



Effects Of Speed Training And Combination Of Speed-Aerobic Training On Acceleration Speed Among Football Players

¹MERCY, S., & ²Dr. D. JIM REEVES SILENT NIGHT

¹Ph.D. Reseach Scholar & ²Director of Physical Education

¹Department of Physical Education and Sports, Manonmaniam Sundaranar University
Abishekapatti, Tirunelveli, Tamilnadu, India

²Aditanar College of Arts and Science, Tiruchendur, Tamilnadu, India

Abstract: The purpose of this study was to investigate the effect of speed training and combination training on Speed Parameters of football players, sixty women college football players were selected as subjects from Thoothukudi District, Tamil Nadu, India. The age of the subjects ranged from 17 to 22 years the selected subjects were divided into three groups of twenty each. Group I underwent speed Training (STG), Group II underwent combination of speed and aerobic training (CTG) were given for three alternate days in a week for a period of twelve weeks. Group III acted as Control Group (CG). The subjects underwent. The speed training, and combination of speed and aerobic trainings, the data collected from the four groups before and after the experimental period The Acceleration speed was measured using 30 m acceleration sprint test, the collected data were statistically examined for significant improvement by dependent 't' test, The initial means and to test the adjusted posttest means for significant differences among the groups, the analysis of covariance (ANCOVA) was used. Whenever the 'F' ratio for adjusted posttest means was found to be significant, the Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant, the result shows that the statistical results showing that there was a significant improvement due to the effect of the STG, CTG on selected variable Acceleration speed when compared to the CG. There would be significant differences on improvement of Acceleration speed among the STG, and CTG and CG and It was concluded that combination of training programs group is better than speed training, and control groups in improving Acceleration speed of women footballers.

Index Terms – Speed Training, Acceleration Speed, Football, Aerobic Training

1. INTRODUCTION

Football is a sport with a lot of cyclic movements and lot of sophisticated dynamic kinesiology (Gardasevic & Goranovic, 2011). Physical fitness is very essential to participate in football competitions. Regular scientific and systematic training will open a way to achieve adequate physical fitness for the players. It not only improves the quality of the skills, techniques and tactics, but also it will improve overall health especially prevent injuries during the game and training. Speed is one of the exciting actions of football. In soccer, speed is considered as, speed of the player with ball and speed of the player without ball. But in football it does not mean being able to sprint 120 yards in very fast, but very fast in 10 to 15 yards. In a game a player run many sprints on an average of 10 yards in his maximum speed. In this game, speed includes the ability to accelerate quickly, reach maximum speed, respond swiftly to various situations, twist-turn and change direction quickly, and perform bursts of fast running during the match or training, all of which can be increased by scientific training methods. Speed appears in different forms in different sports such as reaction ability, reaction time, movement speed, acceleration, to loco motor ability and speed endurance. But the different types of speed abilities are relatively independent of each other (Suresh, 2003)

Aerobic endurance is the ability to exercise continuously for extends periods without tiring. Only when scientific methods are applied throughout training may one's aerobic endurance performance increase. Although the basic processes for eliciting adaptations during training are unknown, it is obvious that the various systems of the body must be challenged by an exercise stimulus in order to adapt. Physiological systems that are not engaged throughout the workout or are not properly stressed by exercise will not adapt to the training programme. The factors related to aerobic endurance performance are maximal aerobic capacity, lactate threshold and exercise economy. So that while designing an aerobic endurance training program all these factors should be considered.

2. METHODOLOGY

To achieve the purpose of this study was to investigate the effect of speed training and combination training on Acceleration speed of football players, sixty women college football players were selected as subjects from Thoothukudi District, Tamil Nadu, India. The age of the subjects ranged from 17 to 22 years the selected subjects were divided into three groups of twenty each. Group I underwent speed Training (STG), Group II underwent combination of speed and aerobic training (CTG) were given for three alternate days in a week for a period of twelve weeks. Group III acted as Control Group (CG). The subjects underwent. The speed training, and combination of speed and aerobic trainings, the data collected from the three groups before and after the experimental period The Acceleration speed was measured using 30 meters acceleration sprint test, the collected data were statistically examined for significant improvement by dependent 't' test, The initial means and to test the adjusted posttest means for significant differences among the groups, the analysis of covariance (ANCOVA) was used. Whenever the 'F' ratio for adjusted posttest means was found to be significant, the Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant.

3. RESULTS AND DISCUSSIONS

The data collected prior to and after the experimental periods on Acceleration speed on speed training and speed with aerobic training and control group were analyzed and presented in the following table -1

Table- 1
Test of Means Difference of Experimental and Control Groups On Acceleration speed

Variable	Grou ps	Test	Mean	SD	MD	df	't' Value
Acceleration speed	STG	Pre-Test	0.164	0.022	0.018	19	4.077*
		Post-Test	0.015	0.015			
	CTG	Pre-Test	0.163	0.030	0.033		3.535*
		Post-Test	0.197	0.026			
	Contro l	Pre-Test	0.142	0.032	0.008		1.128
		Post-Test	0.150	0.017			

Significant at 0.05 levels, tabulated $t_{0.05}$ (df 19) = 2.093

The table 1 shows the, calculation of mean $\pm$ SD value of acceleration of pre-test 0.164 ± 0.022 and post-test 0.183 ± 0.015 . The obtained 't' ratio value of STG was 4.077 and on acceleration, it came greater than the tabulated value i.e., 2.093 with degree of freedom 19 at 0.05 level of significant. The research indicates that there was significant difference in acceleration after taking speed training among women football players. Therefore, the 12 (twelve) week of complex training performance increased the acceleration time which means the rate of acceleration quality becomes improved.

