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Impact Of Step Endurance Training On Physiological Variables Among College Women Football Players

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ABSTRACT

The purpose of the study was to investigate the impact of step endurance training on physiological variables among college women football players. It was hypothesized that there was a significant difference on selected physiological variables due to the impact of impact of step endurance training on physiological variables among college women football players. For the present study the 30 female college football players from Sri Ramakrishna College of Arts and Science for Women were selected at random and their age ranged from 18 to 25 years. For the present study pretest & posttest random group design, which consists of control group and experimental groups was used. The subjects at random assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent Step Endurance Training, Group 'B' not undergone any training. The physiological variables are cardio respiratory endurance and physiological variables is resting pulse rate were assessed by cooper '12' minutes run and walks test & digital pulse monitor respectively. Before and after six weeks of training the data were collected. The data were analyzed by applying Analysis of Co-Variance (ANCOVA). The level of significance was set at 0.05. The experimental group showed better improvement on cardio respiratory endurance and resting pulse rate among college women football players than the control group.

Key Words: Football, Step Endurance Training, Physiological, Cardio Respiratory Endurance and Resting Pulse Rate.

INTRODUCTION

Physical Education improves the physical abilities, skills, awareness, principles and attitudes required for establishing and enjoying an active and healthy lifestyle. The purpose of Physical education is to help students develop their self-confidence and fitness to face challenges individually and in teams through various learning activities. It also includes various competitive games and activities.

Physical Education is a vital component of the learning journey. Its goal is the cultivation of individuals who are fit physically, mentally, emotionally, and socially. Physical education is a crucial element of the entire educational framework.

Physical education significantly contributes to the development of these attributes in a person. The phrases 'A healthy mind resides in a healthy body' and 'physical education is a fundamental aspect of comprehensive education' reinforce each other.

FOOTBALL

Football, known as soccer in certain areas, is a global phenomenon that transcends cultural, social, and geographical boundaries. Its historical roots, sociological aspects, and contemporary issues have prompted scholarly investigations across various fields. This research paper embarks on a multidimensional exploration of football, examining its origins, the shared experiences it promotes, its political aspects, and the complex relationship between globalization and localization in the context of the "beautiful game."

The origins of organized football form the foundation of our inquiry, as detailed in Hill's (1996) study of the inaugural season of the Football League in 1888-89. Harvey and Stell (2003) expand the discussion by exploring football as a shared experience, highlighting its significant influence on collective identity and community connections. Outside of Europe, Darby (2000) offers a critical perspective on the intersection of politics, colonialism, and resistance within African football, illustrating its multifaceted role. The roots of football can be traced back to ancient civilizations, where various forms of ball games were played. Examples include the Chinese game cuju and the Roman game harpastum, both of which involved kicking a ball towards a goal.

During the medieval and Renaissance periods, football-like games were played in Europe, often lacking standardization and featuring varying rules. These games were frequently linked to festivals and celebrations. In the 19th century, the need for standardized rules became apparent. The Cambridge Rules of 1848 was a significant milestone in shaping modern football, introducing elements such as the prohibition of using hands.

STEP ENDURANCE TRAINING

Step endurance training is a well-known method for those looking to improve their physical stamina and make workouts at home or in the gym more engaging. Because of its flexibility, the stepper has evolved from a simple accessory for basic aerobic exercises into a versatile tool that combines cardiovascular workouts, strength training, coordination, balance, and agility. This enables ongoing improvement for individuals at all skill levels. Endurance training means exercising to build stamina. This typically involves training the aerobic system, rather than the anaerobic system. While endurance in sports often emphasizes cardiovascular and muscular endurance, the topic is more complex. Endurance can be divided into general and specific endurance. In sports, endurance connects closely to performing skills and techniques. A well-trained athlete shows their ability to execute techniques consistently and effectively while using less energy. Key metrics for measuring endurance include heart rate, cycling power, and running pace.

METHODOLOGY

The purpose of the study was to investigate the impact of step endurance training on physiological variables among college women football players. It was hypothesized that there was a significant difference on selected physiological variables due to the impact of impact of step endurance training on physiological variables among college women football players. For the present study the 30 female college football players from Sri Ramakrishna College of Arts and Science for Women were selected at random and their age ranged from 18 to 25 years. For the present study pretest & posttest random group design, which consists of control group and experimental groups was used. The subjects at random assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent Step Endurance Training, Group 'B' not undergone any training. The physiological variables are cardio respiratory endurance and physiological variables is resting pulse rate were assessed by cooper '12' minutes run and walks test & digital pulse monitor respectively. The data were collected before and after six weeks of training. The data were analyzed by applying Analysis of Co-Variance (ANCOVA). The level of significance was set at 0.05. The experimental group showed better improvement on cardio respiratory endurance and resting pulse rate among college women football players than the control group.

