

EFFECT OF ELECTIVE SPORTS (VOLLEYBALL, BADMINTON) ON MORPHOLOGICAL AND PHYSICAL STRENGTH DEVELOPMENT FOR UNIVERSITY COURSE 37 MALE STUDENTS AT CAN THO UNIVERSITY OF MEDICINE AND PHARMACY

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Abstract:

Through the common scientific research methods, the author has evaluated the morphological and physical strength development by male students of the university course 37 who have participated in two groups of elective sports (Volleyball, Badminton) after one year of practice, thereby evaluated the performance of physical education in the University.

Key words: Physical education, morphology, physical strength, Badminton, Volleyball

INTRODUCTION

Can Tho University of Medicine and Pharmacy has been founded since 2002. Because of recent establishment, the University has not enough facilities and training grounds and lack of teachers, there are only two elective subjects of Badminton and Volleyball. Due to the professional characteristics, the program of the students is relatively heavy, so the movement of sports training by students has not developed. The University has paid much attention to the constitutional improvement for students and made efforts to create favorable conditions for students and teachers in teaching and learning physical education. For the above reasons, we have decided to carry out the research “Effect of elective sports (Volleyball, Badminton) on morphological and physical strength development for university course 37 male students at Can Tho University of Medicine and Pharmacy.”

RESEARCH METHODS

In the research process, we have used the following methods: Document analysis and synthesis, Anthropometry, Pedagogical examination, Pedagogical experiment and mathematical statistics.

Subjects of the study are 64 male students of the university course 37 at Can Tho University of Medicine and Pharmacy and divided into two groups, including:

Volleyball team: Include 33 male students of the university course 37 at Can Tho University of Medicine and Pharmacy studying under the detailed program of Volleyball.

Badminton team: Include 31 male students of the university course 37 at Can Tho University of Medicine and Pharmacy studying under the detailed program of Badminton.

We have conducted the parallel experiment.

I have used 6 tests of assessing the physical strength and 3 indexes of assessing the morphology used in the research of Vietnamese constitution (2001) to evaluate the effect of elective sports on the development of morphology and physical strength of male students of the university course 37 at Can Tho University of Medicine and Pharmacy after one year experiment with 105 hours. The tests and indexes include Test (1): Height (cm); Test (2): Weight (kg); Test (3): BMI index (kg/m²); Test (4): Dominant handgrip strength (kg); Test (5): Crunches (times); Test (6): Standing long jump (cm); Test (7): 30 m standing start run (s); Test

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(8): 4 x10 m shuttle run (s) and Test (9): 5-minute run (m).

RESULTS AND DISCUSSION

1. Effect of elective sports on morphological and physical strength development for male students of university course 37 at Can Tho University of Medicine and Pharmacy

Table 1. Examination results of male students of university course 37 at Can Tho University of Medicine and Pharmacy in Volleyball and Badminton team before experiment

Test	Volleyball Team				Badminton Team				t_1	$p_{1\alpha}$
	$\bar{X}$	S	C_v	ε	$\bar{X}$	S	C_v	ε		
Test (1)	1.69	4.42	2.6	0.01	1.68	5.34	3.1	0.01	1,800	$P>0.05$
Test (2)	57.00	4.67	8.1	0.03	60.00	5.9	9.8	0.03	2,000	$P>0.05$
Test (3)	20.00	1.28	6.8	0.02	21.10	1.99	9.1	0.03	1,908	$P>0.05$
Test (4)	39.90	3.57	8.9	0.03	42.20	3.65	8.6	0.02	1,830	$P>0.05$
Test (5)	18.00	1.71	9.6	0.03	19.00	1.49	8	0.02	3,16	$P>0.05$
Test (6)	222.00	21.58	9.7	0.04	221.00	22.01	9.9	0.03	0.85	$P>0.05$
Test (7)	5.14	0.49	9.6	0.03	5.04	0.05	9.9	0.03	0.571	$P>0.05$
Test (8)	10.93	0.86	7.9	0.03	10.43	0.77	7.4	0.02	1,773	$P>0.05$
Test (9)	880.00	87.16	9.9	0.04	876.00	80.5	9.4	0.03	1,740	$P>0.05$

