



THE IMPACT OF MOVEMENT GAMES ON MALE PHYSICAL FITNESS IN PHYSICAL EDUCATION COURSES AT SAIGON UNIVERSITY, VIETNAM

Tran Ngoc Cuong¹ⁱ,

Huynh Duy Hai²

¹Faculty of National Defense,
Security & Physical Education,
Saigon University,
Ho Chi Minh City, Vietnam

²Student Communication Affair,
Saigon University,
Ho Chi Minh City, Vietnam

Abstract:

Movement games not only help students improve their general fitness but also help increase excitement during exercise. However, the impact of movement games on physical development has not been determined, especially for non-sports majors. The purpose of this study was to find out the impact of movement games on male physical fitness in Physical Education courses. 51 healthy male student volunteers were randomly divided into 3 groups (15w, 7w, and control). Movement games were selected and applied to the experimental group (15w and 7w), while the control group did not apply movement games and practice according to the preset 15-week training program. The results in this study indicated that the application of MG for male students at Saigon University during PE courses had a positive way to enhance general physical fitness (i.e., the explosive power of the legs, agility, speed, and maximal aerobic speed). Future studies should focus on the impact in the time of movement games application, specific characteristics to different schools, as well as the evolution of physical development at each age when using the movement games.

Keywords: movement games, physical fitness, male students, 15-week experiment

1. Introduction

The Sports Authority of Vietnam (SAV, 2018) indicated that the number of people who practice sports regularly in Vietnam might reach approximately 34%, while the number of families who practice sports only reached 24.5% in 2019. According to a survey

ⁱ Correspondence: email tncuong@sgu.edu.vn

conducted by experts from Stanford, Vietnam was one of the most sedentary countries in the world. Only about 1/7 of people participated in sports activities for more than 30 minutes a day, and 30% of adults lacked physical activity. Thus, there were millions of people who had not yet participated in sports, and the risk of contracting non-communicable diseases, especially cardiovascular disease, high blood pressure, and diabetes, included the reason in lacking of understanding about nutrition as well. Therefore, it was necessary to change the approach in the organization of physical education (PE) to help students participate more in school sports activities, while movement games were a form of play, both as a means for comprehensive physical education and to attract practitioners to participate in playing and perfecting motor skills (Lam et al., 1996), great for physical development (Minh, 2007).

Besides, movement games also created conditions for physical development, contributed to raising awareness, and developed language and imagination (Tho, 2010). The content of the movement games was wide, and diverse and reflected the phenomena of natural and social life taking place daily and close to human life (Lam & Cuong, 2005). A special feature of the movement games was that they might be organized anywhere, anytime, less facilities and restrictions. The role of the teacher was to exploit the situations and available training courses/equipment to encourage students to play together (Tri, 1999), individual activities combined with group activities flexibly to help learners develop their physical strength, intelligence, and personality.

Moreover, Tuan (2019) indicated that students often have limited satisfaction and learning motivation when participating in PE classes at school. The reason might come from the boredom of repetitive, heavy physical exercises, which tend to be pedagogical and technical rather than enhancing the "kinesthetic" experience of learners, which is contrary to the benefits obtained from movement games. The excitement is warmed up during exercise, for example, which was considered moderate and lacking in Physical Education courses. Therefore, the purpose of this study was to clarify the application of movement games to improve general fitness in male students after 15 weeks of participating in the physical education courses at Saigon University. Therefore, there are further studies to be able to better assess the influence of motor games on physical development in learners.

2. Methodology

2.1. Participants

The volunteer and selected participants were 51 healthy male students who attended the PE program at Saigon University. All of the participants joined the training in 15 weeks (equivalent to one semester). 17 male students were chosen for the 15-week experiment training with the application of movement games (15w), another 17 male students took the same experiment for the last 7 weeks (7w), and the remaining 17 male students were in the 15-week training without using movement games (the control group or C).

None of the participants had any physical problems, smoking, alcohol use, or taking any medication. To ensure that the experimental process was similar, both the experimental and control groups must have the same training time. Thus, it stipulated that the track & field classes would be selected in the morning to limit the impact of hot weather during the experiment.