S.No	Variables	Tests	Measurements units
1.	Resting Pulse Rate	Digital pulse monitor	Counts
2.	Breath Holding Time	Nose clip method	Seconds

Table: 1
Analysis of Co-variance for the Pre, Post and Adjusted Post Test Mean Values for Step Endurance Training Group and Control Group on Resting Pulse Rate

Test	Step Endurance Training	Control Group	Source of Variance	Sum of square	df	Mean Square	'F' ratio	Table Value
Pre Test Mean	74.13	74.15	Between	0.03	1	0.03	0.02	4.20
			With in	42.66	28	1.52		
Post Test Mean	72.60	74.06	Between	16.13	1	16.13	7.99 *	4.20
			With in	56.53	28	2.01		
Adjusted Post Test Mean	72.56	74.09	Between	17.55	1	17.55	26.85 *	4.21
			With in	17.64	27	0.65		

***Significant at 0.05 level of confidence.**

Table:1 shows that the pre-test mean values on Resting Pulse Rate of step endurance training group and control group are 74.13 and 74.15 respectively. The obtained 'F' ratio 0.02 for pre-test mean was less than the table value 4.20 for df 1 and 28 required for significance at 0.05 level of confidence on Resting Pulse Rate. The post-test mean values on Resting Pulse Rate of step endurance training group and control group are 72.60 and 74.06 respectively. The obtained 'F' ratio 7.99 for post-test mean was greater than the table value 4.20 for df 1 and 28 required for significance at 0.05 level of confidence on Resting Pulse Rate. The adjusted post-test means of step endurance training group and control group are 72.56 and 74.09 respectively. The obtained 'F' ratio 26.85 for adjusted post-test mean was greater than the table value 4.21 for df 1 and 27 required for significance at 0.05 level of confidence on Resting Pulse Rate. The adjusted post mean values of step endurance training group and control group on Resting Pulse Rate are graphically represented in the Figure I.

Figure: 1 Cone Diagram Showing the Pre, Post and Adjusted Mean For Step Endurance Training Group and Control Group on Resting Pulse Rate

