

Effect 10-Weeks Extracurricular Sports Training Program in Physical Education Courses for Male Students of University of Medicine and Pharmacy

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Abstracts: Backgrounds: Extracurricular sports in schools is an activity with a very important position and great meaning to help students improve the quality of the subject of physical education, meet training needs of students. Purposes: The purpose of this study is to evaluate the impactiveness of the extracurricular sports training program (ESTP) on the physical development of male students at University of Medicine and Pharmacy after 10 weeks of experiment. Methods: A total of 60 healthy male students were randomly selected and divided into 2 groups: an experimental group of 30 students and a control group of 30 students. In the study, used 5 criteria to evaluate the physical development, such as 30-s sit-up test, 30-m sprint test, 4 × 10-m shuttle run test, standing long jump test, and 5-min running field test. Results: After 10 weeks of applying for the ESTP, the experimental group had a higher rate of physical growth than the control group in all 5 tests. Accordingly, 30-s sit-up test increased the highest by 27.72%, 30-m sprint test increased by 17.52%, standing long jump test increased by 16.26%, 5-min running test increased by 16.69%, 4 × 10-m shuttle run test increased by 6.53%. Conclusions: The ESTP has many improvements and benefits than the current program. It creates a diverse and healthy learning and physical training environment and meets the learning needs of students at the University of Medicine and Pharmacy. We recommend actively using this program in the coming time to improve the quality of physical education.

Keywords: Effects, Extracurricular Sports Training Program, Physical Education, Physical Education and Sports, Physical Strength, University of Medicine and Pharmacy.

1. INTRODUCTION

Extracurricular activities are activities held outside of school hours. Educational activities outside of class time are an organic continuation and unity with teaching activities, creating conditions for linking theory with practice, making an important contribution to the formation and development of comprehensive personality of students. Extracurricular activities are an important and indispensable part of the entire educational process.

Many authors around the world have researched the role and meaning of extracurricular activities, especially extracurricular activities at school. For example, research by Valentini has shown that extracurricular activities can stimulate a more comprehensive educational process. Outdoor education should become a way of life, a form of spirituality that allows us to be inside creative spaces and outside of school networks to enhance motivation, divergent thinking, and individual handling of cognitive problems (Valentini & Donatiello, 2021). As Forneris has pointed out, to prepare students to grow up and become responsible citizens, most schools offer extracurricular activities designed to facilitate learning of a variety of competencies (Forneris et al., 2015). Extracurricular activities tend to be more beneficial in the labor market for graduates of selected institutions and they have a better educational impact (Eccles et al., 2003; Kim & Bastedo, 2017). Extracurricular activities are the mission of each university and how to let students know about these activities. Extracurricular activities bring many benefits to the student community in the university. The management of each school must put more effort and pay more attention to this activity in each school (Lau et al., 2014; Patil, 2005).

Extracurricular activities have become an important part of school life for students, and many schools have invested considerable resources in extracurricular activities. Extracurricular activities are a determining factor in student learning outcomes. Students who actively participate in extracurricular activities at school will have

higher communication, leadership, creativity skills and support for their self-advancement. Extracurricular activities represent an additional training in the university context, which can enhance students' critical and technical skills (Ferreira et al., 2018; Seow & Pan, 2014).

General extracurricular activities include extracurricular sports activities. Around the world, there have been much research on the impact of extracurricular sports activities on preschool children and students. Extracurricular sports activities at school are considered as the main opportunity to increase the physical activity of students. Establishing a culture of extracurricular physical activity and raising students' lifelong sports awareness is a fundamental mission in every school, extracurricular sports as an educational element for development sustainability in educational institutions (Andrieieva et al., 2022; Aoyagi et al., 2020; Lyu et al., 2022; Meng & Li, 2021; Pérez-Ordás et al., 2019).

In particular, in the university environment extracurricular activities also affect the learning outcomes of students (Ara et al., 2006; Cohen et al., 2007; Reverdito et al., 2017) . Extracurricular activities impact the positive development of students and especially their participation in schools. Extracurricular sports contribute to the formation of healthy habits and promote an active lifestyle. These positive habits bring social benefits and are supportive factors for sustainable development (Roşu, 2022).

