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THE EFFECTIVENESS OF THE PHYSICAL EDUCATION CURRICULUM FOR BASKETBALL FOR STUDENTS AT THE UNIVERSITY OF MEDICINE AND PHARMACY AT HO CHI MINH CITY, VIETNAM

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Abstract:
Physical education plays a key role in the comprehensive development of students. This program not only helps improve physical health and enhance fitness but also cultivates life skills, discipline, teamwork ability, resilience, emotional balance, and stress reduction. The purpose of the research is to identify tests to evaluate the effectiveness of the physical education program in basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam. The research employs conventional methods in the field of physical education research, such as literature synthesis and analysis, interviews, pedagogical assessments, and statistical mathematics to address the research objectives. Research subjects included 789 (490 male, 299 female) first-year students, 19 years old, from the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam, and 16 professionals, managers, and physical education lecturers. The research results identified 06 fitness assessment tests for students at the University of Medicine and Pharmacy, Ho Chi Minh City, including: Run 30 m xpc (s), sit-ups (30 s/reps), standing long jump (cm), jump rope for 2 minutes (reps), flexibility test (cm), and shuttle run 4 x 10 m (s). The evaluation results show that the 30-session (1 credit) basketball physical education program is effective in developing the physical fitness tests of students at the University of Medicine and Pharmacy, Ho Chi Minh City (5 out of 6 tests for females and 4 out of 6 tests for males).

Keywords: effectiveness, Physical Education Program, basketball, students, University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam

1. Introduction

Physical education (PE) plays a particularly important role in the development strategy of each country. Schools at all levels within the national education system are responsible

for training students to become a workforce that serves the cause of industrialization and modernization of Vietnam in the 21st century. The 2018 Law on Physical Education and Sports stipulates: "*Physical education is a core subject in the education program aimed at providing learners with basic movement knowledge and skills through exercises and physical games, contributing to the achievement of comprehensive educational goals*" [1].

Training human resources for the fields of Medicine and Pharmacy is a specialized process that requires learners not only to absorb a vast and complex body of scientific knowledge but also to cultivate a strong physical and mental foundation. Academic pressure, a dense clinical practice schedule, and frequent exposure to situations related to health and human life are harsh demands on students (Nguyễn Thị Minh Anh, 2021) [2]. In fact, many international studies have proven that students and healthcare workers are at high risk of chronic stress, burnout, and mental health disorders (Dyrbye et al., 2017) [3]. This situation not only negatively affects students' academic performance and quality of life but also poses a potential risk to patient safety in the future.

In that context, the concept of wellness or holistic health is no longer a secondary factor but has become a core professional competency of the modern medical professional (Shapiro et al., 2019) [4]. Only when they have good physical health and stable mental well-being can doctors and pharmacists make wise medical decisions, maintain empathy with patients, and dedicate themselves persistently to their careers. Therefore, equipping medical students with the necessary knowledge, skills, and attitudes to proactively care for and enhance their health is not only an inherent need but also a strategic requirement, a part of the responsibility of medical training institutions.

Ho Chi Minh City University of Medicine and Pharmacy is a university specializing in Health Sciences in Vietnam. This is one of the leading prestigious institutions in the field of Health Sciences in Vietnam in general and in the southern region in particular. With the mission of training doctors and pharmacists at the undergraduate and postgraduate levels, conducting scientific research, and transferring medical technology, as well as supporting the development of the healthcare system to meet the health care needs of the people, the University of Medicine and Pharmacy in Ho Chi Minh City is classified among the key national universities. Students in the Medical and Pharmaceutical fields have unique professional characteristics: a demanding study and clinical practice schedule; high academic and psychological pressure; and a work environment after graduation that requires physical health, resilience, and perseverance. However, in reality, the physical education programs in medical universities, including the University of Medicine and Pharmacy in Ho Chi Minh City, do not yet have content that is suitable for the characteristics of the medical profession.

In the trend of developing higher education toward standardization, modernization, and international integration, the physical education program needs to be improved to ensure scientific rigor, practicality, and alignment with the specific training characteristics of each profession. Many studies have proposed innovating and developing a Physical Education (PE) program suitable for different student groups and the characteristics of vocational training. Le Truong Son Tran Hai (2012) focused on

