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## Physical assessment of male students from the 2023 cohort of Tay Nguyen University after completing the Physical Education program

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### Abstract

The results show that the physical condition of the 2023 cohort students at Tay Nguyen University, upon completing the Physical Education program, was assessed according to Decision No. 53/2008/QĐ-BGDĐT on the classification of physical fitness for students. The physical condition of the male students met the standards and was relatively uniform in 5 out of 6 criteria. However, there was one test, the 5-minute run, which did not have statistical significance with  $C_v \% > 10\%$ . The students' physical fitness improved well compared to the beginning of the academic year and achieved very high results in all 6 fitness criteria, especially endurance, which showed the best development among both male and female students with a probability threshold of  $p < 0.05$ . This indicates that the Physical Education program applied at the university is ensured, reasonable, and suitable for current practices.

**Keywords:** Status, physical condition, students, university, Tay Nguyen, standards, Ministry of Education and Training, criteria, physical fitness, endurance, program

### Introduction

The Resolution of the 13<sup>th</sup> National Congress of the Communist Party of Vietnam has set the direction for the country's development from 2021 to 2030: "Developing comprehensive human beings and building an advanced Vietnamese culture imbued with national identity so that culture truly becomes an endogenous strength, a driving force for national development and defense. Increasing investment in cultural development. Building, developing, and creating the most favorable social environment and conditions to awaken the tradition of patriotism, national pride, faith, and aspiration for a prosperous and happy country; the talent, intelligence, and qualities of the Vietnamese people are the center, goal, and most important driving force for the country's development."

To achieve this, we must quickly train a workforce with high professional qualifications and good health. Therefore, to contribute to the goal of training a new generation of knowledgeable people with professional competence and good political qualities, the first thing university students must have is good physical health so that they can continuously improve their expertise, be ready to integrate into society, always update their knowledge, and be enthusiastic in their studies.

Tay Nguyen University was established in 1977 according to Decision No. 298/CP dated November 11, 1977, of the Government Council.

The mission of the university is: "Training high-quality human resources, conducting scientific research, and transferring technology to serve the cause of socio-economic development. Preserving and promoting the cultural values of the nation."

The vision of the university is defined as: "By 2030, Tay Nguyen University will be a multi-disciplinary university with prestige and quality; a national center for scientific research and technology transfer in the fields of Health, Education, Agriculture – Forestry, Environment, Economics, Natural and Social Sciences; ensuring that graduates have the qualifications and skills to meet the human resource needs of society."

The core values of the university include: 'Creativity in learning and scientific research;

Quality education as the top priority; International integration and cooperation as values for development.' The educational philosophy of the university is: 'Comprehensive development of learners' qualities and capabilities.' The Physical Education curriculum is built according to Circular No. 25/2015/TT-BGDĐT dated October 14, 2015, of the Ministry of Education and Training, which regulates the Physical Education curriculum in university-level training programs and is updated every two years. The aim is to assess the physical development of Tay Nguyen University students in the 2023-2024 academic year, thereby providing a more detailed view of the physical condition of students in the Central Highlands region.

## Research Methods

### Subjects, materials, and research location

The physical condition of students currently studying at Tay Nguyen University.

## Research Methods

### Method of analysis and synthesis of related documents

The documents used for reference: Professional documents collected from various sources, totaling 65 documents.

### Interview method

Using interview questionnaires, we designed and distributed printed questionnaires to students at Tay Nguyen University and teachers outside the university.

### Pedagogical testing method

- Grip strength of the dominant hand (Kg)
- Sit-ups (reps/30s)
- 30 m sprint (s)
- 4x10m shuttle run (s)

- Standing long jump (cm)
- 5-minute run (m)

## Statistical mathematical method

### Growth rate (W %)

Method of calculating the growth rate (W %) according to S. Brondy's formula (1927)"

$$W \% = \frac{(\overline{V_2} - \overline{V_1})}{\frac{1}{2} (\overline{V_2} + \overline{V_1})} \cdot 100 \%$$

W: Growth rate %

V1: Pre-experiment test results

V2: Post-experiment test results

## Assessment of the physical development of male students at Tay Nguyen University after completing the physical education program

### Physical condition of Tay Nguyen University students

The Physical Education (PE) curriculum consists of 3 credits, specifically:

Mandatory course (1 credit): Basic Gymnastics and Athletics.

Selective course group 1 (1 credit): Students choose one of the following courses: Basic Sports, Basic Swimming, Basic Badminton, Basic Table Tennis.

Selective course group 2 (1 credit): Students choose one of the following courses: Basic Taekwondo, Basic Aerobics, Basic Soccer, Basic Basketball. Students with limited health can take Chess 1, Chess 2, Chess 3 courses as substitutes for the mandatory course and the two elective courses.

