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APPLICATION OF MOVEMENT GAMES TO DEVELOP GENERAL PHYSICAL FITNESS FOR FEMALE STUDENTS AGED 11-12 AT Y LA SECONDARY SCHOOL, TUYEN QUANG CITY, TUYEN QUANG PROVINCE, VIETNAM

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ABSTRACT

Physical education is an essential component of socialist education, contributing to the improvement of students' health and physical fitness. Schools play a vital role in training knowledgeable and physically fit citizens, thereby fostering a just and civilized society. This study is based on theoretical and pedagogical perspectives in physical education to assess the current state of general physical fitness among students at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province, Vietnam. The research evaluates strategies for applying movement games to enhance the general physical fitness of female students aged 11-12 at Y La Secondary School and conducts experiments to assess the effectiveness of integrating movement games into physical education instruction. The findings indicate that applying movement games significantly improves students' physical fitness and should be systematically incorporated into physical education programs.

KEYWORDS: movement games, physical fitness, female students, secondary school, Tuyen Quang

1. INTRODUCTION

Physical education is a fundamental aspect of socialist education, playing a crucial role in enhancing students' health and physical fitness. Schools serve as key institutions in shaping knowledgeable and physically strong citizens, contributing to the development of a fair and civilized society. To achieve this goal, physical education must prioritize students' well-being. The Communist Party of Vietnam and the Vietnamese Government have issued directives to strengthen physical education and sports activities in schools, encouraging students, especially those at the secondary level, to engage in daily physical training [2], [7], [12].

Movement games have existed since the early history of humankind, originating from survival activities such as hunting, gathering, running, jumping, throwing, carrying, and climbing. These activities have been adapted and developed into structured movement games. Notably, movement games play a vital role in children's physical development. At this age, strong neural stimulation leads

to high levels of activity, making it essential to incorporate diverse and engaging exercises to develop their physical fitness effectively [8].

Y La Secondary School is one of the key schools in Tuyen Quang City, Tuyen Quang Province. The school places significant emphasis on both academic and physical training, nurturing students' overall well-being. Teachers serve as companions, not only guiding students in acquiring diverse knowledge but also in building a solid foundation for lifelong health and comprehensive development.

This study is based on theoretical perspectives on educational games and practical surveys to propose solutions for applying movement games to enhance the general physical fitness of female students aged 11-12 at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province.

2. RESEARCH BACKGROUND

2.1. Perspectives of the Communist Party of Vietnam and the Vietnamese Government on Physical Education in Schools

Since the August Revolution, the Communist Party of Vietnam and the Vietnamese Government have prioritized the development of a national and modern physical training and sports system to improve public health and well-being. As early as March 1946, President Ho Chi Minh urged the entire population to engage in physical exercise, emphasizing that good health is essential for all aspects of life. This laid the foundation for the implementation of physical education and physical training and sports policies [3], [4], [9].

The theoretical foundations of physical education in schools are rooted in Marxist-Leninist philosophy and Ho Chi Minh's ideology on holistic human development. The Resolution of the 6th National Congress of the Communist Party of Vietnam highlighted the significance of physical education in shaping younger generations and enhancing educational quality. As a result, physical education has been continuously strengthened throughout the country's development through various directives, resolutions, and action programs [9], [12].

The Communist Party of Vietnam and Vietnamese Government have particularly emphasized mass physical training and sports development, school-based physical education, and competitive sports. Physical education has been established as a mandatory component of the national curriculum, enshrined in the 1992 Constitution and relevant legal documents. Regulations from the Ministry of Education and Training, such as Decision No. 53/2008/QĐ-BGDĐT, have ensured the structured implementation of physical education in schools [11].

Beyond improving health, physical education plays a crucial role in shaping students' character and ethics. Current physical education programs are laying a strong foundation for enhancing educational quality and fostering comprehensive human development. Vietnam's physical culture, built upon

traditional values, has significantly contributed to national sports development and international integration [7], [14].