of variation) is less than 10% ($C_v < 10\%$), the samples have high homogeneity or small scatter. Thus, the sample mean of the total set is highly reliable. At the same time, the results of Table 1 also show that the performance of 09 tests of evaluating the morphology and physical strength of male students of university course 37 at Can Tho University of Medicine and Pharmacy in Volleyball and Badminton team

Before the experiment:

The examination results of the Volleyball team and the Badminton team before the experiment are in Table 1.

From the results in Table 1, we see that all the tests have the indicator (relative error) $\varepsilon < 0.05$. This shows that the sample mean is representative enough. All indexes (coefficient

have no significant difference ($t_{\text{calculation}} < t_{\text{table}} = 2,042$) at the probability threshold $P > 0.05$. Thus, the morphology and physical strength of the two groups of students are similar and not much different in the initial level.

After experiment: After one year of experiment, we have examined development of morphology and physical strength for the subject. The results are in Table 2.

Table 2. Assessment of morphological and physical strength development of male students of university course 37 at Can Tho University of Medicine and Pharmacy in Volleyball and Badminton team after experiment

Test	Volleyball Team				Badminton Team				t_1	$p_{1\alpha}$
	$\bar{X}$	S	C_v	ε	$\bar{X}$	S	C_v	ε		
Test (1)	169	4.41	2.6	0.01	168	5.31	3.1	0.01	1.81	$P<0.05$
Test (2)	58	4.63	7.9	0.03	60	5.98	9.9	0.03	3.46	$P<0.05$
Test (3)	20.2	1.29	6.7	0.02	21.2	1.94	9	0.03	1.94	$P<0.05$
Test (4)	43.4	3.21	7.4	0.03	47.1	4.69	9.9	0.03	7.42	$P<0.05$
Test (5)	21	1.91	9	0.03	23	2.19	9.5	0.03	5.58	$P<0.05$
Test (6)	232	19.5	8.4	0.03	238	17.4	7.3	0.02	5.59	$P<0.05$
Test (7)	5.03	0.49	9.8	0.04	4.64	0.48	9.8	0.03	2.23	$P<0.05$
Test (8)	10.71	0.83	7.7	0.02	10.04	0.64	6.3	0.02	3.13	$P<0.05$
Test (9)	940	91.3	9.7	0.03	947	80.6	8.5	0.02	3.02	$P<0.05$



Volleyball practice has positive effects on morphological and physiological development of students of Can Tho University of Medicine

Based on the results in Table 2, we have found that all the tests have the indicator (relative error) $\varepsilon < 0.05$. All indexes (coefficient of variation) is less than 10% ($C_v < 10\%$), the samples have high homogeneity or small scatter. In addition, both groups of Volleyball and Badminton have good constitutional development. However, the students in the Badminton team have a better development than the Volleyball team.

3.2. Assessment of morphological and physical development by male students of university course 37 at Can Tho University of Medicine and Pharmacy after practicing elective sports of Volleyball and Badminton for one year

In order to assess the development of the morphology and physical strength by male students of university course 37 at Can Tho University of Medicine and Pharmacy of the two groups after one- year practice, I have used (6 test & 3 indexes) to examine and assess 33 male students of Volleyball team and 31 male students of Badminton team. Then, I have calculated the growth rate compared to the morphology and physical strength at the beginning of the year. The results are in Table 3 and Table 4 as follows:

Volleyball team

From the data in Table 4, after one year of practice, the mean value ($\bar{x}$) of the 6 tests and 3 indexes has achieved an increase and had

Table 3. Morphological and physical strength development of male students of university course 37 at Can Tho University of Medicine and Pharmacy after practicing elective sports of Volleyball for one year