In Vietnam, there have also been many authors researching on extracurricular sports activities for students. Extracurricular sports activities in the school are voluntary activities of students and are organized in the form of sports clubs, groups and individuals suitable to their interests, gender, age and health, in order to improve motor skills, to support the realization of physical education goals through the forms of exercise and sports competition, to create conditions for students to exercise the right to have fun and entertainment and develop sports talents, discover and foster sports talents (Dang Ngoc Quang, 2015; Phu, 2015; Tiep & Thuan, 2021; Tuan, 2020)

Extracurricular sports activities mobilize a large number of students to participate, which is a favorable condition for students to practice some soft skills, to promote their abilities and show their talents, be provided with additional knowledge and skills that the main program has not yet fully met. Students have a positive attitude in learning, have better behavior and lifestyle, improve their understanding and form teamwork skills, communication skills, and create career excitement for students (Q. N. Duy & Giang Nguyen Thi Huong, 2022; T. H. Duy, 2018; Tien Ha Quang, 2017; Tran Thi Tu, 2021).

In fact, the extracurricular sports activities at University of Medicine and Pharmacy are still limited, especially not yet highly impactful, mainly due to many reasons, such as the physical training is not right, the organization is not systematic, the conditions of the yard and the equipment for training are still lacking, not attracting people to practice. The causes have led to the physical strength of the students is not good, especially the academic results in Physical Education are not high. Therefore, building an extracurricular sports training program is a very necessary and important issue for students of the University of Medicine and Pharmacy.

2. MATERIAL AND METHODS

2.1. Participants

The participants in this study are 60 healthy male students and they ensure the same conditions of the level of awareness of the measures, the physical qualities within the measure organization, facilities and means of organizing activities, sources of documents. The students are informed about the testing procedures before participating in the experiment and they fully agree with our program.

The participants are divided into 2 groups:

- Experimental group includes 30 male students (19 ± 0.61 years old), who participated in the extracurricular sports training program (3 sessions/week, 90 minutes/session with 2 subjects Volleyball and Badminton) in 10 weeks.

- Control group includes 30 male students (19 ± 0.62 years old), who are trained according to the current program and did not practice according to the extracurricular sports training program.

Both of these groups participate in the main physical education course (3 periods/week) according to the college's program.

This study has been approved by the Board of Directors of University of Medicine and Pharmacy for human use (students). All participants were advised to continue with their diet and daily physical activity throughout the study.

2.2. Procedure

Before conducting the experiment, the two groups of participants were tested for initial physical strength. We used 5 criteria to assess the fitness development in the study: standing long jump test (explosive power of the legs), 30-m sprint test (speed), 30-s sit-up test (evaluates the core strength), 5-min running field test (maximal aerobic speed) and 4 x 10-m shuttle run test (agility). These criteria are consistent with the criteria of the Ministry of Education and Training used to assess the physical strength of students and students of different ages (Ministry of Education and Training, 2008).

Then, all the students in the two groups underwent a 10 weeksexperiment. The experimental organization was carried out as follows (Table 1):

Each training session lasts 1 hour and 30 minutes, including 15 minutes of warm-up, 50 minutes of badminton or volleyball skills, 10 minutes of Physical Education (PE) games, 15 minutes of physical activity and relaxation. The training process with the experimental group with the guidance and support of the lecturers of University of Medicine and Pharmacy and the excellent students with good athletic ability in Badminton and Volleyball.

At the end of 10 weeks of the experiment, both groups underwent a second physical examination and assessment (same as the first) and compared and evaluated with the initial results.

Table 1. 10 weeks extracurricular sports training program

Weeks	1	2	3	4	5	6	7	8	9	10
Content										

Volleyball		x	x	x	x	x					
Badminton							x	x	x	x	x
Games		x	x	x	x	x	x	x	x	x	x
Physical strength	Core strength						x	x	x	x	x
	Explosive power	x	x	x	x	x					
	Maximal aerobic speed	x	x	x	x	x	x	x	x	x	x
	Agility	x	x	x	x	x					
	Speed						x	x	x	x	x

Statistical analysis

The obtained data were analyzed using Statistical Package for Social Sciences (SPSS) version 20 for Windows with the parameters: mean (\bar{X}), standard deviation (\pm SD), value comparison mean (t), percentage of change between experimental and control groups before and after the experiment. Descriptive analysis was used to determine the characteristics of the participants. Paired sample t test was used to determine the difference between before and after the experiment. The level of statistical significance was set at the probability threshold $p < 0.05$.

3. RESULTS

3.1. Assessing the impact of extracurricular sports training program on the physical development of students at University of Medicine and Pharmacy

In order to objectively evaluate the impact of the testing process of the extracurricular sports program, before conducting the experiment, we conducted a physical examination and assessment of the control and experimental groups. The results are presented in Table 2.

