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Studying and building volleyball curriculum in optional hour at An Giang University: An Giang province

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Abstract

The study aims to build the volleyball curriculum which affects the development of physical health and fitness of students in optional hours at An Giang University - An Giang province. The study was conducted through some methods, namely integrated research and relevant literature reviews, pedagogical observation, pedagogical examination, and statistic mathematics. The author has evaluated and demonstrated the effect of the new program in comparison with the old program about the development of physical health and fitness of students through a school year.

Keywords: Volleyball, physical health and fitness, An Giang University

1. Introduction

1.1 Background

With the development of all fields of the country like economy, politics, culture, defense and sport. At An Giang University (AGU) sport is a bridge to connect all fields of social activities and create a solidarity among the people, agencies and schools between the Mekong Delta and Ho Chi Minh City.

One of the difficulties of teaching Physical Education (PE) in university is the basic performance skills and create an exciting practice for students. Optional sport is offered by many schools for students in the Physical Education module. It is too hard for students to apply theoretical basis and the principles into the lessons as well as in life.

Volleyball is an interesting sport, an easy practice and a suitable people. Beside that playing volleyball helps people have a good health and a comfortable spirit. In volleyball, the perfect athlete must gather some factors as fast, strong, durable, flexible and skilful techniques.

To derive from the practical requirements of teaching and want to change the content and curriculum to suit the real conditions, so we selected: *"Studying and building the volleyball curriculum in optional hour at An Giang university- An Giang province"*.

The content of study is the volleyball curriculum and two groups include 133 students (32 male and 32 female of experimental group; 34 male and 35 female of control group) at An Giang University - An Giang province.

Time: 2016-2017

2. Research Methods

The study was conducted through some methods, namely integrated research and relevant literature reviews, interview (direct and indirect), pedagogical examination, anthropometry, pedagogical experiment and statistic mathematics.

3. Results

3.1. Selecting the content and building the volleyball curriculum for students at An Giang University

The study was referred to professional materials, lesson plans and volleyball training programs in Ho Chi Minh City and schools in the Mekong Delta to have the content of Volleyball teaching suitably for students at An Giang University. Over 75% agreed with the content of teaching in table 3.1.

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3.2 Evaluating the effectiveness of the experimental program

3.2.1 Experimental Organization

Practice schedule of the control and experimental group for a year:

+ The control group: studying according to the current program of physical education at school.

Group of students was random chosen in some classes including 34 males and 35 females according to the current program of the the first year. First semester is 30 periods for athletics and second semester is 60 optional sports like: Volleyball, Basketball, Football, Shuttlecock, Badminton.

- **First semester:** 30 periods (compulsory): Students study a session / 3 periods / a week (credit: 50 minutes / a session). Content and training in the *table 3.1*

- **Second semester:** 60 periods (optional): Volleyball, Soccer, Cricket, Badminton, Basketball. Students study a session / 4 periods / a week (credit: 50 minutes / a session). Content and training in the *table 3.1*

+ The experimental Group: Studying according to optional research program

With the agreement of the leaders we have practice the experimental study:

The experimental student group includes 32 males and 32 females who love volleyball and register to learn Volleyball for 2 semesters.

- **First semester:** 45 periods (optional): Students study 2 lessons/ a session and 2 sessions/ a week (credit: 50 minutes / a lesson). Content and training in the *table 3.1*

- Second semester: 45 periods(optional): studying advanced Volleyball. Students study 2 lessons / a session and 2 sessions/ a week (credit: 50 minutes / a lesson). Content and training in the *table 3.1*

3.2.2 Evaluating the experimental results of volleyball program.

Comparison the experimental and control groups after a school year.

At An Giang University There were 90 periods of physical education program, divided into 2 semesters and taught in the first and the second semester in the first year. After a year, the volleyball experimental curriculum has got a new content and program. The results are presented in table 3.2 and 3.3.

The development of physical health and fitness of the experimental and control groups (male and female) after a school year was shown in figure 3.1 and 3.2.

Physical Health

All physical health indexes of male and female belong to the experimental and control groups were higher than the same old (2003). The development of all physical health indexes is suitable with the natural and proportional development of the human. However, the experimental group was developed better than the control group (*Table 3.2 and 3.3*). This shown that the male and female students of the experimental group were above average physical development because of the impact of volleyball exercises, sports training, conditions and environment.