2.2. The Role of Movement Games in Physical Education for Secondary School Students

The knowledge system embedded in physical exercises and activities has a profound impact on health and motor development, encompassing strength, agility, endurance, and coordination. To achieve effective physical education at the secondary school level, it is essential to focus on fundamental knowledge areas, including:

- Nature and health protection: The effects of water, air, and environment on health.
- Personal hygiene and daily routines: Nutrition and a balanced lifestyle.
- Disease prevention and treatment: Common illnesses such as myopia and scoliosis.
- Training methods in physical education: Approaches to developing motor skills.
- The impact of exercise and sports: Enhancing strength, agility, endurance, and coordination.

Movement games not only serve as recreational activities but also act as effective educational tools that promote physical, mental, and life skills development. Organizing games that align with students' psychological and physiological characteristics, as well as practical conditions, is crucial. These activities help in strengthening the skeletal and muscular systems, improving circulation and respiration, and fostering positive character traits in students.

2.3. Characteristics and Classification of Games for Secondary School Students

Today, games serve as an effective educational method, particularly for primary and secondary school students. In physical education, games help students develop communication skills, cooperation, and discipline. Through gameplay, students learn to accomplish individual tasks while supporting their peers, fostering teamwork, compassion, and creativity. Games also allow students to express emotions, such as joy in victory or disappointment in defeat, encouraging a spirit of healthy competition. However, excessive play can lead to fatigue and negatively impact health.

Games can be classified based on activity intensity, ranging from light recreational games to high-intensity movement-based games. Additionally, games can be divided into team-based and non-team-based categories, offering different formats that enhance students' creativity and coordination [8].

2.4. Psychological and Physiological Characteristics of Secondary School Students & Teaching Methods for Movement Games

Human psychology is reflected through actions and emotions, such as joy, anger, and frustration. At the secondary school level, students experience significant physical and mental development, seeking independence and self-assertion. However, their cognitive abilities are still developing, making their thinking less detailed and comprehensive. Adolescents often have dreams and ambitions and seek respect from adults. Their emotions fluctuate, making them prone to arrogance, competitiveness, and a lack of organizational discipline. Therefore, in physical education, teaching should incorporate visual methods and positive reinforcement to encourage students and maintain their enthusiasm.

Physiologically, the bodies of secondary school students are undergoing rapid development, but their organs and systems are not yet fully mature. While their physical growth is evident, their bodies are still in transition. Girls tend to reach puberty 1-2 years earlier than boys. The nervous system is developing but remains unstable, making students quick to absorb information but also quick to forget. The skeletal system is strengthening but not yet solidified, making students prone to pain during intense activity. Their muscles grow in length rather than bulk, meaning their strength and endurance are not fully developed. The circulatory and cardiovascular systems are still adjusting, making regulation weak and requiring structured training to prevent overexertion. The respiratory system is also not fully developed, with limited lung capacity leading to easy fatigue. Thus, appropriate physical training is crucial to enhancing respiratory function and overall fitness.

When teaching physical education to secondary school students, teachers should consider their psychological and physiological characteristics. This age group quickly develops conditioned reflexes to physical activities, so exercises must be clear and suitable for their physical development. Extended static exercises or high-impact activities like jumping from heights should be avoided, as students' muscles are still weak and prone to injury. The focus should be on comprehensive physical development, particularly in speed, agility, and flexibility.

Students need to master basic motor skills to support their physical growth and movement techniques. Teachers should design lessons that progress from simple to complex, allowing students to absorb and execute movements effectively. Instructions should be concise yet detailed, with step-by-step demonstrations to facilitate learning.

When organizing movement games for secondary school students, teachers should select games that align with the educational objectives, student abilities, and safety considerations. Factors such as student health, gender, playing space, and injury prevention must be prioritized. Lesson plans should be structured to gradually increase in complexity, fostering student engagement and creativity. The playing environment should be well-prepared, ensuring safety and eliminating potential hazards. Teachers must organize teams effectively, explain game rules clearly, and manage the gameplay flexibly.

Throughout the game, teachers should monitor students, adjust activity levels, and ensure their safety. Finally, creating a dynamic and engaging atmosphere is essential to encourage student participation and maximize their potential. Managing games effectively requires passion, creativity, and experience from teachers.

