



EFFECT OF INTERMITTENT TRAINING WITH AND WITHOUT MESSAGE MANIPULATION ON CARDIO RESPIRATORY ENDURANCE AMONG COLLEGE MEN PLAYERS

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ABSTRACT The purpose of the study was designed to find out the effect of intermittent training with and without message manipulation on cardio respiratory endurance among college men players. For the purpose of the study, forty five (N=45) men players who participated in intercollegiate tournaments during the year 2016-2017 were selected as subjects. The age of the subjects ranged between 18 to 21 years. The subjects were divided at random into three groups of fifteen each (n=15). Group-I underwent Intermittent Training with Massage Manipulation, Group II underwent Intermittent Training without Massage Manipulation, and Group III acted as Control. The duration of the training period was restricted to twelve weeks and the number of sessions per week was confined to three. Cardio Respiratory Endurance only selected as the dependent variable for this study and it was assessed by Cooper's 12 Minutes Run/walk Test. The data were collected prior to and immediately after the training period of twelve weeks. The data obtained from the experimental groups before and after the experimental period were statistically analyzed with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, the Scheffe's Post hoc test was applied to determine the paired mean differences. The level of confidence was fixed at 0.05 level for all the cases. The Experimental groups namely, Intermittent training with massage group and Intermittent training without massage group had significantly improved in Cardio Respiratory Endurance. Further the results of the study were favour to the Intermittent training with massage manipulation group.

KEYWORDS : Massage Manipulation, Cardio Respiratory Endurance

INTRODUCTION

Intermittent exercise is a term used to describe a variety of different physical training types. The term "intermittent," which means to stop and start at intervals, and the term "interval," as in interval training, is used somewhat interchangeably. In most circumstances, interval training will be conducted as a high intensity exercise activity.

By its nature, exercise is not aimless; it involves physical exertion that is directed towards the development, increase, or maintenance of physical fitness. Intermittent exercise is a description of the intensity of the activity as well as its nature.

Intermittent exercises of various types are best known where they have been employed as components to endurance sports. Disciplines such as distance running, road cycling racing, and mountain biking require the body to produce the energy necessary for physical performance through the aerobic energy system, which primarily utilizes stores of carbohydrate products, in the form of glycogen reduced, as energy is required, to the sugar glucose. To generate energy, the body through the cardiovascular system transports oxygen and other nutrients essential for muscle function. The greater the ability of the heart to pump blood volume to the muscles, the more efficient the production of energy and the removal of wastes such as carbon dioxide will be (Aguar et al., 2008).

Intermittent training consists of repetition runs over a specific distance, done in a set time, separated by recovery periods that are specified in terms of duration, distance, or both (i.e. it consists of alternating intervals of fast running and recovery). Training sessions will focus on specific race demands. It is a component of a balanced training program that will include recovery days and a range of other running activities, depending on the goals of the individual. A mix of interval training, a range of distances and types of runs (for example, hills, cross country) contribute to overall fitness and the capacity to engage in successful competitive running.

Massage is the systematic manipulation of the body's tissue. It is one of the oldest healing techniques still used in modern medicine. Massage is a very effective treatment method for promoting local and systematic relaxation, increasing local blood flow and encouraging venous return.

"The practice of massage therapy is the assessment of the soft tissue and joints of the body and the treatment and prevention of physical dysfunction and pain of the soft tissues and joints by manipulation to develop, maintain, rehabilitate or augment physical function, or

relieve pain." Massage manipulates the soft tissues of the body including muscles, connective tissue, tendons, ligaments and joints to have a therapeutic effect and improve health by acting directly on the muscular, nervous and circulatory systems.

Modern massage techniques can be traced back to the 1700's when Per Henrik Ling developed Swedish massage, the first systematic method of therapeutic massage based on physiology. Today's massage therapists use their knowledge of the body's muscular-skeletal system to combine traditional Swedish techniques and modern massage therapy techniques with remedial exercises and hydrotherapy to build a therapeutic, integral healing relationship with their clients to assist them in restoring, maintaining and enhancing their well-being.

