

Research On Selection of Specialized Physical Exercises to Develop Aerobic and Anaerobic Ability for Female Students Who Specialize In Middle Distance Running Courses 38 And 37 - Faculty of Sport Training - Ho Chi Minh City University Of Sports, Vietnam

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ABSTRACT

The topic has selected 14 exercises to develop aerobic and anaerobic ability for female students who specialize in middle distance running, of which short distance has 05 exercises, accounting for 35.5%, medium distance.07 exercises account for 50% and long distance has 03 exercises accounting for 14.3%. Based on 14 selected exercises, the project has developed a specialized training program to develop aerobic and anaerobic ability for female students who specialize in middle distance running at the Ho Chi Minh City University of Sports (HUS).

Keywords: Aerobic and anaerobic ability, middle distance running, research on selection, physical exercises, students.

INTRODUCTION

One of the measures in the trend of modern sports training is to organize exercise in the high mountains (Milosz Czuba, 2011), ... Many scientific documents have mentioned the positive effects of this one; The value of training in the high mountains is accommodation - at high altitude, the air is thin, the partial pressure of oxygen decreases, so it forces the circulatory and respiratory systems to work more actively than in the lowland conditions. Thus, organizing exercise in the high mountains will create a synergistic impact on the body through exercise volume and the impact of environmental conditions (Nguyen Ngoc Cu, 1999).

Today with the development of scientific and technical achievements, athletes do not need to go to high mountains to practice but can practice right at the gym in the plain. Or they can be anywhere that has the same training environment and conditions as in the high mountains (Lam Quang Thanh, Bui Trong Toai, 2002). The advantage of the device is to create a thin air environment corresponding to the different heights required by the coaches to achieve the highest efficiency in training

(Saunders PU, Telford RD, Pyne DB, Cunningham RB, Gore CJ, Hahn AG, Hawley JA, 1985). The advantage of the device is to create a thin air environment corresponding to the different heights required by the coaches to achieve the highest efficiency in training (Lauralee Sherwood, 2015).

In order to achieve high training efficiency in an equivalent environment at an altitude of 1500m above sea level, the problem of choosing suitable specialized physical exercises to develop aerobic and anaerobic ability for female average distance running students is especially important (Hasan Sözen, Can Akyıldız, 2018).

MATERIALS AND METHODS

The study used methods including analysis, synthesis of documents, interviews and mathematical statistics to serve the research process. The subjects of the study are 30 trainers, athletics coaches and experts who have experience and seniority of Ho Chi Minh City University of Sports.

RESULTS AND DISCUSSION

The basis of selection of specialized physical exercises to develop aerobic and anaerobic

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ability for female students who specialize in middle distance running of courses 38 and 37 - Faculty of Sports Training - Ho Chi Minh City University of Sports

Based on the actual situation of aerobic and anaerobic capacity of female students who specialize in middle distance running courses 38 and 37 - Faculty of Physical Education - Ho Chi Minh City University of Sports;

Based on the analytical indicators obtained by conducting a comprehensive assessment of the aerobic and anaerobic capacity of the research subjects to choose to give the exercise volume in the appropriate intensity zones. Since then, the capacity for physical activity has been improved;

Based on the specificity of the equipment to create the environment at the selected altitude of 1500m; The area of the gym is small, about 12m², so the means of exercise in the gym are mostly treadmills. Exercises in the topic are mainly based on the intensity partition of exercises performed on the treadmill;

The topic has conducts reference to relevant research works, mainly foreign ones, to select and build a training program to develop aerobic and anaerobic ability for female students who specialize in middle - distance running belongs to courses 38 and 37 of the Faculty of Sports Training, Ho Chi Minh City University of Sports. At the same time, the project also

conducted interviews and discussions with experienced trainers and experts in training, using special training methods, knowledgeable about research equipment, ... to come up with a suitable program.

The research has conducted 2 interviews with printed questionnaires (Appendix 1) on 22 exercises, 1 week apart each time to ensure reliability. The interviewees included 30 trainers, athletics coaches and experienced and senior experts from Ho Chi Minh City Sports University. The exercises given to the interview are those that are obtained through observing the training sessions, through reading reference materials, as well as through the experience of the board of directors.

The purpose of these questions is to find out and select the necessary exercises to develop aerobic and anaerobic ability for female students who specialize in middle - distance running belongs to courses 38 and 37 of the Faculty of Sports Training, Ho Chi Minh City University of Sports.

The respondents will choose one of three options: Often used (3 marks), rarely used (2 marks) and not used (0 mark). Through the interview results, the topic only selects exercises with a high selection rate of 90% or more in both interviews to apply on research subjects. The results of the interview are presented in Table 1.

