



EFFECT OF HIGH INTENSITY INTERVAL TRAINING AND SPEED ENDURANCE TRAINING ON AGILITY OF FOOTBALL PLAYERS

Mr. Gopal Mondal, Ph.D Research Scholar

Dr. Sentu Mitra, Assistant Professor

Dept. of Physical Education, Visva-Bharati, Santiniketan, WB.



ABSTRACT

The objective of the study was to find out the Effect of High Intensity Interval Training and Speed Endurance Training on Agility of Football Players. For the purpose of study Seventy Five male district level football players, aged between 18-25 years, were randomly selected from Birbhum, WB. Twenty five were randomly selected for high intensity interval training (HIIT) group, Twenty five were randomly selected for Speed endurance training (SET) group and twenty five were selected as the control group for the study. Agility was considered as the variable for the study. Eight weeks high intensity interval training (HIIT) and Speed endurance training (SET) were administered to the experimental groups. The data was computed by descriptive statistics, ANCOVA and LSD post-hoc test. The result of the study revealed that the HIIT group and SET group significantly improve the agility of the football players.

Keywords: HIIT training, SET training, Agility, Football players.

INTRODUCTION

Games and sports are now a days become a new religion in the world. Every developed and developing countries are trying to become champion in this field and for that they are developing various technologies, instruments, means and methods etc. Football is the most popular sport in the world and is performed by men and women, children and adults with

different levels of expertise. Football performance depends upon a variety of factors such as physical fitness, technical/biomechanical, tactical, mental and physiological areas. In physical fitness agility is one of the key factor for the achievement of the excellency in the game .

Many new training methods are introduced by many sports scientists day by day. High intensity interval training and speed endurance training are the two very important training methods which are almost directly related to the game of football and lots of research is going on in these training methods.

METHODOLOGY

For the purpose of study seventy five male district level football players, aged between 18-25 years, were randomly selected from Birbhum, WB. Among them twenty five were randomly selected for high intensity interval training (HIIT) group, twenty five were randomly selected for speed endurance training(SET) group and twenty five were selected as active control group for the study. Agility was considered as the variable for the study. Eight weeks high intensity interval training (HIIT) and speed endurance training(SET) were administered for the experimental group. The data was computed by descriptive statistics and paired t test. The result of the study revealed that the HIIT group, SET group and control group were significantly improved



the Agility. For purpose of the study seventy five male district level football players, aged between 18-25 years, were randomly selected from Birbhum, W.B. Among them twenty five were randomly selected for each group i.e., high intensity interval training (HIIT) group, Speed Endurance Training group (SET) and active control group. Agility was considered as the variable for the study. Agility was measured by 4X10 meter Shuttle Run Test and was recorded in 1/100th of a second.

Pre-test post-test randomized group designs were used for the study. Pre-test data was collected from the both groups (experimental and control group) before administering the experiment. Then the high intensity interval training programme and Speed Endurance training programme were applied to the experimental group three alternate days per week for 8 weeks. The control group was not given any treatment during those 8 weeks. Immediately after completion of the training the post data were collected from the both experimental and control group. For determining the effect of the HIIT training and SET training, descriptive statistics, ANCOVA and LSD post-hoc test were used for the analysis of the data.

RESULT

TABLE 1
DESCRIPTIVE ANALYSIS OF DIFFERENT GROUPS

Treatment Group	Groups	Min.	Max	Mean	S.E.	SD
HIIT Group	Pre-Test	8.8	9.96	9.79	0.04	0.22
	Post-Test	8.5	9.98	9.45	0.05	0.25
SET Group	Pre-Test	8.8	10.1	9.81	0.05	0.24
	Post-Test	8.6	9.98	9.56	0.07	0.36
Control Group	Pre-Test	8.9	11.04	10.04	0.08	0.42
	Post-Test	8.7	11	9.95	0.09	0.43

