



Effect of Eccentric and Interval Training on Selected Components of Physical Fitness Variable Among School Level Handball Players

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ABSTRACT

Eccentric exercises have been shown to add sarcomeres in series and increase muscle strength at longer lengths. Specifically, Eccentric contraction occurs when the muscle lengthens under tension like your biceps muscle during the lowering phase of a biceps curl. The present study is investigated to the effect of eccentric and interval training on selected components of physical fitness variable among school level handball players. The research scholar reviewed the available literature pertaining to the Eccentric hamstring training, from books, journals, periodicals, magazines and research papers. There were studies proved that the Eccentric training had positive effects on certain components of physical fitness variable in speed and agility of school level handball players. The age group 15 – 17 and selected Dindugul region, Tamilnadu, India school level handball players. Statistically significant improvements in standard scores in speed and agility were comparable between the three groups of handball players. speed and agility improved by 9.25 in Eccentric training group, 9.50 in the control group. The research on short - duration intervention in establishment players may help to organize the role of Eccentric hamstring in conventional handball players to maintain proper alignment and posture during movement for training.

KEY WORDS: Physical fitness, speed, agility, eccentric training, interval training

INTRODUCTION

Men's field handball was played at the 1936 Summer Olympics in Berlin. During the next several decades, indoor handball flourished and evolved in the Scandinavian countries. The sport re-emerged onto the world stage as team handball for the 1972 Summer Olympics in Munich. Women's team handball was added at the 1976 Summer Olympics. Due to its popularity in the region, the Eastern European countries that refined the event became the dominant force in the sport when it was reintroduced.

Eccentric exercises have been shown to add sarcomeres in series and increase muscle strength at longer lengths (ie, the descending limb of the length-tension curve). These physiological adaptations act to protect a muscle against injury by reducing the damage caused by repeated eccentric contractions. Studies by (Kilgallon et al and Mjolsnes et al.,) have compared the effects of eccentric versus concentric hamstring strengthening exercises and showed that increases in strength at longer muscle lengths occur only after bouts of eccentric exercises. Therefore, training the hamstrings eccentrically may give them the ability to resist the high forces experienced during high-speed running and to avoid disruption of the muscle fibers.

Overall, HIIT produces many of the same health benefits as other forms of exercise in a shorter amount of time. These benefits include decreases in body fat, heart rate, and blood pressure. HIIT may also help lower blood sugar and improve insulin sensitivity.

METHODOLOGY

The Methodology for the present investigation is on the effect of eccentric and interval training on selected components of physical fitness variable among school level handball players. The purpose of study 45 male handball students selected from various schools in Dindigul district, TamilNadu. Their age ranges between 15 to 17 years .the subjects were randomly assigned into two groups, namely experimental group I (Eccentric training) Experimental group II Interval training and control group. In order to make sure the full cooperation from the subjects, the scholar had a meeting with them and explained the purpose of the research. It was made clear by explanation in order to ascertain that there was no uncertainty among the players regarding the effort, which they had to put in for the successful completion of this study. Experimental group I participated for a period of eight weeks eccentric training experimental group II participated for a period of eight weeks interval training and control group have no any specific training. The subjects were tested on selected criterion variable of muscular strength endurance before the training and after 8 weeks of training.

TRAINING PROCEDURE

Experimental Group-I undertake eccentric training experimental group II undergone interval training and the control group were explored to any specific training programme. The experimental treatments namely Eccentric training and interval training were administered for duration of eight weeks and the number of session per week was confined to three alternative days and each session lasted 60 minutes.

STATISTICAL TECHNIQUE

The collected data from the two groups prior to and after the experimental treatments on selected variables were speed and agility were statistically analyzed by using the statistical technique of analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, scheffe's post hoc test was followed as a post hoc test to determine which of the paired means difference was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

RESULTS AND ANALYSIS

The influence of independent variables on each of the criterion variables is analyzed and presented below.

The training period was limited to eight weeks. The dependent variables selected for this study was health related variable of speed and agility. All the subjects were tested prior to and immediately after the experimental period on the selected dependent variables.

The data obtained from the experimental groups before and after the experimental period were statistically organized with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be outstanding performance study. The Scheffe's Post hoc test was organised to determine the paired mean differences. The level of confidence was fixed at 0.05 level for all the cases.