3. RESEARCH METHODS AND ORGANIZATION

To address the research objectives mentioned above, this study employs the following research methods: 1/ Literature Review and Analysis: Examining documents and materials related to the research topic; 2/ Interview Method: Conducting indirect interviews through questionnaires to gather information on the use and selection of game content for secondary school students. The questionnaire

consists of five questions and was distributed to 30 physical education teachers at secondary schools in Tuyen Quang City; 3/ Pedagogical Observation Method: Observing physical education lessons at several secondary schools in Tuyen Quang City, with 10 randomly selected lessons; 4/ Pedagogical Testing Method: Assessing students' motor skills based on indicators such as speed, strength, endurance, agility, and flexibility. This evaluation follows the Vietnamese physical fitness test standards for the 6-20 age group; 5/ Pedagogical Experiment Method: Conducting a pedagogical experiment to demonstrate the effectiveness of selected physical exercises in developing physical fitness qualities for female secondary school students in Y La. The experiment consisted of 40 sessions conducted from January to May 2016.

4. RESEARCH RESULTS AND DISCUSSION

4.1. General Physical Fitness Status of Y La Secondary School in Tuyen Quang City, Tuyen Quang Province, Vietnam

4.1.1. Selection of Physical Fitness Assessment Tests for 11-12-Year-Old Female Students at Y La Secondary School – Tuyen Quang – Tuyen Quang Province

To assess the general physical fitness of female students at Y La Secondary School in Tuyen Quang City, Tuyen Quang Province, this study utilizes standardized physical fitness tests for Vietnamese individuals (Phase I, Committee for Physical Training and Sports, 2001-2020), developed by Prof. Dr. Duong Nghiep Chi and colleagues.

These tests have been validated in practice by the research board. The study adopts and builds upon these assessments to further evaluate their effectiveness, ultimately enhancing the quality of physical education lessons at Y La Secondary School.

The selected physical fitness assessment tests include:

- ***Force of dominant hand (kg):*** Measures hand strength using a digital hand dynamometer. There are two types: one for adults and one for children.
- ***Crunches (times/30 seconds):*** Assesses core strength and endurance.
- ***30m full standing start run (s):*** Evaluates speed and explosive power for both experimental and control groups.
- ***Standing trunk flexion (cm):*** Assesses spinal flexibility.
- ***Shuttle run 4 × 10m (s):*** Measures agility and speed.
- ***Standing long jump (cm):*** Evaluates explosive lower-body strength.

4.1.2. Current Status of Movement Game Utilization Among Students at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province

To assess the current state of students' physical development, we conducted a study on the use of movement games in secondary schools. As part of this research, we interviewed 30 physical education teachers from secondary schools in Tuyen Quang City regarding the following aspects:

- Types of games used in physical education for secondary school students.
- Frequency of game-based activities per week and duration of game usage in each class session.
- Challenges encountered in using traditional competitive games for students.

The results of these interviews are presented in Table 4.1.

From the data in Table 4.1, it is evident that while traditional competitive games have been implemented to support students' physical development, several issues remain:

Duration of games in each class session: Most teachers allocate 5-10 minutes per session, while some extend the duration to 10-15 minutes. A few cases were reported where games lasted less than 5 minutes.

Frequency of game usage per week: Only 36.67% of teachers (11 out of 30) reported using games twice a week, whereas 63.33% conducted these activities once per week. No teachers reported using games three times per week.

Challenges in implementing games: Among the teachers surveyed, 83.33% identified limited playground space as a major constraint. Additionally, 13.33% mentioned a lack of necessary equipment, and 3.33% noted limitations in their own expertise in effectively conducting game-based activities. These factors significantly impact the overall quality and effectiveness of traditional competitive games in enhancing students' physical fitness.

