



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2021; 8(3): 370-373
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www.kheljournal.com
Received: 16-03-2021
Accepted: 18-04-2021

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Selecting and applying physical development exercises for male students of the volleyball team of Phu Yen University

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Abstract

Using basic scientific research methods, we have selected 20 physical development exercises and 06 physical development level assessment tests which are sufficiently reliable and informing for male students of the volleyball team of Phu Yen University.

Keywords: exercise, professional physical fitness, male students, Phu Yen University

1. Introduction

1.1 Question: Phu Yen University, formerly known as Phu Yen Pedagogical College, is a public higher education institution directly under the People's Committee of Phu Yen province, under the State management of education by the Ministry of Education and Training, which has the function of training multi-major, multi-level, multi-field, from college, university to post-graduate levels. Currently, the school has 3,942 students and trainees of all levels and types of training and cultivating (16 university training majors, 24 college training majors and other types of training). The content of the training program is updated according to the forecast of social demand; training is implemented according to the credit system; Equip learners with professional competence, foreign language ability, informatics and social skills, ensuring output standards as committed; students achieve high rankings in Olympic exams, the annual employment rate of graduates is over 80%; qualified for external assessment according to national quality standards.

Phu Yen University has performed well the task of instructing curricular physical education, at the same time, the school, the Youth Union, and the Students Association have also organized well activities of organizing sport teams such as Basketball team, Volleyball team, Soccer team, Table Tennis team, Badminton team... However, these teams are taught and trained with a variety of different exercises, especially, the Volleyball team has not finalized the content of the physical development exercises system. From the above issues, in order to contribute to improving the quality of teaching and training male students of the volleyball team of Phu Yen University, we carried out: Selecting and applying physical development exercises for male students of the volleyball team of Phu Yen University.

During the research process, we used the following research methods: Method of analyzing and synthesizing documents; Method of interview and discussion; Method of pedagogical observation; Method of pedagogical examination; Method of pedagogical experiment and mathematical statistics method.

We assessed the physical development for male students of the volleyball team of Phu Yen University through 6 tests: Jump and reach with momentum (cm); Pine-shaped running (s); Front somersault combined with run-up, jump, bounce ball with 2 hands over the net (s); Stall bar crunches 10s (times); bounce ball (1 kg) far with one hand (m); Jump rope 2 minutes (times).

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2. Research Results

2.1. Selecting physical development exercises and tests to assess the professional physical fitness for male students of the volleyball team of Phu Yen University

We selected physical development exercises for male students of the volleyball team of Phu Yen University through the following steps:

- Select through reference to documents, pedagogical observation
- Select through direct interviews with experts, teachers, and coaches
- Select through large-scale interview by questionnaires
- As a result, we selected 22 physical development exercises for the research subjects, including:
 - Group of exercises to develop speed (05 exercises).
 - Group of exercises to develop strength (05 exercises).
 - Group of exercises to develop durability (05 exercises).
 - Group of exercises to develop coordination ability (05 exercises).

3. Applying physical development exercises for male students of the volleyball team of Phu Yen University

3.1. Organizing experiment

- Experimental method: Parallel comparison experiment
- Experimental time: The experiment was conducted for 4 months with 1 semester, 2 sessions per week in extracurricular time (from 5.30pm to 7pm, 2 days a week according to the school's schedule), the duration for each session is 20 to 30 minutes after warming-up.
- Experiment subjects: Include 20 male students of the volleyball team and are divided into two groups through random draw:
 - Group 1 (the experimental group): including 10 students practicing 20 exercises that we selected
 - Group 2 (the control group): including 10 students practicing old exercises at school, following the program and lesson plans that have been developed by the Faculty of Physical Education & National Defense Education.
- Experimental location: Phu Yen University.
- The experimental process is shown in detail in Table 1.

Table 1: Experimental process

Week Session	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32			
EX 1	KT	x	x					x				x				x				x				x									x		
EX 2	x		x						x							x				x							x						x		
EX 3		x		x						x				x				x				x								x				x	
EX 4				x							x								x														x		
EX 5	x		x				x				x		x			x									x								x		
EX 6		x		x								x					x																x		
EX 7	x				x		x		x			x		x								x		x									x		
EX 8		x		x						x																								x	
EX 9				x																															
EX 10	x						x				x																								
EX 11		x																																	
EX 12	x				x		x		x			x		x																					
EX 13		x		x																															
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EX 15	x		x																																
EX 16		x					x		x																										
EX 17	x		x				x																												
EX 18		x																																	
EX 19				x																															
EX 20	x																																		
																																			Test

Note:

Group of exercises to develop speed (05 exercises)

- Exercise 1: Single block at positions 3 and 4 (2) (15s x 3 sets, rest 1 minute between sets, active rest)
- Exercise 2: Run fast and speed up from different preparation positions (sitting, lying, standing) following the observed signal (15s x 3 sets, rest 1 minute between sets, active rest)
- Exercise 3: Spike continuously at positions 4 (3 - 2), after touching the ground, quickly retreat to the attack line (15s x 3 sets, rest 1 minute between sets, active rest)
- Exercise 4: Spike sequentially at positions 3 - 4, each one defends at positions 6 and 1 (15s x 3 sets, rest 2 minutes between sets, active rest)
- Exercise 5: Spike at position 4 (2) with a collective block arrangement; the defender at the back row stand at position 1 (5) and assist with drop shot behind the block row (15s x 3 sets, rest 2 minutes between sets, active rest)

Group of exercises to develop strength (05 exercises)