**Table 1:** Information on the courses in the Physical Education curriculum

No	Course Code	Credits	Course Name	Notes
1	<b>Mandatory course: 1 credit</b>			
	SP211032	1	Basic Gymnastics and Athletics	
	SP211039	1	Chess 1	Course for students with limited health
2	<b>Selective course group 1: 1 credit</b>			
	SP211033	1	Basic Sports	
	SP211034	1	Basic Swimming	
	SP211035	1	Basic Badminton	
	SP211042	1	Basic Table Tennis	
	SP211040	1	Chess 2	Course for students with limited health
3	<b>Selective course group 2: 1 credit</b>			
	SP211036	1	Basic Aerobics	
	SP211037	1	Basic Taekwondo	
	SP211038	1	Basic Soccer	
	SP211043	1	Basic Basketball	
	Sp21041	1	Chess 3	Course for students with limited health

### Conditions for organizing classes

- The minimum number of students per class is 20.
- The Chess 1, Chess 2, and Chess 3 courses do not have a minimum number of students per class.
- The maximum number of students per Basic Swimming and Basic Table Tennis class is 40.
- There is no maximum limit for the number of students in Basic Soccer and Volleyball courses.

The total number of students per academic year is 1784. The study time is evenly distributed over the first two years of

the course. However, the study only conducts classes in semesters 1, 2, and 3. We conducted random sampling research within the university with 708 students from the mentioned courses.

### Male: 296, accounting for 41.8%

The study applies a physical fitness assessment system for students according to Decision No. 53/2008/QĐ-BGDĐT on the classification of physical fitness, including the following 6 tests:

- 30m sprint (s)

- Standing long jump (cm)
- 4x10m shuttle run (s)
- Grip strength of the dominant hand (kg)
- 5-minute run (m)
- Sit-ups (reps/30s)

These are the tests issued by the Ministry of Education and Training to assess the physical fitness of students, ensuring reliability and scientific validity to comprehensively evaluate speed, strength, endurance, and flexibility. We conducted a survey to collect data from the 2023 cohort students, and the results are presented in Table 3.1 below

**Table 2:** Physical condition of male students at Tay Nguyen University

No	Test	$\bar{x}$	$\sigma$	Cv %
1	30 m sprint XPC (s)	5.36	0.52	7.66
2	Grip strength (kg)	35.74	3.55	9.93
3	Standing long jump (cm)	225.17	20.78	9.23
4	4x10m shuttle run (s)	15.87	1.15	7.25
5	Sit-ups in 30s (reps)	14.28	1.17	8.19
6	5-minute run (m)	845.12	90.12	10.66

From Table 3.1, we can see:

- **30 m sprint XPC (s):** The average value is  $5.36 \pm 0.52$ , with a coefficient of variation (Cv) of  $7.66\% < 10\%$ , indicating that the physical fitness of male students at Tay Nguyen University is quite uniform, ensuring the representativeness of the sample set.
- **Grip strength (kg):** The average value is  $35.83 \pm 3.55$ , with a Cv of  $9.93\% < 10\%$ , indicating that the physical fitness of male students at Tay Nguyen University is quite uniform, ensuring the representativeness of the sample set.
- **Standing long jump (cm):** The average value is  $225.17 \pm 20.78$ , with a Cv of  $9.23\% < 10\%$ , indicating that the physical fitness of male students at Tay Nguyen University is quite uniform, ensuring the representativeness of the sample set.
- **4x10m shuttle run (s):** The average value is  $15.87 \pm 1.15$ , with a Cv of  $7.25\% < 10\%$ , indicating that the physical fitness of male students at Tay Nguyen University is quite uniform, ensuring the representativeness of the sample set.
- **Sit-ups in 30s (reps):** The average value is  $14.28 \pm 1.17$ , with a Cv of  $8.19\% < 10\%$ , indicating that the physical fitness of male students at Tay Nguyen University is quite uniform, ensuring the representativeness of the sample set.
- **5-minute run (m):** The average value is  $845.12 \pm 90.12$ , with a Cv of  $10.66\% > 10\%$ , which is not statistically significant at 0.05, thus not ensuring the representativeness of the sample set.
- From the results in Table 3.1, it shows that the physical fitness of male students is relatively uniform with 5 out of 6 tests ensuring the representativeness of the sample set and being statistically significant with  $Cv < 10\%$ ,  $p < 0.05$ . Only one test, the 5-minute run, has a  $Cv > 10\%$  and is not statistically significant

