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EXAMINING EXERCISES TO DEVELOP GENERAL ENDURANCE IN AVERAGE-DISTANCE RUNNING (800M) FOR FEMALE ATHLETES AGED 15-16 IN THUA THIEN HUE PROVINCE

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Abstract:
Having applied academically approved researching methods, the project evaluated the status of general endurance training at an average distance of 800 m and selected 16 exercises to develop endurance in average-distance running (800m) for female athletes, aged 15 – 16, in Thua Thien Hue province, as well as achieved the effectiveness of the system of selected exercises applied in training to develop general endurance in the average running distance of 800m.

Keywords: status, general endurance, average-distance running exercise

1. Introduction

To achieve peak performance in athletics in general and in 800m running in particular, the development of general physical and professional qualities is the most prioritizing factor. General fitness is the basis and a solid premise for the development of professional fitness. Professional fitness aims at the high enhancement of all organ systems, and the ability to fully function of the body, directly impacting the specific qualities of chosen sports. Running 800m requires athletes not only a significant endurance but also the ability to maintain the speed to pursue better achievements. Therefore, it is essential to generate effective exercises to enhance general endurance that are suitable for selected subjects to improve athletes' performances.

It can be recognized through experiments and practices that to achieve high performance in 800m running competitions, apart from other constituent elements, it is

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necessary to possess competent endurance. There is no doubt that without good endurance, the ability of athletes to resist the extreme state will be weakened, leading to their failure to complete the exercise set and the curtailment of achievements. Thus, the development of general endurance for female athletes running 800m is one of the priorities requiring strategic plans during the training period.

Taking 800m running female athletes, aged 15-16, from Thua Thien Hue province into consideration, when exercising, they often show a decline and imbalance in speed due to poor perseverance. This period of age is the "goal time" to start specializing training for the average-distance runners (including female 800m running). Therefore, it is crucial, especially for the team of professionals and experts (mainly coaches), to process innovation and create suitable methods and means (focusing on the development of general endurance), together with appropriate training to improve the athletes' performance. Owing to the mentioned reasons, the article conducts research on the subject: "Examining exercises to develop general endurance in average-distance running (800m) for female athletes aged 15-16 in Thua Thien Hue Province".

The following research methods have been utilized:

- Methods of analyzing and synthesizing documents;
- Methods of interview and seminar;
- Pedagogical observation method;
- Method of pedagogical examination;
- Experimental method of pedagogy;
- Mathematical and statistical methods;

1.1 Research subject

The research subject is the exercises to develop general endurance in average-distance running (800m) for female athletes aged 15-16 in Thua Thien Hue Province.

1.2 Research objects

Specialists, trainers and female athletes aged 15-16 in Thua Thien Hue Province.

3. Results of research

3.1 The current status of endurance training in average-distance running (800m) for female athletes aged 15-16 in Thua Thien Hue Province

To analyze the current situation of the training plan, as well as the general endurance training for 800m running female athletes aged 15-16 in Thua Thien Hue Province, the training plan and procedure of the unit have been directly observed and scrutinized. The result is presented in Table 1.

Table 1: The results of examining the training program for female athletes of 800m running aged 15-16 in Thua Thien Hue Province

No	Content		Number of units	%
1	Speed		62	10.1
2	Strength		90	14.7
3	Endurance	**General**	**105**	**17.16**
		Professional	294	48.04
	Flexibility		31	5.1
4	Combination of exercises		30	4.9
	Total		**612**	**100**

Table 1 shows that the physical training plan of the average- and the long-distance group is as follows:

- Speed training's time is 10.1%;
- Strength training's time is 14.7%;
- Endurance training is 65.2%; and
- Flexibility training's time is 5.1%.

