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EFFECT OF INTERMITTENT TRAINING WITH AND WITHOUT MASSAGE MANIPULATION ON RESPIRATORY RATE AMONG COLLEGE MEN PLAYERS

Physical Education

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ABSTRACT

The purpose of the study was designed to find out the effect of intermittent training with and without massage manipulation on Respiratory Rate 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. Respiratory Rate only selected as the dependent variable for this study and it was assessed by Manual method. 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 Respiratory Rate. Further the results of the study were favour to the Intermittent training with massage manipulation group.

KEYWORDS:

Massage Manipulation, Respiratory Rate

INTRODUCTION

Sport and games involve competition. Without competition, there is no game. Competition provides a forum within which people strive to become competent, to become excellent. The opportunities for rivalry within sport are many and varied: team against team, individual against individual, individual against a record, individual now against a previous best performance, individual against a physical barrier. Competition involves individuals and groups striving for excellence within the rules and traditions that make up a sport, including all the festival characteristics that give the sport additional flavor and meaning ***(George, 2006).***

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.

Intermittent exercise programmes will tend to increase the oxygen transporting capacity of the body, often referred to as by the shorthand VO_2max. As a further general rule, the greater the intensity of the intermittent period of training, the greater the VO_2max will be. By illustration, suppose two equally athletically talented and physically fit cyclists are monitored over a training period of six months. One cyclist maintains a set exercise programme of 60 minutes per day. The other cyclist rides the same distances at the same speed as the first for four days per week; his or her remaining three workouts are of higher intensity, intermittent workouts of four 15-minute segments—each separated by rest intervals of five minutes from the intermittent training, the cyclist would expect to obtain an increase in measured VO_2max levels in the range of 5-15%.

Massage, or sometimes called soft tissue mobilization, is a hands-on therapy that physiotherapist may use. Massage may be employed to relax tight muscles, decrease swelling, reduce tissue adhesions, or pain relief.

Massage therapy has a long history in cultures around the world. Today, people use many different types of massage therapy for a variety of health-related purposes. In the United States, massage therapy is often considered part of complementary and alternative medicine (CAM), although it does have some conventional uses. This fact sheet provides a general overview of massage therapy and suggests sources for additional information ***(Arabaci 2008).***

The term “massage therapy” encompasses many different techniques (see box for examples). In general, therapists press, rub, and otherwise manipulate the muscles and other soft tissues of the body. They most often use their hands and fingers, but may use their forearms, elbows, or feet.

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. Respiratory Rate only selected as the dependent variable for this study and it was assessed by Manual method. 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 Respiratory Rate 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 Respiratory Rate of Experimental groups and Control group

(Respiratory Rate is expressed in Numbers)

Test	Descriptive Statistics	Intermittent Training with Massage Manipulation Group	Intermittent Training without Massage Manipulation Group	Control Group
Pre Test	Mean	19.20	18.67	18.80
	SD (±)	0.98	1.45	1.76
Post Test	Mean	16.40	17.20	18.67
	SD (±)	0.88	1.61	1.53
Adjusted Post Test	Mean	16.15	17.38	18.74
"t" Test		8.24*	2.71*	0.22

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 Respiratory Rate on Intermittent Training with Massage Manipulation group, Intermittent Training without Massage Manipulation and Intermittent training group and Control group are 19.20±0.98, 18.67±1.45, and 18.80±1.76 respectively. The post-test mean and standard deviation are 16.40±0.88, 17.20±1.61 and 18.67±1.53 adjusted post-test means are 16.15, 17.38 and 18.74 respectively.

The obtained dependent t-ratio values between the pre and post test means on Respiratory Rate of Intermittent Training with Massage Manipulation group, Intermittent Training without Massage Manipulation Intermittent training group and Control group are 8.24, 2.71 and 0.22 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 Respiratory Rate 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 Respiratory Rate of Pre, Post and Adjusted scores of Experimental Groups and Control Group

Test	Descriptive Statistics	Intermittent Training with Massage Manipulation Group	Intermittent Training without Massage Manipulation Group	Control Group
Pre Test	Mean	19.20	18.67	18.80
	SD (±)	0.98	1.45	1.76
Post Test	Mean	16.40	17.20	18.67
	SD (±)	0.88	1.61	1.53
Adjusted Post Test	Mean	16.15	17.38	18.74
"t" Test		8.24*	2.71*	0.22

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The obtained dependent t-ratio values between the pre and post test means on Respiratory Rate of Intermittent Training with Massage Manipulation group, Intermittent Training without Massage Manipulation Intermittent training group and Control group are 8.24, 2.71 and 0.22 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 Respiratory Rate 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 Respiratory Rate 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	2.31	2	1.16	**0.53**
	Within groups	92.13	42	2.19	
Post-Test Mean	Between groups	39.64	2	19.82	**10.24***
	Within groups	81.33	42	1.94	
Adjusted Post-Test Mean	Between sets	49.80	2	24.90	**49.54***
	Within Sets	20.61	41	0.50	

**** 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 0.53 for pre test mean of Intermittent training with Massage Manipulation group, Intermittent training without Massage Manipulation group and Control group on Respiratory Rate 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 10.24 for post test mean of Intermittent training with Massage Manipulation group, Intermittent training without Massage Manipulation group and Control group on Respiratory Rate 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 49.54 for adjusted post test mean of Intermittent training with Massage Manipulation group, Intermittent training without Massage Manipulation group and Control group on Respiratory Rate 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	Confident Interval Value
16.15	17.38	---	1.23*	0.66
16.15	---	18.74	2.59*	
---	17.38	18.74	1.36*	

****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 1.23, 2.59 and 1.36 respectively, which are greater than the confidence interval value of 0.66 on Respiratory Rate 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 Respiratory Rate.

The pre and post mean values of Intermittent training with Massage Manipulation group, Intermittent training without Massage Manipulation group and Control group on Respiratory Rate 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 Respiratory Rate are graphically represented in the Figure –II.

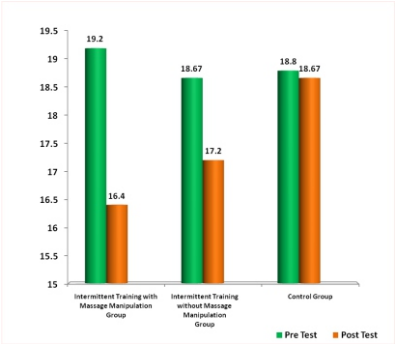

Figure: I The Pre and Post test Mean Values of Intermittent Training with Massage Manipulation group, Intermittent Training without Massage Manipulation group and Control group on Respiratory Rate(In Seconds)

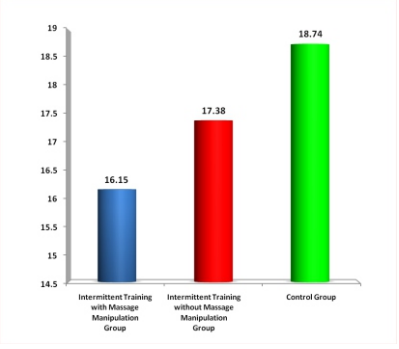

Figure: II The Adjusted Post Mean Values of Intermittent Training with Massage Manipulation group, Intermittent Training without Massage Manipulation group and Control group on Respiratory Rate(In Seconds)

CONCLUSION

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

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

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