TABLE - 1

ANALYSIS OF COVARIANCE AMONG ECCENTRIC TRAINING GROUP INTERVAL TRAINING GROUP AND CONTROL GROUP ON SPEED

	Eccentric training Group	Interval Training Group	Control Group	Source of Variance	Sum of square	df	Mean square	F-value
Pre test Mean	7.09	7.11	7.11	Between	0.006	2	0.003	0.52
				Within	0.223	42	0.005	
Post test Mean	6.91	6.98	7.09	Between	0.238	2	0.119	9.87*
				Within	0.507	42	0.012	
Adjusted post mean	6.93	6.98	7.07	Between	0.155	2	0.078	22.96*
				Within	0.139	41	0.003	

FIGURE – 1

THE ADJUSTED POST TEST MEAN VALUES OF ECCENTRIC TRAINING GROUP I INTERVAL TRAINING GROUP II AND CONTROL GROUP ON AGILITY



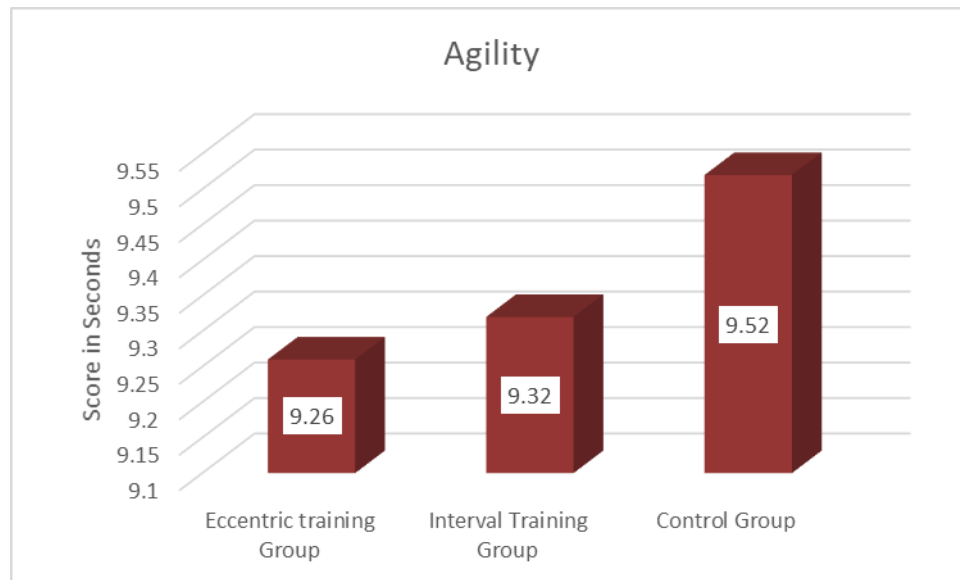
TABLE - 2

ANALYSIS OF COVARIANCE AMONG ECCENTRIC TRAINING GROUP INTERVAL TRAINING GROUP AND CONTROL GROUP ON AGILITY

	Eccentric training Group	Interval Training Group	Control Group	Source of Variance	Sum of square	df	Mean square	F-value
Pre test Mean	9.51	9.57	9.50	Between	0.035	2	0.017	0.49
				Within	1.468	42	0.035	
Post test Mean	9.25	9.35	9.50	Between	0.490	2	0.245	4.83*
				Within	2.126	42	0.051	
Adjusted post mean	9.26	9.32	9.52	Between	0.561	2	0.280	15.05*
				Within	0.764	41	0.019	

FIGURE – 2

THE ADJUSTED POST TEST MEAN VALUES OF ECCENTRIC TRAINING GROUP I INTERVAL TRAINING GROUP II AND CONTROL GROUP ON AGILITY



CONCLUSION

The findings of the study showed that there was a statistically significant improvement in the physical fitness variable of speed and agility as compared to control group.

1. The results of the study shows that the experimental group-I that had undergone Eccentric hamstring training group, improved physical fitness variables in speed and agility of handball players.
2. The results of the study shows that the experimental group-I that had undergone Eccentric hamstring training group better than interval training group improved by physical fitness variables in speed and agility of handball players.

RECOMMENDATIONS

It is recommended that coaches and physical educators in the game of handball should give due to include Eccentric hamstring training in their training schedules.

In the physical exercise, while designing the training programme the effect of varied training modalities is explained on positively on physical fitness variables of handball players, the physical education teachers and coaches can prefer this type of training so as to achieve aim in time.

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