



EFFECT OF HIGH AND LOW INTENSITY INTERVAL TRAINING ON LOW DENSITY LIPOPROTEIN AMONG HIGHER SECONDARY STUDENTS OF HANDBALL PLAYERS

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ABSTRACT

The purpose of the study was to find out the effect of high and low intensity interval training on low density lipoprotein among higher secondary students of handball players. To achieve the purpose of this study, 45 school handball players from Islamiah Boys Higher Secondary School, Vaniambadi, Vellore District, Tamil Nadu was selected as subjects at random and their ages ranged from 15 to 17 years. The groups were assigned as Experimental Group I, Experimental Group II and Control Group in an equivalent manner. Experimental Group I was exposed to high intensity interval training, Experimental Group II was exposed to low intensity interval training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. Analysis of Covariance and Scheffe's post hoc test was used. Result found that the high intensity interval training had shown significant reduction in low density lipoprotein among handball players than the low intensity interval training.

KEY WORD: Intensity, Interval Training, Handball.

INTRODUCTION:-

Interval training involves the periods of intense training, interspaced with rest periods. During the rest period, the chemical fatigue produced from exercises can be paid off and new sources of energy are supplied to the muscle. The intensity of training on the cardiovascular system is much greater than in distance running. The interval training stresses the glycogen system, which results in the production of high levels of discomfort associated with all intensive exercises. As a result, interval trained athletes are subject to high levels of physiological stress. They are familiar with this stress and they know how to adjust to it during competitions. Handball has become one of the popular sports in the world and is known for its speed. This game is also a part of Olympic Sport. The simple rules of this game, minimal ground and equipment facilities and the speed of game itself along with the scope for players to exhibit their exclusive skills makes it as a popular game among even the schools and educational institutions.



METHODOLOGY

The purpose of the study was to find out the effect of high and low intensity interval training on low density lipoprotein among higher secondary students of handball players. To achieve the purpose of the present study, forty five school handball players from Islamiah Boys Higher Secondary School, Vaniambadi, Vellore District, Tamil Nadu was selected as subjects at random and their ages ranged from 15 to 17 years. The groups were assigned as Experimental Group I, Experimental Group II and Control Group in an equivalent manner. Experimental

Group I was exposed to high intensity interval training, Experimental Group II was exposed to low intensity interval training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. Analysis of Covariance and Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses.

RESULTS

Table 1: Computation of Analysis of Covariance of Mean of High Intensity Interval Training, Low Intensity Interval Training and Control Groups on Low Density Lipoprotein

	High intensity interval training	Low intensity interval training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F
Pre-Test Means	107.26	106.73	106.46	Between Groups	4.97	2	2.48	0.97
				Within Groups	107.60	42	2.56	
Post-Test Means	97.86	100.06	106.40	Between Groups	588.84	2	294.42	143.34*
				Within Groups	86.26	42	2.05	
Adjusted Post-Test Means	97.93	100.05	106.34	Between Groups	553.48	2	276.74	135.75*
				Within Groups	83.58	41	2.03	

**Significant at 0.05 level.*

Table-1 shows that the pre-test means of high intensity interval training, low intensity interval training and control groups were 107.26, 106.73 and 106.46 respectively. The obtained F-ratio for the pre-test was 0.97 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post-test means of the high intensity interval training, low intensity interval training and control groups were 97.86, 100.06 and 106.40 respectively. The obtained F-ratio for the post-test was 143.34 and the table F-ratio was 3.22. Hence post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant. The adjusted post-test means of the high intensity interval training, low intensity interval training and control groups were 97.93, 100.05 and 106.34 respectively. The obtained F-ratio for the adjusted post-test means was 135.75 and the table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on low density lipoprotein. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-2.

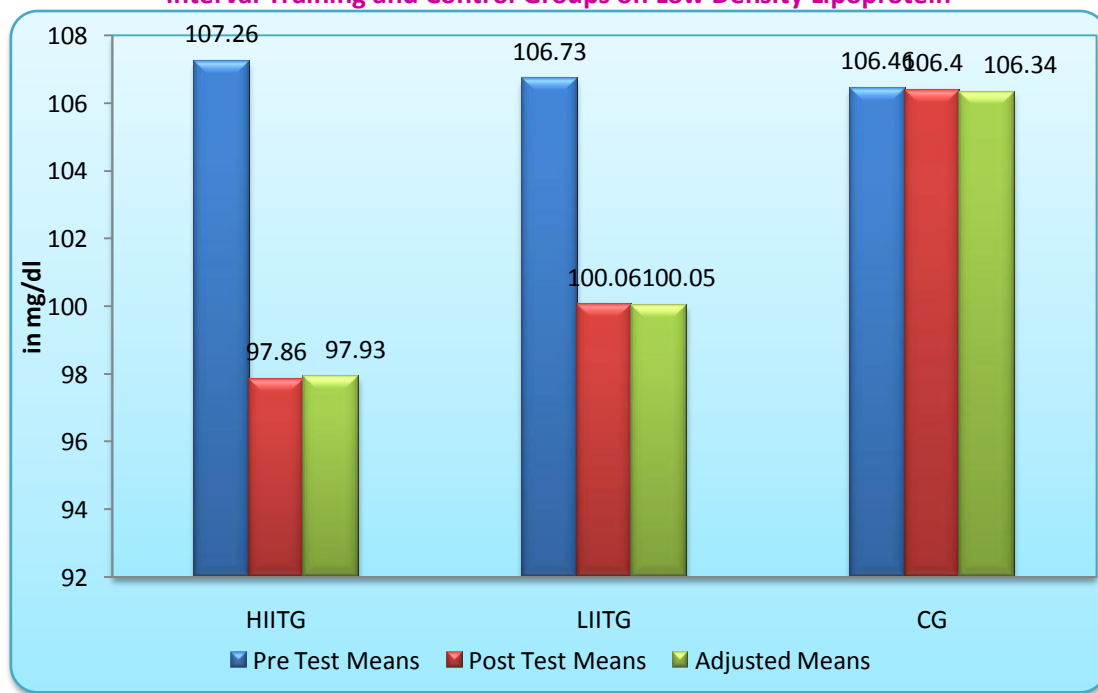
Table 2: Scheffe’s Test for the Differences between the Adjusted Post Test Paired Means on Low Density Lipoprotein

Adjusted Post-test Means			Mean Difference	Required CI
High intensity interval training	Low intensity interval training	Control Group		
97.93	100.05	---	2.12*	1.32
97.93	---	106.34	8.41*	
---	100.05	106.34	6.29*	

*Significant at 0.05 level.

Table-2 shows that there existed significant differences between the adjusted means of high intensity interval training and low intensity interval training (2.12), high intensity interval training with control group (8.41) and low intensity interval training with control group (6.29) at 0.05 level of confidence with the confidence interval value of 1.32. The pre, post and adjusted means on low density lipoprotein were presented through bar diagram for better understanding of the results of this study in Figure-1.

Figure 1: Pre Post and Adjusted Post Test Differences of the High Intensity Interval Training, Low Intensity Interval Training and Control Groups on Low Density Lipoprotein



CONCLUSION

- The high intensity interval training had shown significant reduction in low density lipoprotein among handball players than the low intensity interval training.

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