%	n	%	
1. Grip strength (kg)	2	6.67	0	0.00	10	33.33	10	33.33	8	26.67	**2.27**
2. Push-ups for 30 seconds (reps)	24	80.00	4	13.33	1	3.33	1	3.33	0	0.00	**4.70**
3. Lie on your back and do crunches (reps/30s).	25	83.33	4	13.33	1	3.33	0	0.00	0	0.00	**4.80**
4. Sit and with (cm)	0	0.00	2	6.67	9	30.00	0	0.00	19	63.33	**1.80**
5. Jump distance from a standing position (cm)	30	100	0	0.00	0	0.00	0	0.00	0	0.00	**5.00**
6. Run 30m from a high start (s)	24	80.00	4	13.33	1	3.33	1	3.33	0	0.00	**4.70**
7. Run 4×10 meters (s)	26	86.67	2	6.67	1	3.33	1	3.33	0	0.00	**4.77**
8. Run at your own pace for 5 minutes	2	6.67	3	10.00	7	23.33	10	33.33	8	26.67	**2.37**
9. Run 1000m (minutes)	26	86.67	3	10.00	0	0.00	1	3.33	0	0.00	**4.80**
10. Run 1000m (men), 500m (women) (s)	3	10.00	3	10.00	5	16.67	11	36.67	8	26.67	**2.40**

The results presented in Tables 1 and 2 indicate that, when considering the suitability and feasibility of the assessment tests for classifying physical fitness among high school students in Vietnam under actual school conditions, the majority of respondents rated them as fairly suitable/feasible to very suitable/very feasible. The approval rates ranged from 93.33% to 100.00%, with mean scores between 4.63 and 5.00 in the first interview, and from 96.67% to 100.00%, with mean scores between 4.70 and 5.00 in the second interview, demonstrating the overall appropriateness of the tests and the practical feasibility of the physical fitness assessment criteria in school settings.

Thus, the results from the two interviews and expert workshops indicate that the experts' opinions were relatively consistent across both rounds. Based on the findings presented in Tables 1 and 2, the study further examined the level of consistency and reliability between the two interviews regarding the assessment tests and the classification of physical fitness for high school students in Vietnam. To achieve this, the relevance and feasibility ratings of the selected tests were compared across the two rounds. The results of this comparison are presented in Table 3.

Table 3. Comparison of the two interviews on the relevance of assessment tests for classifying physical fitness among high school students in Vietnam (n = 30)

Content of the tests	Average score		Comparison		p value
	Once 1	Once 2	$\chi^2_{calculate}$	χ^2_{table}	
Grip strength (kg)	2.30	2.27	**0.457**	**7.815**	>0.05
Push-ups for 30 seconds (reps)	4.63	4.70	**0.476**		>0.05
Lie on your back and do crunches (reps/30s)	4.77	4.80	**0.766**		>0.05
Sit and with (cm)	1.87	1.80	**0.431**		>0.05
Jump distance from a standing position (cm)	5.00	5.00	**0.000**		>0.05
Run 30m from a high start (s)	4.73	4.70	**0.411**		>0.05
Run 4×10 meters (s)	4.77	4.77	**0.000**		>0.05
Run at your own pace for 5 minutes	2.40	2.37	**0.476**		>0.05
Run 1000m (minutes)	4.80	4.80	**0.000**		>0.05
Run 1000m (men), 500m (women) (s)	2.37	2.40	**0.476**		>0.05

The results presented in Table 3 indicate that there was no significant difference between the first and second interviews regarding the suitability and feasibility of the 11 selected fitness assessment tests for high school students in Vietnam. Based on these findings, the study selected six fitness assessment tests for high school students, as follows:

1. **Assessment of upper body strength:** Push-ups in a prone position for 30 seconds (repetitions) — for males: standard push-ups; for females: knee push-ups.
2. **Assessment of abdominal strength:** Sit-ups for 30 seconds (repetitions).
3. **Assessment of lower body strength and coordination:** Standing long jump (cm).
4. **Assessment of speed:** 30-meter sprint from a standing start (seconds).
5. **Assessment of speed and agility:** Shuttle run 4 × 10 meters (seconds).
6. **Assessment of endurance:** 1000-meter run (minutes).

