



## PHYSICAL FITNESS OF FEMALE STUDENTS OF VIETNAM NATIONAL UNIVERSITY HO CHI MINH CITY, VIETNAM

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### Abstract:

The study aims to comprehensively assess the physical fitness of female students at Vietnam National University, Ho Chi Minh City (VNU-HCM). The assessment has been conducted on 3,023 nineteen-year-old female students at VNU-HCM, with the use of various methods including document synthesis and analysis, surveys, pedagogical testing, and statistical analysis. The fitness results would then be compared with the physical fitness indexes of average Vietnamese females, and of other age-same female students from different universities, such as Vietnam National University, Hanoi; the University of Danang; Can Tho University; and Ho Chi Minh City University. *Findings:* Based on the Ministry of Education and Training's Criteria 53/2008, the physical fitness status of 19-year-old female students at VNU-HCM shows that 4.71% are rated "Good," 5.89% "Pass," and 89.94% "Fail." Compared with average Vietnamese girls and other students of the universities, VNU-HCM students are considered to perform better in speed, lower-limb muscular strength, endurance, and agility.

**Keywords:** physical fitness, female students, National University, Ho Chi Minh City, Vietnam

### 1. Introduction

Human beings, as the creators of all material and cultural values, play a vital role in shaping a prosperous society. Such a society requires not only intellectual capacity but also the physical well-being of the population [2]. For that reason, enhancement of physical status becomes a central priority in many developed and developing countries, including Vietnam [1].

In addressing this issue, the 10th National Congress of the Communist Party of Vietnam in April 2006 affirmed that: "Formulating a national strategy to improve the health and physical stature of the Vietnamese people is of paramount importance ..." [3]. Accordingly,

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on April 28, 2011, the Prime Minister issued Decision No. 641/QĐ-TTg approving the overall project for enhancing the physical fitness and stature of the Vietnamese people for the 2011–2030 period. The general goal of this initiative is: *“To serve the improvement of human resource quality, the physical stature of the Vietnamese people must achieve significant development within the next 20 years.”* More specifically, 18-year-old males must achieve an average height of 167 cm by 2020 and 168.5 cm by 2030, whilst the females an average height of 156 cm by 2020 and 157.5 cm by 2030. In addition, other physical qualities must also be improved in the form of standard tests such as handgrip strength, five-minute endurance runs, and so forth [4].

The strategy for improving the physical fitness of Vietnamese people has been actively integrated into the Physical Education curriculum in schools, because it is the primary platform that the youth emerge in sports and other healthy-developing activities [5]. In physical education practice, assessing the fitness status of participants is essential, as it provides a crucial basis for developing practical solutions for the young generations. With this importance in mind, the researcher has conducted the study *“The Physical Fitness Status of Female Students at Vietnam National University, Ho Chi Minh City.”* It is to identify and provide information on the current state of physical fitness among female students at Vietnam National University, Ho Chi Minh City.

## 2. Materials & methods

### 2.1 Participants

#### 2.1.1 Test participants

The study involves 3,023 nineteen-year-old female students enrolled in different universities within the Vietnam National University, Ho Chi Minh City (VNU-HCM) system, namely:

- 425 students from the University of Science,
- 1,268 students from the University of Social Sciences and Humanities,
- 215 students from the University of Technology,
- 386 students from the University of Economics and Law,
- 125 students from the University of Information Technology,
- 456 students from the International University,
- 123 students from the Faculty of Medicine,
- 25 students from the Faculty of Political Science and Public Administration.

All of them were in normal health, with no disabilities or illnesses during the assessment process. Moreover, they were those who regularly attend physical education classes in accordance with the curriculum delivered by the Center for Physical Education and Sports of VNU-HCM.

#### 2.1.2 Survey participants

The survey subjects include 12 physical education experts and experts nationwide.

## 2.2 Methodology

### 2.2.1 Document synthesis and analysis

This method is used to systematize materials related to the criteria for evaluating students' physical fitness, thereby enabling the researcher to identify the most appropriate fitness tests for the research subjects.

### 2.2.2 Pedagogical testing

This method helps to comprehensively assess the participants' basic physical qualities with the use of the selected tests, namely 30-meter sprint (seconds), standing long jump (cm), 4 × 10-meter shuttle run (seconds), and a 5-minute endurance run (meters).

### 2.2.3 Survey method

A survey questionnaire is created to classify the importance level of each test. The survey would be conducted both directly and indirectly with lecturers, teachers, experts, researchers, administrators, physical education instructors, and coaches who possess extensive experience in the field of physical education. The survey results provide the basis for selecting the most suitable tests for the evaluation of the physical fitness of students at Vietnam National University, Ho Chi Minh City.

### 2.2.4 Statistical method

This method is used to analyze the collected data, with the support of SPSS for Windows version 20.0 and Microsoft Excel.