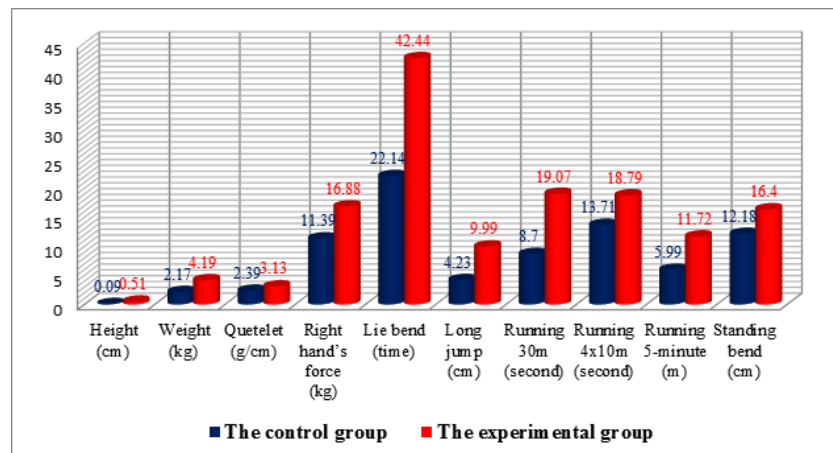


Fig 3.1: The development of physical health and fitness of the male experimental and control groups after a school year

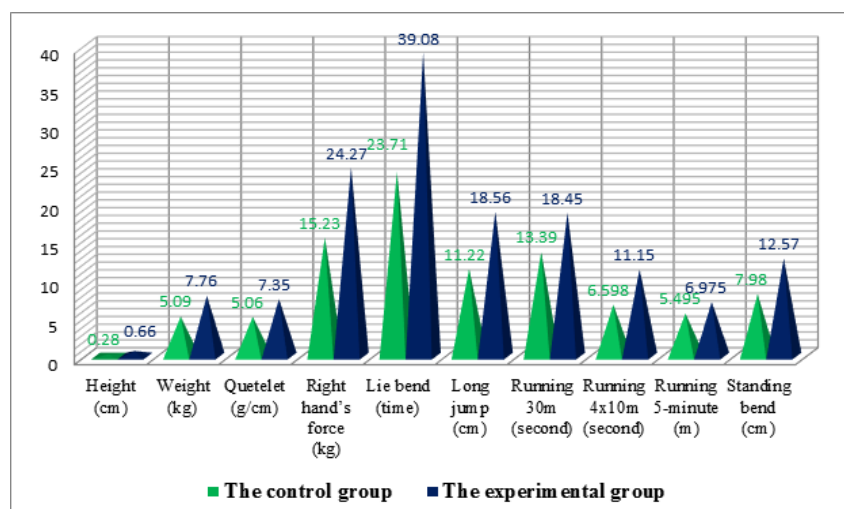


Fig 3.2: The development of physical health and fitness of the female experimental and control groups after a school year

Physical Characteristics

- Right hand's force test: the right hand's force index of the experimental and the control groups have increased during study in PE. Because of the effect of different exercises, the growth was different.

+ Before the experiment: The average right hand's force index of two similar groups, namely the male experimental 40.73 ± 1.12 , the male control 40.29 ± 1.89 , the female experimental 25.41 ± 1.26 , the female control 25.45 ± 1.76 .

+ After experiment: The average right hand's force index of the experimental group was higher than the control group, namely the male experimental 48.24 ± 1.11 , the male control 45.16 ± 1.84 , the female experimental 32.43 ± 0.77 , the female control 29.65 ± 1.18 .

- Lie bend test: Lie bend index was developed during learning PE. However, the growth rate of the two groups was different because of the impact of different exercise content.

+ Before experiment: The average lie bend index of the two groups was similar, namely the male experimental 20.25 ± 2.21 , the male control 20.91 ± 2.77 , the female experimental 17.56 ± 1.22 , the female control 17.63 ± 1.17 .

+ After experiment: The average lie bend index of the experimental group was higher than the control group, namely the male experimental 31.16 ± 2.36 , the male control 26.12 ± 2.64 , the female experimental 26.09 ± 1.49 , the control female 22.37 ± 1.31 .