3.2. Determining the Reliability of the Selection Criteria

To assess the reliability of the tests used for evaluating and classifying physical fitness among high school students in Vietnam, the study administered each test twice under the same conditions and on the same participants, using the test-retest method. The results presented in Tables 4 to 6 indicate that all six tests demonstrated very high reliability, with correlation coefficients (r) exceeding 0.800 and significance levels of $p < 0.05$.

Table 4. Reliability of assessment tests for classifying physical fitness in 15-year-old high school students in Vietnam

Test	Males (n = 150)		Correlation coefficient (r)	Females (n = 150)		Correlation coefficient (r)
	Once 1 $\overline{x} \pm \sigma$	Once 2 $\overline{x} \pm \sigma$		Once 1 $\overline{x} \pm \sigma$	Once 2 $\overline{x} \pm \sigma$	
1. Push-ups for 30 seconds (reps)	15.44±0.53	15.59±0.54	0.833	10.02±0.35	10.12±0.35	0.867
2. Lie on your back and do crunches (reps/30s).	15.78±0.64	15.97±0.53	0.835	9.57±0.32	9.68±0.32	0.884
3. Jump distance from a standing position (cm)	193.15±7.75	192.34±8.67	0.877	146.83±6.99	146.21±6.59	0.876
4. Run 30m from a high start (s)	6.11±0.19	6.18±0.26	0.869	6.70±0.24	6.77±0.29	0.851
5. Run 4×10 meters (s)	12.18±0.45	12.19±0.46	0.857	13.38±0.54	13.39±0.50	0.837
6. Run 1000m (minutes)	9.41±0.30	9.44±0.30	0.844	11.21±0.36	11.25±0.36	0.869

Table 5. Reliability of assessment tests and physical fitness classification for 16-year-old high school students in Vietnam

Test	Males (n = 150)		Correlation coefficient (r)	Females (n = 150)		Correlation coefficient (r)
	Once 1 $\overline{x} \pm \sigma$	Once 2 $\overline{x} \pm \sigma$		Once 1 $\overline{x} \pm \sigma$	Once 2 $\overline{x} \pm \sigma$	
1. Push-ups for 30 seconds (reps)	14.43±0.50	14.57±0.50	0.825	11.07±0.38	11.18±0.39	0.858
2. Lie on your back and do crunches (reps/30s).	19.34±0.68	19.56±0.65	0.827	10.22±0.37	10.34±0.34	0.875
3. Jump distance from a standing position (cm)	201.72±7.25	200.87±9.06	0.868	149.28±5.93	148.65±6.70	0.867
4. Run 30m from a high start (s)	5.54±0.18	5.60±0.24	0.860	6.49±0.21	6.56±0.28	0.842
5. Run 4×10 meters (s)	11.56±0.41	11.57±0.44	0.848	13.10±0.49	13.11±0.49	0.829
6. Run 1000m (minutes)	9.25±0.30	9.28±0.30	0.836	11.05±0.35	11.09±0.36	0.860

Table 6. Reliability of assessment tests for classifying physical fitness in 17-year-old high school students in Vietnam

Test	Males (n = 150)		Correlation coefficient (r)	Females (n = 150)		Correlation coefficient (r)
	Once 1 $\overline{x} \pm \sigma$	Once 2 $\overline{x} \pm \sigma$		Once 1 $\overline{x} \pm \sigma$	Once 2 $\overline{x} \pm \sigma$	
1. Push-ups for 30 seconds (reps)	13.42±0.46	13.55±0.47	0.832	12.12±0.42	12.24±0.42	0.866
2. Lie on your back and do crunches (reps/30s).	22.89±0.73	23.16±0.77	0.834	10.86±0.35	10.99±0.37	0.883
3. Jump distance from a standing position (cm)	210.28±6.75	209.40±9.44	0.876	151.72±4.87	151.08±6.81	0.875
4. Run 30m from a high start (s)	4.97±0.16	5.02±0.21	0.868	6.28±0.18	6.35±0.27	0.850

5. Run 4×10 meters (s)	10.93±0.38	10.94±0.41	0.856	12.82±0.44	12.83±0.48	0.836
6. Run 1000m (minutes)	9.08±0.29	9.11±0.29	0.843	10.89±0.35	10.93±0.35	0.868

3.3. Determining the Informative Value of the Selected Tests

To evaluate the informative value of the selected tests, the study examined the correlation between the six chosen tests and students' academic performance in physical education. The results presented in Tables 7 to 9 show that all six tests, which passed the reliability check, demonstrated strong correlations with full informative value ($r >$ critical values of 0.5324 and 0.5760, $p < 0.05$). These findings indicate that the tests are suitable for practical application in assessing and classifying the physical fitness of high school students.