2.2. Design

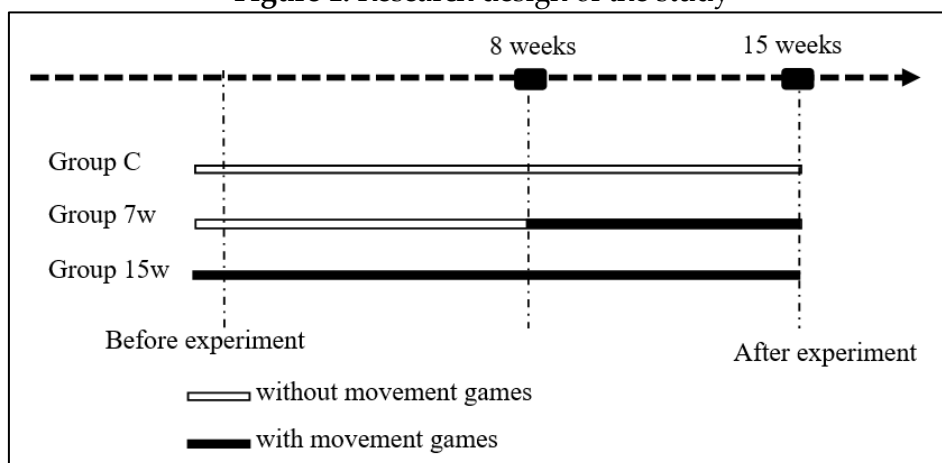
Four fitness tests were chosen to determine the physical fitness of Saigon University students, such as a standing long jump test (the explosive power of the legs), 4x10m Shuttle run test (agility), 30m sprint test (speed), and 5-min running field test (maximal aerobic speed-MAS). These tests were suitable to evaluate the fitness of amateur athletes by the Ministry of Education & Training (Ministry of Education & Training, 2008) and also suited to assess general fitness in Physical Education courses at Saigon University (Tuan & Son, 2017).

2.3. Procedures

Two weeks before the experiment, each participant answered a brief baseline questionnaire about their personal information, training habits, and sport-related injury history. Besides, all participants got acquainted with the fitness tests and how to implement them. They were informed of the screening process before agreeing to participate in writing. All participants were asked to continue their daily diet and physical activity.

Thereafter, all participants underwent a 15-week training program in PE courses with the same conditions, duration, and facility usage. PE courses attended morning (from 7.00 to 8.40 a.m.) on Monday, Tuesday, and Thursday, corresponding to each group as 15w, 7w, and C, respectively (one time per week) in the 2021-2022 academic year. The 7th week was the mid-term examination and the 15th week was the final exam. The applicable movement games (MG) in each group are described in Figure 1.

Figure 1: Research design of the study



Note: C: the control group (without MG), 7w: the 7-week group (with MG), 15w: the 15-week group (with MG).

Besides, PE courses at Saigon University conducted one session per week (100 minutes/session). The application of MG in one session is described in Table 1.

2.4. Statistical analysis

All data were expressed as mean and standard deviation values (mean±SD). Data collections were analyzed by using SPSS for Windows version 24. One-way ANOVA was used to determine the differences among three groups (15w, 7w, and C). A p-value of less than 0.05 was determined to be a significant difference.

Table 1: The application of movement games in Physical Education courses

No.	Activities	Times	The application of MG
1	Class announcement, checking attendance	5 mins	
2	Warm-up	15 mins	5 mins
3	Short break	5 mins	
4	Physical fitness training*	20 mins	10 mins
5	Long break	10 mins	
6	Physical fitness training*	35 mins	25 mins
7	Cool-down	5 mins	
8	Evaluation after training	5 mins	
Summary		100 minutes	40 minutes

* Aerobic training, sprint exercises, exercises with bare hands, agility, or resistance training.

3. Results and discussions

3.1. Participants' characteristics

The characteristics of the study are described in Table 1.

Table 2: Characteristics of participants (n=51)

Groups	Age (years)	Height (cm)	Weight (kg)
Control (n=17)	19.59±0.51	172.00±3.41	61.24±6.35
7w (n=17)	20.06±0.43	171.65±6.45	63.88±9.15
15w (n=17)	19.88±0.48	173.23±4.32	63±7.83

Results in Table 3 indicated that the average age, height, and weight in control groups were 19.59±0.51 years, 172.00±3.41 cm, and 61.24±6.35 kg, respectively, in the 7w group were 20.06±0.43 years, 171.65±6.45 cm, and 63.88±9.15 kg respectively, as well as in the 15w group were 19.88±0.48 years, 173.23±4.32 cm, and 63±7.83 kg respectively.

