



Effect of High Intensity Interval Training and Speed Endurance Training Programmes on Leg Explosive Strength of Football players

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ABSTRACT: The objective of the study was to find out the effect of high intensity interval training (HIIT) and speed endurance training (SET) on leg explosive strength level of football players. For the purpose of study Seventy Five male district level football players, aged between 18-23 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 (CG) for the study. Leg explosive strength level 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, SET & Active Control Group no significantly improved the Leg Explosive Strength ($F=0.494$) of the football players. Here the level of significance at 0.05 level.

Key Word: HIIT training SET training, Leg Explosive Strength, Football players.

INTRODUCTION

Now a day's Sports performance is a prestigious issue in the world. Every developed and developing country is trying to achieve highest performance level in sports at anyhow. For that research is going on in every aspect to develop the performance of the sports person directly on indirectly. Many new training methods are introduced by many sports scientist day by day. High intensity interval training is one of the burning training procedures at now and lots of research is going on in this training method.

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 technical/biomechanical, tactical, mental and physiological areas. As the game is played for long time (ninety minutes or more) the aerobic capacity plays a major role in giving best performance throughout the game time. Leg strength is one of the key factors for the aerobic capacity of the players. Therefore the researcher showed interest to do the research on the effect of hiit & set training on leg explosive strength of football players.

It is one of the most fashionable sports in the world and is played by men and women, children and adults with different levels of capability. Football performance depends upon a variety of important factors such as technical/biomechanical, tactical, mental and physiological areas. A football players run fats to get the ball or score, dodge defenders to score or pass, jump for heading or receiving the ball etc they do throughout the game for 90 minutes or even more. As the game is played for long time (ninety minutes or more) the aerobic capacity plays a major role in giving best performance throughout the game time. Beside the aerobic capacity a football player needs other important physical fitness components like speed, agility, explosive strength, coordination, and kinaesthetic ability etc to exhibit the best performance.

Various training means and methods have developed to enhance sports performance. Continuous method, Repetition method, Interval method, Circuit training method etc have has been invented for the development of sports performance. High Intensity trainings like high intensity interval training (HIIT), speed endurance training (SET) etc are now a day's very burning training methods for enhancing the performance in sports field. These are the training methods which are performed in high intensity that ultimately enhance the performance of the sports person.

At present India is also trying to achieve the best performance in the SAF games, Asian Championship etc tournaments by developing their performance. Currently Indian Football team got 101 position (14th June 2019) from 173 position (March 2015) in FIFA World ranking. Indian football team got excellent achievement in all the areas which directly or indirectly help to enhance the sports performance. Area like physical fitness, psychological fitness, technical and tactical aspects etc were developed now a days in Indian football team but to achieve the highest level of performance in the world best football teams like Brazil, Argentina, France, Spain, Germany, England, Uruguay etc Indian team management including the government of India has to think about the development of football performance by developing various sports schemes, preventing corruption in the sports field etc.

AIM OF THE STUDY

The aim of the study was to find out the Effect of High Intensity Interval Training and Speed Endurance Training Programmes on Leg explosive strength of Football players.

METHODS

Selection of the Subject: For the purpose of study seventy five (75) male district level football players, aged ranged between 18-23 years, were randomly selected from Birbhum, WB. Among them twenty five were randomly selected for high intensity interval training (HIIT) group, twenty five selected as speed endurance training (SET) group and twenty five were selected as active control group(AC) for the study. Leg explosive strength was considered as the variable for the study. Eight weeks high intensity interval training (HIIT) and SET training were administered to the experimental group. The data was computed by descriptive statistics, ANCOVA and LSD post-hoc test.

Subjects: For the purpose of the study seventy five (75) male district level football players, aged between 18-23 years, were randomly selected from Birbhum, WB. Among them twenty five were randomly selected for high intensity interval training (HIIT) group, twenty five selected as SET group and twenty five were selected as active control group for the study.

Variables-Test and Criterion Measure: Leg explosive strength was considered as the variable for the study. It was tested by field test standing broad jump (SBJ) and the score was recorded in meter.

Design of the Study: Pre test- post test randomized group design was used for the study. Pre test data was collected from both the groups (experimental and control group) before administering the experiment to the experimental group. Then the high intensity interval training (HIIT) programme and speed endurance training (SET) programme was applied to the experimental group in three alternate days per week for 8 weeks. The control group was not given any treatment during these 8 weeks. Immediately after completion of the experiment the post test data were collected from both the experimental and control group.

Statistical Analyses: 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:

The findings pertaining to the study are presented in table-1, 2 and Graph-1.

The statistical analysis of data of the three groups i.e. High intensity interval training group (HIIT), Speed Endurance Training group (SET), and the active control group (AC) on leg

explosive strength of football player for pre and post test have been presented in table no. 1 and 2. The illustrations are also graphically represented in Figure 1.