Meanwhile, the general endurance training time only accounts for 17.16%, making up 26.32% of the total time spent on endurance training. According to the article, the general endurance training for female athletes competing for 800m running aged 15-16 in Thua Thien Hue Province or basically, this training plan is outdated given current situations. This is the unreasonability in allocating programs for the general perseverance development in 800m running for athletes since through theoretical research, general endurance is the basis for professional endurance but at a rate of 17.16% is significantly insufficient. It is probably because of the inadequate amount of time and unreasonable allocation has led to the limitation in the general endurance of female athletes competing for 800m running aged 15-16 in Thua Thien Hue Province.

3.2 The current status of the endurance of female athletes aged 15-16 in Thua Thien Hue Province

After selecting suitable tests to assess the ability of general endurance, the research process the subject analysis on 10 female 800m running athletes, aged 15-16, in Thua Thien Hue. To objectively evaluate the current status of their endurance, 6 specific tests were chosen. The result is presented in Table 2.

Table 2: The current status of female athletes competing 800m running, aged 15-16, in Thua Thien Hue Province

No	Test	Mean	± SD	Cv%
1	100m running (sec)	13.74	0.49	3.37
2	600m running (sec)	151.3	14.03	9.27
3	10 steps broad jumping (m).	22.53	0.40	1.78
4	1000m running (min, sec)	3.32	0.14	4.22
5	1500m running (min, sec)	5.34	0.08	1.50
6	3000m running (min, sec)	12.44	0.76	6.11

Pursuant to the statistic shown in Table 2, considering the average index ($\bar{x}$), the results of athletes in Thua Thien Hue Province in the test are moderately low. Therefore, the overall endurance capacity of 800m running female athletes aged 15-16 in Thua Thien Hue province is resisted.

3.3 Evaluate the current achievement in 800m running of female athletes aged 15-16 in Thua Thien Hue Province

To objectively scrutinize the current status of 800m running of female athletes in Thua Thien Hue, the research process measures and compares the enhancement of the perseverance of athletes from Thua Thien Hue with those from Quang Tri. The result is shown in Table 3.

Table 3: Comparing the development of general endurance in several tests between athletes from Hue and Quang Tri

No	The early-stage				
	Objectives	Hue (n = 10)		Quang Tri (n = 9)	
		Mean	±SD	Mean	± SD
1	100m running (sec)	13.74	0.49	13.56	0.57
2	600m running (sec)	151.3	14.03	129.78	12.2
3	10 steps broad jumping (m).	22.53	0.40	22.99	0.24
4	1000m running (min, sec)	3.32	0.14	3.12	0.25
5	1500m running (min, sec)	5.34	0.08	5.10	0.07
6	3000m running (min, sec)	12.44	0.76	11.66	0.52

From Table 3, it can be seen that the average results ($\overline{X}$) in all assessments of female athletes from Thua Thien Hue is significantly low, compared to those of athletes from Quang Tri and those of athletes getting permission to join the National Youth Team. Therefore, it is indisputable that the capability of 800m running of female athletes aged 15-16 in Thua Thien Hue is deficient.

3.4. Examine to select and practice general endurance development exercises for female athletes competing for 800m running aged 15-16 in Thua Thien Hue Province

With the purpose of determining the practical basis of the selection of general endurance development exercises for the research subjects, 25 coaches and experts currently doing athletic training were interviewed.

The interview aims to ascertain the priority of the exercises at three levels:

- Priority 1: Crucial exercises (3 points);
- Priority 2: Regular exercises (2 points);
- Priority 3: Unimportant exercises (1 point).

The interview results are presented in Table 4.

Table 4: The interview results to decide on general endurance development exercises (800m) for female athletes aged 15-16 (n-25)

