

STAR

Research Journal

Available online at www.starresearchjournal.com (Star International Journal)**PHYSICAL EDUCATION**

Star. Phy. Edn 4 (2014)



EFFECT OF AEROBIC EXERCISES ON SELECTED MOTOR FITNESS VARIABLES AMONG HIGH SCHOOL SOCCER GIRLS

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Abstract

The purpose of the study was to investigate the effect of aerobic exercises on selected motor fitness variables among high school soccer girls. To achieve the purpose of this study, thirty school level football players were randomly selected as a subjects from Govt girls higher secondary school, nilakottai, Dindugal, age between 13 and 15 years. True randomized experimental group design has been employed with two groups, namely aerobic exercises group and control group with 15 subjects each. Group I participated the training for a period of six weeks and no training were given to the control group. Speed was measured by 40 yard dash, agility was measured by "T" agility run test and explosive strength was measured by standing broad jump. The two groups were statistically analysed by using analysis of covariance (ANCOVA). The result of the study reveals that there was a significant improvement in the experimental groups on selected variables when compared to the control group after the completion of six weeks of aerobic exercises program.

Key words: Aerobic Training, High School Girls, Motor, Soccer.

Introduction

The word Aerobic literally means "with oxygen or in the presence of oxygen". Aerobic exercises are any activity that uses large muscle groups can be maintained continuously for long period of time and is rhythmic in nature. Aerobic activity trains the heart, lungs and cardiovascular system to process and deliver oxygen more quickly and efficiently to every part of the body. As the heart muscle becomes stronger and more efficient (Wolach and Harold, 2000). Aerobic exercise is a moderate intensity workout that extends over a certain period of time and uses oxygen in this process. Well, in the present times, carrying out aerobics has become the most happening workout trend among the youth. Not only is performing aerobic exercise interesting, but also is very beneficial for health. There are various types of aerobic exercise. In general, aerobic exercise is one performed at a low to

moderate level of intensity over a long period of time (Gillette and Elseman, 1987).

Basic motor abilities and skills are of crucial importance in the early phases of the motor learning process (Ackerman, 1998). The basis of motor learning is a specific motor program, which is created by the motor cortex based on external and internal information. Fundamental movement skills are common motor activities with specific observable patterns. Most skills used in sports and movement activities are their advanced versions. From a phylogenetic point of view, fundamental movement skills represent a cultural heritage enabling a purposeful and effective evaluation of human abilities and skills. The expansion of specialized motor skills is popular today, especially when it comes to sport-specific motor skills. Therefore, kinesiological scientific investigations are aimed at defining the quality and quantity of any knowledge on the performance level,

primarily in the case of children and the young, while focusing primarily on the relationship between the process of motor learning and a learner's age (Carroll and Bandura, 1987).

Performing aerobics helps in maintaining all round fitness and also turns out to be a delightful experience while playing soccer. In this modern era soccer is played worldwide with entertainment. Nowadays school girls are participating in sports and games not only for the sake of fitness but also for exposure. Aerobics is a activity which can be performed with interest. To find out whether the aerobic exercises training has a positive outcome on

selected motor fitness variables the investigator formulated the study to find the solution.

Methodology

The purpose of the study was to investigate the effect of aerobic exercises on selected motor fitness variables among high school soccer girls. To achieve the purpose of this study, thirty school level football players were randomly selected as a subjects from Govt girls higher secondary school, nilakottai, Dindugal, age between 13 and 15 years. The investigator selected the following variables for the present investigation.

TABLE - I

S.NO.	VARIABLES	TEST ITEMS	UNITS
1	Speed	40 Yard Dash	In Seconds
2	Agility	"T" Agility Run	In Seconds
3	Explosive Strength	Standing Broad Jump	In Metres

True randomized experimental group design has been employed with two groups, namely aerobic exercises group and control group with 15 subjects each. Group I participated the training for a period of six weeks and no

training were given to the control group. The two groups were statistically analysed by using analysis of covariance (ANCOVA). (Rothstein,1985).

Results and Discussion

The detailed procedure of analysis of data and interpretation were given below,

Table-II

Summary of Descriptive Statistics on Selected Motor Fitness Variables among High School Soccer Girls

Sl.No	Variables	AEG					CG				
		Pre	SD (±)	Post	SD (±)	Adjusted Mean	Pre	SD (±)	Post	SD (±)	Adjusted Mean
1	Speed	6.54	0.39	5.94	0.31	5.94	6.54	0.24	6.53	0.22	6.53
2	Agility	11.26	0.20	10.35	0.40	10.35	11.19	0.54	11.15	0.58	11.16
3	Explosive Strength	1.67	0.11	1.77	0.04	1.76	1.64	0.10	1.65	0.09	1.65

AEG = Aerobic Exercises Group

CG = Control Group

The table II shows that the pre and post test means and standard deviation of two groups on selected motor fitness variables among high school soccer girls.