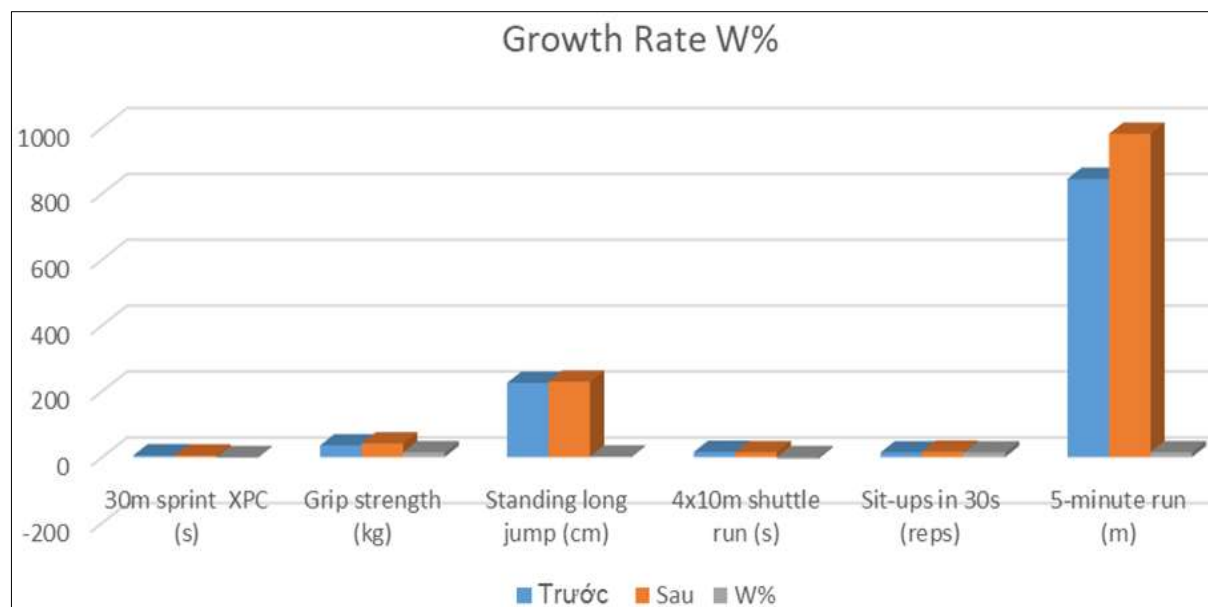
**Assessment of the physical development of male students at Tay Nguyen University after completing the physical education program:** We conducted data collection at the end of the third semester of the second academic year.

Using S. Brondy's growth rate formula presented in Chapter 2, based on the test results and calculations of basic values, the growth rates of the indices and criteria are introduced in Tables 3.2, showing:

**From Table 3.2, we can see**

- **30 m sprint XPC (s):** The average performance increased with  $W\% = 1.69\%$ , showing a statistically significant growth difference at a probability threshold of  $p < 0.05$ .
- **Grip strength:** The average performance increased with  $W\% = 14.82\%$ , showing a statistically significant growth difference at a probability threshold of  $P < 0.05$ .
- **Standing long jump:** The average performance increased with  $W\% = 1.84\%$ , showing a statistically significant growth difference at a probability threshold of  $p < 0.05$ .
- **4x10 m shuttle run:** The average performance increased with  $W\% = 5.30\%$ , showing a statistically significant growth difference at a probability threshold of  $p < 0.05$ .
- **Sit-ups in 30s:** The average performance increased with  $W\% = 14.30\%$ , showing a statistically significant growth difference at a probability threshold of  $p < 0.05$ .
- **5-minute run:** The average performance increased with  $W\% = 14.97\%$ , showing a significant growth difference but not statistically significant at a probability threshold of  $p < 0.05$ .

From Table 3.2 and Chart 3.1, it can be seen that after 3 semesters of physical education at the university, the physical fitness of both male and female students at Tay Nguyen University, according to the standards of the Ministry of Education and Training, has improved well compared to the beginning of the academic year and achieved very high results in all 6 fitness criteria, with endurance showing the best development among the 6 criteria for males. This indicates that the physical education program applied to the 2023 cohort at the university is ensured, reasonable, and suitable for current practices.



**Fig 1:** Growth rate of physical fitness of male students at Tay Nguyen University after completing the physical education program

### Conclusion

The results show that the physical condition of the 2023 cohort students at Tay Nguyen University, upon completing the physical education program, was assessed according to Decision No. 53/2008/QĐ-BGDĐT on the classification of physical fitness for students, ensuring reliability and uniformity in 5 out of 6 criteria for males. However, there was one test, the 5-minute run, which did not have statistical significance with  $Cv\% > 10\%$ .

The results show that after 3 semesters of physical education at the university, the physical fitness of male students at Tay Nguyen University, according to the standards of the Ministry of Education and Training, has improved well compared to the beginning of the academic year and achieved very high results in all 6 fitness criteria, with endurance showing the best development among both male and female students with a probability threshold of  $p < 0.05$ . This indicates that the physical education program applied at the university is ensured, reasonable, and suitable for current practices.

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