3.2. The selection of the movement games to improve general physical fitness for male students in physical education courses at Saigon University

Based on the literature and many former studies such as Xidirov (2021), Le Bich Ngoc, Le Thi Nhung (2011), Thao (2018), Nguyet (2019), Tan (2019), Hoa (2021), Binh (2021), etc. Besides, based on the characteristics of participants, and features of physical education courses at Saigon University, the study compiled 20 movement games to improve the

general physical fitness of male students in PE courses at Saigon University (more details are shown in Table 3). After that, the study conducted interviews with experts to select suitable movement games for male students in PE courses. A 3-level rating was used (e.g., Agree – Rarely – Disagree). Thus, the fewer ratios respondents had, the fewer the work-outs used. The results of the expert interviews are presented in Table 3.

From the results of expert interviews in Table 3, we selected the MG with a total point of more than 24 (or higher than 80%). According to this principle, there were 7 movement games, corresponding to the ordinal numbers in Table 3 as follows: (1) Group jump rope, (4) Jump over the target quickly, (5) Fast jumping, (11) Tug of war, (13) Relay run 5 min, (14) Relay hopscotch, (18) Capture the flag with over 80% rating from experts as suitable with characteristics and conditions at Saigon University.

Table 3: Results of expert interviews (n=30)

Games	Evaluation			Games	Evaluation		
	Agree	Rarely	Disagree		Agree	Rarely	Disagree
1	24 (80)	4 (13)	2 (7)	11	26 (87)	3 (10)	1 (3)
2	17 (57)	8 (26)	5 (17)	12	15 (50)	4 (13)	11 (37)
3	15 (50)	4 (13)	11 (37)	13	25 (83)	3 (10)	2 (7)
4	26 (87)	3 (10)	1 (3)	14	24 (80)	4 (13)	2 (7)
5	25 (83)	3 (10)	2 (7)	15	15 (50)	4 (13)	11 (37)
6	14 (47)	12 (40)	4 (13)	16	14 (47)	4 (13)	12 (40)
7	15 (50)	11 (37)	4 (13)	17	17 (57)	8 (26)	5 (17)
8	14 (47)	12 (40)	4 (13)	18	27 (90)	1 (3)	2 (7)
9	12 (40)	14 (47)	4 (13)	19	14 (47)	12 (40)	4 (13)
10	17 (57)	5 (17)	8 (26)	20	15 (50)	4 (13)	11 (37)

Notes: Data are presented by number of times (percentage achieved). For example, 24(80) means 24 times selected (reaching a rate of 80%), (1) Group jump rope, (2) Go blindfolded, (3) Roll the relay ball, (4) Jump over the target quickly, (5) Fast Jumping, (6) Hit the target, (7) Throw the ball into the basket, (8) 3rd extra man, (9) Quick pass, fast jump, (10) Cat chases mouse, (11) Tug of war, (12) Crab kicks ball, (13) Relay run 5 min, (14) Relay hopscotch, (15) Jumping relay, (16) Throwing a net to catch fish, (17) Which team is fast, (18) Capture the flag (19) Run the relay shuttle, (20) Give credit sticks.

3.3. Evaluating the effectiveness after the application of the movement games for male students in physical education courses at Saigon University

Results before and after the application of the movement games for male students in PE courses at Saigon University are presented in Table 4 and Table 5.

Table 4: Mean values among three groups after the application of movement games

Test	Group C		Group 7w		Group 15w		Test of Homogeneity
	$\bar{x} \pm SD$	SW	$\bar{x} \pm SD$	SW	$\bar{x} \pm SD$	SW	
1	209.82±2.65	0.248	212.64±1.86	0.632	213.35±1.41	0.107	0.063
2	11.84±0.70	0.095	11.86±0.78	0.684	11.12±0.70	0.095	0.782
3	4.47±0.08	0.365	4.44±0.14	0.17	4.26±0.13	0.196	0.135
4	988.29±13.42	0.233	1015.29±14.89	0.57	1023.23±13.79	0.335	0.774

Abbreviate - 1: Standing long jump (cm), 2: 4x10m (s), 3: 30m sprint (s), 4: 5-min running field test (m), SW: Shapiro-Wilk index.

Table 5: Mean differences after the application of movement among three groups

Test	Source	SS	F	Sig.	Pairwise comparison
1	Between Groups	364.588	43.699	.000	15w>7w*, 15w>C*, 7w>C*
	Within Groups	200.235			
2	Between Groups	6.038	5.661	.006	15w>7w*, 15w>C*
	Within Groups	25.598			
3	Between Groups	0.46	14.422	.000	15w>7w*, 15w>C*
	Within Groups	0.766			
4	Between Groups	11406.706	28.890	.000	15w>C*, 7w>C*
	Within Groups	9476.118			

Abbreviate - 1: Standing long jump (cm), 2: 4x10m (s), 3: 30m sprint (s), 4: 5-min field running (m), SW: Shapiro-Wilk index, SS: Sum of Squares, * Significant differences at the level 0.001.

