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THE APPLICATION OF GENERAL ENDURANCE EXERCISES TO IMPROVE 3000-METER ARMED RUNS OF MALE MILITIA FORCES AGED 25-28 IN HO CHI MINH CITY, VIETNAM

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Abstract:
A 3000-meter run with guns, a common physical exercise to train endurance in military force, is one of the training and competition contents for male soldiers of the Vietnam People's Armed Forces in general and militia forces in particular. The purpose of this study was to build up a general endurance exercise for male militia forces aged 25-28 in Ho Chi Minh City. Independent samples t-test was used to compare the difference between the experimental and control groups, while Paired sample t-test was used to identify the difference between the pre- and post-experimental. By using the general methods in sport, 12 general endurance exercises were selected and applied for male militia forces in 3000-meter armed runs. Besides, the result showed that there was a significant difference between the two groups (the experimental group had higher scores when compared with the control one) after eight weeks of training.

Keywords: general endurance exercises, 3000-meter armed run, self-defense forces, aged 25-28, Ho Chi Minh City

1. Introduction

Pursuant to the 1992 Constitution of the Socialist Republic of Viet Nam having been amended and supplemented by Resolution No. 51/2001/Parliament 10, at the 6th session of the XII National Assembly on 23 November 2009, the National Assembly promulgated the Law on Militia forces did adopt Article 3 on their roles and positions. Particularly, the

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forces organized in government agencies, political organizations, social political organizations, businesses, and financial corporations (generally known as agencies, and organizations) are called militia forces. Since the Civil Defense Law took effect on July 1st, 2010, every agency and organization across the country has been given a mission of developing self-defense forces to ensure the forces are fully equipped to handle any enemy counter-attack. As a result, the Self-Defense Force of Ho Chi Minh City has been founded under the Civil Defense Law.

Self-defense forces in District 5's schools are acknowledged to be one of the leading units in the Civil Defense movement. It has received many commendations from the district and Ho Chi Minh City Command, as well as certificates of merit given from the People's Committee. Over the past few years, these forces have excellently completed their duties and led the Self-Defense Group VII in all sports activities and knowledge contests on militia laws and the government's visions. Students are also encouraged to engage in military activities such as shooting, throwing grenades, firefighting, long-distance running, etc. However, a 3000-meter run with a gun has always been a content where soldiers have a fairly modest performance for various reasons.

The first reason is that this exercise requires excellent physical strength (Bakaev et al., 2015; Bolotin and Bakayev, 2017; Bolotin et al., 2017; Kuznetsova et al., 2015). As a result, long-distance runner training is suggested to concentrate on all physical attributes, with endurance being the most important (Ammann and Wyss, 2015; Bolotin and Bakaev, 2015). Decent endurance progress occurs only when physiological systems, especially those supplying energy to muscles, operate properly (Bakaev et al., 2016; Osipov et al., 2016).

The second reason is that many difficulties arise during the early stages of military training owing to the personnel's insufficient physical strength. Most self-defense fighters are elderly people who are frequently weary by administrative work, leaving little time to exercise and maintain their physical prowess. As a result, the 5th District School Self-Defense Force Executive deemed it critical to provide additional workouts to the members who had performed poorly in prior 3,000-meter races to improve their overall endurance. Additionally, as society has evolved, the public and government have gradually paid close attention to the subjects of the health maintenance of the public and the growth of school self-defense forces. Acknowledging the significance of the subject, the authors have attempted to write a research paper on: The application of general endurance exercises to improve 3000-meter armed runs of male militia forces aged 25-28 in Ho Chi Minh City, Vietnam.

To address the aim of the study, the research team carried out the following two steps: (1) Selecting a number of endurance exercises in 3000-meter armed runs for 25-to-28-year-old men in Self-Defense Forces, and (2) Evaluating the effectiveness of selected exercises in 3000-meter armed runs for male soldiers aged 25 to 28 in Ho Chi Minh City after the eight-week practice.

The study employed five standard sports methodologies, including documentation reference, expert interviews, pedagogical evaluations, pedagogical experiments, and mathematical statistics.

Interviewees comprised 27 persons who were training in the armed forces, including coaches, professionals, researchers, and lecturers.

The research subjects were 34 male soldiers from the 5th District Self-Defense Force in Ho Chi Minh City, aged 25 to 28, who were randomly divided into two groups (the control group included 17 soldiers following the program of militia forces that was an exercise of running 3000 meters with guns once a week, whereas the others in the experimental group were trained with 12 selected endurance exercised).