Table1. Results of interviews, selection of exercises (n=30)

No.	Exercises	Results of the 1st interview		Results of the 2nd interview		Note
		Total score	%	Total score	%	
1	Running 80 metres					✓
2	Running 100 metres	67	74.4	69	76.7	
3	Running 4x100 metres	83	92.2	84	93.3	✓
4	Running 200 metres	66	73.3	68	75.6	
5	Running 300 metres	66	73.3	68	75.6	
6	Running 400 metres	85	94.4	87	96.7	✓
7	Running 500 metres	66	73.3	68	75.6	
8	Running 600 metres	85	94.4	88	97.8	✓
9	Running 800 metres	71	78.9	75	83.3	
10	Running 1000 metres	85	94.4	87	96.7	✓
11	Running 2000 metres	85	94.4	82	91.1	✓
12	Running 3000 metres	85	94.4	87	96.7	✓
13	Running 4000 metres	68	75.6	75	83.3	
14	Running 5000 metres	85	94.4	87	96.7	✓
15	Run to warm up according to ability	84	93.3	85	94.4	✓
16	Running durable 10000 metres	85	94.4	82	91.1	✓
17	Variable speed running -	67	74.4	70	77.8	

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	200 metres					
18	Variable speed running - 400 metres	67	74.4	70	77.8	
19	Running 4x400 metres	87	96.7	81	90.0	✓
20	Running speed increase - 5x80 metres	85	94.4	88	97.8	✓
21	Running 4x1000 metres	87	96.7	81	90.0	✓
22	Running 4x1500 metres	87	96.7	81	90.0	✓

The interview results showed that there was a high consensus on the answers from lecturers, coaches and experts. According to the rules mentioned above, there are 14/22 exercises accounting for 90% of the total score or more in 2 interviews to be continued and selected to be included in the study.

To test the coincidence of the results of the two interviews, the study compared them through the Chi square index (χ^2), shown in Table 2.

The data from Table 2 shows the results of observations through two interviews of 14 selected exercises with χ^2 calculated $< \chi^2$ table (χ^2 tables = 3.841) at the probability threshold $P > 0.05$. The difference in the two observed values is not statistically significant with the probability threshold $P > 0.05$. Thus, there is a consensus on the responses to the selection of 14 exercises between experts and lecturers.

Table 2. Comparison of results of two interviews to select exercises (n=30)

No.	Exercises	Results of the 1st interview	Results of the 2nd interview	Comparison	
		Điểm	Điểm	χ^2	P
1	Running 5000 metres	84	85	0.1	>0.05
2	Running 80 metres	83	84	0.1	>0.05
3	Running 4x100 metres	85	87	0.1	>0.05
4	Running 400 metres	85	88	0.14	>0.05
5	Running 600 metres	85	87	0.1	>0.05
6	Running 1000 metres	85	82	0.16	>0.05
7	Running 2000 metres	85	87	0.1	>0.05
8	Running 3000 metres	85	87	0.1	>0.05
9	Run to warm up according to ability	84	85	0.1	>0.05
10	Running 1000 metres	85	82	0.1	>0.05
11	Running 4x400 metres	87	81	0.34	>0.05
12	Running speed increase - 5x80 metres	85	88	0.14	>0.05
13	Running 4x1000 metres	87	81	0.34	>0.05
14	Running 4x1500 metres	87	81	0.34	>0.05

Through Table 2, the topic has selected 14 exercises to put into the experimental program, in which:

- Short distance has 05 exercises, accounting for 35.5%.
- The middle distance has 07 exercises,

accounting for 50%.

- Long distance has 03 exercises, accounting for 14.3%.

The proportion of groups of exercises selected at the same time is reflected in chart 1.

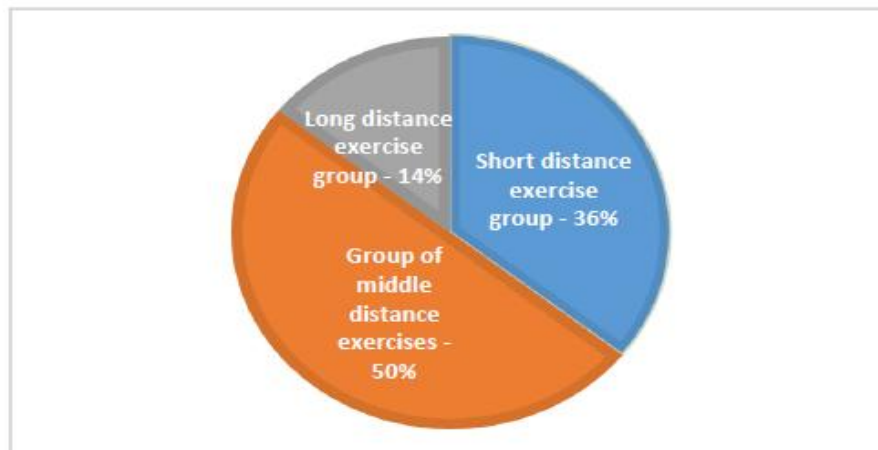


Figure 1. Percentage of selected exercise groups

Building a professional training program to develop aerobic and anaerobic abilities for female students who specialize in middle distance running in courses 38 and 37 of the Faculty of Sports Training, Ho Chi Minh City University of Sports By conducting seminars, interviewing 10 coaches, experts with experience in the field of research, along with referencing relevant foreign research documents

