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EFFECT OF INTENSITIES STEP TRAINING ON RESTING HEARTRATE AND BLOCKING AMONG VOLLEYBALL PLAYERS

ABSTRACT

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Aim of the Study find out the assess Effect of intensities Step Training on Resting Heartrate and Blocking among Volleyball PlayersFor the purpose of the study, random group design was employed. Randomly selected Volleyball Players (N=60) who represented Yogi Vemana University Inter College Volleyball Tournament and their age between 18-23 years. they divided into three groups consisting of 20 in each group. Experimental Group I underwent low intensity steptraining; experimental group II underwent medium intensity step training group three was control group which did not participated in any special training. The control group did not participate in any special exercises except of their routine. Pre test scores were obtained using standard tests on such as, Resting heart rate, and Blocking before the experimental period and the post test scores were obtained immediately after the twelve weeks experimental period. The difference between the pre test and post test means were subjected to statistical treatment using ANCOVA, which was the effect of varied intensities of step training. In all cases 0.05 level was fixed to test the hypothesis of the study.

Key Words: Resting Heart rate and Blocking.

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INTRODUCTION

In the realm of sports science and athletic training, optimizing performance and enhancing physical conditioning are paramount goals for athletes and coaches alike. Volleyball, a Medium -intensity sport characterized by explosive movements and strategic play, demands both peak physical fitness and effective training regimens. Among the various training techniques employed to improve athletic performance, step training has gained prominence due to its ability to enhance cardiovascular fitness and muscular endurance.

Step training, a form of interval training involving alternating periods of medium and low intensity, is increasingly recognized for its potential to impact various physiological parameters. This method not only contributes to improved cardiovascular health but also has been suggested to influence sport-specific skills. One of the crucial aspects of performance in volleyball is the ability to execute powerful spikes, which require a combination of strength, speed, and agility. Additionally, monitoring and improving resting heart rate a key indicator of cardiovascular efficiency can provide valuable insights into an athlete's overall fitness level.

This study aims to explore the effects of intensity step training on two critical aspects of volleyball performance: resting heart rate and Blocking ability. By examining how varying intensities in step training influence these parameters, the research seeks to provide a comprehensive understanding of how such training interventions can enhance both physiological and performance outcomes in volleyball players. This investigation will not only contribute to the existing body of knowledge but also offer practical insights for designing effective training programs tailored to improve athletic performance and cardiovascular health.

EXPERIMENTAL DESIGN

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For the purpose of the study, random group design was employed. Randomly selected Volleyball Players (N=60) who represented Yogi Vemana University Inter College Volleyball Tournament and their age between 18-23 years were divided into three groups consisting of 20 in each group. Experimental Group I underwent low intensity step training; experimental group II underwent medium intensity step training group three was control group which did not participated in any special training. The control group did not participate in any special exercises except of their routine. Pre test scores were obtained using standard tests on such as, Resting heart rate, and Blocking before the experimental period and the post test scores were obtained immediately after the twelve weeks experimental period. The difference between the pre test and post test means were subjected to statistical treatment using ANCOVA, which was the effect of varied intensities of step training. In all cases 0.05 level was fixed to test the hypothesis of the study.

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RESULTS AND DISCUSSIONS

Table I

COMPUTATION OF ANALYSIS OF COVARIANCE DUE TO LOW, MEDIUM INTENSITIES OF STEP TRAINING ON RESTING HEART RATE

	Low intensity step trainings Group	Medium intensity step training Group	Control Group	SOV	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	72.67	72.07	69.80	B	76.60	3	25.53	0.70
Std Dev	4.06	7.21	7.29	W	2034.00	56	36.32	
Post Test Mean	67.60	67.47	70.27	B	142.07	3	47.36	2.09
Std Dev	4.78	5.62	4.79	W	1270.27	56	22.68	
Adjusted Post Test Mean	66.74	66.99	71.21	B	226.06	3	75.35	8.81*
				W	470.62	55	8.56	

SOV: Source of Variance; B: Between W: Within

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Required $F_{(0.05), (df\ 3,75)}$ =2.77
* Significant at 0.05 level of confidence

As shown in Table I, the pre test mean on Resting Heart Rate of low intensity step trainings group was 72.67 with standard deviation ±4.06 pre test mean of medium intensity step training group was 72.07 with standard deviation ±7.21, the pre test mean of control group was 69.80 with standard deviation ±7.29. The obtained F ratio of 0.70 on pre test means of the groups was not significant at 0.05 level as the obtained F value was less than the required table F value of 2.77 to be significant at 0.05 level. This shows that there was no significant difference in means of the groups at initial stage.