2. Results and Discussion

2.1. Selection of endurance exercises in 3000-meter armed runs for 25-to-28-year-old men in Self-Defense Forces

The following criteria were adopted to select general endurance exercises in armed runs for male soldiers aged 25-28 in Ho Chi Minh City:

1) Selected exercises are built to serve the aim of improving the general physical traits that have a direct impact on the major muscle groups involved in the 3000-meter armed runs.
2) Selected exercises should be feasible, which means that they are possibly utilized by every mature soldier under the current training condition of Self-Defense Forces.
3) The process of selecting the exercises should be rational, in which the content, form, and volume of the chosen ones correspond to the features of the research subjects and practical situations in District 5, Ho Chi Minh City.
4) Selected exercises are proven to be effective, implying that they can enhance the physical fitness of male Self-Defense Forces soldiers.
5) Selected exercises should be diverse and intriguing.
6) Selected exercises should be easily accessible and fairly consistent with the modern physical training method. They are based on the current general physical state of the research groups when running 3000 meters with a gun, and the currently utilized exercises by the annual self-defense force training in District 5, Ho Chi Minh City.

Following the above criteria, the authors conducted a thorough synthesis of endurance exercises published by reputable scholars such as Duong Nghiep Chi et al. (2000), Nguyen Toan & Pham Danh Ton (2000), Le Van Lam (2008), Nguyen Kim Minh et al. (2003), Nguyen Quang Hung (2004), Nguyen The Truyen et al (2002), Duong Ngoc Truong (2016), Dang Ha Viet et al. (2016), Daxioroxki (1978), Pihlajamäki et al. (2019), Bompa (1999), Hoffman (2006), Malmberg (2011), ACSM (2014), Ammann R. and Wyss T. (2015), Bolotin A. et al. (2017), Bolotin A., Bakayev V. (2016), etc.

The paper collected 37 different endurance exercises, including: (1) 4x200m run with 2-3-minute intervals, (2) 6x50m run with 30-second intervals, (3) 5 times of 4x10m shuttle runs with 1-minute intervals, (4) 800m run, (5) 5x200m run with 2-3-minute intervals, (6) 2x800m run with 8-10-minute intervals, (7) 3x500m run with 4-5-minute intervals, (8) 4x400m run with 5-minute intervals, (9) 1500m run, (10) 12-minute run with a gun, (11) 12-minute run without guns, (12) 3 times of 2-minute fast run and 2-minute slow run with 2-3-minute intervals, (13) 3000m run with a gun, (14) 1500m run with a gun, (15) 3000m run without a gun, (16) 5 times of 3-minute runs up and down stairs with 2-3-minute intervals, (17) 3 times of 5-minutes runs up and down stairs with 5-minute intervals, (18) 2 full runs up 28 steps with 2-3-minute intervals, (19) 5-minute stair run with a gun, (20) 6x50m run, (21) 8x50m run with 1-2-minute intervals, (22) 4x100m run with 4-5-minute intervals, (23) 3x200m run with 2-3-minute intervals, (24) 2x400m run with 4-5-minute intervals, (25) 60-second crunch, (26) 2x30-second crunch with 30-second intervals, (27) 60-second leg crunch, (28) 2x30-second leg crunch with 30-second intervals, (29) 4 times of 20-second thigh lift run with 1-minute intervals, (30) 4 times of 20-second thigh lifts, 40m acceleration run with 30-second intervals, (31) 3x30m thigh lift run -30m back pedal with 30-second intervals, (32) 5 sprints at a spot for 10 seconds, then 30m acceleration run with 1-minute intervals, (33) 4 high jumps with 5 steps with 30-second intervals, (34) 6 high jumps with 5 steps with 30-second intervals, (35) High jumps with 10 steps, (36) 5x10 times lifting 20kg weights with 2-3-minutes intervals, (37) 3x20m run with carrying one person on shoulder with 1-minute intervals.

Interview: The study conducted an interview with 30 individuals who were lecturers, coaches, and army trainers with extensive teaching experience. It obtained 27 valid ballots, while the others were invalid or missing. The experts showed their responses of "Agree" or "Disagree" towards each endurance exercise. Table 1 displays the result of expert interviews.

Table 1: Results of expert interviews with general endurance exercises in armed runs for male self-defense force soldiers aged 25 - 28 in Ho Chi Minh City

Exercise	Responses (n=27)				Exercise	Responses (n=27)			
	Agree		Disagree			Agree		Disagree	
	n	%	n	%		n	%	n	%
1	**22**	**81.5**	**5**	**18.2**	19	16	59.3	11	40.7
2	**22**	**81.5**	**5**	**18.5**	20	17	62.9	10	37.1
3	**23**	**85.2**	**4**	**14.8**	21	17	62.9	10	37.1
4	18	66.7	9	33.3	22	17	62.9	10	37.1
5	15	55.6	12	44.4	23	15	55.6	12	44.4
6	18	66.7	9	33.3	24	17	62.9	10	37.1
7	18	66.7	9	33.3	25	16	59.3	11	40.7
8	**23**	**85.2**	**4**	**14.8**	**26**	**23**	**85.2**	**4**	**14.8**
9	**22**	**81.5**	**5**	**18.2**	27	14	51.9	13	48.2
10	**22**	**81.5**	**5**	**18.5**	**28**	**19**	**70.4**	**8**	**29.6**
11	18	66.7	9	33.3	29	15	55.6	12	44.4
12	15	55.6	12	44.4	30	14	51.8	13	48.2