Table 7. Informative coefficients between fitness assessment tests and physical education performance in 15-year-old high school students in Vietnam

Test	Males (n = 150)		Females (n = 150)	
	$\overline{x} \pm \sigma$	**r**	$\overline{x} \pm \sigma$	**r**
1. Push-ups for 30 seconds (reps)	15.44±0.53	**0.721**	10.02±0.35	**0.716**
2. Lie on your back and do crunches (reps/30s).	15.78±0.64	0.847	9.57±0.32	0.820
3. Jump distance from a standing position (cm)	193.15±7.75	0.800	146.83±6.99	0.785
4. Run 30m from a high start (s)	6.11±0.19	0.744	6.70±0.24	0.718
5. Run 4×10 meters (s)	12.18±0.45	0.750	13.38±0.54	0.737
6. Run 1000m (minutes)	9.41±0.30	0.851	11.21±0.36	0.816

Table 8. Correlation between assessment tests, physical fitness classifications, and physical education performance in 16-year-old high school students in Vietnam

Test	Males (n = 150)		Females (n = 150)	
	$\overline{x} \pm \sigma$	**r**	$\overline{x} \pm \sigma$	**r**
1. Push-ups for 30 seconds (reps)	14.43±0.50	**0.721**	11.07±0.38	**0.716**
2. Lie on your back and do crunches (reps/30s).	19.34±0.68	0.846	10.22±0.37	0.819
3. Jump distance from a standing position (cm)	201.72±7.25	0.799	149.28±5.93	0.784
4. Run 30m from a high start (s)	5.54±0.18	0.744	6.49±0.21	0.718
5. Run 4×10 meters (s)	11.56±0.41	0.750	13.10±0.49	0.737
6. Run 1000m (minutes)	9.25±0.30	0.850	11.05±0.35	0.815

Table 9. Correlation between assessment tests, physical fitness classifications, and physical education performance in 17-year-old high school students in Vietnam

Test	Males (n = 150)		Females (n = 150)	
	$\overline{x} \pm \sigma$	**r**	$\overline{x} \pm \sigma$	**r**
1. Push-ups for 30 seconds (reps)	13.42±0.46	**0.720**	12.12±0.42	**0.715**
2. Lie on your back and do crunches (reps/30s).	22.89±0.73	0.846	10.86±0.35	0.819
3. Jump distance from a standing position (cm)	210.28±6.75	0.799	151.72±4.87	0.784
4. Run 30m from a high start (s)	4.97±0.16	0.743	6.28±0.18	0.717
5. Run 4×10 meters (s)	10.93±0.38	0.749	12.82±0.44	0.736
6. Run 1000m (minutes)	9.08±0.29	0.850	10.89±0.35	0.815

The results indicate that the correlation between the selection tests and the academic performance in physical education of male students is higher than that of female students, with the correlation of the tests with the academic performance in physical education of male students being relatively strong and higher compared to female students. This is also consistent with the findings of research studies on this issue published by authors both domestically and internationally.

Thus, by analyzing and synthesizing relevant documents, along with surveying the opinions of experts, determining the correlation between the two testing instances (assessing the reliability of the tests), and establishing the correlation between the test results and the practical learning outcomes in physical education (determining the validity of the tests), the research findings of this study have demonstrated that all six selected tests ensure sufficient reliability and validity, are suitable for the practical conditions in schools, and can be applied to assess and classify the physical fitness of Vietnamese students in accordance with the requirements of the 2018 general education curriculum for physical education.

