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Effect of step aerobic training on selected physical variables among long distance runners

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ABSTRACT

The main purpose of this study is to find out the effect of step aerobics training on selected physical variables among long-distance runner. For the present study, the researcher takes the male long distance runners from Pudukkottai District taken as sources of data. Thirty male long distance runners, who had participated in intercollegiate tournaments, were preferred as the area under discussion for this study. The age of the subject matter was ranging from 18 years to 25 years. The criterion measures adopted for the study measuring the physical variables are given below. To measure the physical variables 50 m dash for speed, 600 m run for speed endurance, 12 minutes run and walk for cardiorespiratory endurance and sit-ups for muscular strength and endurance the effect of step aerobics training on selected physical variables among long-distance runners the independent "t" test was used at 0.05 level of significance. Result: There was a significant difference in experimental groups in speed, speed endurance, Cardiorespiratory endurance and muscular strength and endurance.

Keywords— Step aerobic training, Physical variable, Long-distance runners

1. INTRODUCTION

Sports training is a physical, technical, moral and intellectual participation of an athlete with the help of physical exercises. It is a planned process for the participation of athlete and players to achieve top-level performance. Sports' training is the basic form of preparation of sportsmen, (Matwejew -1981).

Aerobic exercise is the exercise that involves or improves oxygen consumption by the body. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy-generating process. They are several kinds of aerobic exercise which are performed at moderate levels of intensity for extended periods of time. To obtain the best results, an aerobic exercise session involves a warming up period, followed by at least 20 minutes of moderate to intense exercise, involving large muscle groups, and a cooling down period in the end.

Step aerobics form of aerobics exercise distinguished from other types of aerobic exercise by its use of an elevated platform (the step). The height can be tailored to individual needs by inserting risers under the step. Step aerobics classes are offered at many gyms and fitness centres which have a group exercise program.

2. PHYSICAL VARIABLES

Skill-related physical fitness consist of those components of physical fitness that have a relationship with enhanced performance in sports and motor skills. The components are commonly defined as, arm strength, leg explosive power, and abdominal strength.

- Speed
- Speed Endurance
- Cardiorespiratory Endurance
- Muscular Strength and Endurance

3. METHODOLOGY

To achieve the purpose of these study thirty male long-distance runners were selected at random, from Pudukkottai district. The age of the subjects ranged from 18-25 Years. The selected subjects were divided into one experimental group and one control group at random. The Investigator reviewed the available scientific literature and on the basis of discussion with experts, feasibility, criteria, availability of instruments, equipment and the relevance of the variables to the present study. The following variables were selected for the present study.

Table 1: Test of physical and physiological variables

S. no	Physical and Physiological Variables	Test item	Unit of measurement
1	Speed	50 m dash	Seconds
2	Speed Endurance	600 m run	Seconds
3	Cardio respiratory endurance	Cooper's test	Meters
4	Muscular Strength and Endurance	Sit-ups	Counts

3.1 Statistical techniques

Analysis of ratio will be used in this study. The level of significance is 0.05 level of confidence which will be considered to be the appropriate one for this study.

4. RESULTS

Table 2: Computation of 't' ratio between the pre and post-test mean values of physical and physiological variables on experimental group and control group

Variables	Group	Test	Mean	Sd	df	't' Ratio
Speed	Control Group	Pre test	7.17	0.36	14	1.12
		Post test	7.15	0.36		
	Experimental Group	Pre test	7.08	0.41	14	5.77*
		Post test	6.85	0.42		
Speed Endurance	Control Group	Pre test	46.46	1.39	14	0.24
		Post-test	46.45	1.24		
	Experimental Group	Pre test	46.62	0.86	14	5.81*
		Post test	46.50	0.87		
Cardio Respiratory Endurance	Control Group	Pre test	2660.46	143.16	14	1.71
		Post-test	2680.40	160.27		
	Experimental Group	Pre test	2647.06	129.39	14	17.16*
		Post-test	2663.46	128.83		
Muscular Strength and Endurance	Control Group	Pre test	22	2.69	14	0.67
		Post-test	22.3	1.77		
	Experimental Group	Pre test	22	1.51	14	10.24*
		Post-test	24	1.64		

Insignificance at 0.05 level of confidence $df(14) = 2.15$

4.1 Discussion on findings

The investigator had a through and vision that step aerobics training would improve men long distance runners speed, speed endurance, cardiorespiratory endurance and muscular strength and endurance which in turn would help them to play better. The investigator selected exercises that are step aerobics training for long distance runners.

The statistical values presented in Table proved that there was a significant improvement in selected physical variables among long-distance runners due to step aerobics training. Obtained 't' value of speed is 5.77, speed endurance is 5.81, cardiorespiratory endurance is 17.16 and muscular strength and endurance is 10.24 respectively which is greater than the required 't' value to be significant. For the degrees of freedom 2.15 at 0.05 level of confidence.

Thus the hypothesis of this study that there would be a significant improvement due to step aerobics training on selected physical variables among long-distance runners was accepted at 0.05 level of confidence.

5. CONCLUSIONS

Based on the results of the present study the following conclusions.

- The results of the study showed that there were significant improvements in physical variables on speed, speed endurance, Cardio-Respiratory endurance and muscular strength and endurance after six weeks step aerobics training among long-distance runners.

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