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CHOOSING A SPECIALIZED EXERCISE SYSTEM FOR SWIMMING TRAINING FOR STUDENTS MAJORING IN PHYSICAL EDUCATION AT TAY BAC UNIVERSITY

Abstract: The research process selected 39 exercises, then based on physical fitness levels, facilities, training grounds, and equipment, and following the swimming teaching process, the author organized the exercises systematically from easy to difficult, from simple to complex.

Keywords: Freestyle swimming, specialized exercises, physical education, swimming.

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ВЫБОР СПЕЦИАЛИЗИРОВАННОЙ СИСТЕМЫ УПРАЖНЕНИЙ ДЛЯ ОБУЧЕНИЯ ПЛАВАНИЮ СТУДЕНТОВ СПЕЦИАЛЬНОСТИ «ФИЗИЧЕСКОЕ ВОСПИТАНИЕ» В ТЭЙБАКСКОМ УНИВЕРСИТЕТЕ.

Аннотация: В ходе исследования было отобрано 39 упражнений, затем, исходя из уровня физической подготовки, условий, тренировочных площадок и оборудования, а также следуя методике обучения плаванию, автор систематически расположил упражнения от простых к сложным.

Ключевые слова: плавание вольным стилем, специализированные упражнения, физическое воспитание, плавание.

1. Introduction

For students majoring in Physical Education at Tay Bac University, swimming has become a compulsory course in the Physical Education training program. Although the university, during its development process, has paid attention to investing in facilities such as swimming pools and equipment to support the swimming course, the quality of swimming instruction—especially front crawl swimming—remains limited. This may be attributed to various factors; however, it cannot be denied that one of the key reasons is the improper and unscientific use of supplementary exercise systems.

In order to contribute to improving the quality of student training, the author conducted a study to select and develop a system of supplementary exercises for teaching front crawl swimming to Physical Education major students at Tay Bac University.

2. Research Results

During the research process, the article employed standard methods in sports science research, including: document analysis and synthesis; pedagogical observation; interview and discussion methods; and statistical mathematical methods.

2.1. Principles for Selecting a System of Supplementary Exercises for Teaching Front Crawl Swimming to Physical Education Major Students at Tay Bac University

Based on domestic and international references, together with principles of management and development, and ensuring suitability to learners and practical conditions, the author identified three principles that should be followed in selecting a system of supplementary exercises for teaching front crawl swimming to Physical Education major students at Tay Bac University.

Principle 1: The system of supplementary exercises for teaching front crawl swimming must be consistent with practical conditions and ensure alignment with students' proficiency levels and the training curriculum.

Principle 2: The system of supplementary exercises for teaching front crawl swimming must be feasible.

Principle 3: The system of supplementary exercises for teaching front crawl swimming should be selectively chosen and effective in achieving instructional objectives, while inheriting previous experiences and mobilizing available resources and approaches.

2.1. Results of Selecting and Organizing a System of Supplementary Exercises for Teaching Front Crawl Swimming to Physical Education Major Students at Tay Bac University

Through research and review of teaching and coaching materials related to swimming, the author compiled a total of 43 exercises. Subsequently, expert interviews were conducted to evaluate the priority levels of these exercises. The results of the expert interviews are presented in Table 1.

Table 1. Results of expert interviews on the selection of supplementary exercises for teaching front crawl swimming to Physical Education major students at Tay Bac University (n = 30)

TT	Additional practice exercises	Number of selections	Percentage rate %
A. Water Introduction Exercise Group			
1	Clinging to the tank, submerging to breathe out through a mask, then surfacing to inhale through the mouth	27	90
2	Moving underwater	28	93.33
3	Hugging a pillow and floating in the water	28	93.33
4	Hugging a pillow and floating, then switching to an upright position with arms, body, and legs straight, with the head bowed underwater	29	96.67
5	Pedal until the water breaks and glides smoothly.	30	100
B. The group of exercises for crawling and crawling on hands and knees			
6	Sit with your hands supporting your back, lift your legs, then kick alternately with both legs continuously on land.	29	96.67
7	Lying face down, supporting with your hands to form a barrier, then crawling on two legs continuously in a rolling motion.	30	100
8	Pedal until the water breaks, then glide, alternating foot strokes continuously while holding a float for 20–30 meters	30	100
9	Pedal until the water breaks, then kick with both feet alternately continuously for 20–30 meters	28	93.33
C. Hand fan crawling exercise group			
10	Standing and bending forward (one hand supporting the knee), practicing water fan with one hand on land	27	90
11	Standing and bending over, fanning water with both hands alternately and continuously on land	28	93.33
12	Stand and bend forward, face submerged in the water, practicing coordinated hand movements by continuously fanning the water in	30	100

