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Effectiveness of Different Strength Training on Resting Heart Rate of Novice Weight Trainers

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ABSTRACT

The purpose of the study is to determine whether different strength training exercises will have an effect on the Resting Heart Rate among novice weight trainers. 90 (ninety) male from Summer Camp which was conducted at Lakshmibai National Institute of Physical Education, Gwalior were randomly selected as the subjects for the study. The age of the subjects was ranging from 16 to 45 years. The subjects were randomly assign to an experimental groups (Basic &Pyramid strength training) and control group in equal numbers i.e., (n=30). To see the effect the analysis of covariance "F-ratio" was applied at 0.05 level of significance. For further analysis pair wise comparison of adjusted means was applied. After comparing the pair wise difference of adjusted means with critical difference, the Basic strength training program had the most significant effect on reducing the resting heart rate of novice weight trainers as the adjusted mean of Basic strength training (74.524) is smaller than the adjusted mean of Pyramid strength training (75.387).

Keywords – Basic strength training, Pyramid strength training and resting heart rate.

INTRODUCTION

A few hours of training a week will give you a fit, healthier-looking body as well as increased strength, which will carry over into other activities. After only a few months of weight training, one will begin to feel stronger and more confident participating in other physical activities and sports. Now is the time to get started and begin reaping all the benefits that weight training can provide.

The main attributes developed by strength training are muscular strength and endurance, power, flexibility, and body composition. Certain weight training programs can also lead to development in cardio respiratory endurance. There are numerous reasons for incorporating strength training into a general workout programmes. Strength training increases the body's metabolic rate, causing the body to burn more calories throughout the day.

Little doubt remains today as to the importance of muscular strength and endurance in competitive sports and in the demands of everyday physical activities. Whether an athlete looking for increased performance, a sedentary individual dissatisfied with the present lifestyle, or just someone in search of a healthful and satisfying exercise experience, strength training can play a major part in meeting the needs. The main attributes developed by strength training are muscular strength and endurance, power, flexibility, and body composition. Certain weight training programs can also lead to development in cardio respiratory endurance.

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The physical education professional must be aware of the latest and highly sophisticated tool that can facilitate the measurements of various physiological and morphological characteristics and for different sports events should be given proper extensive training by experienced over a period long period of time. Physiological/ Hematological variables such as cardiovascular efficiency, percentage of body fat, reaction time, vital capacity, resting heart rate, hemoglobin, blood glucose, cholesterol and other should be taken into consideration while selecting weight trainers. Cardio respiratory endurance denotes capacity of individual to work effectively with the help of oxygen which is collected, transported and utilized by lungs, blood and muscles respectively. Any work as daily task or form of physical activity is directly related to energy supplying system which in turn is the cardio respiratory endurance.

Cardiovascular endurance varies from individual to individual and one of the important variables for establishing top class performance in aerobic activities and sometimes it is needed for anaerobic activities also like weight training as no activity is purely aerobic or anaerobic. Resting heart rate is on an average have 60 to 80 beats/minute. In middle aged, unconditioned, sedentary individual, the resting heart rate can exceed 100 beats/minute. In highly conditioned, endurance trained athlete resting rates in the range of 28 to 40 beats/minute have been reported. (Jack .h. Wilmore and David .l. constill,2004) Physiological system is highly adopted to exercise. Each task has major physiological component and fitness for the task require effective functioning of appropriate system. Involvements in systematic training bring about desirable changes in physiological ability which enhance the athlete's performance in game like Weightlifting. (Plowman. A. Sharon and Smith. L. denise, 1997).

Hence, the investigator could realize that there is a need of the hour to explore the physiological outcomes specifically Resting Heart Rate concerned with weight trainers. So, the investigator has undertaken this study.

METHODOLOGY

90 (ninety) male members from Summer Camp which was conducted at Lakshmibai National Institute of Physical Education, Gwalior were randomly selected as the subjects for the study. Those individuals who had any sort of extra training programs were not included in the study. The health examination of the subjects was carried out to ensure that the subjects were medically fit to undergo different types of training programmers. The age of the subjects was ranged from 16 to 45 years.

Experimental Design

Pre-test Post-test randomized group design was used in this study. The subjects were divided into two experimental and a control group of 30 male subjects each. The subjects were randomly assigned to the training programs in each three of the groups.' The subjects were selected at random by drawing lots and assignment of treatment was also at random.

Collection of Data

The data for resting heart rate of novice weight trainers were obtained through palpation method at the radial artery with the help of sophisticated stop watch. All the data were taken with appropriate rest before and between the administrations of the tests. The experimental programmes were planned for five days in a week and only one hour in a day for each group.

Pre-test and Post- test of all the variables were conducted for each of the three groups prior and after completion of the experimental program.