Table 1: Current Status of Movement Game Utilization Among Female Students at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province

No.	Interview Content	Result					
		Frequently Used	Percentage (%)	Occasionally Used	Percentage (%)	Rarely Used	Percentage (%)
1	Types of Games Used: - Reflex and agility-oriented games	8	26.67	20	66.67	2	6.67

	- Leg strength development games	25	83.33	4	13.33	1	3.33
	- Throwing, pulling, and hand strength games	15	50	13	43.3	2	6.67
	- Coordination skill development games	7	23.3	22	73.3	1	3.33
2	Game duration per session:						
	- 10-15 minutes	0	0	4	13.33	0	0
	- 5-10 minutes	25	83.33	0	0	0	0
	- Less than 5 minutes	0	0	1	3.33	0	0
3	Frequency of game use per week:						
	- 3 times per week	0	0	11	0	0	0
	- 2 times per week	0	0	0	36.67	0	0
	- 1 time per week	19	63.33	0	0	0	0
4	Challenges in implementing games:						
		25	83.33	0	0	0	0

- Playground space	0	0	4	13.33	0	0
- Equipment	0	0	0	0	1	3.33
- Organization						

4.1.3. Assessment of General Physical Fitness of Female Students at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province

The physical fitness attributes assessed include speed, strength, endurance, agility, and flexibility. This study utilized physical fitness tests designed for Vietnamese individuals, based on the standards established in the program "Investigation, Evaluation of Physical Condition, and Development of General Physical Fitness Indicators for Vietnamese People – Phase I (Ages 6-20)" conducted by the Sports and Physical Training Committee (2001-2020), led by Professor Dr. Duong Nghiep Chi and associates. The results are presented in Tables 2, 3, 4, and 5.

Table 2: Results of Physical Fitness Tests for 11-Year-Old Female Students at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province

No.	Tests	Gender	Mean ($\pm\bar{x}$)	Standard Deviation ($\pm\delta$)	Vietnamese Physical Fitness Standards		
					Good	Average	Poor
1	Standing long jump (cm)	Female (n=20)	149.06	16.10	>158	142-158	<142
2	Force of dominant hand (kg)	Female (n=20)	17.78	3.61	>20.6	16.9-20.6	<16.9
3	Standing trunk flexion (cm)	Female (n=20)	6.08	6.04	>9	3-9	<3
4	30m full standing start run (s)	Female (n=20)	6.18	0.59	<59.9	59.9-6.65	>6.65
5	Shuttle run 4 × 10m (s)	Female (n=20)	12.44	0.93	<12.20	12.2-12.29	>12.29
6	Crunches (times/30 seconds)	Female (n=20)	11.12	4.72	>15	10-15	<10

7	Free running for 5 minutes (m)	Female (n=20)	846.04	106.17	>840	730-840	<730
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Analysis of Table 2 Results

- The results in Table 2 indicate that the overall physical fitness of 11- to 12-year-old female students at Y La Secondary School, Tuyen Quang Province, is at an average level. 1 indicator falls into the "Good" (Free running for 5 minutes (m)). 6 indicators are in the "Average" (Standing long jump (cm), Force of dominant hand (kg), Standing trunk flexion (cm), 30m full standing start run (s), Shuttle run 4 × 10m (s), Crunches (times/30 seconds)).

This suggests that while the students demonstrate moderate physical fitness, improvements could be made in most areas to enhance their overall athletic abilities

Table 3: Results of the Physical Fitness Tests for Female Students at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province, Aged 12.

No.	Tests	Gender	Mean ($\pm\bar{x}$)	Standard Deviation ($\pm\delta$)	Vietnamese Physical Fitness Standards		
					Good	Average	Poor
1	Standing long jump (cm)	Female (n=20)	152.14	17.11	>161	144-161	<144
2	Force of dominant hand (kg)	Female (n=20)	20.25	3.9	>23.2	19.3-23.2	<19.3
3	Standing trunk flexion (cm)	Female (n=20)	10.17	6.13	>10	4-10	<4
4	30m full standing start run (s)	Female (n=20)	6.09	0.56	<5.58	5.58-6.64	>6.64
5	Shuttle run 4 × 10m (s)	Female (n=20)	12.43	0.91	<12.2	12.2-12.29	>12.29
6	Crunches (times/30 seconds)	Female (n=20)	11.56	4.42	>15	10-15	<10

7	Free running for 5 minutes (m)	Female (n=20)	847.16	107.39	>840	730-840	<730
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According to Table 3, it shows that:

The physical fitness of female students at Y La Secondary School, Tuyen Quang Province, aged 12, is at an average level. The results of the 7 physical fitness tests indicate: 2 criteria are classified as "good" (Standing trunk flexion (cm) and Free running for 5 minutes (m)) and 5 criteria are at an "average" level (Standing long jump (cm), Force of dominant hand (kg), 30m full standing start run (s), Shuttle run 4 × 10m (s), Crunches (times/30 seconds)).