METHODOLOGY

The study was conducted on forty five (N=45) men players who participated in Madras University intercollegiate tournaments during the year 2016-2017 were selected as subjects. The age of the subjects ranged between 18 to 21 years. The subjects were divided at random into three groups of fifteen each (n=15). Group-I underwent Intermittent Training with Massage Manipulation, Group-II underwent Intermittent Training without Massage Manipulation, and Group-III acted as Control. The duration of the training period was restricted to twelve weeks and the number of sessions per week was confined to three. Cardio Respiratory Endurance only selected as the dependent variable for this study and it was assessed by Cooper's 12 Minutes Run/walk Test. All the subjects were tested prior to and immediately after the training period of twelve weeks for all the selected variables. The data collected data from the three groups prior to and immediately after the training programme on the selected criterion variables were statistically analyzed with 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 to determine which of the paired mean differences was significant. In all the cases .05 level of confidence was fixed to test.

RESULTS AND DISCUSSION

The results of the dependent 't'-test on the data obtained for Cardio Respiratory Endurance of the subjects in the pre-test and post-test of the experimental groups and control group have been analyzed and presented in Table-I.

Table-I
Summary of Mean Standard Deviation and dependent 't' test for the pre and post tests on Cardio Respiratory Endurance of Experimental groups and Control group (Cardio Respiratory

Endurance is expressed in Meters)

Test	Descriptive Statistics	Intermittent Training with Massage Manipulation Group	Intermittent Training without Massage Manipulation Group	Control Group
Pre Test	Mean	2105.33	2164.00	2160.00
	SD (±)	80.79	62.88	80.49
Post Test	Mean	2486.00	2374.67	2161.33
	SD (±)	105.82	100.56	81.32
Adjusted Post Test	Mean	2511.90	2360.60	2149.50
	"t" Test	11.07*	6.88*	0.02

*Significant at 0.05 level.

The table value required for 0.05 level of significance with df 14 is 2.15.

Table-I shows that the pre-test mean and standard deviation of Cardio Respiratory Endurance on Intermittent Training with Massage Manipulation group, Intermittent Training without Massage Manipulation and Intermittent training group and Control group are 2105.33 ± 80.79, 2164.00 ± 62.88, and 2160.00 ± 80.49 respectively. The post-test mean and standard deviation are 2486.00 ± 105.82, 2374.67 ± 100.56, and 2161.33 ± 81.32 adjusted post-test means are 2511.90, 2360.60, and 2149.50 respectively.

The obtained dependent t-ratio values between the pre and post test means on Cardio Respiratory Endurance of Intermittent Training with Massage Manipulation group, Intermittent Training without Massage Manipulation Intermittent training group and Control group are 11.07, 6.88, and 0.02 respectively. The table value required for significant difference with df 14 at 0.05 level is 2.15. It was concluded that Intermittent Training with Massage Manipulation group and Intermittent Training without Massage Manipulation had registered significant improvement in Cardio Respiratory Endurance.

The results of the Analysis of Covariance on Cardio Respiratory Endurance of the pre, post, and adjusted test scores of Intermittent Training with Massage Manipulation group, Intermittent Training without Massage Manipulation group and Control group are presented in Table - II.

Table-II
Analysis of Covariance of the Data on Cardio Respiratory Endurance of Pre, Post and Adjusted scores of Experimental Groups and Control Group

Test	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Mean	Between groups	32573.33	2	16287.00	2.88
	Within groups	237426.67	42	5653.00	
Post-Test Mean	Between groups	816573.33	2	408287.00	43.87*
	Within groups	390906.67	42	9307.30	
Adjusted Post-Test Mean	Between sets	920055.77	2	460028.00	67.22*
	Within Sets	280607.89	41	6844.10	

* Significant at 0.05 level of confidence

Table value for df (2, 42) at 0.05 level = 3.22 Table value for df (2, 41) at 0.05 level = 3.23

Table-II shows that the obtained F-ratio value of 2.88 for pre test mean of Intermittent training with Massage Manipulation group, Intermittent training without Massage Manipulation group and Control group on Cardio Respiratory Endurance is less than the required table value of 3.22 for significance with df 2 and 42 at 0.05 level of confidence.

The obtained F-ratio value of 43.87 for post test mean of Intermittent training with Massage Manipulation group, Intermittent training without Massage Manipulation group and Control group on Cardio Respiratory Endurance is more than the required table value of 3.22 for significance with df 2 and 42 at 0.05 level of confidence.