Table 3.1. Distribution of the experimental and control group of volleyball optional curriculum between new and old program at An Giang University

Curriculum of the experimental group					Curriculum for the control group (old program)				
Order number	Content	Teaching content of the experimental group	Period	Total	Order	Content	Teaching content of the control group	Period	Total
First semester	Volleyball	Theory: -The effect of sports training on human's development. - The effect of volleyball on human's development. - Principles of sports training. - Sports injuries, prevention and treatment.	6	45	First semester	Athletic	Theory: - General theory about physical education (PE) at University - Prevention and treatment of injuries in training.	4	30
		Practice: - Stand up and move - Prepare - Play a ball: high, medium and low posture. - Move, run, pace - Basic pass, low pass - Play low ball in front of the face - Play low ball bend body - General and professional development exercises.	36				Practice: - Short distance technique (starting, running, middle, end). (12 periods) - Push weight technique. (12 periods)	24	
		Examination: - Basic pass, low pass - Play low ball in front of the face - Play low ball bend body.	3				Examination: - Select run short 100m or push Weight	2	
Second semester	Volleyball	Theory: -Foundation and development of volleyball. - Tactics. - Competition rules	6	45	Second semester	Optional sports: Volleyball; Football; Basketball; Badminton; Shuttlecock;	Theory: -Foundation and development of optional sports (volleyball; football; basketball...) - Competition rules	4	60
		Practice: - Pass after the head - Play low ball with	36				Practice: - Basic techniques of optional sports	54	

		two hands - Rolling ball - Play high ball in front of face - Play high ball with bend body - Beat the ball in the direction of the momentum - Personal shots - Team shots - General and professional development exercises.					(Volleyball, Football, Basketball). - Competition Rules		
		Examination: - Pass after the head - Play high ball with bend body - Beat the ball in the direction of the momentum.	3				Examination: - practice a basic technique.	2	

- Long jump test: The average long jump index of the two groups was similar. The index of two groups was differently growth. The experimental group was better than the control group.

+ Before experiment: The average long jump index was the male experimental 206.47 ± 4.66 , the male control 206.06 ± 12.23 ; the female experimental 152.28 ± 4.76 and the female control 150.40 ± 4.14 .

+ After experiment: The average long jump index of the experimental group was higher than the control group, namely the male experimental $228. \pm 4.71$, the male control 214.97 ± 12.13 , the female experimental 183.44 ± 5.03 and the female control 168.29 ± 4.85 .

- Running 30m test: The average running 30m index of the two groups before the experiment was similar. After a school year, the speed of the students improved significantly and the experimental group was better than the control group.

+ Before experiment: The average running 30m of students was the male experimental 5.40 ± 0.27 , the male control 5.41 ± 0.31 , the female experimental 6.65 ± 0.39 and the female control 6.62 ± 0.39 .

+After experiment: Average time of running 30m of the experimental group was lower than the control group, namely the male experimental 4.46 ± 0.27 , the male control 4.96 ± 0.30 ; the female experimental 5.53 ± 0.39 and the female

control 5.79 ± 0.37 .

- Running 4x10m test: The average running 4x10m index of the two before experimental groups was similar. After training time, the achievement of the students was improved significantly. The experimental group practiced with suitable content, so the result was improved better.

+ Before experiment: the Average time of running 4x10m was the male experimental 12.05 ± 0.48 , the male control 12.06 ± 1.23 , the female experimental 13.45 ± 1.32 , the female control 13.22 ± 1.14 .

+ After experiment: The average running 4x10m of the experimental group was lower than the control group, namely the male experimental 9.98 ± 0.49 , the male control 10.51 ± 1.18 ; the female experimental 12.03 ± 1.13 , the female control 12.37 ± 1.22 .

- Running 5-minute test: The average running 5-minute index of the two before experimental group was similar. After training time, the achievement of the students was increased significantly. The experimental group was practiced a suitable programs, so the indexes were better.

+ Before experiment: The average running 5-minute of the students was the male experimental 940.38 ± 79.42 , the male control 930.18 ± 68.80 ; the female experimental 863.28 ± 65.41 , the female control 859.60 ± 66.54 .