3.4. Survey on the Necessity and Feasibility of Physical Fitness Evaluation Criteria for High School Students

The study conducted a survey on the perceived necessity of the evaluation criteria for classifying physical fitness among high school students, targeting staff and lecturers. Based on the survey results, the study analyzed the correlation between the proposed evaluation criteria and their perceived necessity, providing a basis for selecting criteria that are suitable for the practical conditions of assessing and classifying physical fitness in high schools. The results are presented in Table 10.

Table 10. Verification of the necessity of evaluation criteria for classifying physical fitness in high school students (n = 30)

Criteria	Very necessary		Necessary		Somewhat necessary		Not necessary		$\sum$	$\overline{X}$	Average
	n	%	n	%	n	%	n	%			
1. Push-ups for 30 seconds (reps)	24	80.00	5	16.67	1	3.33	0	0.00	113	3.77	3
2. Lie on your back and do crunches (reps/30s).	23	76.67	5	16.67	2	6.66	0	0.00	111	3.70	5
3. Jump distance from a standing position (cm)	26	86.67	4	13.33	0	0.00	0	0.00	116	3.87	1
4. Run 30m from a high start (s)	26	86.67	3	10.00	1	3.33	0	0.00	115	3.83	2
5. Run 4×10 meters (s)	23	76.67	5	16.67	1	3.33	1	3.33	110	3.67	6
6. Run 1000m (minutes)	25	83.34	3	10.00	2	6.66	0	0.00	113	3.77	3
$\overline{X}$										**3.77**	

Table 10 shows that the surveyed subjects highly value the necessity of the 6 criteria for assessing and classifying physical fitness for high school students, with an overall average score of 3.77. The opinions on the results are concentrated at two levels: very necessary and necessary.

The highest evaluations of necessity were assigned to Criterion 3 and Criterion 4 — the standing long jump (cm) and the 30-meter sprint from a standing start (s) — for the assessment and classification of physical fitness in high school students. The criteria for prone push-ups for 30 seconds (repetitions) and the 1000-meter run (minutes) were both ranked fourth, supine sit-ups (repetitions/30s) ranked fifth, and the shuttle run 4 × 10 meters (s) ranked sixth.

The results of the survey on the feasibility of the proposed evaluation and classification criteria for physical fitness in high school students are presented in Table 11.

Table 11. Verification of the feasibility of evaluation and classification criteria for physical fitness in high school students (n = 30)

Criteria	Very feasible		Feasible		Less feasible		Not feasible		$\sum$	$\overline{X}$	Average
	n	%	n	%	n	%	n	%			
1. Push-ups for 30 seconds (reps)	25	83.34	4	13.33	1	3.33	0	0.00	114	3.80	4
2. Lie on your back and do crunches (reps/30s).	24	80.00	5	16.67	1	3.33	0	0.00	113	3.77	5
3. Jump distance from a standing position (cm)	27	90.00	2	6.67	1	3.33	0	0.00	116	3.87	1
4. Run 30m from a high start (s)	27	90.00	1	3.33	2	6.67	0	0.00	115	3.83	2
5. Run 4×10 meters (s)	23	76.66	5	16.67	2	6.67	0	0.00	111	3.70	6
6. Run 1000m (minutes)	26	86.67	3	10.00	1	3.33	0	0.00	115	3.83	2
$\overline{X}$										**3.80**	

Table 11 shows that experts, lecturers, teachers, and scientists rated the standing long jump (cm) criterion as the most feasible, with an average score of 3.87 (ranked 1st). The 30-meter sprint from a standing start (s) and the 1000-meter run (minutes) were ranked 2nd, with an average score of 3.83. The prone push-ups for 30 seconds (repetitions), supine sit-ups (repetitions/30s), and shuttle run 4 × 10 meters (s) were ranked 4th, 5th, and 6th, respectively.

4. DISCUSSION

Compared to domestic research, the results of this study show that the selected evaluation criteria align with four of the six physical fitness assessment criteria for Vietnamese people established by the Institute of Sports Science (2003) in the survey "Current Physical Condition of Vietnamese People Aged 6 to 60" (Chí, 2001). These criteria are the 30-meter sprint from a standing start (s), standing long jump (cm), supine sit-ups in 30 seconds (repetitions), and shuttle run 4 × 10 meters (s).