13	**24**	**88.9**	**3**	**11.1**	31	15	55.6	12	44.4
14	18	66.7	9	33.3	**32**	**22**	**81.5**	**5**	**18.2**
15	18	66.7	9	33.3	33	12	44.4	15	55.6
16	**23**	**85.2**	**4**	**14.8**	34	13	48.2	14	51.8
17	**22**	**81.5**	**5**	**18.2**	35	14	51.9	13	48.2
18	17	62.9	10	37.1	36	15	55.6	12	44.4
					37	16	59.3	11	40.7

Note: (1) 4x200m run with 2-3-minute intervals, (2) 6x50m run with 30-second intervals, (3) 5 times of 4x10m shuttle runs with 1-minute intervals, (4) 800m run, (5) 5x200m run with 2-3-minute intervals, (6) 2x800m run with 8-10-minute intervals, (7) 3x500m run with 4-5-minute intervals, (8) 4x400m run with 5-minute intervals, (9) 1500m run, (10) 12-minute run with a gun, (11) 12-minute run without guns, (12) 3 times of 2-minute fast run and 2-minute slow run with 2-3-minute intervals, (13) 3000m run with a gun, (14) 1500m run with a gun, (15) 3000m run without a gun, (16) 5 times of 3-minute runs up and down stairs with 2-3-minute intervals, (17) 3 times of 5-minutes runs up and down stairs with 5-minute intervals, (18) 2 full runs up 28 steps with 2-3-minute intervals, (19) 5-minute stair run with a gun, (20) 6x50m run, (21) 8x50m run with 1-2-minute intervals, (22) 4x100m run with 4-5-minute intervals, (23) 3x200m run with 2-3-minute intervals, (24) 2x400m run with 4-5-minute intervals, (25) 60-second crunch, (26) 2x30-second crunch with 30-second intervals, (27) 60-second leg crunch, (28) 2x30-second leg crunch with 30-second intervals, (29) 4 times of 20-second thigh lift run with 1-minute intervals, (30) 4 times of 20-second thigh lifts, 40m acceleration run with 30-second intervals, (31) 3x30m thigh lift run -30m back pedal with 30-second intervals, (32) 5 sprints at a spot for 10 seconds, then 30m acceleration run with 1-minute intervals, (33) 4 high jumps with 5 steps with 30-second intervals, (34) 6 high jumps with 5 steps with 30-second intervals, (35) High jumps with 10 steps, (36) 5x10 times lifting 20kg weights with 2-3-minutes intervals, (37) 3x20m run with carrying one person on shoulder with 1-minute intervals.

Based on the results in Table 1, 12 general endurance exercises were shortlisted for armed runs for male self-defense forces aged 25-28 in Ho Chi Minh City. Those were the exercises receiving 80% or more "Agree" votes, including: (1) 4x200m run with 2-3-minute intervals, (2) 6x50m run with 30-second intervals, (3) 5 times of 4x10m shuttle runs with 1-minute intervals, (4) 4x400m run with 5-minute intervals, (5) 1500m run, (6) 12-minute run with a gun, (7) 3000m run with a gun, (8) 5 times of 3-minute runs up and down stairs with 2-3-minute intervals, (9) 3 times of 5-minutes runs up and down stairs with 5-minute intervals, (10) 2x30-second crunch with 30-second intervals, (11) 2x30-second leg crunch with 30-second intervals, (12) 5 sprints at a spot for 10 seconds, then 30m acceleration run with 1-minute intervals.

2.2. Evaluation of the effectiveness of selected exercises in armed runs for male soldiers aged 25 to 28

The current endurance state of male self-defense force soldiers aged 25 to 28 in Ho Chi Minh City when they perform an armed run (3000-meter run while carrying a gun) is shown in Table 2.

Table 2: 3000-meter armed running performances of male self-defense force soldiers aged 25 to 28 in Ho Chi Minh City

Performances before the application of the selected endurance exercises					
Test	**Group**	**x±SD**	**t**	**df**	**p**
3000-meter with a gun	Control	983.53±37.22	0.414	32	.682
	Experimental	977.71±44.54			

Note: x±SD: mean ± standard deviation

Table 2 shows that there is no significant difference in 3000-meter armed running performances between the control group (983.53±37.22s) and the experimental group (977.71±44.54s, t=0.414, p=0.682>0.05) before the treatment. This indicates that the homogeneity of the two groups was guaranteed for the study to proceed to the next step of delivering the selected endurance exercises to the experimental group.