Table 3.2: The effect of male experimental and control groups after a school year (2016 - 2017)

Tests	The control group							The experimental group							The development W% between control and experimental groups		
	Before experiment		After experiment		W%	t	P	Before experiment		After experiment		W%	t	P	W%	t	P
	$\bar{x} \pm \sigma$	C _v	$\bar{x} \pm \sigma$	C _v				$\bar{x} \pm \sigma$	C _v	$\bar{x} \pm \sigma$	C _v						
Height (cm)	168.75 ± 2.91	1.72	168.91 ± 2.89	1.71	0.09	0.22	>0.05	168.67 ± 2.38	1.41	169.54 ± 2.47	1.46	0.51	1.4	>0.05	0.37	0.96	>0.05
Weight (kg)	55.44 ± 1.89	3.41	56.66 ± 1.83	3.23	2.17	2.7	<0.01	55.33 ± 2.67	4.83	57.70 ± 2.44	4.23	4.19	3.7	<0.001	1.82	1.96	≤0.05
Quetelet (g/cm)	328.07 ± 12.37	3.77	335.99 ± 12.15	3.62	2.39	2.67	<0.01	330.02 ± 11.53	3.49	340.52 ± 11.62	3.42	3.13	3.63	<0.001	1.34	1.54	>0.05
Right hand's force (kg)	40.29 ± 1.89	4.69	45.16 ± 1.84	4.07	11.39	10.82	<0.001	40.73 ± 1.12	2.75	48.24 ± 1.11	2.30	16.88	26.82	<0.001	6.58	8.31	<0.001
Lie bend (time)	20.91 ± 2.77	13.25	26.12 ± 2.64	10.11	22.14	7.89	<0.001	20.25 ± 2.21	10.91	31.16 ± 2.36	7.57	42.44	19.14	<0.001	17.61	8.13	<0.001
Long jump (cm)	206.06 ± 12.23	5.94	214.97 ± 12.13	5.64	4.23	3.02	<0.01	206.47 ± 4.66	2.26	228.19 ± 4.71	2.06	9.99	18.56	<0.001	5.97	5.90	<0.001
Running 30m (second)	5.41 ± 0.31	5.73	4.96 ± 0.30	6.04	-8.7	6.45	<0.001	5.40 ± 0.27	4.997	4.46 ± 0.27	6.06	-19.07	13.43	<0.001	-10.68	7.19	<0.001
Running 4x10m (second)	12.06 ± 1.23	10.20	10.51 ± 1.18	11.23	-13.71	5.16	<0.001	12.05 ± 0.48	3.98	9.98 ± 0.49	4.91	-18.79	17.25	<0.001	-5.18	2.41	<0.05
Running 5-minute (m)	930.18 ± 68.80	7.396	987.68 ± 66.29	6.71	5.99	3.51	<0.001	940.38 ± 79.42	8.45	1057.44 ± 79.28	7.497	11.72	5.9	<0.01	6.82	3.87	<0.001
Standing bend (cm)	13.04 ± 0.84	6.44	14.73 ± 0.59	4.01	12.18	9.41	<0.001	13.09 ± 0.67	5.12	15.43 ± 0.4	2.59	16.40	16.71	<0.001	4.61	5.70	<0.001

Table 3.3: The effect of female experimental and control groups after a school year (2016-2017)