Similarly, these criteria are consistent with Decision No. 53/2008/QĐ-BGDĐT, issued on September 18, 2008, regarding regulations on assessing and classifying physical fitness for students (Ministry of Education and Training, 2008), where four out of six criteria matched: 30-meter sprint, standing long jump, supine sit-ups, and shuttle run 4 × 10 meters.

These same criteria are also widely used by domestic researchers to assess student physical fitness, as reported by Dân (2005); Dũng (2010); Liệu (2016); Điệp (2017); Khoa (2019); Hợp (2022); An (2023). Additionally, the criterion for prone push-ups in 30 seconds (repetitions) aligns with the studiy of Dương (2020), highlighting its relevance in assessing upper body strength in high school students.

Compared to international research, the six criteria selected for assessing and classifying physical fitness in high school students are consistent with several widely used evaluation criteria abroad. For example, the standing long jump aligns with assessments by the European Community (Council of Europe Committee for the Development of Sport, 1998), as well as with studies in Poland and Turkey (Bednarek et al., 2016), the ICPER Test (International Committee for Physical Education and Recreation) (Morrow et al., 2009; Castro-Piñero et al., 2010), and the physical fitness assessment for students in China (Liu et al., 2017).

Furthermore, according to Keating et al., when comparing the most widely implemented youth fitness tests—such as China's National Physical Fitness Testing (CNPFT), the EU's ALPHA-FIT (Assessing Levels of Physical Activity and Fitness), as well as tests in Russia and the USA

(Keating et al., 2018; Keating et al., 2019)—the selected criteria in this study are also consistent with these international standards.

The main difference between the criteria in this study and those used in most domestic research lies in the assessment of hand strength and general endurance. This study defines hand strength using prone push-ups for 30 seconds (repetitions) for males and knee push-ups for 30 seconds (repetitions) for females, and it defines general endurance using a 1000-meter run or walk (seconds). In contrast, most domestic studies assess hand strength using grip strength (kg) and general endurance using a five-minute run at the individual's own pace.

The criteria proposed in this study are consistent with several international assessments. For example, in 2003, Canada applied physical fitness assessment indicators for individuals aged 15 to 69 according to the CPAFLA (Canadian Physical Activity, Fitness & Lifestyle Approach) standards, including the 1000-meter run (minutes) according to the Canadian Society for Exercise Physiology. The physical fitness assessments in ASEAN countries include push-ups in 30 seconds (repetitions) and walking or running 1 km (minutes), according to Amornsriwatanakul et al. (2019) and ASEAN (2023). The Sports and Physical Education Council of China in 1990 and 2014 used the 1000-meter run (minutes) and prone push-ups, according to Liu et al. (2017). The ICPER (International Committee for Physical Education and Recreation) test uses a 1000-meter run for males and prone push-ups, according to Morrow et al. (2009); Castro-Piñero et al. (2010).

Moreover, the push-up criterion is easy to practice and requires no equipment, which allows students to independently plan their training and assessments. The 1000-meter run provides a specific distance, enabling students to set concrete training goals and strive to meet them.

All participants agreed that the six selected criteria for assessing and classifying physical fitness in high school students were feasible, with an average feasibility score of 3.80. Most evaluations were in the very feasible and feasible categories, and there were no suggestions indicating infeasibility.

5. CONCLUSIONS

The results of this study identified six tests, along with their specific content, for assessing and classifying the physical fitness of high school students, in accordance with the requirements of the 2018 general education program for physical education. The selected tests include the assessment of upper body strength through prone push-ups for 30 seconds (repetitions), with males performing standard prone push-ups and females performing kneeling push-ups for 30 seconds. Abdominal

strength is assessed using supine sit-ups for 30 seconds (repetitions). Lower body strength and coordination are evaluated through the standing long jump (cm). Speed is measured by the 30-meter sprint from a standing start (seconds), while speed and agility are assessed using the 4 × 10-meter shuttle run (seconds). Finally, endurance is evaluated through the 1000-meter run (minutes).