training in organizing sports activities for pedagogical students [5]. Nguyen Trong Hai (2001) outlined the principles for developing a physical education program according to the specific characteristics of the profession [6]. Nguyen Van Hoa (2016) improved the elective sports program for non-specialist students with 9 diverse subjects. [7]. Nguyen Thanh Hung (2017) developed an elective sports module and an extracurricular club model for students at Quy Nhon University [8]. Trinh Ngoc Trung (2018) selected appropriate physical education content for students at Thanh Hóa University of Culture, Sports, and Tourism [9]. Tran Ngoc Cuong (2018) developed an elective sports program based on the club model for students at the University of Saigon [10]. Pham Van Trung (2020) proposed an elective physical education program for students at Ho Chi Minh City College of Industry [11]. Nguyen Thi Thu (2018) improved the physical education program for students at the Vietnam National University, Hanoi [12]. Nguyen Van Thai (2021) developed an elective sports program for students at the Vietnam National University, Ho Chi Minh City, including volleyball, basketball, and badminton [13]. Ma Thi Ngan (2022) developed a physical education program consisting of mandatory and elective courses for students at Viet Bac University [14]. These studies reflect the diverse and practical needs of universities in standardizing and innovating physical education programs. However, these studies are only suitable for the conditions of each university and each group of students. Especially, no author has delved into researching the development of a Physical Education curriculum that meets the requirements for training learners with output standards oriented toward career applications, specifically for schools in the Health Sciences sector. Therefore, developing a curriculum that aligns with the target audience and the practical requirements of the school is urgent. To clarify the requirements for the physical education program in the field of Health Sciences, you may want to learn more about the specific training objectives of the Medical and Pharmaceutical sectors or the challenges that students in this field often encounter during their studies.

With the above importance, we chose to conduct research with the title: **"***The effectiveness of the physical education curriculum for basketball for students at the University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam"*.

2. Methodology

2.1 Research methods

2.1.1 Method of document analysis and synthesis

The purpose of literature review is to gather information through reading, note-taking, analyzing, and synthesizing documents related to the topic. This method is widely used in theoretical and pedagogical scientific research projects. This method aims to synthesize documents, systematize knowledge related to the research topic, form a theoretical basis, construct scientific hypotheses, determine research objectives, and verify results during the implementation process.

2.1.2 Interview method

This method aims to select tests to evaluate the effectiveness of the physical education curriculum for basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam. The study used questionnaires to classify the importance level of each test, interviewing experts, lecturers, and managers with experience in physical education teaching.

2.1.3 Pedagogical testing method

The method involves using tests to collect information related to various indicators of human motor abilities. This method is used to conduct tests to evaluate the effectiveness of the physical education curriculum in basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam, as part of the research subjects.

2.1.4 Statistical mathematical methods

The research uses this method to synthesize, process, and analyze the obtained data with the support of SPSS software.

2.2 Research subjects

- **Test subjects:** 789 (490 male, 299 female) first-year students, 19 years old, University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam.
- **Interview subjects:** 16 specialists, managers, and lecturers from universities who have experience and seniority in teaching Physical Education.

3. Results and Discussion

3.1 Determine the test to evaluate the effectiveness of the physical education curriculum for basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam

The research is conducted in three steps

- Summarize the tests evaluating the effectiveness of the physical education curriculum for basketball for students from research works by authors both domestically and internationally.
- Interview lecturers, experts, and professionals with experience in physical education teaching.
- Verify the reliability of the tests.

This summary evaluates the effectiveness of the physical education curriculum for basketball, based on research conducted by both domestic and international authors

Research synthesizing tests to evaluate the effectiveness of the physical education curriculum in basketball for students from works such as: Ministry of Education and Training (2008) [15], American Alliance for Health (1988) [16], American Alliance for Health (2008) [17], ACHPER (1996) [18], Bednarek, J et al. (2016) [19], CSEP (2003) [20], EUROFIT (1988) [21], Howley, E.T., & Franks, B.D. (2003) [22], Kang, M. et al. (2021) [23],

Keating, X.D. et al. (2019) [24], Liu, X. et al. (2017) [25], Nguyen Trong Hai, Vu Duc Thu (2001) [26], Le Truong Son Chan Hai (2012) [5], Duong Nghiep Chi and colleagues (2013) [27], Do Ngoc Cuong (2016) [28], Nguyen Huu Vu (2016) [29], Dang Minh Thanh (2019) [30], Dang Minh Thang (2019) [31], Osipov, A. Y. et.al (2020) [32], Nguyễn Hữu Tri (2023) [33], Mai Van Ngoan (2025) [34].

Based on the results of the literature review, physical characteristics, and objectives, the study has selected physical fitness tests for students at the University of Medicine and Pharmacy in Ho Chi Minh City, Vietnam, including 08 tests: 30m XPC running (s), sit-ups (30s/reps), standing long jump (cm), 2-minute rope jump (reps), trunk flexibility (cm), Shuttle run 4x10m (s), Run for 5 minutes at a comfortable pace (m), handgrip strength (kg).