4.2. Evaluation of the Effectiveness of Movement Games in Developing General Physical Fitness for Female Students Aged 11-12 at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province

4.2.1. Requirements for Selecting Movement Games to Develop Physical Fitness for Students at Y La Secondary School

The following requirements must be met when selecting movement games for female students at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province, aged 11-12:

- Movement games possess a strong appeal and are highly favored by students due to their diversity and adaptability, making them suitable for all participants. These games are included in the physical education curriculum for students from grade 6 (aged 11) to grade 7 (aged 12).
- Movement games contribute to the enhancement of physical qualities such as speed, strength, endurance, and agility. They also help refine motor skills and improve movement control in dynamic situations. Furthermore, these games play a crucial role in shaping students' personalities and fostering essential moral values, including teamwork, courage, solidarity, discipline, determination, and creativity in both learning and recreational activities.
- Movement games are easy to organize and can be adjusted in terms of exercise intensity through gameplay variations, repetition frequency, and movement distances. Based on theories of physical education and game-based learning, we establish criteria for selecting appropriate games that effectively develop general physical fitness in female secondary school students aged 11–12.

Regulations for Selecting Movement Games for Female Students Aged 11-12 at Y La Secondary School.

Based on the review of materials and the selection criteria discussed above, we have initially identified the following guidelines for selecting movement games for secondary school students: 1/ Clear Objective: The selected games must have a clear purpose; 2/ Relevance to Students' Development: The content and method of the game must be suitable for the students' developmental level and characteristics; 3/ Comprehensive Development: The games should promote the development of

physical, mental, and social skills; 4/ Suitability to Equipment and Space: The games must be appropriate for the available space and equipment; 5/ Compliance with Basic Standards: The games must meet the basic requirements of a well-structured movement game.

These regulations have been incorporated into an interview questionnaire for teachers to ensure objectivity and reliability. The results of the interviews are presented in Table 4.

Table 4. Interview Results on the Requirements for Selecting Movement Games for Female Secondary School Students Aged 11–12 (n=20)

No.	Interview Content	Result			
		Need	Percentage (%)	Not Need	Percentage (%)
1	The game must have a clear objective	30	100	0	0
2	The content and method of the game must be suitable for the students' developmental level and characteristics	30	100	0	0
3	The game must be suitable for the available space and equipment.	28	93.33	2	5.56
4	The game must ensure comprehensive development	25	83.33	5	16.67
5	The game must meet the basic requirements of a well-structured movement game	26	86.67	4	13.33

According to Table 4, it shows that all 5 regulations for selecting movement games for female students at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province, aged 11-12, received a high approval rate (ranging from 83.33% to 100% of the votes). Therefore, the topic used all 5 of these regulations as the basis for selecting the games.

4.2.2. Application and Evaluation of the Effectiveness of Movement Games for Female Students Aged 11-12 at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province.

Experimental Organization

*** Experimental Subjects**

The experimental study was conducted at Y La Secondary School, Tuyen Quang City, Tuyen Quang Province. We randomly selected one class from each age group as the experimental group and one class

as the control group. Specifically, we chose two classes per age group: Age 11 (Grade 6): Classes 6A and 6B and Age 12 (Grade 7): Classes 7A and 7B.

For each of the two age groups, 20 female students were randomly selected from each class. One class was assigned as the control group and the other as the experimental group. The study aimed to evaluate the general physical fitness of female students aged 11-12 at Y La Secondary School using a parallel comparison method.

- Control Group: Age 11 (Grade 6A) – 20 female students and Age 12 (Grade 7A) – 20 female students

- Experimental Group: Age 11 (Grade 6B) – 20 female students and Age 12 (Grade 7B) – 20 female students

The physical fitness of the two groups (control and experimental) was then tested using the physical fitness tests designed for the Vietnamese population, as part of the national physical survey program led by Professor Dr. Duong Nghiep Chi and his team since 2001.

The pre-experiment test results, after being processed with statistical methods, are presented in Tables 4.5 and 4.6.