- Exercise 6: Pass, bounce ball (0.5 - 1kg) (15s x 3 sets, rest 1 minute between sets, active rest)
- Exercise 7: Stand in place or jump and spike the ball hard to the ground (15s x 3 sets, rest 1 minute between sets, active rest)
- Exercise 8: Perform upper body rotation when carrying weight (30s x 3 sets, rest 1 minute between sets, active rest)
- Exercise 9: Carry weights on shoulders, stand up and sit down with a weight equal to 50 - 70% of body weight (15 seconds x 3 sets, rest 1 minute between sets, active rest)
- Exercise 10: Lift weights equal to 50% of body weight and perform jumping, switching legs in place or moving forward (15s x 3 sets, rest 1 minute between sets, active rest)

Group of exercises to develop durability (05 exercises)

Exercise 11: Diamond-shaped run, touch the attack line and the end line (45s x 2 sets, rest 1 minute between sets, active rest)

- Exercise 12: Spike ball in the momentum building direction at position 4 (3, 2) (20s x 5 sets, rest 1 minute between sets, active rest)
- Exercise 13: Defensive activities in pairs (one defense, one spike) (45s x 2 sets, rest 1 minute between sets, active rest)
- Exercise 14: Carry a weight of 20 kg on shoulders, jump up from a sitting position (1 min x 1 set, rest 1 minute between sets, active rest)
- Exercise 15: Jump up to 80-100cm high podium 1min x 1 set, rest 1 minute between sets, active rest)

Group of exercises to develop activity coordination ability (05 exercises)

- Exercise 16: From a squatting position, fall sideways combined with inclined slide movement (15s x 3 sets, rest 1 minute between sets, active rest)
- Exercise 17: Stand in an active position, lunge forward to touch the ground with hands - chest - abdomen (15s x 3 sets, rest 1 minute between sets, active rest)

- Exercise 18: Lunge to the side and perform shoulder roll; lunge out to perform front somersault (15s x 3 sets, rest 1 minute between sets, active rest)
- Exercise 19: Jumping with one leg alternately from one foot to the other combined with active jumping of the feet (15s x 3 sets, rest 1 minute between sets, active rest)
- Exercise 20 : Simulate the movement of block, spike combined with turning 90 °, 180 ° in the air (15s x 3 sets, rest 1 minute between sets, active rest)

4. Applying results of the physical development exercises for male students of the volleyball team of Phu Yen University

Before the experiment, we used 06 tests selected in part 1 to test and compare the differences in the physical development levels of the experimental and control groups. Results showed that: Before the experiment, the physical development level of the experimental and control groups did not differ with statistical significance. In other words, before the experiment, the physical development levels of both experimental and control groups were similar, i.e. the groups division is completely objective.

Table 2: Results of the tests assessing the physical fitness level of the research subjects before the experiment

No.	Test	Test Result ($\bar{x} \pm \delta$)		t	P
		Control group (n = 7)	Experimental group (n = 8)		
1.	Jump and reach with momentum (cm)	259.82±10.79	266.10±10.49	0.67	>0.05
2.	Pine-shaped running (s)	26.24±2.10	25.68±1.98	0.61	>0.05
3.	Front somersault combined with run-up, jump, bounce ball with 2 hands over the net (s)	22:51±1.80	22:01±1.70	0.63	>0.05
4.	Stall bar crunches 10s (times)	6.53±12.52	6.68±12.52	0.65	>0.05
5.	Bounce ball (1 kg) far with one hand (m)	24.64±1.97	25.20±1.94	0.64	>0.05
6.	Jump rope 2 minutes (times)	225.54±18.05	230.80±17.77	0.65	>0.05

Table 3: Results of the tests assessing the physical fitness level of the research subjects after the experiment

No.	Test	Test Result ($\bar{x} \pm \delta$)		t	P
		Control group (n = 7)	Control group (n = 7)		
1.	Jump and reach with momentum (cm)	265.05±11.39	280.96±11.23	2.18	<0.05
2.	Pine-shaped running (s)	23.60±1.24	22.02±1.11	2.99	<0.05
3.	Front somersault combined with run-up, jump, bounce ball with 2 hands over the net (s)	20.26±1.12	19.05±0.96	2.58	<0.05
4.	Stall bar crunches 10s (times)	7.20±12.38	7.76±12.39	3.34	<0.05
5.	Bounce ball (1 kg) far with one hand (m)	27.15±1.50	29.06±1.46	2.94	<0.05
6.	Jump rope 2 minutes (times)	248.10±12.70	274.90±24.72	3.35	<0.05

After 04 months of experiments, we continued to use 04 tests selected to test the physical development level of the experimental and control groups and compare the differences in the test results. The results showed that: After 04 months of experiment, the test results of the experimental and control groups had significant differences, the experimental group had better test results than the control group ($P < 0.05$). This shows that the exercises we have initially selected have a better effect on the physical development of male students of the volleyball team of Phu Yen University than the exercises commonly used at Phu Yen University.

5. Conclusion

- As a result of the research, we have selected 06 tests, which are sufficiently reliable and informing, to assess the physical development level for the research

subjects.

- The research has selected 20 exercises and proved the effectiveness of these exercises in developing physical strength for male students of the volleyball team of Phu Yen University, which is clearly shown in the test results after 04 experimental months of the experimental group. Specific exercises include
- Group of exercises to develop speed (05 exercises).
- Group of exercises to develop strength (05 exercises).
- Group of exercises to develop durability (05 exercises).
- Group of exercises to develop coordination ability (05 exercises).

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