3.2 Interviewing lecturers, experts, and professionals with experience in teaching Physical Education

Based on the above summary, the study developed a questionnaire and conducted two interviews spaced 20 days apart, using the same testing system, the same subjects, the same evaluation method, and the same response method. The interview subjects are 16 specialists, managers, and lecturers from universities who have experience and a long history in teaching Physical Education. To test the consistency of the results from the two interviews, they were compared using the x2 index presented in Table 1.

Table 1: Comparison of the results of two interviews selecting tests to evaluate the effectiveness of the physical education curriculum for basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam

Test		First time N = 16		Second time N = 16		$x2$	Sig
		Total Score	%	Total Score	%		
1	30m XPC running (s)	66	82.50	66	82.50	0.00	1.00
2	Sit-ups (30s/reps)	65	81.25	64	80.00	0.05	0.82
3	Standing long jump (cm)	74	92.50	73	91.25	0.10	0.75
4	2-minute rope jump (reps)	65	81.25	64	80.00	0.05	0.82
5	Trunk flexibility (cm)	74	92.50	73	91.25	0.10	0.75
6	Shuttle run 4x10m (s)	65	81.25	64	80.00	0.05	0.82
7	Run for 5 minutes at a comfortable pace (m)	52	65.00	51	63.75	0.03	0.85
8	Handgrip strength (kg)	58	72.50	59	73.75	0.04	0.84

The comparative data from Table 1 shows that in all the results of the two rounds of interviews for the criteria, there are x^2tính < x^2bảng = 3.84 at the significance level of Sig > 0.05, the difference between the two compared values is not statistically significant. Thus, the results between the two interviews of the managers, experts, specialists, and lecturers show a high level of consensus. Thru the interview results, the study selected tests with a total score of > 60 points in both interviews (> 75% of the total score). According to the above principle, the study selected 06 tests to evaluate the effectiveness of the physical

education curriculum for basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam, including 30m XPC running (s), sit-ups (30s/reps), standing long jump (cm), 2-minute rope jump (reps), trunk flexibility (cm), and 4x10m shuttle run (s).

3.3 Testing the reliability of the test

To determine the reliability of the tests, we used the re-test method [35], [36] by having all research subjects perform the 06 tests twice within one week, under similar conditions, and then calculating the correlation coefficient between the two performances of the 06 tests. Table 2 shows the results as follows:

Table 2: The reliability coefficients of tests evaluating the effectiveness of the physical education curriculum in basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam

Test	Reliability							
	Female students				Male students			
	Mean 1	Mean 2	r	Sig	Mean 1	Mean 2	r	Sig
30m XPC running (s)	6.06	6.18	0.91	0.01	4.84	4.83	0.91	0.01
Sit-ups (reps)	14.62	14.4	0.94	0.01	20.40	20.43	0.94	0.01
Standing long jump (cm)	163.37	161.66	0.98	0.01	220.54	221.90	0.96	0.01
2-minute rope jump (reps)	163.11	164.22	0.91	0.01	199.28	199.60	0.92	0.01
Trunk flexibility (cm)	10.69	10.79	0.91	0.01	10.86	11.1	0.95	0.01
4x10m Shuttle run (s)	12.23	12.12	0.93	0.01	10.52	10.51	0.91	0.01

The data in Table 2 shows that all tests evaluating the effectiveness of the physical education curriculum for basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam, have a reliability coefficient greater than 0.9 and sig = 0.01. Therefore, all tests evaluating the effectiveness of the basketball physical education curriculum for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam, have sufficient reliability to assess the physical fitness of the research subjects.

Through the synthesis of documents, interviews, and reliability checks, 06 tests have been identified to evaluate the effectiveness of the physical education curriculum for basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam, including: 30m XPC running (s), sit-ups (30s/reps), standing long jump (cm), 2-minute rope jump (reps), Trunk flexibility (cm), and 4x10m shuttle run (s).

3.4 Evaluating the effectiveness of the physical education curriculum for basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City

The physical education curriculum for basketball is designed for students at the University of Medicine and Pharmacy in Ho Chi Minh City, Vietnam

Based on the conditions of the facilities, equipment, tools, and the current faculty at the school, as well as the specific characteristics of the curriculum for students at the University of Medicine and Pharmacy in Ho Chi Minh City, Vietnam, the volume of physical education courses at the school is only arranged in 90 class periods, distributed over three semesters and limited to three subjects (badminton, basketball, and volleyball). Due to the limited research time, this study only examines the effectiveness of the physical education curriculum for basketball.