## 3. Results and Discussion

### 3.1 Physical status of VNU-HCM female students

The researcher has surveyed with experts and physical education lecturers to select four physical fitness tests, in reference to Decision No. 53/2008 of the Ministry of Education and Training [6]. The four tests are 30-meter sprint (seconds), standing long jump (cm), 4 × 10-meter shuttle run (seconds), and 5-minute endurance run (meters). The results are presented in Table 1.

**Table 1:** 19-year-old VNU-HCM 19-year-old female students' physical fitness (n = 3023) (n = 3023)

No.	Test	Index	$\bar{X}$	S	C <sub>v</sub>	$\mathcal{E}$
1	30m sprint (s)		5.88	0.48	8.24	0.01
2	Standing long jump (cm)		166.49	14.66	8.80	0.01
3	4x10m shuttle run (s)		11.95	0.88	7.39	0.01
4	5-minute endurance run (m)		759.06	96.08	12.66	0.01

The coefficient of variation (C<sub>v</sub>) is a parameter that reflects the degree of variability among individuals in a sample or population. Except for the 5-minute endurance run,

which showed a moderate level of homogeneity among the experts ( $10\% < C_v < 20\%$ ), the remaining tests, namely 30-meter sprint, 4 × 10-meter shuttle run, and standing long jump, are reported to have high homogeneity (i.e., low variability) among experts ( $C_v < 10\%$ ). These indicators consistently display high levels of homogeneity, which is likely because they are far less affected by environmental factors such as nutrition, lifestyle, or working conditions. Furthermore, they are measured on ratio scales, which possess an absolute zero point.

No matter what indicators show relatively large variability, all mean values are statistically representative ( $\varepsilon < 0.05$ ), which indicates the indicators are a reliable basis for conducting further analyses and evaluations.

### 3.2 Physical fitness assessment of female students of Vietnam National University of Ho Chi Minh City under Decision 53/2008/Education Ministry

The overall physical fitness of the participants in accordance with Decision No. 53/2008 of the Ministry of Education and Training, using the four selected tests, namely standing long jump (strength), 30-meter sprint (speed), 4 × 10-meter shuttle run (agility), and 5-minute endurance run (endurance). The results of the physical fitness evaluation of 19-year-old female students at Vietnam National University, Ho Chi Minh City, based on these tests, are presented in Table 2.

**Table 2:** Physical fitness of female students of Vietnam National University of Ho Chi Minh City under Decision 53/2008/Education Ministry (n = 3023)

		30m sprint (s)	Standing long jump (cm)	Chạy con thoi 4x10m (s)	5-minute endurance run (m)	Overall fitness
Standard	Good	< 5,70	> 169	< 12,00	> 940	
	Pass	≤ 6,70	≥ 153	≤ 13,00	≥ 870	
Physical status of VNU-HCM female students	Good	937 students 31.00%	1210 students 40.03%	1711 students 56.00%	132 students 4.37%	126 students 4.17%
	Pass	2020 students 66.82%	1305 students 43.17%	940 students 31.09%	222 students 7.34%	178 students 5.89%
	Fail	66 students 2.18%	508 students 16.80%	372 students 12.31%	2669 students 88.29%	2719 students 89.94%

Table 2 shows that 126 students (4.17%) are rated to have a good physical status, 178 students (5.89%) have an acceptable one, whilst 2,719 students (89.94%) are below standard.

Among the tests, the endurance test (5-minute run) records the highest proportion of “Fail”, with nearly 90% of students (2,719 students) not meeting the standard. In

contrast, the 30-meter sprint (speed) had the highest “Pass” rate, with over 66% of students (2,020) achieving the required level. The 4×10-meter shuttle run (agility) demonstrated the highest proportion of “Good” results, with more than 56% of students (1,711) attaining this level, whereas the 5-minute endurance run had the lowest “Good” rate, only 4.17% (126 students).

These statistics indicate that 19-year-old female students at VNU-HCM perform relatively poorly in endurance and lower-limb strength, but demonstrate good strength in agility and speed.

### 3.3 Comparison of the VNU-HCM females’ physical fitness status and the average physical fitness of Vietnamese women of the same age in 2001

Any evaluation of a subject must be made in relation to a standard or to another comparable group. Hence, the physical fitness of VNU-HCM female students is compared with that of the counterparts, namely the national average fitness of Vietnamese females (2001) [7], of certain universities including Ho Chi Minh City (2010) [8], Can Tho University (2017) [9], Vietnam National University, Hanoi (2019) [10], and the University of Danang (2021) [11].

To carry out these comparisons, the student’s *t*-test is applied to identify relative differences between mean values, according to the following formula.

$$D = \frac{|\bar{X}_A - \bar{X}_B|}{\bar{X}_B} * 100$$

The results of the comparison are presented in Table 3.