Administration of strength training

Basic strength training is commonly referred to as 3 sets of 12 reps. It is the most basic and easy method to understand. It works the muscles just like any other strength training program. The strength training pyramid means starting with a lighter weight and higher repetitions, then as weight increases decrease the repetitions and vice versa

FINDINGS

The mean and standard deviation of novice weight trainers pertaining to resting heart rate in basic strength training group for different experimental conditions are as follows:

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Table- 1

DESCRIPTIVE ANALYSIS OF RESTING HEART RATE OF NOVICE WEIGHT

Variables	Experimental Conditions	Mean	S.D	Minimum	Maximum	Range
Resting Heart rate	Pre test	82	5.0034	72	90	18
	Posttest Experimental	76.97	6.8555	62	88	26

TRAINERS AFTER BASIC STRENGTH TRAINING

The mean and standard deviation of novice weight trainers pertaining to resting heart rate in pyramid strength training group for different experimental conditions are as follows:

Table- 2

DESCRIPTIVE ANALYSIS OF RESTING HEART RATE OF NOVICE WEIGHT TRAINERS AFTER PYRAMID STRENGTH TRAINING

Variables	Experimental Conditions	Mean	S.D	Minimum	Maximum	Range
Resting Heart rate	Pre test	79.7	6.3850	68	92	24
	Posttest Experimental	75.6	5.6177	66	88	22

The mean and standard deviation of novice weight trainers pertaining to resting heart rate in control group for different experimental conditions are as follows:

Table- 3

DESCRIPTIVE ANALYSIS OF RESTING HEART RATE OF NOVICE WEIGHT TRAINERS OF CONTROL GROUP

Variables	Experimental Conditions	Mean	S.D	Minimum	Maximum	Range
Resting Heart rate	Pre test	76.73	8.1618	58	90	32
	Posttest Experimental	76.67	8.0871	58	90	32

Findings pertaining to Resting Heart Rate of novice weight trainers among all the three groups namely; Basic strength training(BST), pyramid strength training(PST) and control group(CG) which were subjected to analysis of covariance and mean difference method which have been presented in the following tables:

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Table- 4

ANALYSIS OF COVARIANCE OF RESTING HEART RATE OF NOVICE WEIGHT TRAINERS

BST	PST	CG	SOV	df	SS	MSS	F-ratio
Pre-Means	82	79.7	76.73	B	2	418.29	4.74
				W	87	3840.17	
Post-Means	76.97	75.63	76.67	B	2	30.95	0.3224
				W	87	4174.84	
Adjusted Post-Means	74.52	75.38	79.34	B	2	412.44	32.34
				W	86	548.47	

*Sig. at .05 levels Tab. 05 (2, 86) = 3.11

Table- 5

ADJUSTED MEAN SCORES ON RESTING PULSE RATE DURING POST TESTING IN DIFFERENT GROUPS

Basic Strength Training (A)	Pyramid Strength Training (B)	Control Group (c)	Adjusted Mean Differences	Critical Difference
74.524	75.387		0.863	
74.524		79.34	4.816	1.304
	75.387	79.34	3.953	

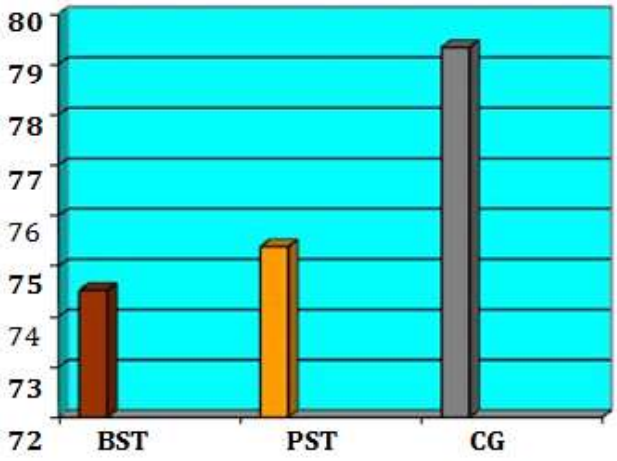

Fig 2. Adjusted Means of different groups on Resting Heart Rate

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Comparing the pair wise difference of adjusted means with critical difference, it is evident that group A (74.524) and group B (75.387) are equally effective whereas group C (79.34) is least effective. Thus, it may be concluded that out of two training program group A is preferred as its adjusted mean (74.524) is lower than adjusted mean of group B (75.387).Hence, Basic strength training is recommended for reducing the Resting Heart rate of novice weight trainers.

CONCLUSION

Novice weight trainers were benefited by both the strength training programs. However, Basic strength training program had the most significant effect on reducing the resting heart rate of novice weight trainers as the adjusted mean of Basic strength training (74.524) is smaller than the adjusted mean of Pyramid strength training (75.387).

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