The physical education curriculum for the basketball course for students at the University of Medicine and Pharmacy in Ho Chi Minh City. HCM, Vietnam, with 1 credit (30 periods) divided into 15 training sessions, each session 2 periods, presented in Table 3 below:

Table 3: Teaching process for physical education in basketball

Teaching Content	**Lesson Plan**														
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
- The history of the development of basketball	x														
- The significance and effects of practicing basketball	x	x													
- Movement techniques in basketball	x	x	x												
- Dribbling in place and dribbling		x	x	x											
- Ball control technique			x	x											
- Two-handed chest pass technique		x	x	x	x										
- One-handed side pass technique				x	x	x									
- Two-handed overhead passing technique					x	x	x	x							
- One-handed basketball shooting technique						x	x	x							
- Inclined running technique, lateral sliding step						x	x	x	x						
- Two-step basket technique							x	x	x	x					
- Two-handed low shooting technique								x	x	x	x				
- Two-person ball-catching movement technique									x	x	x	x			
- Introducing the defensive lineup									x	x	x	x			
- Introducing the offensive lineup										x	x	x	x		
- Basketball rules													x	x	
- Competition practice and referee methods											x	x	x	x	
- Review														x	x
- Final exam															x
Number of periods	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

3.5 The effectiveness of the physical education curriculum for basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam

The study evaluates the effectiveness of the physical education curriculum for basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam, through the physical fitness improvement of students after completing the basketball physical education module.

To investigate the physical fitness growth of students after studying basketball, the study organized for the research subjects to perform 06 tests immediately after students completed the basketball course (after 30 periods—15 lesson plans). The results are presented in Table 4.

Table 4: Physical fitness growth of students after completing the physical education course in basketball

Gender	Test	Unit	Initially		After studying		W%	t	P
			$\bar{x}$	S	$\bar{x}$	S			
Female (n = 299)	30m XPC running	(s)	6.06	0.44	6.19	0.37	2.20	7.54	<0.05
	Sit-up in 30s	(reps)	14.62	3.20	14.50	2.18	0.83	0.93	>0.05
	Standing long jump	(cm)	163.37	16.92	166.29	25.77	1.78	2.46	<0.05
	2-minute rope jump	(reps)	163.11	22.38	165.58	19.57	1.50	4.39	<0.05
	Trunk flexibility	(cm)	10.69	3.18	10.88	3.03	1.80	2.04	<0.05
	4 x 10m Shuttle run	(s)	12.23	0.62	12.27	0.54	0.36	2.23	<0.05
Male (n = 490)	30m XPC running	(s)	4.84	0.45	4.80	0.45	0.87	3.44	<0.05
	30s sit-up	(reps)	20.40	2.85	20.39	2.49	0.02	0.07	>0.05
	Standing long jump	(cm)	220.54	18.01	220.47	16.70	0.03	0.21	>0.05
	2-minute rope jump	(reps)	199.28	26.36	197.29	23.50	1.01	3.25	<0.05
	Trunk flexibility	(cm)	10.86	3.13	11.06	2.83	1.79	2.95	<0.05
	4 x 10m Shuttle run	(s)	10.52	0.48	10.48	0.47	0.37	3.12	<0.05

The data in Table 4 shows that after studying the Physical Education program in basketball, the physical fitness of students at the University of Medicine and Pharmacy is as follows:

- **For female students:** 5 out of 6 physical fitness tests showed significant differences ($P < 0.05$), among which 4 tests showed clear improvements, namely, standing long jump increased by 1.78%, 2-minute rope skipping increased by 1.5%, trunk flexion increased by 1.8%, and 30m XPC running performance improved by 2.2%. The 30m XPC run test (s) showed the highest average growth at 2.20%, while the 4x10m shuttle run test(s) showed the lowest average growth at 0.36%.
- **For male students:** 4 out of 6 physical fitness tests showed significant differences ($P < 0.05$), among which 3 tests showed clear improvement, namely, the 30m XPC running increased by 0.87%, trunk flexibility increased by 1.79%, and the shuttle run increased by 0.37%. The 2-minute jump rope performance decreased by 1.01%. The other two tests, such as the sit-up for 30 seconds and the standing long jump, showed no significant difference ($P > 0.05$). The Flexed Body Test (cm) had the highest average growth at 1.79%, while the sit-up test (30s) had the lowest average growth at 0.02%.

4. Conclusion

The research results draw the following conclusions:

Six tests have been identified to evaluate the effectiveness of the physical education curriculum for basketball for students at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam, including 30m XPC running (s), sit-ups (30s/reps), standing long jump (cm), 2-minute jump rope (reps), trunk flexibility (cm), and 4x10m shuttle run (s).

The 30-session (1 credit) basketball physical education program is effective in improving the physical fitness tests of students at the University of Medicine and Pharmacy, Ho Chi Minh City (5 out of 6 tests for females and 4 out of 6 tests for males).

Conflict of Interest Statement
The author declares no conflicts of interest.

About the Author(s)
Tran Van Phuong has been a Lecturer in the Department of Physical Education, Faculty of Basic Sciences, University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam.

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