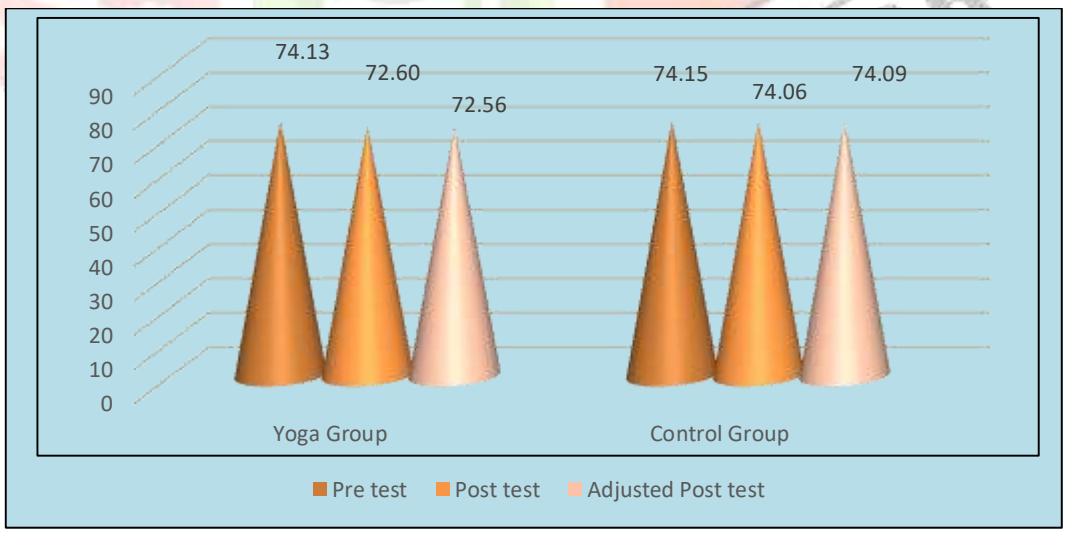


Table: 2

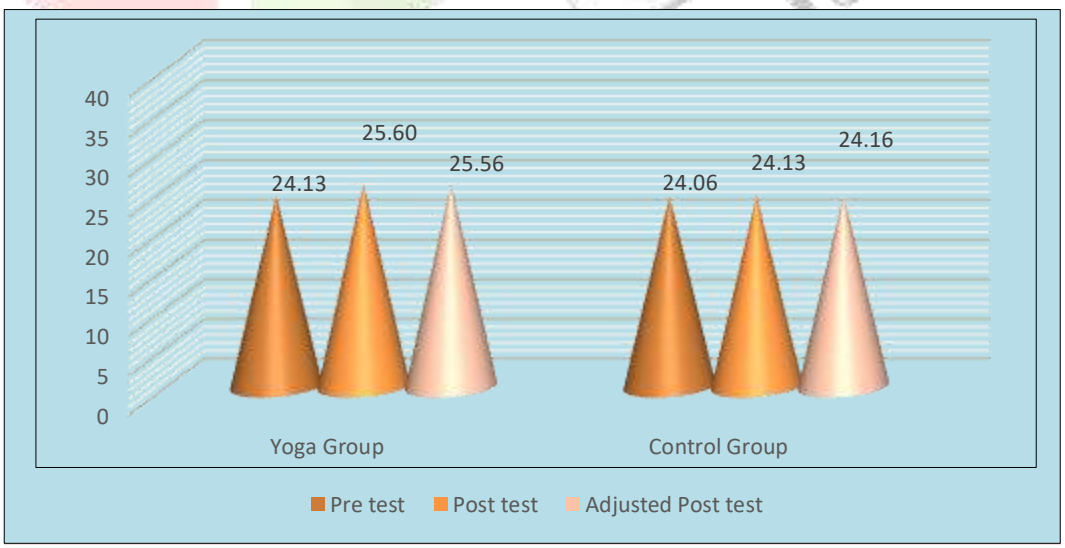
Analysis of Co-variance for the Pre, Post and Adjusted Post Test Mean Values for Step Endurance Training Group and Control Group on Breath Holding Time

Test	Step Endurance Training	Control Group	Source of Variance	Sum of square	df	Mean Square	'F' ratio	Table Value
Pre Test Mean	24.13	24.06	Between	0.03	1	0.03	0.02	4.20
			With in	42.66	28	1.52		
Post Test Mean	25.60	24.13	Between	16.13	1	16.13	8.80*	4.20
			With in	51.33	28	1.83		
Adjusted Post Test Mean	25.56	24.16	Between	14.75	1	14.75	31.68 *	4.21
			With in	12.57	27	0.466		

***Significant at 0.05 level of confidence.**

Table: 2 shows that the pre-test mean values on Breath Holding Time of step endurance training group and control group are 24.13 and 24.06 respectively. The obtained 'F' ratio 0.02 for pre-test mean was less than the table value 4.20 for df 1 and 28 required for significance at 0.05 level of confidence on Breath Holding Time. The post-test mean values on Breath Holding Time of step endurance training group and control group are 25.60 and 24.13 respectively. The obtained 'F' ratio 8.80 for post-test mean was greater than the table value 4.20 for df 1 and 28 required for significance at 0.05 level of confidence on Breath Holding Time. "The adjusted post-test means of step endurance training group and control group are 25.56 and 24.16 respectively". The obtained 'F' ratio 31.68 for adjusted post-test mean was greater than the table value 4.21 for df 1 and 27 required for significance at 0.05 level of confidence on Breath Holding Time. The adjusted post mean values of step endurance training group and control group on Breath Holding Time are graphically represented in the Figure II.

Figure: 2 Cone Diagram Showing the Pre, Post and Adjusted Post Mean Values for Step Endurance Training Group and Control Group on Breath Holding Time



DISCUSSION AND FINDINGS

In case of physiological variables i.e. Resting Pulse Rate and Breath Holding Time is the results between pre and post (6 week) test has been found significantly higher in step endurance training group in comparison to control group. The findings of the present study strongly indicates that step endurance training of six weeks have significant effect on selected physiological variables i.e., Resting Pulse Rate and Breath Holding Time of college women football players. Hence the hypothesis as earlier said about step endurance training programme has a significant effect on selected physiological variables. In highlight of the same, the hypothesis was accepted.

CONCLUSIONS

Based on the analysis of the data, the following conclusions were drawn: -

The study shows that, there is a significant effectiveness and improvement in selected physiological variables like Resting Pulse Rate & Breath Holding Time among college women football players, due to the step endurance training programme. Thus, it is concluded that step endurance training programme helps to increase the level of breath holding time and also decrease the level of resting pulse rate.

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