Table 2. Comparison of physical strength of students in the control group and the experimental group before the experiment

Test	Control Group	Experimental Group	t	P
	Mean \pm Deviation	Mean \pm Deviation		
30-m sprint (s)	5.67 \pm 0.24	5.65 \pm 0.25	.270	.789
Standing long jump (cm)	208.33 \pm 5.92	208.00 \pm 5.95	.226	.823
30-s sit-up (times)	17.33 \pm 1.42	17.46 \pm 1.69	-.343	.734
4 x 10-m shuttle run (s)	12.35 \pm 0.25	12.40 \pm 0.28	-1.007	.322
5-min running (m)	955.83 \pm 22.74	952.6 \pm 22.88	.567	.575

The results of Table 2 show that before the experiment, the physical strength of male students in the control group and the experimental group did not have any difference in all 5 tests. It means that before the experiment, the physical strength of the students in the control group and the experimental group were similar. This result shows that the grouping is completely objective, ensuring the experimental organization requirements. We use this result as a basis to conduct a test of the 10 weeks extracurricular sports training program that we built at University of Medicine and Pharmacy.

After the end of the 10 weeks experimental period, we tested and evaluated the difference in physical strength of the control group and the experimental group. The results are presented in Table 3.

Table 3. Differences in the physical strength of male students in the control group and the experimental group after the experiment

Test	Control Group	Experimental Group	t	P
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	Mean ±Deviation	Mean ±Deviation		
30-m sprint (s)	5.51±0.24	4.66±0.22	16.021	.000
Standing long jump (cm)	216.16±9.62	241.83±16.73	-7.835	.000
30-s sit-up (times)	18.80±2.16	22.30±1.93	-6.110	.000
4 x 10-m shuttle run (s)	12.11±0.27	11.59±0.28	7.495	.000
5-min running (m)	973.50±20.34	1111.66±29.92	-23.384	.000

The results of the study in Table 3 show that the physical strength of the experimental group is higher than that of the control group in all tests. The difference is shown in the probability threshold $P < 0.05$. Thus, it can be seen that the application of the extracurricular sports program has had a positive impact on the physical development of male students at University of Medicine and Pharmacy.

Table 4. The rate of physical growth of male students in both groups before and after the experiment

Test	Control Group			Experimental Group		
	\bar{X}_1	\bar{X}_2	Percentage of change	\bar{X}_1	\bar{X}_2	Percentage of change
30-m sprint (s)	5.67	5.51	2.82	5.65	4.66	17.52
Standing long jump (cm)	208.33	216.16	3.75	208.00	241.83	16.26
30-s sit-up (times)	17.33	18.80	8.48	17.46	22.30	27.72
4 x 10-m shuttle run (s)	12.35	12.11	1.94	12.40	11.59	6.53
5-min running (m)	955.83	973.50	1.84	952.6	1111.66	16.69

Note: \bar{X}_1 : Mean value before the experiment, \bar{X}_2 : Mean value after the experiment

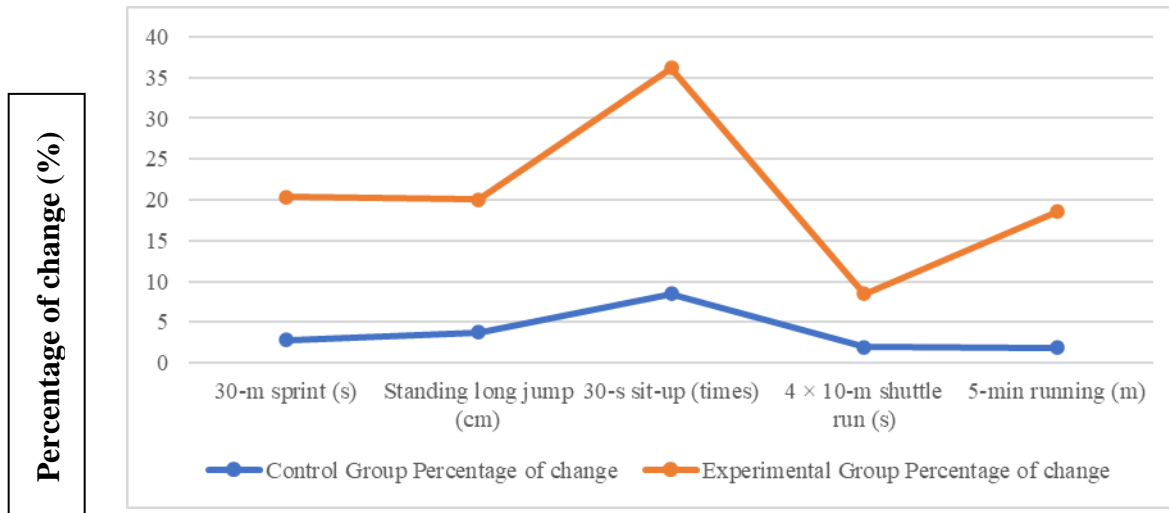


Chart 1. Comparison of the rate of physical growth of male students in the 2 groups before and after the experiment