Results in Table 4 and Table 5 indicated that there were significant differences among the three groups in each evaluation test.

- In standing long jump test: There were significant differences between group C (209.82±2.65 cm) and group 7w (212.64±1.86 cm), (p=0.001<0.05); between group C and group 15w (213.35±1.41 cm, p=0.000<0.05), between group 7w and group 15w, p=0.000<0.05. Thus, the achievements in groups 7e and 15e (using MG) show better than the achievements in group C (not using MG).
- In 4x10m test: There was no significant difference between group C (11.84±0.70 s) and group 7w (11.86±0.78 s), (p=1.000>0.05). However, there were significant differences between group C and group 15w (11.12±0.70s, p=0.018<0.05), between group 7w and group 15w (p=0.015<0.05). Thus, the score in group 15w (using MG) showed better than the achieved in group C (not using MG). In contrast, the achievement in groups C and 7w showed none.
- In 30m sprint test: There was no significant difference between group C (4.47±0.08 s) and group 7e (4.44±0.14 s, p=1.000>0.05). However, there were significant differences between group C and group 15w (4.26±0.13 s, p=0.000<0.05), between group 7w and group 15w (p=0.000<0.05). Thus, the achievement in group 15w (using MG) showed better than the performance achieved in group C (not using MG).
- 5-mins running field test (m): There were significant differences between group C (988.29±13.42 m) and group 7w (1015.29±14.89 m, p=0.000<0.05); between group C and group 15w (1023.23±13.79 m, p=0.000<0.05), while showed none significant difference between group 7w and group 15w (p=0.318>0.05). Thus, the performance in groups 7e and 15e (using MG) shows better than the achievement in group C (not using MG).

According to Dravniece (2015), MG used corresponding to the sport would increase learners' interest and joy in sports and help learners quickly acquire higher-level skills. The game had the power to attract learners and participants to play and perform it voluntarily, creating a joyful, healthy, and exciting atmosphere, sometimes forgetting even the fatigue. MG was also a means of entertainment, a form of active rest, and a

cultural activity that contributed to improving people's spiritual lives, helping learners experience. It could be educating the life skills, personality development, have the opportunity to reveal and develop the necessary qualities and abilities to apply in daily life (Thuan, 2018). Besides, Xidirov (2021) showed that the application of MG might increase learners' speed, agility, power, weight control, endurance muscle development, etc. These results were almost similar to the results obtained in our study.

The limitation of this study was that the experiment was only conducted in one school, only on a small group of male students who did not specialize in sports and did not have the habit of regularly exercising. The process of organizing an MG, should be carried out through the following steps: (1) select a game and compile it into an organizational lesson plan - instructions, (2) prepare facilities and locations to organize the game, (3) organize the team for students to play, (4) introduce and explain the game, and (5) control the game. Therefore, to play an MG effectively required meticulous preparation from the teacher and enthusiasm from the students. Introducing and explaining attractive games, attracting attention, and encouraging students to participate in playing is truly the art of the teacher. According to the experience of many educators, when letting students play a new game, they usually let them try it one to two or three times. After each time, the teacher needs to comment and add additional rules for them to master. rules, then let them play officially and compete. Therefore, for MG to be effective, it needs to be played many times, so that students can clearly understand and become proficient in how to play, thereby making students actively participate in MG, thereby achieving high efficiency. This explains the results of our study that there were differences in general physical development at different periods of game application (i.e., 7 weeks vs. 15 weeks experiment).

4. Conclusion

In short, the results in this study indicated that the application of MG for male students at Saigon University during PE courses had a positive way to enhance general physical fitness (i.e., the explosive power of the legs, agility, speed, and maximal aerobic speed). Future studies should focus on the impact in the time of movement games application, specific characteristics to different schools, as well as the evolution of physical development at each age when using the movement games.

Authors' contributions

Tran Ngoc Cuong (corresponding author) drafted, wrote down, and revised the manuscript while the other author Huynh Duy Hai took control of revising and editing the manuscript after all. Both authors have approved the latest paper of this manuscript. We both agreed with the order of the presentation.

