European Journal of Physical Education and Sport Science
ISSN: 2501 - 1235
ISSN-L: 2501 - 1235
Available on-line at: www.oapub.org/edu

DOI: 10.46827/ejpe.v12i8.6241 Volume 12 | Issue 8 | 2025

STATUS OF PHYSICAL STRENGTH AND MOTOR SKILLS OF GRADE 6 STUDENTS IN SECONDARY SCHOOLS IN HO CHI MINH CITY, VIETNAM

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Abstract:
Physical fitness and motor skills of 6th-grade students play an important role in their overall development, helping them improve health, enhance concentration in learning, practice agility and flexibility, and build positive exercise habits from an early adolescent age. This study aims to provide information on physical fitness and motor skills in the topic of Athletics when students participate in physical education at school. The research employs methods such as literature review, interviews, and statistical analysis to address the study objectives. The research subjects include 193 male students, 147 female students in secondary schools in Ho Chi Minh city and 30 experts in the field of physical education, including lecturers teaching Athletics, teachers teaching Physical Education, and coaches participating in training gifted Athletics at sports centers. Research results show that identifying 4 criteria for assessing physical fitness and 3 criteria for assessing motor skills serve as a basis for determining the current situation for grade 6 students in secondary schools in Ho Chi Minh City. The research results are the basis for proposing and selecting a number of motor activities to help develop physical fitness and motor skills for students.

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Keywords: physical fitness, motor skills, secondary school, assessment criteria

1. Introduction

According to Circular 32/2018/TT-BGDDT dated December 26, 2018, of the Minister of Education and Training on promulgating the General Education Program, the overall program and the program of subjects were issued, in which Physical Education is stipulated as a compulsory subject from grade 1 to grade 12. The overall program states: "*The general education program is a document that shows the goals of general education, stipulates the requirements for students' qualities and abilities, educational content, educational methods and methods of evaluating educational outcomes, and serves as a basis for managing the quality of general education; at the same time, it is a commitment of the State to ensure the quality of the entire system and each general education institution*." This is the basis for orienting teaching content, goals to be achieved and achieving teaching effectiveness. [10]

In the trend of modern society, constant movement has been and is an urgent need and challenge in the world today. In line with the flow of changes, education is also a sector that requires following trends, adjusting and developing. In the physical abilities specified in the overall program, basic motor abilities are specifically demonstrated in the topics of Athletics, in which physical strength and motor skills are two important factors that help evaluate the effectiveness of the teaching process [8]. In order to learn, research and apply appropriate and effective methods and content in teaching, it is necessary to first understand the current situation of the problem to be studied. Therefore, assessing the current situation of physical strength and motor skills of 6th-grade students in secondary schools in Ho Chi Minh City is the first step in researching and improving the effectiveness of teaching Physical Education at school. Based on the practical requirements of physical education, we realize that assessing the current status of physical strength and motor skills for secondary school students in Ho Chi Minh City will provide the necessary scientific information as a basis for planning and organizing physical education teaching to meet the requirements of the 2018 general education program.

For the above reasons, we boldly conducted research on the topic*:* "Status of physical strength and motor skills of grade 6 students in secondary schools in Ho Chi Minh City".

2. Materials & methods

2.1 Participants

2.1.1 Participants for evaluating the current status

193 male students, 147 female students, including:

- **Chu Van An Secondary School, District 1:** 23 male students and 27 female students of classes 6A1 and 6A7;

- **Tran Quoc Toan 1 Secondary School, Thu Duc City:** 42 male students and 29 female students of classes 6/2 and 6/4;
- **Hong Bang Secondary School, District 5:** 45 male students and 40 female students of classes 6A15 and 6A17
- **Hoang Dieu Secondary School, Tan Phu District:** 46 male students and 29 female students of classes 6/1 and 6/6
- **Hexia School, Viet My Secondary School, District 11:** 37 male students and 22 female students of classes 6A, 6B and 6C

2.1.2 Participants for selecting the criteria and revising the survey instrument

30 experts in the field of physical education include lecturers teaching Athletics, teachers teaching Physical Education in secondary schools and coaches participating in training gifted Athletics at sports centers.