Research results in Table 4 show that, after 10 weeks of experimentation, the experimental group had a higher growth rate in all tests and was higher than the control group. In which, the test to assess the core strength (30-s sit-up) increased the highest by 27.72%, the test to assess the speed (30-m sprint) increased by 17.52%, the test to evaluate the explosive power of the legs (Standing long jump) increased by 16.26%, the test to assess maximal aerobic speed (5-min running) increased by 16.69%, the test of agility (4 × 10-m shuttle run) increased the lowest 6.53 %. This once again affirms that the extracurricular sports program built by us has been highly impactful in developing physical strength for male students at University of Medicine and Pharmacy.

4. DISCUSSION

Research by Bocarro et al. has shown that the role of extracurricular sports activities in schools facilitates immediate and long-term positive impacts on physical activity, healthy behavior and obesity in children. Research has shown that a physical education program that includes core and extracurricular activities can help children learn skills to enjoy a variety of sports designed to facilitate lifelong active living (Bocarro et al., 2008).

Caput-Jogunica et al. have demonstrated that extracurricular sports not only affect students, but also the motor and physical abilities of preschool children from 4 to 6 years old. In the study, six tests with known metric characteristics were used to measure abilities such as coordination, strength, flexibility, and balance. The obtained results clearly show the benefits of physical activity on the development of preschool children in terms of skills and physical literacy (Caput-Jogunica et al., 2009). This result also has similarities with our research results on the influence of extracurricular sports on physical qualities, but our study applies to students.

Many studies have analyzed the impact of participation in extracurricular sports activities on student achievement in higher education. The results show that participation in formal sports activities has higher scores than non-participation among students at universities. The analysis demonstrated health benefits for practitioners, and sports activities help achieve the performance goals desired by higher education institutions (Muñoz-Bullón et al., 2017).

Research by the authors shows that by participating in 3 volleyball training sessions per week for 6 months, significant results can be achieved in preventing weight gain and improving body composition and physical strength in overweight and obese children without significant dietary intervention (Cristian-Cosmin et al., 2022). The above study has a great influence on our research results, but this is a study on school students.

Findings from a study concluding that extracurricular sporting activity had a significant impact on student learning in Rwandan public boarding schools, the case of Rwamagana County (Claude, 2022).

In a study evaluating the impact of a club-based basketball program on female students of Saigon University after 15 weeks of practice, five fitness tests were used like the ones in our study. The results indicated that the application of a 15-week club-based basketball program resulted in a positive improvement in the speed, agility and maximal aerobic speed of female school students; however, the core strength and explosive power of the legs do not change (Minh & Ngoc, 2022). The results of this study are different from the results of our study. Our research shows that the application of the extracurricular sports program for 10 weeks has significantly improved speed, abdominal muscle strength, explosive power of the legs and maximal aerobic speed for male college students at University of Medicine and Pharmacy. However, the coordination in movement did not increase significantly, this may be because the subject that we experimented with was male students, so the ingenuity in movement still has certain limitations. or may be influenced by school characteristics or environmental conditions.

CONCLUSION

For students of University of Medicine and Pharmacy, the problem of sports practice is always an existence and limitation for students. Our research has shown that the process of participating in the extracurricular sports program for 10 weeks has brought significant impacts on the participants. Before participating in the program, they all had the same physical level. After 10 weeks of experimenting with our program, it has significantly improved the physical qualities of male students of the college. Results of the strength tests at the end of the intervention showed

an improvement in all five of the five physical measures of speed, explosive power of the legs, core strength and maximal aerobic speed and but the test of agility did not increase significantly.

In summary, the new 10 weeks extracurricular sports training program has many improvements, brings more benefits than the current program, creates a diverse and healthy learning and physical training environment, meets the needs of students at University of Medicine and Pharmacy. In addition, the participants in this study had a lot of time to have fun, explore their own abilities, improve their health and learn from each other. These things will help them develop themselves and expand their social relationships for future professional work.

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ABOUT THE AUTHOR(S)

Tran Thi Tu (Lead author) edited, wrote and edited the article, co-author Do Ngoc Cuong edited the article. Both authors approved the final version of the manuscript. Both authors agreed on the content of the drafted article.

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