The obtained F-ratio value of 67.22 for adjusted post test mean of Intermittent training with Massage Manipulation group, Intermittent training without Massage Manipulation group and Control group on

Cardio Respiratory Endurance is higher than the required table value of 3.23 for significance with df 2 and 41 at 0.05 level of confidence.

The results of the study indicate that there is a significant difference between the adjusted post-test means of Intermittent training with Massage Manipulation group, Intermittent training without Massage Manipulation group and Control group on Cardio Respiratory Endurance.

Since three groups are compared and whenever the obtained 'F' ratio for adjusted post test is found to be significant, Scheffe's test is used to find out the paired mean difference and it is presented in Table-III.

Table-III
Scheffe's Test for the Difference between Paired Means on Cardio Respiratory Endurance

Intermittent Training with Massage Manipulation Group	Intermittent Training without Massage Manipulation Group	Control Group	Mean Difference	Confidence Interval Value
2511.90	2360.60	---	151.30*	76.78
2511.90	---	2149.50	362.40*	
---	2360.60	2149.50	211.10*	

*Significant at 0.05 level of confidence.

Table-III shows that the mean difference values of Intermittent training with Massage Manipulation group and Intermittent training without Massage Manipulation group, Intermittent training with Massage Manipulation group and Control group and Intermittent training without Massage Manipulation group and Control group are 151.30, 362.40, and 211.10 respectively, which are greater than the confidence interval value of 76.78 on Cardio Respiratory Endurance at 0.05 level of confidence. The results of the study showed that there was a significant difference between Intermittent training with Massage Manipulation group and Intermittent training without Massage Manipulation group, Intermittent training with Massage Manipulation group and Control group and Intermittent training without Massage Manipulation group and Control group.

The above data also reveal that Intermittent training with Massage Manipulation group had shown better performance in Cardio Respiratory Endurance.

The pre and post mean values of Intermittent training with Massage Manipulation group, Intermittent training without Massage Manipulation group and Control group on Cardio Respiratory Endurance are graphically represented in the Figure -I.

The adjusted post mean values of Intermittent training with Massage Manipulation group, Intermittent training without Massage Manipulation group and Control group on Cardio Respiratory Endurance are graphically represented in the Figure -II.

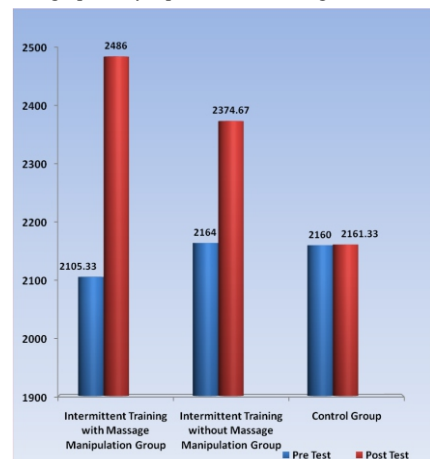


Figure: I The Pre and Post test Mean Values of Intermittent Training with Massage Manipulation group, Intermittent Training without Massage Manipulation group and Control group on Cardio Respiratory Endurance (In Seconds)

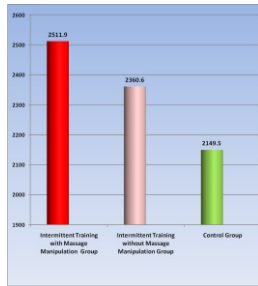


Figure: II
The Adjusted Post Mean Values of Intermittent Training with Massage Manipulation group, Intermittent Training without Massage Manipulation group and Control group on Cardio Respiratory Endurance (In Seconds)

CONCLUSION

From the analysis of the data, the following conclusions were drawn.

1. The Experimental groups namely, Intermittent training with message group and Intermittent training without message group had significantly improved in Cardio Respiratory Endurance.
2. Significant differences in achievement were found among Intermittent training with message group and Intermittent training without message group in Cardio Respiratory Endurance.
3. The Intermittent training with message group was found to be better than the Intermittent training without message group and Control Group in developing Cardio Respiratory Endurance.

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