



EFFECTS OF ENDURANCE AFTER WEIGHT TRAINING ON SELECTED ENDURANCE PARAMETERS OF INTERCOLLEGIATE MEN KHO - KHO PLAYERS

C. Guruvupandian¹ and Dr. K. Murugavel²

¹Ph. D, Research Scholar Department of physical education, Bharathiar University, Coimbatore, India.

²Professor and Director, Department of physical education, Bharathiar University, Coimbatore, India.

ABSTRACT :

This study was designed to investigate the effects of endurance after weight training on selected endurance parameters of intercollegiate men kho-kho players. To achieve the purpose of the study (N=30) thirty college level men kho-kho players were randomly selected from Coimbatore District as subjects. Their age ranged between 18 and 25 years. They were divided into two equal groups. The Group- I was considered Experimental group one and group- II was considered control group. The investigator did not make any attempt equal group. The control group was not any training are the experimental group was given endurance after weight training for three days per week for the period of twelve weeks. A pilot study was conducted to assess the initial capacity to the subject in order to fix the load. The following variables were chosen namely strength endurance (Burpee Test) and

cardio respiratory endurance (Cooper 12-minute Run Test). All the dependent variables were assessed before and after the training period of 12 weeks. The collected data on selected endurance parameters due to effect of endurance after weight training. Analyzed by capacity mean and standard deviation. In order to find out the significant improvement if any, 't' test was applied at 0.05 level of confidence was fixed to test the level of significance. The study that the endurance parameters were significantly improved due to effects of endurance after weight training.

KEYWORDS : Endurance after weight training, strength endurance and cardio respiratory endurance,

INTRODUCTION

The Kho-Kho game is an Indian sport game generally played in schools and colleges around the state. When it comes to Kho-Kho history, every Indian knows that the game was known to be played since the earliest of times. It is played on a rectangular court, between two teams of twelve players each, of which 9 take the field and 3 are reserves. The game is a great test of the participants' in physical fitness, speed, strength and stamina and dodging ability. No one has exact knowledge of the game on Kho-Kho history or when the first game was played, though many historians say that it is actually a modified form of 'Run Chase'. In the ancient era, a version of the Kho-Kho game was played on 'raths' or chariots in Maharashtra. Endurance training

Endurance and speed plays a major role in the game kho-kho. Endurance, like strength, is a conditional ability. It is primarily determined by energy liberation processes. The ability of the human body to maintain a certain level of energy production forms and the psychological basis of endurance. Due to the high importance for health and training and competition and it also due to its physiological determinants, which can be relatively easily studied, it is an ability which has been studied in briefly and depth by the physiologists. Endurance is directly or indirectly has the of high importance in all sports. It is however not easy to define endurance. Nabatnikowa (1976) brings this into focus by presenting definitions

given by several experts. Disagreement among experts is much more regarding the definition of different types of endurance e.g., special endurance, speed endurance, strength endurance etc. but there is agreement regarding following aspects of endurance.

Endurance training is the act of exercising to increase the endurance. The term endurance training generally refers to training by aerobic system as opposed to anaerobic. The need for endurance in sports is often predicated as the need of cardio respiratory and simple strength endurance, but the issue of endurance is far more difficult. Endurance can be divided into two categories including: general endurance and specific endurance. It can be shown that endurance in sport is closely tied to the finishing of skill and technique. A well conditioned athlete can be defined as, the athlete who executes his or her technique consistently and effectively with the least effort. Michael Yessis (2008).

WEIGHT TRAINING

Weight training is a common type of strength training to develop the strength and size of the skeletal muscles. It also useful for the uses the force of gravity (in the form of weighted bars, dumbbells or weight stacks) to oppose the force generated by muscle through concentric or eccentric contraction. The fundamental principles of strength training involve a treatment of the number of repetitions (reps), sets, tempo, exercises and force to cause the desired changes in strength, endurance, size or shape by overloading a group of muscles. (Jason Menoutis 2014)

The hypothesis argued in this study is that intercollegiate men kho - kho players can significantly improve the parameters of strength endurance and cardio respiratory endurance by combining technical and tactical sessions with endurance after weight training program over a consecutive 12 weeks period. Therefore, the object of this study was to investigate the changes in the parameters produced during 12 weeks of endurance after weight training in thirty intercollegiate kho - kho players.

METHODS

Experimental approach to the problem

In order to address the hypothesis presented here in, we selected (N=30) intercollegiate men kho kho players from Coimbatore District. The subjects were randomly assigned into two equal groups namely endurance after weight training (experimental group) (N=15) and control group (N=15). A pilot study was conducted to assess the initial capacity to the subject in order to fix the load. Endurance after weight training was given to the experimental group for 3 days per week (alternate days) for a period of twelve weeks. The control group was not given any sort training except their routine.

STATISTICAL ANALYSIS

The collected data before and after training period of 12 weeks on the above said variables due to the effects of endurance after weight training was statistically analyzed with 't' test to find out the significant improvement between pre and post test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P < 0.05$)

TRAINING PROGRAMME

The training programme was lasted for 45 minutes for session in a day, 3 days, in a week for a period of 8 weeks duration. These 45 minutes included 5 minutes warm up, 15 minutes regular physical exercises, endurance after weight training for 20 minutes and 5 minutes warm down. Every two weeks of training 5% of intensity of load was increased from 65% to 80% of work load. The volume of endurance after weight training is prescribed based on the number of sets and repetitions. The endurance after weight training exercises are Burpee, bench press, biceps curl, shoulder press, leg press, squat, sit ups, hamstring curl.