By surveying expert opinions, examining the correlation between test results and practical learning outcomes in physical education, and analyzing the consistency between two testing sessions, the study has demonstrated that all six selected tests exhibit sufficient reliability and informativeness. This confirms their suitability for assessing and classifying the physical fitness of high school students in Vietnam within the current physical education curriculum. Furthermore, the survey results from teachers, lecturers, and school management staff indicate that the six proposed criteria for evaluating and classifying students' physical fitness are both necessary and feasible.

6. REFERENCES

1. Amornsriwatanakul, A., Nakornkhet, K., Katewongsa, P., Choosakul, C., Kaewmanee, T., Konharn, K., Purakom, A., Santiworakul, A., Sitilertpisan, P., Sriramatr, S., Yankai, A., Rosenberg, M., & Bull, F. C. (2016). Results from Thailand's 2016 Report Card on Physical Activity for Children and Youth. *Journal of Physical Activity & Health*, *13*(11), 291–298. https://doi.org/10.1123/jpah.2016-0316
2. An, T. N. (2023). *Research on the current situation and proposals for criteria to evaluate physical fitness levels for students at Dịch Vọng Middle School, Cầu Giấy, Hanoi* (Master's thesis, Hanoi University of Physical Education and Sports).
3. Bednarek, J., Pomykała, S., Bigosińska, M., & Szyguła, Z. (2016). *Physical activity of Polish and Turkish university students as assessed by IPAQ*. *Central European Journal of Sport Sciences and Medicine, 16*, 13–22. https://doi.org/10.18276/cej.2016.4-02
4. Canadian Society for Exercise Physiology. (2003). *The Canadian physical activity, fitness & lifestyle approach (CPAFLA): CSEP—Health & fitness program's health-related appraisal and counseling strategy* (3rd ed.). Canadian Society for Exercise Physiology.
5. Castro-Piñero, J., Artero, E. G., España-Romero, V., Ortega, F. B., Sjöström, M., Suni, J., & Ruiz, J. R. (2010). Criterion-related validity of field-based fitness tests in youth: a systematic review. British *Journal of Sports Medicine*, *44*(13), 934-943. https://doi.org/10.1136/bjsm.2009.058321
6. Chí, D. N. (2001). *Survey on assessing the physical condition and establishing a common physical fitness standard for Vietnamese people aged 6 to 60*. Institute of Sports Science.
7. China's National Sports and Physical Education Committee. (1990). *The national fitness testing methods*.
8. Council of Europe Committee for the Development of Sport. (1988). *Eurofit handbook for the EUROFIT tests of physical fitness*. Edigraf Editoriale Grafica.
9. Dân, H. C. (2005). *Research on physical development for students in ethnic boarding schools in the northern mountainous region aged 15 to 17* (Doctoral dissertation, Institute of Sports Science). http://luanan.nlv.gov.vn