No.	Indexes	Beginning		After 1 year		Comparison			
		$\bar{X}$	S	$\bar{X}$	S	t	d	W%	P
1	Height (cm)	169	4.42	169	4.41	2	-0.06	0.03	<0.05
2	Weight (kg)	57	4.67	58	4.63	4.09	-5.07	0.99	<0.05
3	BMI index (kg/m ²)	20	1.28	20.2	1.29	3.59	5.39	0.96	<0.05
4	Dominant handgrip strength (kg)	39.9	3.57	43.4	3.21	12.8	-3.43	8.25	<0.05
5	Crunches (times)	18	1.71	21	1.91	15.5	-2.36	17.3	<0.05
6	Standing long jump (cm)	222	21.58	232	19.5	10.8	-9.51	4.19	<0.05
7	30 m standing start run (s)	5.14	0.49	5.03	0.49	6.59	0.14	2.86	<0.05
8	4 x 10 m shuttle run (s)	10.93	0.86	10.71	0.83	5.93	0.22	2.08	<0.05
9	5- minute run (m)	880	87.16	940	91.3	10.1	-59.6	6.55	<0.05
10	W%							4.81	

Table 4. Morphological and physical strength development of male students of university course 37 at Can Tho University of Medicine and Pharmacy after practicing elective sports of Badminton for one year

No.	Indexes	Beginning		After 1 year		Comparison			
		$\bar{X}$	S	$\bar{X}$	S	t	d	W%	P
1	Height (cm)	168	5.34	168	5.31	0.58	-0.53	0.01	<0.05
2	Weight (kg)	60	5.9	60	5.98	1.71	-0.35	1	<0.05
3	BMI index (kg/m ²)	21.1	1.99	21.2	1.94	0.64	2.9	0.5	<0.05
4	Dominant handgrip strength (kg)	42.2	3.65	47.1	4.69	10.43	-4.83	10.8	<0.05
5	Crunches (times)	19	1.49	23	2.19	14.2	-4.32	20.8	<0.05
6	Standing long jump (cm)	221	22.01	238	17.4	7.41	-16.3	7.1	<0.05
7	30 m standing start run (s)	5.04	0.05	464	0.48	5.07	0.4	3.9	<0.05
8	4 x 10 m shuttle run (s)	10.43	0.77	10.04	0.64	4.7	0.39	3.8	<0.05
9	5- minute run (m)	876	80.5	947	80.6	11.68	-98.5	11	<0.05
10	W%							6.55	

statistically significant at probability threshold $P < 0.05$ with the average growth rate of $W\% = 4.81\%$. In which, test of crunches has the highest rate (17.3%). Especially, the 3 indexes (height, weight and BMI) has a very low growth rate ($< 1\%$). This is completely reasonable with physiological and anatomical characteristics because students in the second year with the age of 20 are unlikely to continue to grow taller or if there is no significant increase.

Badminton team

From the data in Table 4, after one year of practice, the mean value ($\bar{x}$) of the 6 tests and 3 indexes has achieved an increase and had statistically significant at probability threshold $P < 0.05$ with the average growth rate of $W\% = 6.55$. In which, test of crunches has the highest rate (20.83%). Especially, the 3 indexes (height, weight and BMI) has a very low growth rate ($< 1\%$). This is completely reasonable with physiological and anatomical characteristics because students in the second year with the age of 20 are unlikely to continue to grow taller or if there is no significant increase to clarify the difference of morphology and physical strength of the two teams.

CONCLUSION

From results of the study, there are several conclusions as follow:

- Results of the study have confirmed the

effect of practicing the two elective sports of Volleyball and Badminton on the development of morphology and physical strength for male students of university course 37 at Can Tho University of Medicine and Pharmacy.

- Results of applying the Volleyball and Badminton elective training program show that the Badminton training program is more effective for the constitutional development of male students of university course 37 at Can Tho University of Medicine and Pharmacy than the Volleyball training program.

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