Treatment Group	Groups	Minimum Value (meter)	Maximum Value (meter)	Mean (meter)	Std. Error	Std. Deviation
HIIT	Pre-Test	2.09	2.49	2.32	0.02	0.11
	Post-Test	2.15	2.51	2.37	0.02	0.10
SET	Pre-Test	2.05	2.45	2.28	0.02	0.11
	Post-Test	2.1	2.49	2.34	0.02	0.11
AC	Pre-Test	2.19	2.45	2.33	0.01	0.07
	Post-Test	2.2	2.48	2.37	0.02	0.08

Table-1 describes the mean (M), standard deviation (SD), Maximum value (Max.) and Minimum Value (Min.) scores of subjects in Leg Explosive Strength. In the pre test phase, the mean of HIIT group, SET group and AC group were 2.32mt, 2.28mt and 2.33mt respectively. The post test mean of HIIT group, SET group and AC group were 2.37mt, 2.34mt and 2.37mt respectively. The standard deviation for pre-test phase of HIIT group, SET group and AC group were 0.11, 0.11 and 0.07 respectively. The post test standard deviation for HIIT group, SET group and AC group were 0.10, 0.11 and 0.08. The Maximum value for HIIT group in pre test phase was 2.49mt. Whereas the Minimum value was 2.09mt. For the SET group the Maximum value in pre test was 2.45mt where as the Minimum value was 2.05mt. The Maximum value for AC group in pre test phase was 2.45mt where as the Minimum value was 2.19mt. In the post test phase for HIIT group the Maximum value was 2.51mt and the Minimum value was 2.15mt, for SET group the Maximum value was 2.49mt and the Minimum value was 2.1mt, and for the AC group the Maximum value was 2.48mt and the Minimum value was 2.2mt.

Source	Df	Sum of Squares	Mean Square	F-value
Treatment Group	2	0.001	0.000	0.202
Error	71	0.122	0.002	
Total	73	0.122		
Table value of F (2,71) = 3.13 *. Significant at the .05 level				

Table-2 reveals that there was no significant improvement of leg explosive strength (F=0.202) among the HIIT group, SET group and AC group. The obtained F value 0.202 was found to be

lesser than that of tabulated F value 3.13 at 0.05 level of significance with 2, 71 degree of freedom.

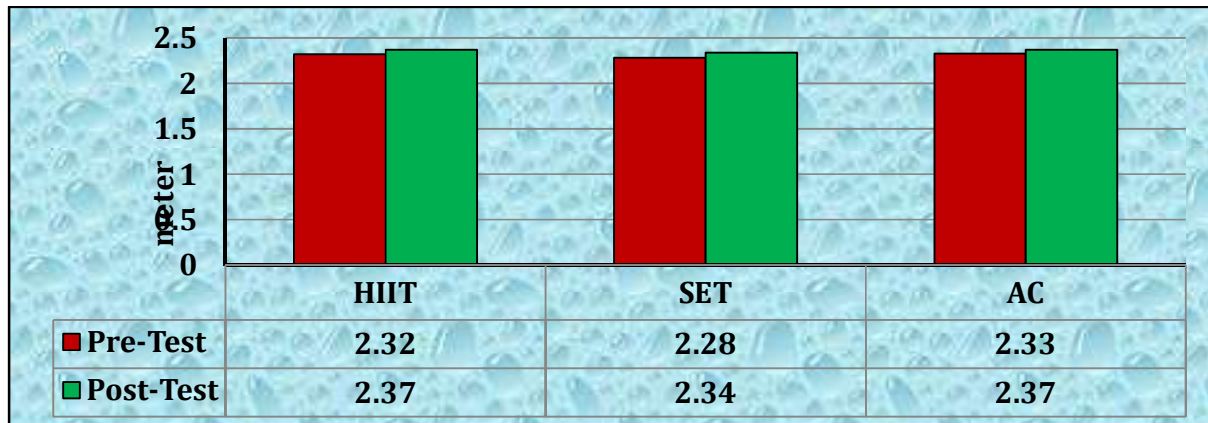


Figure- 1: Graphical Representation of Pre-Test & Post-Test Mean for Distinct Treatment Groups on Leg explosive strength.

Figure-1 describes the pre-test and post-test mean for HIIT, SET and AC group. Here the pre-test and post-test mean of HIIT, SET and AC group were 2.32meter and 2.37meter, 2.28meter and 2.34meter & 2.33meter and 2.37meter respectively.

DISCUSSION

The result of the study revealed that the eight weeks High Intensity Interval Training (HIIT) and Speed Endurance Training (SET) significantly not improved the leg explosive strength of Football players. The result may be due to the effect of 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 The decrement of repeated sprint ability and lactate concentration was supported by the study, In case of leg explosive strength no significant effect (F-0.202) was observed among the HIIT group, SET group and Active Control group.

CONCLUSION

On the basis of the result it is concluded that the both the high intensity interval training (HIIT) and speed endurance training (SET) programmes not improved leg explosive strength of the football players.

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