The results presented in Table I, the post test mean on Resting Heart Rate of low intensity step trainings group was 67.60 with standard deviation ±4.78 post test mean of medium intensity step training group was 67.47 with standard deviation ±5.62, the post test mean of control group was 70.27 with standard deviation ±4.79. The obtained F ratio of 2.09 on post test means of the groups was significant at 0.05 level as the obtained F value was lesser than the required table F value of 2.77 to be significant at 0.05 level. This shows that there was no significant difference in means of the groups at post experimental stage.

Taking into consideration of the pre test means and post test means, adjusted post test means were determined and analysis of covariance was done. The adjusted mean on Resting Heart Rate on low intensity step trainings group was 66.74, medium intensity step training group was 66.99 and control group was 71.21. The obtained F value on adjusted means was 8.81. The obtained F value was greater than the required value of 2.77 and hence it was accepted that there was significant differences among the adjusted means on the Resting Heart Rate of the subjects.

Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table II

Table II
Multiple Comparisons between Low, Medium intensities step training and Control Groups and Scheffe's Post Hoc Analysis on Resting Heart Rate

Low intensity step trainings Group	Medium intensity step training	Control Group	MEAN DIFF	C.I

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	Group			
66.74	66.99		0.24	3.08
66.74			0.35	3.08
66.74		71.21	4.46*	3.08
	66.99		0.59	3.08
	66.99	71.21	4.22*	3.08
		71.21	4.81*	3.08

***** Significant at 0.05 level.

The post hoc analysis of obtained ordered adjusted means proved that to be significant at 0.05 level confidence the required confidence interval was 3.08. The following paired mean comparisons were greater than the required confidence interval and were significant at 0.05 level.

Low intensity step trainings Group Vs Control Group (MD: 4.46)

Medium intensity step training Group Vs Control Group (MD: 4.22)

The following paired mean comparisons were less than the required confidence interval and were not significant at 0.05 level.

The pre test, post test and ordered adjusted means were presented through line graph for better understanding of the results of this study in Figure I.