The mean $\pm$ SD value of acceleration for pre-test was 0.163 ± 0.030 and post-test 0.197 ± 0.026 before and after combination of speed- aerobic training respectively. The obtained "t" ratio value of CTG was 3.535 and on acceleration it came greater than the tabulated value i.e., 2.093 with degree of freedom 19 at 0.05 level of significant. The research indicates that there was significant difference in acceleration after taking combination of speed-aerobic training among women football players. Therefore, the 12 (twelve)

week of combination of speed- aerobic training performance increased in the acceleration which means the rate of acceleration quality becomes improved.

The mean $\pm$ SD value of acceleration for pre-test was 0.142 ± 0.032 and post-test 0.150 ± 0.017 before and after 12(twelve) week without training. The obtained "t" ratio value of CG was 1.128 and on acceleration it came less than the tabulated value i.e., 2.093 with degree of freedom 19 at 0.05 level of significant. The research indicates that there was insignificant control group on acceleration among women football players. Therefore, the 12 (twelve) week of without training increased the acceleration time but the obtained value was less than the tabulated value which means the rate of acceleration quality becomes decreased.

Table- 2

Analysis of Covariance for Pre-Test, Post-Test and Adjusted Post-Test Data on Acceleration speed of Experimental Groups and Control Group

Variable	Test	STG	CTG	CG	Sources of Variance	Sum of Square	df	Mean	'f' Value
Acceleration	Pre-test Mean $\pm$ SD	0.164 $\pm$ 0.022	0.163 $\pm$ 0.030	0.141 $\pm$ 0.032	Between	0.007	2	0.003	3.879
					Within	0.048	57	0.001	
	Post-test Mean $\pm$ SD	0.183 $\pm$ 0.015	0.197 $\pm$ 0.026	0.150 $\pm$ 0.017	Between	0.023	2	0.012	27.794
					Within	0.024	57	0.000	
	Adjusted Post-test mean	0.183	0.197	0.152	Between	0.019	2	0.009	22.763
					Within	0.023	56	0.001	

F- Ratio at 0.05 levels with df (2, 57) =3.16 and df (2, 56) =3.16

Table 2 shows that the pre-test mean on the acceleration of speed training (group-I), combination of speed-aerobic training (group-II) and control groups (group-III) were 0.164, 0.163 and 0.141 respectively and the obtained pre-test F-ratio was 3.879 and the required table F-value was 3.16 which came less than the obtained value i.e., 3.879. It noticed that there was significant difference among the initial scores of the groups at 0.05 level of significant for 2, 57 degree of freedom.

The adjusted mean of speed training (group-I), combination of speed-aerobic training (group-II), and control groups (group-III), on the acceleration speed were 0.183, 0.197 112 and 0.152 respectively and the obtained adjusted post-test F-ratio was 22.763 and the required table F- value was 3.16 which came less than the obtained value i.e., 22.763. It noticed that there was significant difference among the adjusted post-test scores of the groups at 0.05 level of significant for 2, 56 degree of freedom.

Table- 3

The Scheffe's Test for the Mean Difference between Paired Means on Acceleration speed

STG	CTG	CG	MD	CI
0.183	0.197	-	0.014	0.025
0.183	-	0.152	0.031	
-	0.197	0.152	0.045	

Significant at 0.05 levels

The speed training group mean difference value on the adjusted post-test women football players (CTG) and combination of speed-aerobic training group football players (CTG) was 0.014, which was lower than the CI value i.e., 0.025. Hence study noticed that both trainings were equally effective to improve acceleration speed.

The speed training group's mean difference value on the adjusted post-test women football players (CTG) and control group football players (CG) was 0.031, and the combination of speed-aerobic training group women football players (CTG) and control group women football players was 0.045. The study noticed that these figures were greater than the CI value i.e., 0.025. Hence based on the results concluded that the speed training and combination of speed-aerobic training were effective to improve the acceleration speed of women football players when compared to the control group players.

For better understanding pre-test, post-test and adjusted post-test means values of the speed training group, combination of speed-aerobic training group and control group on acceleration speed is shown below in figure 1.

