



**INFLUENCE OF STEP AEROBIC TRAINING ON MUSCULAR STRENGTH AND
EXPLOSIVE POWER OF FOOTBALLERS**

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ABSTRACT

This study was designed to investigate the influence of step aerobic training on muscular strength and explosive power of footballers. To achieve the purpose of the study 30 college men were selected from Bharathiar university department and CMS college of science and commerce, Coimbatore. The subjects were randomly assigned into two equal groups (n=15). Group - I underwent step aerobic training and Group - II was acted as control group (CG). The respective training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of twelve weeks. The control group was not given any sort of training except their routine work. Muscular strength was assessed by modified sit-ups test and the unit of measurement was in counts, and Explosive power was assessed by Standing Broad Jump the unit of measurement was in meters. The data collected from the subjects was statistically analyzed with 't' ratio to find out significant improvement if any at 0.05 level of confidence. The result of the muscular strength and explosive power improved significantly due to influence of step aerobic training with the limitations of (diet, climate, life style) status and previous training the result of the present study coincides with findings of the investigation done by different experts in the field of sports sciences. Step aerobic training significantly improved muscular strength and explosive power of footballers.

KEY WORDS: Step Aerobic Training, Muscular strength and Explosive power.

INTRODUCTION

The origin of the first aerobic club as we currently know dates back to 1968. In 1968, a book called "aerobics" was first published in the United States of America. The author of the book "aerobics" was Dr. Kenneth H. Cooper, a physician of the United States Armed Forces in 1968. He outlined in his book that aerobics is a training program that he initially designed for members of the armed forces which then spread and became popular around the world.



Step high impact exercise is a type of vigorous exercise recognized from different kinds of oxygen consuming activity by its utilization of a raised stage (the progression). The tallness can be custom fitted to singular needs by embeddings risers under the progression. Step

high impact exercise classes are offered at numerous rec centers and wellness focuses which have a gathering exercise program. Step vigorous exercise was developed by Gin Miller around 1989. Step heart stimulating exercise can likewise be associated with moving games, for example, Dance Revolution or In the Groove Gin miller(1989).

Regularly moves are alluded to as Reebok step moves in reference to one of the principal creators of the plastic advance normally utilized in exercise centers. The "fundamental" advance includes venturing initial one foot then the other over the progression and afterward venturing the principal foot and afterward the other back to the floor. A "right fundamental" would include venturing right foot up, at that point the left, at that point coming back to the floor exchanging both ways.

Numerous teachers of step will switch promptly between various moves, for instance between a correct fundamental and a left essential with no interceding moves, constraining individuals to "tap" their foot as opposed to moving weight. Be that as it may, one type of step is called sans tap or smooth advance in which feet constantly substitute without the uncertain "taps" that can make learning step hard for apprentices. This requires a touch of prescience and arranging by the educator so as to embed a transitional or exchanging move that keeps up the common substituting weight move similar to strolling. For instance, from a progression of right nuts and bolts one may embed a "knee up" (which includes venturing up and lifting the knee and restoring the lifted leg to the ground, consequently exchanging feet) and afterward proceeding to one side fundamental. Be that as it may, this requires arranging and the additional beats required for the change move.

METHODS

Experimental Approach to the Problem

In order to address the hypothesis presented herein, we selected 30 footballers from Bharathiar university department and CMS college of science and commerce, Coimbatore. The subjects were randomly assigned in to two equal groups, namely, step aerobic training group (n=15) and control group (n=15). The respective training was given to the experimental group the 3 days per week (alternate days) for the training period of twelve weeks. The control group was not given any sort of training except their routine.

DESIGN

The evaluated physical fitness parameters were muscular strength was assessed by modified sit-up test and the unit of measurement was in counts, and Explosive power were assessed by Standing Broad Jump the unit of measurement was in meters. The parameters were measured at baseline after 12 weeks of step aerobic training were examined.

TRAINING PROGRAMME

The training programme was lasted for 60 minutes for session in a day, 3 days in a week for a period of 12 weeks duration. These 60 minutes included 5 minutes warm up, 20 minutes step aerobic training for 30 minutes and 5 minutes warm down. Every three weeks of training 5% of intensity of load was increased from 65% to 80% of work load. The equivalent in step aerobic training is the length of the time each action is held for and the number action in total 3 day per weeks (Monday, Wednesday and Friday). The selected subjects underwent regular physical exercise on other 3 days (Tuesday, Thursday, and Saturday).

STATISTICAL ANALYSIS

The collected data on above said variables due to the step aerobic training was statistically analyzed with 't' test to find out the significant Improvement between pre and post test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P < 0.05$).