Application of the selected endurance exercises into 3000-meter armed runs for male Self-Defense Forces aged 25-28 years in Ho Chi Minh City: the treatment was carried out for 8 weeks, with two training sessions per week and a total of 12 exercises described in Table 3. Table 4 also displays the results of the experimental and control groups after 8-week practice.

Table 3: Application of 12 general endurance exercises into 3000-meter armed runs for male soldiers of the Self-Defense Force aged 25-28 in Ho Chi Minh City

Exercise	**Month**	**11**								**12**							
	Week	**1**		**2**		**3**		**4**		**1**		**2**		**3**		**4**	
	Session	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**
1		X				X				X				X			
2		X		X		X		X									
3										X		X		X		X	
4			X		X		X										
5											X				X		
6			X				X					X				X	
7					X				X				X				X
8			X		X		X		X								
9											X		X		X		X
10		X		X		X		X									
11										X		X		X		X	
12			X		X		X		X		X		X		X		

Note: (1) 4x200m run with 2-3-minute intervals, (2) 6x50m run with 30-second intervals, (3) 5 times of 4x10m shuttle runs with 1-minute intervals, (4) 4x400m run with 5-minute intervals, (5) 1500m run, (6) 12-minute run with a gun, (7) 3000m run with a gun, (8) 5 times of 3-minute runs up and down stairs with 2-3-minute intervals, (9) 3 times of 5-minutes runs up and down stairs with 5-minute intervals, (10) 2x30-second crunch with 30-second intervals, (11) 2x30-second leg crunch with 30-second intervals, (12) 5 sprints at a spot for 10 seconds, then 30m acceleration run with 1-minute intervals.

Table 4: Results of 3000-meter armed runs of male self-defense force soldiers aged 25 - 28 in Ho Chi Minh City after the treatment

Content	Group	Before the treatment	After the treatment	t	df	p	W%
3000-meter armed runs (s)	Control	983.53±37.22	964.88±36.33	4.369	16	.000	1.91
	Experimental	977.71±44.54	932.53±30.24	6.268	16	.000	4.68
t			2.822				
df			32				
p			.008				

Note: x±SD: mean ± standard deviation

The results in Table 4 reveal a statistically significant difference between the control (964.88±36.33) and experimental groups (932.53±30.24, t=2.822, p=0.008<0.05). This indicated that 12 selected general endurance exercises had a positive impact on the 3000-meter armed running performance of male soldiers in self-defense forces in Ho Chi Minh City. Furthermore, the results showed that there was a statistically significant growth (P<0.05) in the performances of 3000-meter armed runs in both experimental and control groups after 8 weeks. However, the experimental group had a faster growth rate (W%=4.68%) than the control group (W%=1.91%). Hence, it can be seen that 12 general endurance exercises were effective in enhancing general endurance in male soldiers aged from 25 to 28 years old in Ho Chi Minh's self-defense forces.

The paper recommends those exercises should be applied to self-defense training sessions in the next few years to enhance the well-being of militia and self-defense forces in Ho Chi Minh City. Having a sufficient foundation of physical strength and endurance is one of the prerequisites to accomplishing the missions of protecting the country and maintaining security, which indirectly contributes to the nation's development.

The study team also would like to genuinely admit some of their limitations. Particularly, the team was unable to manage the extracurricular activities and nutrition of the research subjects. However, the participants were always advised to maintain healthy daily routines during the experiment.

3. Conclusion

The research has selected 12 general endurance exercises for male self-defense force soldiers aged 25 - 28 in Ho Chi Minh City, including: (1) 4x200m run with 2-3-minute intervals, (2) 6x50m run with 30-second intervals, (3) 5 times of 4x10m shuttle runs with 1-minute intervals, (4) 4x400m run with 5-minute intervals, (5) 1500m run, (6) 12-minute run with a gun, (7) 3000m run with a gun, (8) 5 times of 3-minute runs up and down stairs with 2-3-minute intervals, (9) 3 times of 5-minutes runs up and down stairs with 5-minute intervals, (10) 2x30-second crunch with 30-second intervals, (11) 2x30-second leg crunch with 30-second intervals, (12) 5 sprints at a spot for 10 seconds, then 30m acceleration run with 1-minute intervals.

Furthermore, the research results indicate the effectiveness of 12 general endurance exercises when being conducted on the experimental group, with good reliability and practicality.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Authors

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