Table 5. Pre-Experiment Physical Fitness Test Results for the Control and Experimental Groups of Female Students Aged 11.

No.	Tests	Female				Indicators		
		Control Group (n=20)		Experimental Group (n=20)		t-value	table t-value	p-value
		$\bar{x}$	$\pm\delta$	$\bar{x}$	$\pm\delta$			
1	Standing long jump (cm)	145.95	4.27	144.11	4.42	0.41	1.96	0.05
2	Force of dominant hand (kg)	18.44	3.82	18.92	4.24	0.38		
3	Standing trunk flexion (cm)	5.28	3.92	5.88	3.72	0.50		
4	30m full standing start run (s)	6.02	0.56	6.13	0.67	0.57		
5	Shuttle run 4 × 10m (s)	12.32	0.72	12.39	0.69	0.31		
6	Crunches (times/30 seconds)	11.08	4.24	11.56	4.12	0.36		

7	Free running for 5 minutes (m)	770.03	75.11	776.24	84.78	0.24		
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Table 6: Pre-Experiment Physical Fitness Test Results for the Control and Experimental Groups of Female Students Aged 12

No.	Test	Female				Indicators		
		Control Group (n=20)		Experimental Group (n=20)		t-value	table t-value	p-value
		$\bar{X}$	$\pm\delta$	$\bar{X}$	$\pm\delta$			
1	Standing long jump (cm)	150.26	16.53	152.23	15.96	0.39	1.96	0.05
2	Force of dominant hand (kg)	19.02	4.12	19.54	4.06	0.41		
3	Standing trunk flexion (cm)	6.46	4.03	6.05	4.17	0.32		
4	30m full standing start run (s)	6.17	0.71	6.24	0.62	0.34		
5	Shuttle run 4 × 10m (s)	12.30	0.75	12.36	0.71	0.26		
6	Crunches (times/30 seconds)	11.08	4.24	11.54	4.46	0.30		
7	Free running for 5 minutes (m)	771.45	87.15	778.26	86.23	0.25		

Through Tables 5 and 6, it is evident that the pre-experiment physical fitness test results for both age groups show no significant differences, as the calculated t-values (t tính) are smaller than the critical t-value (t bảng) at a probability threshold of $P > 0.05$. In other words, the overall physical fitness levels of the two groups were equivalent before the experiment.

Experimental Implementation

After selecting and analyzing the experimental group, the study was conducted with the following content and plan:

- Control Group: Followed the standard physical education curriculum and teaching methods used by the school.
- Experimental Group: The core content of the lessons was the same as the control group, but the supplementary part of the lesson incorporated structured and goal-oriented movement games.

Each session included two games:

- One game focusing on reflex orientation, agility, and concentration.

- One game aimed at developing physical fitness attributes (or two physical fitness development games, depending on the experimental progression).

The experiment was conducted over 40 lessons. After completing 20 lessons in the first semester, the same exercises were repeated with increased difficulty and training intensity.

Both groups were assessed at two points: before the experiment and after the experiment.

Implementation Timeline. The experiment was carried out over five months, from January 2024 to May 2025.

Experimental Results. After 40 experimental lessons, the study evaluated the physical fitness of students who participated in the new program. At the same time, the physical fitness of the control group, who followed the school's standard physical education curriculum, was also assessed. The detailed results are presented in Tables 5 and 6.

Table 7: Post-Experiment Physical Fitness Test Results for the Control and Experimental Groups of Female Students Aged 11

No.	Tests	Female				Indicators		
		Control Group (n=20)		Experimental Group (n=20)		t-value	Table t-value	p-value
		$\bar{X}$	$\pm\delta$	$\bar{X}$	$\pm\delta$			
1	Standing long jump (cm)	147.52	4.28	156.99	4.53	2.32	1.96	0.05
2	Force of dominant hand (kg)	19.23	3.91	22.47	4.57	2.44		
3	Standing trunk flexion (cm)	6.72	3.76	9.94	3.46	2.84		
4	30m full standing start run (s)	5.88	0.46	5.52	0.41	2.64		
5	Shuttle run 4 × 10m (s)	12.15	0.49	11.91	0.43	2.70		
6	Crunches (times/30 seconds)	12.13	4.61	15.88	4.54	2.62		
7	Free running for 5 minutes (m)	779.52	77.26	851.65	81.03	2.91		

Analysis of Table 7 Results

The results in Table 7 indicate a significant difference in post-experiment physical fitness test results between the control and experimental groups. The calculated t-values are greater than the critical t-

value at a probability level of $P < 0.05$, confirming a statistically significant improvement in the experimental group.