Figure I
LINE GRAPH SHOWING PRE, POST AND ADJUSTED MEANS ON RESTING HEART RATE

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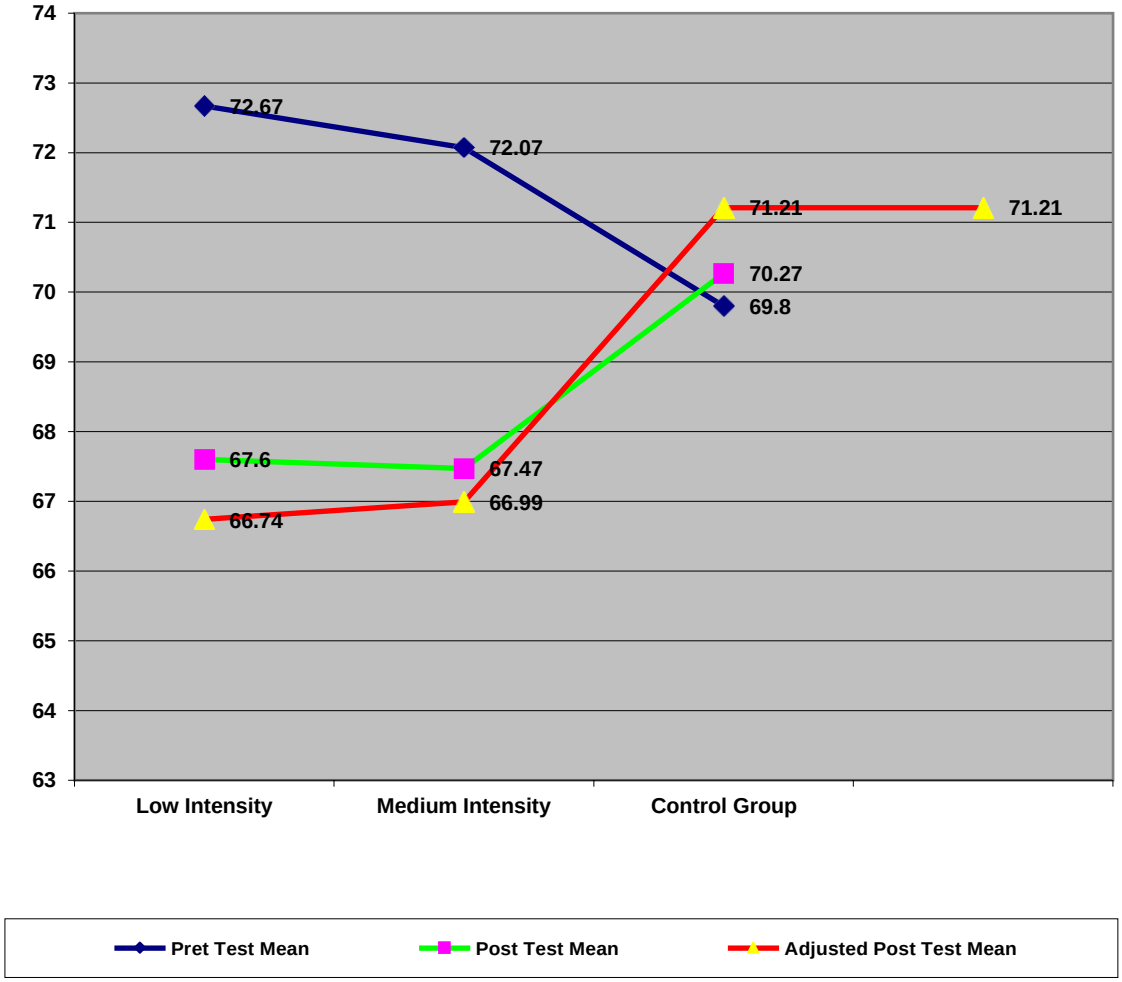

RESULTS ON BLOCKING

The statistical analysis comparing the initial and final means of Blocking due to low intensity, medium intensity of step training and control groups of volleyball players is presented in Table III

Table III

COMPUTATION OF ANALYSIS OF COVARIANCE DUE TO LOW, MEDIUM INTENSITIES OF STEP TRAINING ON BLOCKING

	Low intensity	Medium intensity	Control Group	SOV	Sum of Squares	df	Mean Squares	Obtained F

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	step trainings Group	step training Group						
Pre Test Mean	10.00	10.20	10.33	B	0.85	3	0.28	0.30
Std Dev	1.00	1.01	1.11	W	52.13	56	0.93	
Post Test Mean	10.87	11.13	10.27	B	18.18	3	6.06	5.24*
Std Dev	1.06	1.19	1.03	W	64.80	56	1.16	
Adjusted Post Test Mean	11.01	11.12	10.15	B	20.30	3	6.77	11.36*
				W	32.77	55	0.60	

SOV: Source of Variance; B: Between W: Within
Required $F_{(0.05),\ (df\ 3,75)} = 2.77$
* Significant at 0.05 level of confidence

As shown in Table III the pre test mean on Blocking of low intensity step trainings group was 10.00 with standard deviation ±1.00 pre test mean of medium intensity step training group was 10.20 with standard deviation ±1.01, the pre test mean of control group was 10.33 with standard deviation ±1.11. The obtained F ratio of 0.30 on pre test means of the groups was not significant at 0.05 level as the obtained F value was less than the required table F value of 2.77 to be significant at 0.05 level. This shows that there was no significant difference in means of the groups at initial stage.

The results presented in Table III, the post test mean on Blocking of low intensity step trainings group was 10.87 with standard deviation ±1.06 post test mean of medium intensity step training group was 11.13 with standard deviation ±1.19, the post test mean of control group was 10.27 with standard deviation ±1.03. The obtained F ratio of 5.24 on post test means of the groups was significant at 0.05 level as the obtained F value was greater than the required table F value of 2.77 to be significant at 0.05 level. This shows that there was significant difference in means of the groups at post experimental stage.