for 14 selected exercises. After that, the project developed a professional training program to develop aerobic and anaerobic abilities for female students who specialize in middle distance running belong to courses 38 and 37 of the Faculty of Sport, Ho Chi Minh City University of Sports. The results are presented in Table 3.

Table 3. Experimental program for research subjects

Training content	Week 1	Week 2	Week 3	Week 4
Tuesday	2-hour endurance running at 60% - 75% WR _{LT}	2-hour endurance running at 60% - 75% WR _{LT}	2-hour endurance running at 70% - 80% WR _{LT}	2-hour endurance running at 70% - 80% WR _{LT}
Thursday	2-hour endurance running at 60% - 75% WR _{LT} Running at full speed (2x6x10smax)	2-hour endurance running at 60% - 75% WR _{LT} Running at full speed (2x6x10smax)	2-hour endurance running at 70% - 80% WR _{LT} Running at full speed (2x6x10smax)	2-hour endurance running at 60% - 75% WR _{LT} Running at full speed (2x6x10smax)
Saturday	1-hour endurance running (at 60% - 75% WR _{LT}), running 4x10min (at 95-105% WR _{LT}), 5% slope.	1,5-hour endurance running (at 60% - 75% WR _{LT}) running 4x10min (at 95-105% WR _{LT}), 5% slope.	1-hour endurance running (at 70% - 80% WR _{LT}), running 4x12min (at 95-105% WR _{LT}), 5% slope.	1,5-hour endurance running (at 60% - 75% WR _{LT}) running 4x10min (at 95-105% WR _{LT}), 5% slope.

Applying the professional training program to develop aerobic and anaerobic abilities for female students who specialize in middle distance running in courses 38 and 37 of the Faculty of Sports Training, Ho Chi Minh City University of Sports Research Description: Students are explained about the purpose of the study, the test procedure, the possible effects

during and after the test. Students agreeing to participate will sign a prepared consent form. Ethical code of research followed the Declaration of Helsinki and adjusted according to the Tokyo statement; the implementation methods were closely monitored and approved by the Scientific Council of Ho Chi Minh City University of Sports.

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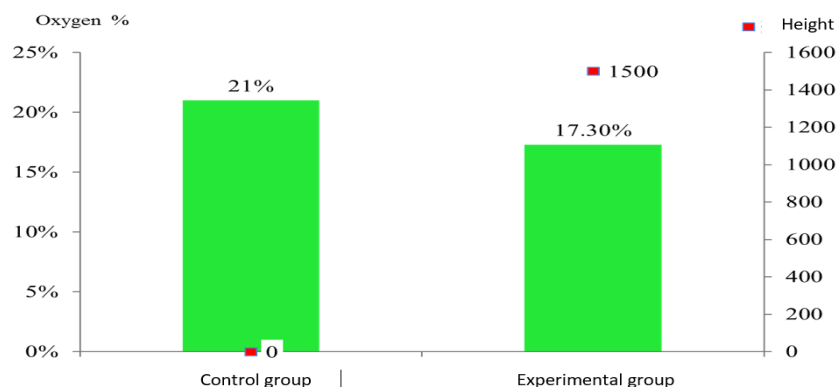


Figure 2. Oxygen concentration (%) in the training environment of the 2 research groups

The study was divided into 2 groups: Experimental group (6 students), Control group (6 students) using parallel comparison research method. The experimental group conducted training according to the program built for 4 weeks in the environment of creating environment equipment at an altitude of 1500m; The control group exercised according to a developed program for 4 weeks in a plain environment. The factors of ambient temperature and air humidity in the two research groups are similar, only differing in oxygen concentration, the parameters are shown in Figure 2.

CONCLUSION

Based on the actual status of aerobic and anaerobic capacity of female students who specialize in middle distance running in courses 38 and 37 of the Faculty of Sports Training, Ho Chi Minh City University of Sports; Through 2 interviews with 30 experts and coaches, the subject has selected 14 exercises to develop their aerobic and anaerobic abilities. The exercises include: 05 short distance running exercises (accounting for 35.5%), 07 middle distance running exercises (accounting for 50%) and 03 long distance running exercises (accounting for 14.3%). Based on 14 selected exercises, the project has developed a specialized training program to develop aerobic and anaerobic abilities for female students who specialize in middle distance running of Ho Chi Minh City University of Sports.

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