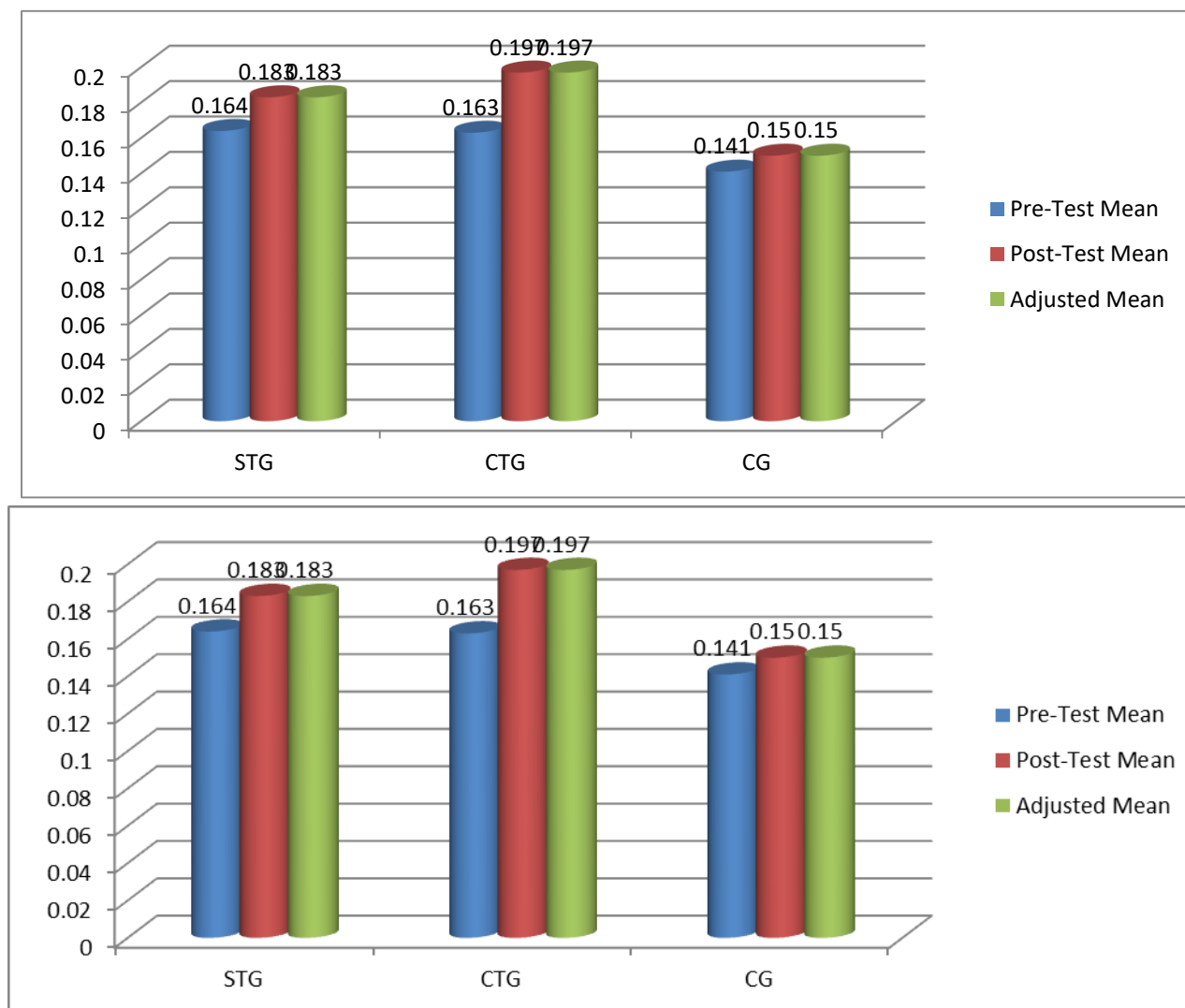


Figure-1 :The Graphical Representation of the Pre-Test, Post-Test and Adjusted Post-Test Means Values of the Speed Training Group, the Combination of Speed-aerobic Training Group and the Control Group on Acceleration speed

The study proved that the twelve weeks of speed training and combination of speed- aerobic training significantly increased the acceleration in the experimental groups of women football players compared to the control group of women football players. The pre-test means on the acceleration speed of speed training, combination of speed-aerobic training and control groups were significant different among the initial scores of the groups but post- test significantly more difference than the pre-test. The study noticed that when both experimental groups were compared, both trainings exactly the same were effective for improving acceleration speed. The present study is consonance also to the studies of Baron et. al. (2019) noticed that training enhanced the anthropometric measurements and speed parameters in his study. Rio et. al. (2019) noticed that training enhanced the acceleration, agility, jump performance, and postural control in his study. Azmi & Kusnanik (2018) noticed that training enhanced the speed, agility, and quickness in his study. And Makaruk, et. al. (2013) noticed that training enhanced the speed performance in his study. This is because of proper training and guidance by the investigator during practices and playing football under the guidance of investigator.

4. CONCLUSIONS

Within the limitations and delimitations of this study the following conclusions were drawn from the result.

1. It was concluded that there was significant development of Acceleration speed among football players due to speed training and combined training speed –aerobic training.
2. The result of the study reveal that speed with aerobic training group have better development of Acceleration speed compared with speed training group and control group.

5. REFERENCES

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