Competing interest statement

Both authors declare that they have no competing interests.

About the authors

Tran Ngoc Cuong works as an energetic and determined specialist in Sports science, coaching, and Physical Education at Saigon University, Vietnam.

Huynh Duy Hai works as an energetic specialist in communicating with students and coaching at Saigon University, Vietnam.

References

- Binh, N. K. (2021). *Research on application of physical games to develop physical fitness and life skills for students aged 6 - 7 at some inner-city primary schools in Hochiminh City*. Doctoral dissertation at Hochiminh City University of Sports.
- Dravniece, I. (2015). Movement games in various kinds of sport (experiences of coaches studying at IASE). *Baltic Journal of Sport & Health Sciences*, 4(99), 16–24.
- Hoa P. T. M. (2020). Choosing movement games to improve the positivity of 5-6 year old preschool children in physical education activities in Hochiminh City. *Scientific Journal of Education*, 17(11), 2009-2019.
- Lam T. D., & Cuong, D. M. (2005). *Movement games*. Vietnam, Hanoi: Education University Publishing House.
- Lam T. D., Tan, P. T., Thong, P. V., Tho, L. A., Xuan, B. T. *100 movement games for elementary schools*. Vietnam, Hanoi: Education Publishing House.
- Minh, N. V. (2007). *Methods of teaching physical education and movement games for elementary school students*. Vietnam, Hanoi: Education Publishing House.
- Ministry of Education and Training. (2008). *Decision No. 53/2008/QĐ-BGDĐT: In the assessment and classification of the students' fitness*. Hanoi, Vietnam.
- Ngoc, L. B., & Nhung, L. T. (2011). Develop a movement game to train active running for preschool children 3-4 years old. *Education Magazine*, 272 (2), 17-18.
- Nguyet, N. T. B. (2019). Current status and some measures to develop movement for children in kindergartens in Khanh Hoa province. *Education Magazine*, Special Issue, 167-172.
- Sports Authority of Vietnam – SAV. (2018). Summarizing in 2019 and implementing tasks in 2020. Retrieved in website: <https://tdtt.gov.vn/article/tong-cuc-the-duc-the-thao-tong-ket-cong-tac-nam-2019-va-trien-khai-nhiem-vu-nam-2020>.
- Tan, D. V. (2019). Research on selection of sports games to develop general physical qualities for students at industrial technical universities. *Thai Nguyen University Journal of Science and Technology*, 196(3), 15-21.
- Thao, N. T. (2018). movement games to improve physical fitness and basic movement skills for children at TH preschool. *Education Magazine*, Special Issue, 122-124.
- Tho, L. A. (2010). *Some movement sports games and ethnic sports in Vietnam*. Hanoi, Vietnam: Sports Publishing House.
- Tri, D. B. (1999). *Movement game curriculum (Textbook for students at the University of Physical Education and Sports)*. Hanoi, Vietnam: Sports Publishing House.

- Tuan. T. M. (2019). Evaluation the level of students' satisfaction after participating the elective sport courses at Saigon University. *International Conference on Sport Science*. Sport and Tourism Publishing House, 113-120.
- Tuan. T. M., & Son, H. T. (2017). The development of general physical fitness of female students at Saigon University after participating selective courses of basic soccer, volleyball, and basketball. *Journal of Education and Sport Sciences*, 4(20), 36-40.
- Xidirov, D. K. (2021). The role of movement games in the development of the physical qualities of young football players. *8th International Multidisciplinary Scientific Conference on Innovative Technology*. Hosted online from Manchester, UK.

Creative Commons licensing terms

Authors will retain the copyright of their published articles agreeing that a Creative Commons Attribution 4.0 International License (CC BY 4.0) terms will be applied to their work. Under the terms of this license, no permission is required from the author(s) or publisher for members of the community to copy, distribute, transmit or adapt the article content, providing a proper, prominent and unambiguous attribution to the authors in a manner that makes clear that the materials are being reused under permission of a Creative Commons License. Views, opinions and conclusions expressed in this research article are views, opinions and conclusions of the author(s). Open Access Publishing Group and European Journal of Physical Education and Sport Science shall not be responsible or answerable for any loss, damage or liability caused in relation to/arising out of conflict of interests, copyright violations and inappropriate or inaccurate use of any kind content related or integrated on the research work. All the published works are meeting the Open Access Publishing requirements and can be freely accessed, shared, modified, distributed and used in educational, commercial and non-commercial purposes under a [Creative Commons attribution 4.0 International License \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/).