**Table 3:** Comparison of the mean values regarding VNU-HCM female students’ physical fitness against Ho Chi Minh City’s and the national fitness

No.	Test	VNU-HCM		National average		Ho Chi Minh City		Sig1	Sig2
		$\bar{X}$	S	$\bar{X}$	D1	$\bar{X}$	D2		
1	30m sprint (s)	5.88	0.48	6.19	5.01	-	-	-	-
2	Standing long jump (cm)	166.49	14.66	159.00	4.71	173.00	3.76	.001	.001
3	4x10m shuttle run (s)	11.95	0.88	12.62	5.31	12.04	0.75	.001	.001
4	5-minute endurance run (m)	759.06	96.08	729.00	4.12	732.10	3.68	.001	.001

As shown in Table 3,

The 30-meter sprint performance of the VNU-HCM female students is 5.88 seconds, which is 0.31 seconds faster than that of the national average for 19-year-old females, equivalent to a 5.01% improvement.

For the standing long jump, the VNU-HCM achieves an average of 166.49 cm, exceeding the national female average by 7.49 cm (4.71%), but falling short of the Ho Chi Minh City student group by 6.51 cm (3.76%).

In the 4×10-meter shuttle run, the VNU-HCM performs within 11.95 seconds, 0.67 seconds faster than the national average (5.31%) and 0.09 seconds faster than their Ho Chi Minh City peers (0.75%).

In the 5-minute endurance run, the VNU-HCM reaches 759.06 meters, surpassing the national average by 30 meters (4.12%) and the Ho Chi Minh City group by 26.96 meters (3.68%).

Taken together, it is suggested that the physical status of VNU-HCM female students is better than that of the national average and the Ho Chi Minh City cohort across all four qualities: speed, lower-limb strength, endurance, and agility.

Comparisons of the VNU-HCM students with their counterparts from Vietnam National University, Hanoi, the University of Danang, and Can Tho University are presented in Table 4.

**Table 4:** Comparison of the mean values regarding VNU-HCM female students' physical fitness against Hanoi University's, Danang University's, and Can Tho University's

No.	Test	VNU-HCM		Hanoi University		Danang University		Can Tho University		Sig <sub>1</sub>	Sig <sub>2</sub>	Sig <sub>3</sub>
		$\bar{X}$	S	$\bar{X}$	D <sub>1</sub>	$\bar{X}$	D <sub>2</sub>	$\bar{X}$	D <sub>3</sub>			
1	30m sprint (s)	5.88	0.48	6.11	3.76	6.10	3.61	6.22	5.47	.001	.001	.001
2	Standing long jump (cm)	166.49	14.66	163.44	1.87	166.0	0.30	158.69	4.92	.001	.078	.001
3	Chạy con thoi 4x10m (s)	11.95	0.88	12.19	1.97	12.24	2.37	12.72	6.05	.001	.001	.001
4	5-minute endurance run (m)	759.06	96.08	724.41	4.78	746.24	1.72	740.57	2.50	.001	.001	.001

The average 30-meter sprint time of female students at Vietnam National University, Ho Chi Minh City (VNU-HCM) is 5.88 seconds, which is 0.23 seconds faster than that of Hanoi University (3.76%), 0.22 seconds faster than Danang University (3.61%), and 0.34 seconds faster than Can Tho University (5.47%).

Regarding the ability of standing long jump, VNU-HCM students reach an average of 166.49 cm, which is 3.05 cm (1.87%) farther than Hanoi University's students, and 7.8 cm (4.92%) farther than Can Tho University's. The difference from Danang students is only 0.49 cm (0.30%), a negligible gap that can be regarded as equivalent.

For the 4 × 10-meter shuttle run, the average time of VNU-HCM students is 11.95 seconds, faster than that of Hanoi University by 0.24 seconds (1.97%), Danang University by 0.29 seconds (2.37%), and Can Tho Hanoi University by 0.77 seconds (4.92%).

In the 5-minute endurance run test, VNU-HCM students cover an average of 759.06 meters, surpassing Hanoi University by 34.65 meters (4.78%), Danang University by 12.82 meters (1.72%), and Can Tho University by 18.49 meters (2.50%).

Overall, the statistics of Table 4 show that VNU-HCM 19-year-old female students outperform their peers at Hanoi, Danang, and Can Tho universities in speed, endurance, and agility. For lower-limb strength, they record higher results than those in Hanoi

University and Can Tho University, whilst being rather equivalent to Danang University's female students.

#### 4. Conclusion

Based on the standards given by Decision No. 53/2008 of the Ministry of Education and Training, the physical fitness status of 19-year-old female students at VNU-HCM is considered unqualified. In particular, 89.94% of them do not meet the standards. Moreover, although VNU-HCM students have low endurance and lower-limb strength, they demonstrate stronger performance in agility and speed.

When compared with other benchmarks, VNU-HCM female students' physical status outperforms the national female average fitness as well as their peers of the same age in Ho Chi Minh City, Hanoi University, Danang University, and Can Tho University.

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#### Conflict of Interest Statement

The authors declare no conflicts of interest.

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