2.2 Methodology

2.2.1 Literature review

This method was used to compile and analyze information from various sources to identify relevant and applicable scientific arguments in physical education.

This method also supported the selection and identification of criteria for assessing physical fitness and motor skills for grade 6 students in secondary schools in Ho Chi Minh City. This method helped form the theoretical foundation of the study, guide the research design, and support the selection of appropriate assessment content and interpretation of results.

2.2.2 Survey

This method aimed to collect expert opinions from experts, specialists and lecturers in the field to help identify appropriate criteria for assessing physical fitness and motor skills for grade 6 students in secondary schools in Ho Chi Minh City.

2.2.2.1 Statistical analysis

This method is used to process and analyze the collected data. All data collected during the research process are analyzed using statistical methods, supported by SPSS 22.0 software.

3. Results and Discussion

3.1 Selecting and determining criteria for assessing physical fitness and motor skills

To conduct the research steps, the team consulted 30 experts in the field of physical education, including lecturers teaching Athletics, teachers teaching Physical Education in secondary schools and coaches participating in athletics training at sports centers.

Specific information of the experts is listed in Table 1:

Table 1: Information of interviewed experts

Information percentage	Interview subjects	Number	Percentage (%)
Working unit	Lecturer at specialized university	9	30.0
	Teacher of vocational education at a public school	20	66.7
	Teacher of vocational education at private/international school	1	3.3
Working experience	Working experience less than 5 years	5	17
	Working experience from 5 to 10 years	6	20
	Working experience from 10 to 5 years	11	36
	Working experience over 15 years	8	27
Degree	Doctorate	4	13.3
	Master's degree	14	46.7
	Bachelor's degree	12	40.0

According to the recorded results, the majority of the interviewed experts have high professional qualifications, have 10 years of experience or more, and are currently working in the right field, so the recorded opinions ensure high reliability, misrepresentations and applicability.

3.1.1 Selecting and determining physical fitness assessment criteria

Regarding the physical fitness assessment criteria of junior high school students, the regulations also specify that each student is assessed on 4 out of 6 contents specified in Decision 53, in which the content of On-the-spot Long Jump and 5-minute Running at will is mandatory.

To suit the conditions of facilities, equipment, and student level, the study conducted an assessment of the physical capacity of 6th-grade students through the following 4 criteria: [9]

- 30m high start run (seconds)
- Lying on back and doing sit-ups (times/30 seconds)
- Long jump in place (cm)
- Running at will for 5 minutes (m)

These are the criteria according to the regulations on assessing the physical capacity of students issued by the Ministry of Education and Training, and are also suitable for the current physical conditions of the research schools.

3.1.2 Selecting and determining criteria for assessing motor skills

For the assessment of motor skills of the topics of Athletics for junior high school students, the study used the 5-level Linker scale to determine the appropriateness of the criteria and the content of the criteria that the experts found reasonable. The assessment levels were recorded as follows:

- Very suitable (5 points),
- Fairly suitable (4 points),
- Suitable (3 points),

- Not suitable (2 points), and
- Completely unsuitable (1 point).

For each topic, the study determined to choose 1 typical assessment criterion as the criterion with the highest score. The interview results are shown specifically in the following table:

Table 2: Interview results for the criteria for assessing motor skills of the topics of Athletics for junior high school students

Subject	Criteria	Evaluation criteria content	Total Score
Running Middle distance	High starting technique and acceleration after starting	- When hearing the command "Get in place": feet stand behind the starting line, knees slightly bent, arms bent front and back.. - When hearing the command "Run": run quickly forward 15 - 20m	141
Sprint	High starting technique and sprinting after starting	- When hearing the command "Get in place": feet stand behind the starting line, knees slightly bent, body leaning forward, arms bent front and back. - When hearing the command "Run": run quickly forward 10 - 15m	136
Throwing the ball	Technique of release and maintaining balance	Place the kicking foot on the ground, rotate the hips, and stretch the body in the direction of the throw. Hold the ball from back to front and throw, then step the back foot forward to maintain balance	149