	place		
13	The person is walking while coordinating by fanning water with both hands alternately in the water	17	56.67
14	Clamp the number 8 float onto your thigh and practice water gliding while coordinating with two-arm water fan for 20–30 meters	30	100
D. Prone breathing exercise group			
15	Deep breathing practice on land: Stand with a forward bend, extend both arms straight in front, tilt your head to the side, inhale deeply through your mouth, hold your breath for a few seconds, then slowly exhale through your nose	30	100
16	Underwater breathing practice: One hand firmly grasping the pool bar, the other arm extended straight back, focusing on breathing technique	29	96.67
D. Group of exercises combining hand, foot, and breathing coordination for front crawl swimming			
17	Standing and bending forward, coordinating water splashing with both hands while breathing on land	29	96.67
18	Standing and bending forward, coordinating water splashing with both hands while breathing on land	27	90
19	Teammates hold both legs (or hook their legs onto the water trough) while practicing hand fan movements in coordination with breathing underwater	30	100
20	wo legs are secured to the float, practicing coordinated water splashing with two alternating hand and breathing movements	27	90
21	Paddling on the water, pedaling with the feet, coordinating hand paddling and breathing once or twice slowly	30	100
22	Holding the board with one hand, coordinating with the foot with the other	18	60
E. Complete coordination exercise group			
23	Hold one hand on the trough (or float line) and practice complete coordination	30	100
24	Pedal glide practice combining hand and foot movements with breathing (2-3 cycles: hand, breath, 1)	30	100
25	Complete coordination exercise following the 1:2:6 rhythm over a distance	29	96.67
26	Swimming slowly focuses on taking deep breaths and exhaling steadily in a 1:2:6 ratio over a long distance	29	96.67
G. Technical skill improvement exercises group			
27	Fast short-distance freestyle swimming practice	30	100
28	Combined swimming exercise pulling an obstacle (upstream	17	56.67

	swimming)		
29	Practice test of basic movements for the front crawl swimming style	30	100
30	Practice crawling distances of 25 - 50 meters	30	100

Based on the interview results presented in Table 1, Three exercises with a success rate below 70% were eliminated. The remaining 27 exercises were selected based on the students' physical fitness levels, learning conditions, and the teaching progress of the front crawl swimming course for students majoring in physical education at Tay Bac University. The exercises are arranged systematically from easy to difficult, from simple to complex, and according to the teaching progression of front crawl swimming.

2. Evaluation of the effectiveness of the supplementary breaststroke swimming exercises system for students majoring in Physical Education at Tay Bac University

Before the experiment, the author selected 9 subgroup tests through interviews, including tests on physical fitness and professional competence. Since most students did not know how to swim, the initial assessment only used two tests: buoyancy and the distance of leg kicks in the water treadmill.

The initial subgrouping test results showed that the initial levels of the two experimental and control groups were comparable, with a significance level of P > 0.05, indicating no significant difference.

After the experimental period, 10 selected tests were used to assess the outcomes. The data obtained were processed using an algorithm that compares two means. The results are presented in Table 2.

Table 2. Comparison of differences in the tests evaluating the experimental results of applying supplementary exercises for teaching front crawl swimming to students majoring in physical education at Tay Bac University (ntn = nđc = 10)

TT	Test examination	Experimental group		Control group		The difference	
		$\overline{X}$	δ	$\overline{X}$	δ	T	p
1	Arm span - height (cm)	0.922	0.006	0.931	0.008	0.216	P >0.05

2	Cardiac functional index	12.77	1.22	12.56	1.24	0.118	P >0.05
3	Run 30 minutes XPC (seconds)	4.46	0.33	4.48	0.31	0.276	P >0.05
4	Maximum push-ups in a prone position (number of repetitions/30 seconds)	33	2.01	32	1.87	0.316	P <0.05
5	Activate at the spot (cm)	263	12.45	261	16.33	0.146	P <0.05
6	Run 800 meters (seconds)	167	22,56	169	23.06	0.270	P >0.05
7	Stick rotation over the shoulder (cm)	48.7	4.28	48.2	4.57	0.154	P >0.05
8	25-meter front crawl swimming record (seconds)	22.6	2.67	24.75	2.88	3,867	P <0.05
9	The longest distance for freestyle swimming (m)	267	11.42	208	9.67	4.819	P <0.05
10	Freestyle swimming technique points (point)	8.67	0.76	6.77	0.48	5.068	P <0.05

From Table 2, we can see that tests 4, 5, 8, 9, and 10 have a significance level greater than the threshold at P<0.05, indicating statistically significant differences. The other tests show no difference. In other words, the exercise system chosen and organized by the topic is significantly better than the supplementary swimming exercises used by the lecturers at Tay Bac University.

3. Conclusion

Through the research process, the topic selected 39 exercises. Based on physical fitness levels, professional competence, implementation conditions, and the swimming crawl stroke teaching schedule of the Department of Physical Education at Northwest University, the exercises were arranged systematically from easy to difficult, from simple to complex, suitable for students majoring in physical education.

The exercise system was validated through a 15-week swimming course for physical education students at Tay Bac University, which proved to be more effective than the exercises traditionally used by the instructors of the Department of Physical Education at Tay Bac University, with the necessary statistical reliability.

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