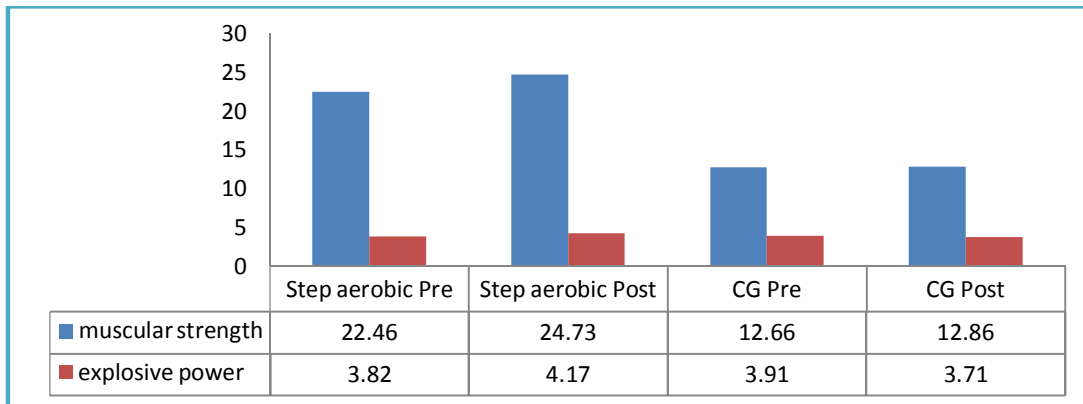
TABLE- I
COMPUTATION OF T RATIO ON MUSCULAR STRENGTH AND EXPLOSIVE POWER OF FOOTBALLERSON EXPERIMENTALAND CONTROL GROUP

Group	Variables		Mean	N	Std. Deviation	Std. Error Mean	T ratio
Experimental group	Muscular Strength	Pre test	22.46	15	3.50	0.33	6.85*
		Post test	24.73	15	3.39		
	Explosive power	Pre test	3.82	15	0.42	0.11	
		Post test	4.17	15	0.24		
Control group	Muscular Strength	Pre test	12.66	15	2.63	0.17	1.14
		Post test	12.86	15	2.55		
	Explosive power	Pre test	3.91	15	0.34	0.10	
		Post test	3.71	15	0.48		

*significant level 0.05 level (degree of freedom 2.14,1 and 14)

Table I reveals the computation of mean, standard deviation and ‘t’ ratio on Muscular strength and Explosive power of experimental and control group. The mean value of pre test and post test of muscular strength and explosive power of experimental were 22.46, 24.73, 3.82, 4.17 respectively and control group were 12.66, 12.86, 3.91 and 3.71 respectively. The obtained ‘t’ ratio on Muscular Strength and Explosive power were 6.85*, 3.13* and 1.14, 1.87 respectively. The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance. Since the obtained t values were greater than the table required value it was found statistically significant for the experimental group.

FIGURE- I
BAR DIAGRAM SHOWING THE MEAN VALUE ON MUSCULAR STRENGTH AND EXPLOSIVE POWER OF FOOTBALLERS ON EXPERIMENTAL AND CONTROL GROUP



DISCUSSION AND FINDINGS

A system of exercise combining aerobics with dance steps and usually done to music. Aerobics is a form of physical exercise that combines rhythmic aerobic exercise with stretching and strength training routines. The goal is to improve all elements five of fitness (flexibility, muscular strength, muscular

endurance and cardio-vascular fitness & body composition). Aerobic dance mixes exercises and different kinds of dance like ballet and jazz into the routine. They are often considered low-impact exercises and slower paced in contrast to other aerobic programs, although there's also fast-paced programs. Because of these characteristics, they're suitable for many who need low-impact workouts such as the elderly, obese and those who are expecting a baby. The present study experimented the impact of 12 weeks step aerobic training significantly improved the muscular strength and Explosive power of footballers. The finding of the present study had similarity with the findings of the investigators referred in this study. **Olson ms, et.al**, (1995) reported that vo2 max significantly improved after four minutes of aerobic dance training. **kostic, et.al**, (2005) indicated that cardio vascular fitness was improved by aerobic dance program. Further they suggested that if aerobic dance practiced over a longer period of time with training sessions three times a week for shorter period of time on condition that the intensity of the exercise remains the same. **Peschar, et.al**, (1991) suggested that individuals can improve their muscular strength through aerobic dance programme. **Arslan** (2011) reported that the step aerobic dance programme proved to be a useful exercise modality for weight loss and in terms of body composition. **Williams, et.al**, (1986) reported that the 12 weeks aerobic dance programme was successful in promptly beneficial changes in cardio respiratory fitness and body composition. **Leelarungrajub, et.al**, (2011) indicated that the aerobic dance exercise at a moderate intensity and duration can improve physical fitness, decrease malondialdehyde (MDA) and increase total anti oxidant capacity (TAC). **Milburn, et.al**, (1983) suggested that both aerobic dance and jogging were equal effective modalities for improving cardio respiratory endurance when performed at similar intensities, frequencies and duration. **Stalec, et.al**, (2007) indicated that aerobic dance training develops co-ordination, agility and specific rhythm co-ordination, functional aerobic ability, repetitive and explosive power and flexibility along with significant reduction of overweight and adipose tissue. **Mccord, et.al**, (1989) suggested that the low impact aerobic dance is effective as other endurance training reviews in improving cardio vascular fitness and decreasing body fat. The results of the present study indicates that the step aerobics training programme is effective method to improve cardiovascular endurance and explosive power of footballers.

CONCLUSIONS

1. Based on the result of the study it was concluded that the 12 weeks of step aerobic training have been significantly improved muscular strength of footballers
2. The 12 weeks step aerobic training have been significantly improved explosive power of footballers.
3. From the findings it is postulated that step aerobic training is suitable mode to bring out desirable changes over muscular strength and explosive power of footballers.

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