Based on the interview results, the scores of the criteria contents were rated quite high, all from 136 points or more (max: 150 points). However, to ensure the reliability of the criteria contents, the study conducted testing through the Cronbach's Alpha coefficient. The results were recorded as follows [4]:

Reliability Statistics

Cronbach's Alpha	N of Items
.770	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CLTB K6	9.5000	.672	.904	.315
CLN K6	9.6667	.437	.810	.537
NB K6	9.2333	1.495	.499	.904

The motor skills assessment contents for grade 6 have a reliability index of the scale using the Cronbach's Alpha reliability coefficient, showing that the variables in the scale are all reliable enough to conduct further studies. The total Cronbach's alpha is 0.77> 0.7; the correlation coefficient with the total variable Corrected Item Total Correlation is 0.904; 0.81 and 0.499, respectively, are both greater than 0.3). Through the interview results, the study found that the assessment criteria are simple, suitable for new knowledge and the requirements of the program. Experts assess the level of performance of the movement based on the implementation of the main technical elements of the movement, or they can choose suitable alternative tools.

3.2 Current status of physical fitness and motor skills of grade 6 students in secondary schools in Ho Chi Minh City

3.2.1 Current status of physical fitness of grade 6 students in secondary schools in Ho Chi Minh City

From the criteria selected to assess the physical fitness of students in secondary schools in Ho Chi Minh City, the study conducted an initial test for grade 6 students at experimental schools. The initial test was conducted in the first 2 weeks of the school year.

According to the results of Table 3:

- **Lying on back and doing sit-ups test:** The average achievement of male students is from 15.17 to 16.19 times, and female students is 11.21 to 14.70 times within 30 seconds. The errors of the average value are all equal to or less than 0.05, so the sample set is representative enough.
- **Long jump in place test:** The average achievement of male students is from 147.22 to 156.71 cm, and female students is 124.86 to 148.18 cm. The errors of the average value are all equal to or less than 0.05, so the sample set is representative enough.
- **30m high start run test:** The average performance of male students ranges from 6.53 to 5.66 seconds, and female students from 7.27 to 6.75 seconds. The errors of the mean values are all equal to or less than 0.05, so the sample set is representative enough.
- **Running at will for 5 minutes test:** The average performance of male students ranges from 688.53 to 713.78 m and female students from 552.76 to 671.36 m. The errors of the mean values are all equal to or less than 0.05, so the sample set is representative enough.

Table 3: Results of physical fitness achievements of grade 6 students in secondary schools in Ho Chi Minh City

School	Test	Nam				Nữ			
		X	S	Cv	ε	X	S	Cv	ε
Chu Văn An	Lying on back and doing sit-ups (t/30 s)	15.48	1.97	12.75	0.05	14.70	1.41	9.58	0.04
	Long jump in place (cm)	147.96	18.53	12.52	0.05	148.19	13.27	8.96	0.04
	30m high start run (s)	6.53	0.61	9.36	0.04	7.27	0.58	7.91	0.03
	Running at will for 5 minutes (m)	713.48	94.18	12.64	0.05	661.11	62.59	9.47	0.04
Trần Quốc Toản 1	Lying on back and doing sit-ups (t/30 s)	16.19	1.47	9.07	0.03	11.21	1.11	9.94	0.04
	Long jump in place (cm)	156.71	7.72	4.92	0.02	127.69	9.50	7.44	0.03
	30m high start run (s)	5.66	0.31	5.42	0.02	6.89	0.39	5.69	0.02
	Running at will for 5 minutes (m)	688.57	59.37	8.62	0.03	552.76	55.22	9.99	0.04
Hồng Bàng	Lying on back and doing sit-ups (t/30 s)	15.42	2.72	17.62	0.05	13.50	1.55	11.50	0.04
	Long jump in place (cm)	151.93	16.42	10.81	0.03	135.45	15.90	11.74	0.04
	30m high start run (s)	6.12	0.74	12.11	0.04	6.98	0.57	8.22	0.03
	Running at will for 5 minutes (m)	716.00	79.44	11.10	0.03	640.0	72.15	11.27	0.04
Hoàng Diệu	Lying on back and doing sit-ups (t/30 s)	15.76	2.85	18.10	0.05	13.45	1.80	13.42	0.04
	Long jump in place (cm)	152.41	13.74	9.01	0.03	132.34	12.92	9.76	0.03
	30m high start run (s)	5.94	0.77	12.96	0.04	7.06	5.58	8.17	0.03
	Running at will for 5 minutes (m)	711.09	75.34	10.60	0.03	632.76	67.77	10.71	0.03
Việt Mỹ	Lying on back and doing sit-ups (t/30 s)	16.14	2.56	15.88	0.05	13.36	1.62	12.12	0.05
	Long jump in place (cm)	147.22	14.56	9.89	0.03	124.86	11.89	9.52	0.04
	30m high start run (s)	5.90	0.56	9.43	0.03	6.75	0.65	9.64	0.04
	Running at will for 5 minutes (m)	713.78	63.74	8.93	0.03	671.36	64.02	9.54	0.04