Table - III
Analysis of Variance of Pre Test Scores on Selected Motor Fitness Variables among High School Soccer Girls

Sl. No	Variables	Source of Variance	Sum of Squares	Df	Mean Squares	F-Value
1	Speed	BG	0.000	1	0.000	0.003
		WG	3.03	28	0.10	
2	Agility	BG	0.03	1	0.03	0.22
		WG	4.74	28	0.16	
3	Explosive Strength	BG	0.006	1	0.006	0.51
		WG	0.32	28	0.01	

* P < 0.05 Table F, df (1,28) (0.05) = 4.19

In table III, the results of analysis of variance of pre test scores on speed (0.003), agility (0.22) and explosive power (0.51) were lesser than the table value of 4.19 indicating that it was not significant for the degrees of freedom (1,28) at 0.05 level of confidence indicating that the random sampling was successful.

Table-IV
Analysis of Variance of Post Test Scores on Selected Motor Fitness Variables among High School Soccer Girls

Sl. No	Variables	Source of Variance	Sum of Squares	Df	Mean Squares	F-Value
1	Speed	BG	2.58	1	2.58	34.24*
		WG	2.11	28	0.07	
2	Agility	BG	4.79	1	4.79	18.72*
		WG	7.16	28	0.25	
3	Explosive Strength	BG	0.11	1	0.11	19.02*
		WG	0.16	28	0.006	

* P < 0.05 Table F, df (1,28) (0.05) = 4.19

In table IV, the results of analysis of variance of post test scores on speed (34.24), agility (18.72) and explosive power (19.02) were greater than the table value of 4.19 indicating that it was not significant for the degrees of freedom (1,28) at 0.05 level of confidence.

Table-V
Analysis of Covariance of Adjusted post test scores on Selected Motor Fitness Variables among Soccer Players

Sl. No	Variables	Source of Variance	Sum of Squares	df	Mean Squares	F-Value
1	Speed	BG	2.59	1	2.59	35.12*
		WG	1.99	27	0.07	
2	Agility	BG	4.83	1	4.83	18.32*
		WG	7.12	27	0.26	
3	Explosive Strength	BG	0.09	1	0.09	22.39*
		WG	0.10	27	0.004	

* P < 0.05 Table F, df (1,27) (0.05) = 4.21

In table V, the results of analysis of covariance of adjusted post test scores on speed (35.12), agility (18.32) and explosive power (22.39) were greater than the table value of 4.21 indicating that it was not significant for the degrees of freedom (1,27) at 0.05 level of confidence.

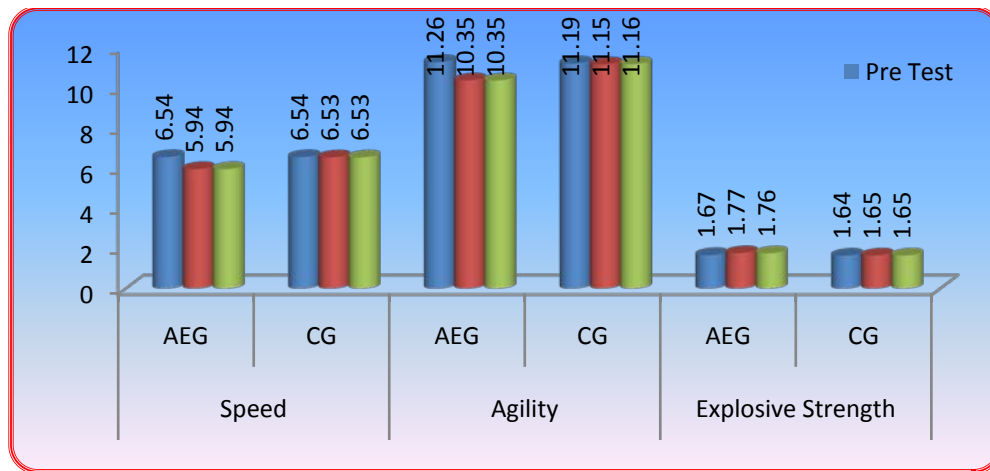


Figure-I Shows the Mean Values of Control Group on Selected Motor Fitness Variables among High School Soccer Girls

CONCLUSIONS

In the light of the study undertaken with certain limitations imposed by the experimental conditions, the following conclusions were drawn.

- ❖ The result of the study reveals that there was a significant improvement in the experimental groups on selected variables when compared to the control group after the completion of six weeks of aerobic exercises program.

This type of aerobic exercises can be incorporated in the training programme for high school soccer girls.

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