After 40 sessions of the structured Movement game program, the experimental group showed better physical fitness test results compared to the control group, which followed the standard school physical education curriculum.

The differences are particularly noticeable for female students aged 11 in the experimental group, as they outperformed the control group in the following tests:

- Standing long jump (cm): $t\text{-value} = 2.32 > \text{table } t\text{-value} = 1.96$.
- 30m full standing start run (s): $t\text{-value} = 2.64 > \text{table } t\text{-value} = 1.96$.
- Shuttle run $4 \times 10\text{m}$ (s): $t\text{-value} = 2.70 > \text{table } t\text{-value} = 1.96$.
- Crunches (times/30 seconds): $t\text{-value} = 2.62 > \text{table } t\text{-value} = 1.96$.

These results suggest that the movement game program significantly enhanced students' physical attributes compared to traditional physical education instruction.

Table 8: Post-Experiment Physical Fitness Test Results for the Control and Experimental Groups of Female Students Aged 12

No.	Tests	Female				Indicators		
		Control Group (n=20)		Experimental Group (n=20)		t-value	table t-value	p-value
		$\bar{X}$	$\pm\delta$	$\bar{X}$	$\pm\delta$			
1	Standing long jump (cm)	150.98	15.13	162.21	15.01	2.41	1.96	0.05
2	Force of dominant hand (kg)	19.71	4.52	22.89	4.19	2.36		
3	Standing trunk flexion (cm)	6.55	4.11	9.97	4.23	2.65		
4	30m full standing start run (s)	6.09	0.53	5.69	0.58	2.33		
5	Shuttle run $4 \times 10\text{m}$ (s)	12.28	0.61	11.84	0.52	2.51		
6	Crunches (times/30 seconds)	12.47	4.14	15.73	4.35	2.48		
7	Free running for 5 minutes (m)	776.94	85.38	848.73	82.31	2.77		

Analysis of Table 8 Results

The results in Table 8 indicate a significant difference in post-experiment physical fitness test results between the control group and the experimental group. The calculated t-values are greater than the table t-value at a probability level of $P < 0.05$, confirming a statistically significant improvement in the experimental group.

After 40 sessions of the structured Movement game program, the experimental group showed better physical fitness test results compared to the control group, which followed the standard school physical education curriculum.

For female students aged 12, the experimental group significantly outperformed the control group in the following tests:

- Standing trunk flexion (cm): $t\text{-value} = 2.65 > \text{table } t\text{-value} = 1.96$.
- Force of dominant hand (kg): $t\text{-value} = 2.36 > \text{table } t\text{-value} = 1.96$

These findings highlight the positive impact of Movement game in enhancing flexibility and muscular strength compared to traditional physical education instruction.

5. CONCLUSION AND RECOMMENDATIONS

Students at Y La Secondary School in Tuyen Quang City, Tuyen Quang Province have only 2 hours of mandatory physical education per week and limited extracurricular activities. Due to insufficient awareness of the role of physical education and sports, the physical fitness results of students are only average according to the Vietnamese national fitness standards. The study selected 14 movement games, divided into 2 groups: 5 games to develop reflexes, agility, and attention, and 9 games to enhance general physical fitness qualities. After one year of experimentation, the experimental group of students showed superior physical fitness results compared to the control group in all 7 test areas ($p < 0.05$), achieving from average to good levels according to the Vietnamese Physical Fitness Standards. The experimental group also demonstrated significant improvements in physical fitness at ages 11 and 12. To enhance the physical fitness of female students at secondary schools in Tuyen Quang City, particularly at Y La Secondary School, it is recommended that the local leadership and the Department of Education and Training in Tuyen Quang pay more attention to physical education teaching and the application of the studied movement games.

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