Taking into consideration of the pre test means and post test means, adjusted post test means were determined and analysis of covariance was done. The adjusted mean on Blocking on low intensity step trainings group was 11.01, medium intensity step training group was 11.12, and control group was 10.15. The obtained F value on adjusted means was 11.36. The obtained F

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value was greater than the required value of 2.77 and hence it was accepted that there was significant differences among the adjusted means on the Blocking of the subjects.

Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table IV

Table IV

Multiple Comparisons between Low, Medium intensities step training and Control Groups and Scheffe's Post Hoc

Analysis on Blocking

Low intensity step trainings Group	Medium intensity steptraining Group	Control Group	MEAN DIFF	C.I
11.01	11.12		0.11	0.81
11.01			0.78	0.81
11.01		10.15	0.86*	0.81
	11.12		0.67	0.81
	11.12	10.15	0.97*	0.81
		10.15	1.64*	0.81

***** Significant at 0.05 level.

The post hoc analysis of obtained ordered adjusted means proved that to be significant at 0.05 level confidence the required confidence interval was 0.81. The following paired mean comparisons were greater than the required confidence interval and were significant at 0.05 level.

Low intensity step trainings Group Vs Control Group (MD: 0.86)

Medium intensity step training Group Vs Control Group (MD: 0.97)

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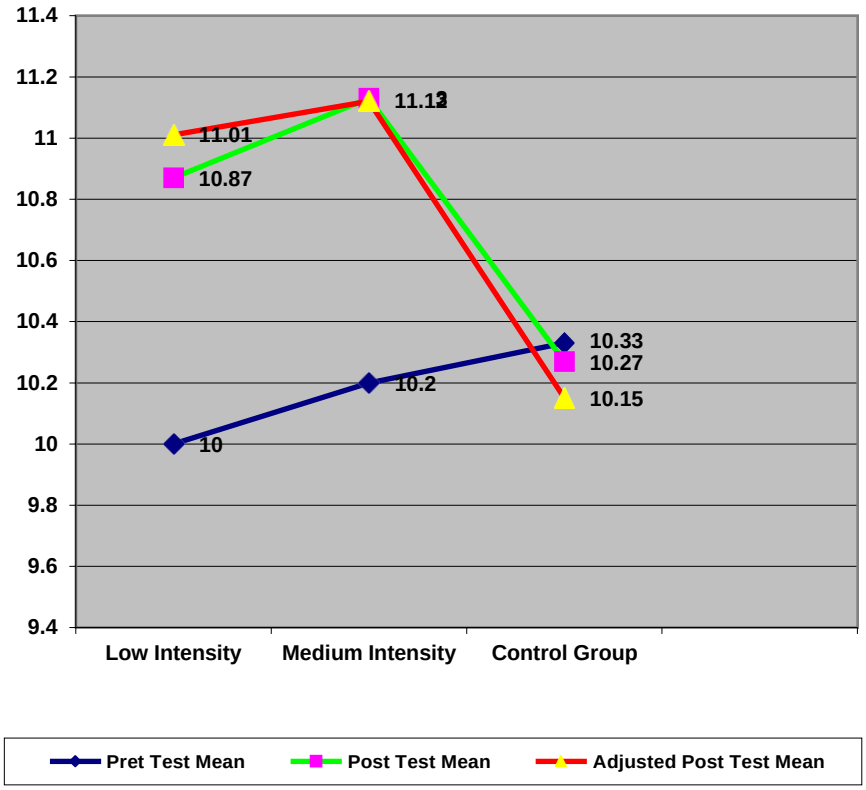
The pre test, post test and ordered adjusted means were presented through line graph for better understanding of the results of this study in Figure II.

Figure II

LINE GRAPH SHOWING PRE, POST AND ADJUSTED MEANS ON BLOCKING



CONCLUSIONS

1. It was concluded that varied intensities of step training, low, medium intensities, significantly contributed on resting pulse rate among volleyball players compared to control group. Comparing among treatment groups there was no significant differences on resting pulse rate.
2. It was concluded that varied intensities of step training, low, medium intensities, significantly contributed for improving Blocking among volleyball players compared to control group. Comparing among treatment groups there was no significant differences on Blocking.

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