Tests	The control group							The experimental group							The development W% between control and experimental groups		
	Before experiment		After experiment		W%	t	P	Before experiment		After experiment		W%	T	P	W%	t	P
	$\bar{x} \pm \sigma$	C _v	$\bar{x} \pm \sigma$	C _v				$\bar{x} \pm \sigma$	C _v	$\bar{x} \pm \sigma$	C _v						
Height (cm)	154.65 ± 2.82	1.82	155.08 ± 2.67	1.72	0.28	0.65	>0.05	154.86 ± 2.44	1.58	155.89 ± 2.84	1.82	0.66	1.56	>0.05	0.52	1.19	>0.05
Weight (kg)	46.94 ± 2.40	5.11	49.39 ± 2.17	4.39	5.09	4.45	<0.001	47 ± 2.44	5.19	50.79 ± 2.43	4.78	7.76	6.22	<0.001	2.79	2.46	<0.05
Quetelet (g/cm)	303.97 ± 13.53	4.45	319.75 ± 13.51	4.23	5.06	4.89	<0.001	304.20 ± 14.21	4.67	327.42 ± 13.88	4.24	7.35	6.61	<0.001	2.37	2.29	<0.05
Right hand's force (kg)	25.45 ± 1.76	6.92	29.65 ± 1.18	3.98	15.23	11.66	<0.001	25.41 ± 1.26	4.96	32.43 ± 0.77	2.37	24.27	26.995	<0.001	8.96	11.58	<0.001
Lie bend (time)	17.63 ± 1.17	6.64	22.37 ± 1.31	5.86	23.71	15.81	<0.001	17.56 ± 1.22	6.95	26.09 ± 1.49	5.71	39.08	25.09	<0.001	15.35	10.63	<0.001
Long jump (cm)	150.40 ± 4.14	2.75	168.29 ± 4.85	2.88	11.22	16.56	<0.001	152.28 ± 4.76	3.13	183.44 ± 5.03	2.74	18.56	25.54	<0.001	8.61	12.52	<0.001
Running 30m (second)	6.62 ± 0.39	5.895	5.79 ± 0.37	6.396	-13.39	9.23	<0.001	6.65 ± 0.39	5.86	5.53 ± 0.39	7.05	-18.45	12.49	<0.001	-4.59	2.89	<0.01
Running 4x10m (second)	13.22 ± 1.14	8.62	12.37 ± 1.22	9.86	-6.598	3.02	<0.01	13.45 ± 1.32	9.81	12.03 ± 1.13	9.39	-11.15	4.74	<0.001	-2.86	1.25	>0.05
Running 5-minute (m)	859.60 ± 66.54	7.74	908.18 ± 62.34	6.86	5.495	3.15	<0.01	863.28 ± 65.41	7.58	926.63 ± 70.06	7.57	6.975	3.68	<0.001	1.90	1.07	>0.05
Standing bend (cm)	12.89 ± 0.6	4.66	13.96 ± 0.53	3.81	7.98	8.24	<0.001	12.93 ± 0.5	3.87	14.66 ± 0.34	2.32	12.57	15.77	<0.001	4.93	6.41	<0.001

+ After experiment: The achievement running 5-minute of the experimental group was better than the control group, namely the male experimental 1057.44 ± 79.28 , the male control 987.68 ± 66.29 , the female experimental 926.63 ± 70.06 , the female control 908.18 ± 62.34 .

- Standing bend body test (cm): The average standing bend body index of the two groups before the experiment was similar. After training time, the achievement of the students was improved significantly. The experimental group practiced with suitable content, so the result was improved better.

+ Before experiment: The average flexibility index of students was the male experimental 13.09 ± 0.67 , the male control 13.04 ± 0.84 , the female experimental 12.93 ± 0.5 , the female control 12.89 ± 0.6 .

+ After experiment: the average flexibility index of the experimental group was better than the control group, namely the male experimental 15.43 ± 0.4 , the male control 14.73 ± 0.59 , the female experimental 14.66 ± 0.34 , the female control 13.96 ± 0.53 .

Therefore, both groups have developed in each period. However, the experimental group was significantly better than the control group, which was statistically significant with $t_{\text{result}} > t_{\text{table}}$ confidence score of $P < 0.05$.

After a school year, the result of study shown that both experimental and control groups were developed many targets. However, the physical fitness index of the experimental group was better than the control group.

- Male experimental group: There were 9 targets with the significant difference $P < 0.001$ (weight, Quetelet, right hand's force, lie bend, running 30m and running 4x10m, running 5-minute, standing bend body).

- Male control group: There were 6 targets with the significant difference $P < 0.001$ (right hand's force, lie bend, running 30m, running 4x10m, running 5-minute, standing bend body).

-Female experimental group: There were 9 targets with the significant difference $P < 0.001$ (weight, Quetelet, right hand's force, lie bend, long jump, running 30m, running 4x10m, running 5-minute, standing bend body).

-Female control group: There were 7 targets with the significant difference $P < 0.001$ (weight, Quetelet, right hand's force, lie bend, running 30m, long jump, stand bend body).

4. Conclusions

From the research results of the study, the author has drawn the conclusions:

The effect of physical education and the practice new volleyball curriculum has created adaptations of the body. The physical health (weight, Quetelet) of male and female experimental groups were significantly better than the control group. This demonstrated that the effects of exercises physical education (volleyball) have developed better about physical health and fitness of male and female students during a year (2 semesters). Therefore, the curriculum is suitable and effective for the development of physical health and fitness of students at An Giang university.

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