Table-1 describes the mean (M), standard deviation (SD), Maximum value (Max.) and Minimum Value (Min.) scores of subjects in Agility. In the pre test phase, the mean of HIIT group, SET group and AC group were 9.79sec, 9.81sec, 10.04 sec respectively. The post test mean of HIIT group, SET group and AC group were 9.45sec, 9.56sec, 9.95sec respectively. The standard deviation for pre-test phase of HIIT group, SET group and AC group were 0.22, 0.24, and 0.42 respectively. The post test standard deviation for HIIT group, SET group and AC group were 0.25, 0.36 and 0.43. The Maximum value for HIIT group in pre test phase was 9.96sec. Whereas the Minimum value was 8.8sec. For the SET group the Maximum value in pre test was 10.1sec where as the Minimum value was 8.8sec. The Maximum value for AC group in pre test phase was 11.04sec where as the Minimum value was 8.9sec. In the post test phase for HIIT group the Maximum value was 9.98sec and the Minimum value was 8.5sec, for SET group the Maximum value was 9.98sec and the Minimum value was 8.6sec, and for the AC group the Maximum value was 11sec and the Minimum value was 8.7sec.

TABLE 2
ANCOVA FOR DISTINCT GROUPS ON AGILITY FOR PRE-TEST AND POST-TEST DATA

Source	df	Sum of Squares	Mean Square	F-value
Treatment Group	2	0.665	0.332	9.389*
Error	71	2.513	0.035	
Total	73	3.178		

Table value of F (2,71) = 3.13 *. Significant at the .05 level

*Significance at 0.05 level of significance

Table-2 reveals significant improvement of agility (F=9.389) among the HIIT group, SET group and AC group. The obtained F value 9.389 was found greater than that of tabulated



F value 3.13 at 0.05 level of significance with 2, 71 degree of freedom.

TABLE-3
PAIR WISE COMPARISONS OF DISTINCT GROUPS OF
ADJUSTED MEANS ON AGILITY OBTAINED IN PRE-TEST
AND POST-TEST DATA (N = 25)

HIIT	SET	Control Group	Mean Difference	Critical Difference
9.55	9.63		0.08	0.106
9.55		9.79	0.25*	
	9.63	9.79	0.16*	

*Significant difference is significant at the .05 level

Table-3, in the paired adjusted final mean differences in agility clearly indicates significant differences (MD-0.25) between high intensity interval training group (HIIT), and active control group (0.25) and also between speed endurance training group (SET) and active control group (0.16) of male football players, which were found greater than that of critical value 0.106.

However, there was no significant difference was observed between the HIIT group and SET group (MD- 0.08) where the critical difference was (CD-0.106).

CONCLUSION

The result of the study revealed that the eight weeks High Intensity Interval Training and Speed Endurance Training significantly improve Agility of Football players. The result may be due to the effect high intensity training programmes both HIIT and SET training programmes for 45-60 minutes per unit for three alternate days for eight weeks. The result of the study is supported by the study of F Fajrin, N W Kusnanik, and Wijono, et al. (2018) who administrated a study to see the effects of high intensity interval training on increasing explosive power, speed, and agility. This study aims to analyze how is the effect of HIIT on increasing explosive power, speed, and agility. This type of research is

quantitative with quasi-experimental methods. The design of this study used the Matching-Only Design, with data analysis using the t-test (paired sample t-test). After being given the treatment for six weeks, the results showed there are significant increasing in explosive power, speed, and agility. HIIT in this study used a form of exercise plyometric as high-intensity exercise and jogging as mild or moderate intensity exercise. Increase was due to the improvement of neuromuscular characteristics that affect the increase in muscle strength and performance. From the data analysis, researchers concluded that, exercises of high intensity interval training significantly effect on the increase in power limbs, speed, and agility.

On the basis of the result of the study, it may reasonably be concluded that high intensity interval training (HIIT) and Speed endurance training (SET) improve Agility of football players.

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