The exercises' content	Level of priority					
	Priority 1		Priority 2		Priority 3	
	Vote	%	Vote	%	Vote	%
Exercise 1: Speeding running 100m x 3l	**20**	**80**	**3**	**12**	**2**	**8**
Exercise 2: Striding running 100m x 5l	**18**	**72**	**5**	**20**	**2**	**8**
Exercise 3: Cycling 5000m x 3l	10	40	5	20	10	40
Exercise 4: Back kick running 100m x 3l	**19**	**76**	**5**	**20**	**1**	**4**
Exercise 5: Repetitive running 30m – 40m – 50m – 60m x 2 sets	**18**	**72**	**4**	**16**	**3**	**12**
Exercise 6: Repetitive running 60m – 50m – 40m – 30m x 2 sets	**17**	**68**	**6**	**24**	**2**	**8**
Exercise 7: Bench press 20 kg x 10l x 4 sets	**17**	**68**	**3**	**12**	**5**	**20**
Exercise 8: Lying pull down 20 kg x 10l x 4 sets	**23**	**92**	**2**	**8**	**0**	**0**
Exercise 9: Barbell squat 40kg x 10lx 4 sets	**20**	**80**	**2**	**8**	**3**	**12**
Exercise 10: Barbell squat 60kg x 10lx 4 sets	**18**	**72**	**3**	**12**	**4**	**16**
Exercise 11: Barbell squat 30kg leg switch jumping x 40l x 4 sets	**16**	**64**	**4**	**16**	**5**	**20**
Exercise 12: Swimming 300m x 3l	7	28	5	20	13	52
Exercise 13: Barbell squat 30kg ankle jumping x 40l x 4 sets	**15**	**60**	**5**	**20**	**5**	**20**
Exercise 14: Uphill marathon 45 mins	**19**	**76**	**3**	**12**	**3**	**12**
Exercise 15: Marathon 10 km	**22**	**88**	**1**	**4**	**2**	**8**
Exercise 16: Repetitive running 3000m x 2l	8	32	3	12	14	56
Exercise 17: Uphill running 40m x 10l	**16**	**64**	**2**	**8**	**7**	**28**
Exercise 18: Back kick running 200m x 5l	10	40	3	12	12	48
Exercise 19: Crunches 30l x 3 sets	**17**	**68**	**4**	**16**	**4**	**16**
Exercise 20: Swimming 200m x 4l	11	44	3	12	11	44
Exercise 21: Repetitive running 3000m – 2000m – 1000m	**20**	**80**	**2**	**8**	**3**	**12**

The table accumulates a system of exercises presented to collect opinions from experts to determine the level of priority of each. Each exercise has specific impacts on the development of general endurance in average-distance running (800m). However, depending on their effectiveness towards the researching subjects, as well as the training condition, different experts expressed different viewpoints. According to the interview results, 16 exercises were selected, for which the percentage of priority 1 is over 60%. They are:

- **Exercise 1:** Speeding running 100m x 3l;
- **Exercise 2:** Striding running 100m x 5l;
- **Exercise 4:** Back kick running 100m x 3l;
- **Exercise 5:** Repetitive running 30m – 40m – 50m – 60m x 2 sets;
- **Exercise 6:** Repetitive running 60m – 50m – 40m – 30m x 2 sets;
- **Exercise 7:** Bench press 20 kg x 10l x 4 sets;
- **Exercise 8:** Lying pull down 20 kg x 10l x 4 sets;
- **Exercise 9:** Barbell squat 40kg x 10lx 4 sets;
- **Exercise 10:** Barbell squat 60kg x 10lx 4 sets;
- **Exercise 11:** Barbell squat 30kg leg switch jumping x 40l x 4 sets;
- **Exercise 13:** Barbell squat 30kg ankle jumping x 40l x 4 sets;
- **Exercise 14:** Uphill marathon 45 mins;
- **Exercise 15:** Marathon 10 km

- **Exercise 17:** Uphill running 40m x 10l;
- **Exercise 19:** Crunches 30l x 3 sets;
- **Exercise 21:** Repetitive running 3000m – 2000m – 1000m.

This is essential support to process other stages of the research.

3.5 Apply and evaluate the effectiveness of general endurance development exercises in average-distance running (800m) for female athletes aged 15-16 in Thua Thien Hue

The practical experiment to assess the impact of the selected exercises includes the initial examination, as well as after-6-month and after-12-month tests. The research subjects are athletes who were summoned to the team of Thua Thien Hue Province; therefore, they assembled considerable general endurance, as well as basic skills of average-distance running (800m).