10. Diệp, N. B. (2017). *Innovating extracurricular sports activities through clubs to contribute to the physical development of high school students in Son La province* (Doctoral dissertation, Institute of Sports Science).
11. Đồng, H. L. (2016). *Research on the physical development of specialized high school students in the North Central provinces* (Doctoral dissertation, Bac Ninh University of Physical Education and Sports). https://luanvan.co/luan-van/luan-an-nghien-cuu-phat-trien-the-chat-cua-hoc-sinh-trung-hoc-pho-thong-chuyen-cac-tinh-bac-mien-trung-62536
12. Dũng, T. D. (2010). *Research on the physical development of high school students from grades 1 to 12 (from 2002 to 2013)* (Ministry-level scientific and technological project, Ministry of Culture, Sports and Tourism).
13. Dương, N. H. (2020). *Survey of the physical condition of Vietnamese people according to ASEAN criteria* (Ministry-level scientific and technological project, Ministry of Culture, Sports and Tourism).
14. Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1·6 million participants. *The Lancet. Child & Adolescent Health*, *4*(1), 23–35. https://doi.org/10.1016/S2352-4642(19)30323-2
15. Hải, T. H. (2000). *Research on enhancing the physical capacity of high school students aged 11–14* (Doctoral dissertation, Institute of Sports Science). http://luanan.nlv.gov.vn
16. Hop, D. V. (2022). *Research on improving the quality of physical education at Da Nang University* (Doctoral dissertation, Institute of Sports Science).
17. Institute of Sports Science. (2003). *The physical condition of Vietnamese people aged 6 to 20 (as of 2001)*. Sports Publishing House. https://nsti.vista.gov.vn/projects/kqnv/dieu-tra-danh-gia-tinh-trang-the-chat-va-xay-dung-he-thong-tieu-chuan-the-luc-chung-cua-nguoi-viet-nam-giai-doan-i-tu-6-20-tuoi-154203.html
18. Keating X. D., Stepheson R., Liu X., & Colburn J. (2019). Cross-Cultural Comparison of Youth Fitness Testing in China and the US: An Ecological Systems Model Approach. *Journal of Research*, *10*(2), 20-27.
19. Keating, X. D., Smolianov, P., Liu, X., Castro-Piñero, J., & Smith, J. (2018). *Youth fitness testing practices: Global trends and new developments. Sport Journal*, *21*(1), 1–17.
20. Khoa, N. H. (2019). *Research on the current situation and solutions for physical development for junior high school students in Ca Mau City* (Doctoral dissertation, Institute of Sports Science). https://tailieu.vn/doc/luan-an-tien-si-giao-duc-hoc-nghien-cuu-thuc-trang-va-giai-phap-phat-trien-the-chat-cho-hoc-sinh-tr-2487730.html
21. Lẫm, L. V., & Thành, P. X. (2015). *Textbook on measurement and evaluation in physical education and sports,* Sports Publishing House, Hanoi.
22. Lieu, P. V. (2016). *Establishing assessment standards for the training level of athletes in cyclical sports aged 15–17 in Thanh Hoa* (Doctoral dissertation, Institute of Sports Science). https://vjol.info.vn/index.php/tdtt/article/view/47646/38650
23. Liu X., Keating X. D., & Shangguan R. (2017). Historical Analyses of Fitness Testing of College Students in China. *Journal of Research*, *9*(1), 1-15.
24. Ministry of Education and Training. (2008). *Decision No. 53/QĐ-BGDĐT dated September 18, 2008, issuing regulations on the assessment and classification of the physical fitness of students*. https://thuvienphapluat.vn/van-ban/Giao-duc/Quyet-dinh-53-2008-QD-BGDDT-quy-dinh-danh-gia-xep-loai-the-luc-hoc-sinh-sinh-vien-72717.aspx
25. Ministry of Education and Training. (2018). *Circular No. 32/2018/TT-BGDĐT dated December 26, 2018, by the Minister of Education and Training, issuing the general education program for physical education*. https://luatvietnam.vn/giao-duc/thong-tu-32-2018-tt-bgddt-ban-hanh-chuong-trinh-giao-duc-pho-thong-moi-169745-d1.html

26. Morrow, J. J. R., Zhu, W., Franks, D. B., Meredith, M. D., & Spain, C. (2009). 1958–2008: 50 years of youth fitness tests in the United States. *Research Quarterly for Exercise and Sport, 80*(1), 1-11.
27. Ngoc, L. T. A. (2011). *The development of physical fitness and body composition of students aged 11–14 under the influence of school physical education in Thu Duc District, Ho Chi Minh City* (Doctoral dissertation, Institute of Sports Science). http://luanan.nlv.gov.vn
28. The Association of Southeast Asian Nations. (2023). *ASEAN physical fitness indicators (APFI) report* (August 2023). https://asean.org/wp-content/uploads/2023/09/1st-APFI-Report_Publication.pdf
29. The Association of Southeast Asian Nations. (2023). *Joint report on the situational analyses of ASEAN primary health care and traditional and complementary medicine capacities: Towards the enhancement of quality health care through primary health care capacities in ASEAN member states* (December 2023). https://asean.org/wp-content/uploads/2024/03/Joint-Report-on-the-Situational-Analyses-of-ASEAN_rev21-Mar.pdf
30. Thìn, C. V. (2022). *Research on assessing general physical fitness levels for first-year students majoring in physical education at Tay Nguyen University* (Basic-level scientific project, Tay Nguyen University). https://vjol.info.vn/index.php/tckhthethao/article/view/85293/72493
31. Toan, N., & Ton, P. D. (2015). *Theory and methods of physical education and sports*. Sports Publishing House.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

FUNDING

This research received no external funding.

COPYRIGHT