TABLE - I
COMPUTATION OF 't'-RATIO BETWEEN PRE AND POST TEST MEANS
OF EXPERIMENTAL GROUP AND CONTROL GROUP
ON STRENGTH ENDURANCE

Group		Mean	Standard deviation	Mean Difference	Standard error mean	t-ratio
Experimental Group	Pre test	8.46	0.51	2.00	0.27	7.24*
	Post test	10.46	0.99			
Control Group	Pre test	8.20	0.41	0.46	0.30	1.52
	Post test	7.73	0.79			

*Significant at 0.05 level of confidence 1 and 14(2.14)

Table I reveals that the computation of 't' ratio between mean of pre and posttest on strength endurance of intercollegiate kho-kho players of experimental .The mean values of pre and post test of experimental group were 8.46 and 10.46 respectively. Since, the obtained 't' ratio 7.24 was higher than the required table value 2.145, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the strength endurance of the experimental group improved due to the influence endurance after weight training.

Further the table reveals that the computation of 't' ratio between mean of pre and post test on strength endurance of intercollegiate kho-kho players. The mean values of pre and post test of control group were 8.20 and 7.73 respectively. Since, the obtained 't' ratio 1.52 was less than the required table value 2.145, it was found to be statistically not significant for the degree of freedom 1 and 14 at 0.05 level of significance. The results clearly indicated that the strength endurance of the control group had not been improved.

TABLE -II
COMPUTATION OF 't'-RATIO BETWEEN PRE AND POST TEST MEANS OF EXPERIMENTAL GROUP AND
CONTROL GROUP ON CARDIO RESPIRATORY ENDURANCE

Group		Mean	Standard deviation	Mean Difference	Standard error mean	t-ratio
Experimental Group	Pre test	2325.06	286.66	101.20	2.66	37.93*
	Post test	2426.26	288.18			
Control Group	Pre test	2240.46	172.42	48.66	72.77	1.54
	Post test	2289.13	188.88			

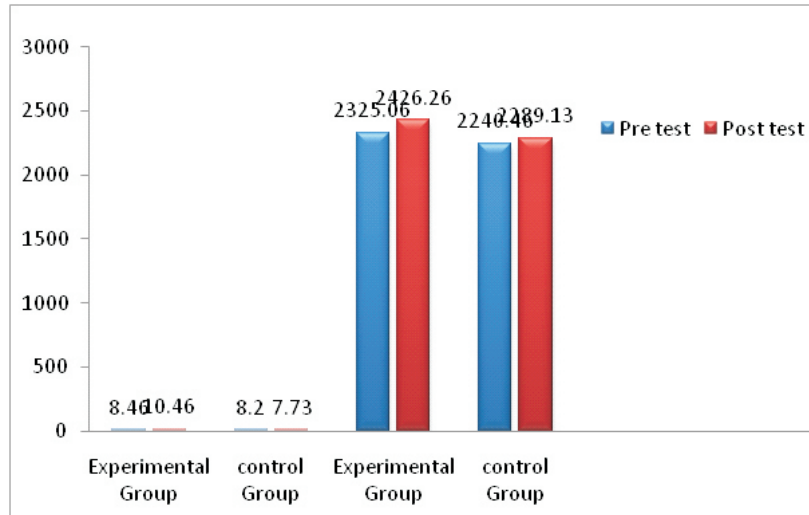
*Significant at 0.05 level of confidence 1 and 14(2.14)

Table II reveals that the computation of 't' ratio between mean of pre and post test on cardio respiratory endurance of intercollegiate kho-kho players of experimental group. The mean values of pre and post test of experimental group were 2325.06 and 2426.26 respectively. Since, the obtained 't' ratio 37.93 was higher than the required table value 2.145, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the cardio respiratory endurance of the experimental group improved due to the endurance after weight training.

Further the table reveals that the computation of 't' ratio between mean of pre and post test on cardio respiratory endurance of intercollegiate kho-kho players. The mean values of pre and post test of control group were 2240.46 and 2289.13 respectively. Since, the obtained 't' ratio 1.54 was less than the required table value 2.145, it was found to be statistically not significant for the degree of freedom 1 and 14 at 0.05 level of

confidence. The results clearly indicated that the cardio respiratory endurance of the control group had not been improved.

**Figure shows the pre and post test means of experimental group and control group
On strength endurance and cardio respiratory endurance**



DISCUSSION ON FINDINGS

The present study experimented the investigated effects of endurance after weight training on selected endurance parameters of intercollegiate men kho - kho players. The results of this study indicated that endurance after weight training improved strength endurance and cardio respiratory endurance. The findings of the present study had similarity with the findings of the investigators referred in this study. Seenimurugan et al., (2011) effect of resistance training, endurance training and Combined training on improved significantly for combined training group and resistance training group, and in cardio respiratory endurance. Divakar Vishwanath Ruikar (2016) Cardio respiratory fitness between Kho-Kho and Kabaddi players on improved Cardio respiratory fitness performance was better in kho-kho players. TungalaVenkataNagaraju et al., (2015) effect of isolated endurance training and combined strength and endurance training the cardio respiratory endurance of the subjects is significantly improved. Jayabal et al., (2013) Effect of Own Body Resistance Training with Yogic Practices improved on cardio respiratory endurance. Senthil et al., (2012) Effect of Concurrent Strength and Endurance Training on Selected Endurance Parameters improved on cardio respiratory endurance.

From of result of the present study, it is speculated that the observed changes on strength endurance and cardio respiratory endurance may be due properly designed endurance after weight training which are suitable to intercollegiate men kho-kho players.

CONCLUSIONS

Twelve weeks of endurance after weight training significantly improved the strength endurance and cardio respiratory endurance of intercollegiate men kho-kho players.

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C. Guruvupandian

Ph. D, Research Scholar Department of physical Education, Bharathiar University, Coimbatore, India.