After setting up a training program for the experimental group on the basis of the training center's training plan and coaching plan, in order to ensure the objectivity of the practical experiment, the testing process will be divided into two stages: before and after the initiation of selected exercises. Experiments before and after using the exercises have been selected. The experimental group was trained using 16 selected general endurance development exercises, in which the number of units was arranged alternately in accordance with the objectives of each lesson plan. The counter group applied the previous training plans for the subject.

3.6 The result of the practical experiment

The experiment's results were collected and categorized into different groups of ages: Ages 15 and 16. These test results will be compared with the results of the period tests, after-6-month, and after-12-month, to assess the level of performance of the general endurance of the researching subjects during the training. The results are shown in Table 4

Table 4: The process of general endurance development in average-distance running (800m) of female athletes aged 15-16 in Thua Thien Hue Province through each testing stage (n=10)

No	Objective & Test	Initial $\overline{x} \pm \delta$ (1)	After 6 months $\overline{x} \pm \delta$ (2)	After 12 months $\overline{x} \pm \delta$ (3)	$W_{1,2}$	$W_{2,3}$	$W_{1,3}$	$t_{1,2}$	$t_{2,3}$	$t_{1,3}$	P
1	Running 100m (sec)	13.74 ± 0.49	13.57 ± 0.46	13.31 ± 0.48	-1.25	-1.93	-3.18	0.758	1.173	1.881	< 0.05
2	Running 600m (sec)	151.3 ± 14.03	143 ± 20.98	129 ± 20.79	-5.64	-10.29	-15.91	0.987	1.422	2.667	< 0.05
3	10 steps broad jumping (m)	22.53 ± 0.40	22.83 ± 0.38	22.98 ± 0.44	1.32	0.65	1.98	-1.631	-0.774	-2.270	< 0.05
4	Running 1000m (min, sec)	3.32 ± 0.14	3.25 ± 0.14	3.08 ± 0.23	-2.13	-5.37	-7.5	1.061	1.894	2.674	< 0.05
5	Running 1500m (min, sec)	5.34 ± 0.08	5.26 ± 0.17	5.16 ± 0.16	-1.51	-1.92	-3.43	1.277	1.285	3.019	< 0.05
6	Running 3000m (min, sec)	12.44 ± 0.76	11.94 ± 0.83	11.65 ± 0.78	-4.10	-2.46	-6.56	1.333	0.764	2.176	< 0.05

According to the results shown in Table 4:

There is a momentous difference in the results of the researching subjects in separate selected exercise from the initial period to after-12-month term ($|t_{practice}| > t_{standard} = 1.833$ at the threshold $P < 0.05$).

Besides, there is an unapparent improvement in the growth rate in all tests, an average increase of 1.25% after 6 months and 5.62% after 12 months.

The enhancement degree of the testing results after 12 months has grown significantly compared to the initial statistic before training.

In other words, all the assessments of general endurance development of average-distance running (800m) young female athletes have noticed a substantial improvement after 12 months, from 3.18% to 15.19%.

The results affirmed the effectiveness of the system of professional training programs focusing on developing general endurance in average-distance running (800m) for female athletes aged 15-16 in Thua Thien Hue Province, which also satisfies the current training condition.

4. Conclusions

The research has selected 16 exercises to develop general endurance in average-distance running (800m) for female athletes aged 15-16 in Thua Thien Hue Province.

Through a 12-month pedagogical experience, the effectiveness of the system of selected training exercises concentrating on developing the general endurance in average-distance running (800m) has been determined, with significant differences in terms of the statistical perspective of all tests with ($t_{practice} > t_{standard}$ at the threshold $P < 0.05$).

Article's Source

Project tile: "Examining exercises to develop general endurance in average-distance running (800m) for female athletes aged 15-16 in Thua Thien Hue province"

Conflict of Interest Statement

We have seen and agreed with the contents of the manuscript, and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication.

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