Based on Chapter 4, Article 16, Regulations on assessment and classification of physical capacity of students issued by the Minister of Education and Training on September 18, 2008 [9] the study assessed and classified the physical capacity of secondary school students in Ho Chi Minh City through 4 criteria for assessing physical capacity for students including:

- Lying on back and doing sit-ups (times/30s),
- Jumping on the spot (cm),
- Running 30m high start (s),
- Running at will for 5 minutes (m).

From the results of the tests, the study conducted classification according to the following principles:

- **Good:** the test results of age-specific criteria have 3 Good criteria and 1 Passed criterion
- **Passed:** the test results of age-specific criteria are from Passed level and above
- **Not Passed:** the test results of age-specific criteria have 1 criterion below Passed level.

Table 4: Physical fitness classification of junior high school students in grade 6 according to the standards of the Ministry of Education and Training

School	Gender	Rating					
		Not achieved	Percentage (%)	Achieved	Percentage (%)	Good	Percentage (%)
Chu Văn An	Female	25	93	0	0	2	7
Trần Quốc Toản 1		29	100	0	0	0	0
Hồng Bàng		40	100	0	0	0	0
Hoàng Diệu		28	90	0	0	3	10
Việt Mỹ		22	100	0	0	0	0
Chu Văn An	Male	23	100	0	0	0	0
Trần Quốc Toản 1		42	100	0	0	0	0
Hồng Bàng		45	100	0	0	0	0
Hoàng Diệu		43	93	0	0	3	7
Việt Mỹ		37	100	0	0	0	0

The results of Table 4 show that most students in schools are at the unsatisfactory level, accounting for a very high percentage of 93 - 100%, including both male and female groups. If we consider each criterion separately, the study found that there are quite a few students who achieved the Achieved and Good levels, but when synthesizing according to regulations, they only have 1 unsatisfactory criterion and are classified as Unsatisfactory for the entire assessment. This is also a challenge for the study to be able to help students improve this assessment after the process of experimenting and practicing motor activities.

3.2.2 Current status of motor skills of grade 6 students in secondary schools in Ho Chi Minh City

From the criteria selected to assess motor skills for students in secondary schools in Ho Chi Minh City, the study conducted an assessment for students in 5 schools according to the content and level of implementation of motor skills selected in the above research, specifically grade 6, with the topics of medium-distance running, Sprint and Throwing balls. Motor skills were assessed at 3 levels: Not achieved (N), achieved (A) and good (G) and are specifically shown in the following table:

Table 5: Level of implementation of motor skills assessment criteria

Subject	Criteria	Evaluation Level of Performance		
		Not achieved (N)	**Achieved (A)**	**Good (G)**
Middle-distance running	High starting technique and acceleration after the start	Incorrect "on your mark" posture, when hearing the command "run", ran forward slowly and did not complete the distance of 15 -20m	Correct "on your mark" posture, when hearing the command "run", ran forward quickly and completed the distance of 15 -20m	Correct "on your mark" posture, when hearing the command "run", ran forward quickly and completed the distance of 15 -20m
Sprint	High starting technique and acceleration	Incorrect "on your mark" posture, when hearing the command "run", ran forward slowly and did not complete the distance of 10 -15m	Correct "on your mark" posture, when hearing the command "run", ran forward quickly and completed the distance of 10 -15m	Correct "on your mark" posture, when hearing the command "run", ran forward quickly forward and complete the distance of 10 -15m
Throwing ball	Technique of release and maintaining balance	Incorrectly placing the foot, rotating the hip, arching the body and throwing the tool forward, the foot steps on the prescribed line	Correctly placing the foot, rotating the hip, arching the body and throwing the tool forward, the foot does not step on the prescribed line	Correctly placing the foot, rotating the hip, arching the body and throwing the tool forward, the foot does not step on the prescribed line, the thrown tool exceeds the prescribed mark of the teacher

Based on the content and level of motor skills assessment that have been determined, the study conducted an assessment of the current situation for grade 6 students at experimental schools. After observing and recording, the study recorded the results as shown in the following table:

Table 6: Current status of motor skills of grade 6 students at secondary schools in Ho Chi Minh City

School	Topic	Male			Femail		
		N	A	G	N	A	G
Chu Văn An	Middle-distance running	4	19	0	8	19	0
	Sprint	5	18	0	10	17	0
	Throwing ball	0	5	18	8	19	0
Trần Quốc Toản 1	Middle distance running	22	20	0	16	13	0
	Sprint	11	31	0	9	20	0
	Throwing ball	12	18	12	7	21	1
Hồng Bàng	Middle-distance running	24	21	0	25	15	0
	Sprint	8	37	0	14	26	0
	Throwing ball	11	20	14	24	25	1
Hoàng Diệu	Middle-distance running	29	16	1	13	16	0
	Sprint	7	39	0	11	18	0
	Throwing ball	14	17	15	13	15	1
Việt Mỹ	Middle-distance running	28	9	0	19	3	0
	Sprint	6	31	0	10	12	0
	Throwing ball	24	13	0	13	9	0

Based on the results obtained from the table above:

- **Middle distance running Topic:** The number of students at the Unqualified level in schools is different; the majority of male and female students in schools are at the Unqualified level. For the group of students from Chu Van An School, District 1, the number of students who achieved the Achieved level is higher than the remaining levels. The common point of the students in the 5 schools is that no student has achieved the Good level.
- **Sprint Topic**: Different from the CLTB running topic, the assessment content of the CLN running is different, the percentage of students who can perform the movement skills is higher, and the majority are at the Achieved level. Regarding the Good level, the teachers have not recorded any cases.
- **Throwing ball Topic**: The assessment content of the ball throwing content is also quite similar to the normal throwing movement, so some students can simulate and perform quite well. However, in each school, the number of students achieving the levels is quite different. In the female group, 3 students from 3 schools achieved Good level, 89 students achieved Pass level, and 65 students did not achieve in 5 schools. In the male group, 59 students achieved Good level, 73 students achieved Pass level, and 61 did not achieve.

Although only the initial motor skills assessment was conducted, some students in the research schools also achieved Pass and Good levels, especially male students in the Ball Throwing topic. In the short-distance running topic, the proportion of male and female students in the schools at Pass level also accounted for a fairly high proportion. This is one of the advantages that helps students achieve better results after completing physical education.

4. Conclusion

The study has synthesized and selected 3 criteria to assess 6th grade students on motor skills and used 4 criteria to assess students' physical fitness according to the regulations of the Ministry of Education and Training. From the assessment criteria, the study recorded the physical condition of grade 6 students in junior high schools in Ho Chi Minh City at a rather unsatisfactory level. This is also one of the reasons for the study to carry out steps to apply physical activities to help improve and enhance the physical fitness of students in the research schools. With the criteria for assessing motor skills, grade 6 students in the basic experimental schools also have a fairly good achievement rate, and this is also a condition to help the study of Physical Education of the research group achieve better results.

Conflict of Interest Statement
The authors declare no conflicts of interest.

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