



## EFFECT OF HIGH INTENSITY INTERVAL TRAINING ON HEMOGLOBIN CONCENTRATION OF FOOTBALL PLAYERS

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**ABSTRACT** The objective of the study was to find out the Effect of High Intensity Interval Training on Hemoglobin Concentration of Football Players. For the purpose of study fifty 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 and twenty five were selected as the control group for the study. Blood hemoglobin concentration was considered as the variable for the study. Eight weeks high intensity interval training (HIIT) was administered to the experimental group. The data was computed by descriptive statistics and paired t test. The result of the study revealed that the HIIT group significantly improve the blood hemoglobin concentration.

**KEYWORDS :** HIIT training, Hemoglobin, Football players

### INTRODUCTION

Now a day's Sports performance is a prestigious issue in the world. Every developed and developing countries are trying to achieve highest performance level in sports at anyhow. For that research is going on in every aspects to develop the performance of the sports person directly or indirectly. Many new training methods are introduced by many sports scientist day by day. High intensity interval training is one of the burning training procedure 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. Blood hemoglobin concentration is one of the key factor for the aerobic capacity of the players. Therefore the researcher showed interest to do the research on the effect of high intensity interval training on hemoglobin concentration of the football players.

### AIM OF THE STUDY

The aim of the study was to find out the Effect of High Intensity Interval Training on Hemoglobin Concentration of Football Players.

### METHODS

For the purpose of study fifty 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 and twenty five were selected as active control group for the study. Blood hemoglobin concentration was considered as the variable for the study. Eight weeks high intensity interval training (HIIT) was administered to the experimental group. The data was computed by descriptive statistics and paired t test. The result of the study revealed that the HIIT group significantly improve the blood hemoglobin concentration.

### Subjects

For the purpose of study fifty 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 and twenty five were selected as active control group for the study.

### Variables-Test and Criterion Measure:

Blood hemoglobin concentration (Hb) was considered as the variable for the study. It was tested by an expert Pathlogician and the data was recorded in g/dl.

### 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 programme was applied to the experimental group three alternate days per week for 8 weeks. The

control group was not given any treatment during this 8 weeks. Immediately after completion of the experiment the post data were collected from both the experimental and control group.

### Statistical Analyses

For determining the effect of the HIIT training, descriptive statistics and paired sample t-test were used for the analysis of the data.

### RESULT:

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

		Mean	N	Std. Deviation	Std. Error Mean	Maximum Score	Minimum Score
HIIT Group	Pre Test	13.21	25	1.14	0.23	16.08	11.02
	Post Test	14.22	25	1.27	0.25	15.2	11.7
Control Group	Pre Test	12.99	25	0.87	0.17	14.3	11.1
	Post Test	13.04	25	0.92	0.18	14.7	11.7

Table-1 revealed the descriptive statistics of the hemoglobin concentration of the both the HIIT group and control group where the number of the subject in each group is 25. Here the mean score, maximum score, minimum score standard deviation, standard error of mean of pre-test and post test data of both the HIIT and Control group were given.

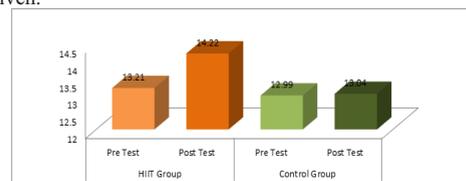


Figure-1: Graphical representation of the hemoglobin concentration of both the groups

		Mean Difference	Std. Deviation	Std. Error Mean	t-Ratio
HIIT Group	Pre Test	1.01	1.42	0.28	3.58*
	Post Test				
Control Group	Pre Test	0.05	0.73	0.15	0.32
	Post Test				

\* Significant at 0.05 level  
t.05 (24) = 2.06

Table-2 describes the paired sample t-test of both the HIIT group and Control group. Here the t-value of HIIT group was 3.58 which was significant at 0.05 level where as the t-value of control group was 0.32 which was not significant at 0.05 level.

**DISCUSSION:**

The result of the study revealed that the high intensity interval training for eight weeks improve the blood hemoglobin concentration of the football players. The result may be due to the effect high intensity training programme for 30-45 minutes per unit for three alternate days for eight weeks. The result of the study is supported by the study of Nilsel Okudan (2017) who worked on the effects of acute high-intensity interval training (HIIT) on hematological parameters in sedentary men and found that hematocrit percentage, hemoglobin values, red cell count, mean cell volume, platelet count, total white cell count, and counts of the white cell subgroups increased immediately after the acute HIIT and their values began to return to resting levels 3 h after exercise, and completely returned to resting levels 6 h after exercise. In conclusion, acute HIIT causes an inflammatory response in blood.

**CONCLUSION**

On the basis of the result of the study, it may reasonably be concluded that high intensity (HIIT) training improve blood hematological concentration (Hb%) of football players.

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