

EFFICACY OF DIFFERENT STRENGTH TRAINING ON SELECTED PHYSIOLOGICAL VARIABLES ON 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 selected physiological variables among novice weight trainers. 90 (ninety) male from Summer Camp which was conducted at Lakshmbai 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 had shown the most significant effect on improving the vital capacity of novice weight trainers as its adjusted mean (3419.59) was greater than the adjusted means of Pyramid strength training (3365.92) respectively. On the other hand again Basic strength training had shown the significant effect on reducing the resting pulse rate of novice weight trainers as its adjusted means (74.524) is smaller than the adjusted means of Pyramid strength training (75.387) respectively.

Keywords: Basic strength training, Pyramid strength training, Physiological variable, vital capacity and resting pulse rate.

INTRODUCTION

It is true that physical activity has been part of the fundamental pattern of living for every creature that has over lived on earth. For this reason, the condition of a person's body must have always been of great concern. 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.

Hence, the investigator could realize that there is a need of the hour to explore the physiological outcomes 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 University 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 programmes. 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 physiological responses of novice weight trainers were obtained with the help of various instruments of cardio-respiratory parameters. 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 selected physiological variables i.e. vital capacity and resting pulse rate in basic strength training group for different experimental conditions are as follows:

Table- 1
DESCRIPTIVE ANALYSIS OF PHYSIOLOGICAL VARIABLES OF NOVICE WEIGHT TRAINERS AFTER BASIC STRENGTH TRAINING

Variables	Experimental Conditions	Mean	S.D	Minimum	Maximum	Range
Vital capacity	Pre test	3063.33	575.6455	2000	4300	2300
	Post test	3286.67	528.9764	2200	4300	2100
Resting pulse rate	Pre test	82	5.0034	72	90	18
	Post test	76.97	6.8555	62	88	26

The mean and standard deviation of novice weight trainers pertaining to selected physiological variables i.e. vital capacity and resting pulse rate in pyramid strength training group for different experimental conditions are as follows:

Table- 2
DESCRIPTIVE ANALYSIS OF PHYSIOLOGICAL VARIABLES OF NOVICE WEIGHT TRAINERS AFTER PYRAMID STRENGTH TRAINING

Variables	Experimental Conditions	Mean	S.D	Minimum	Maximum	Range
Vital capacity	Pre test	3196.67	611.65	1900	4200	2300
	Post test	3356.67	581.723	2100	4200	2100
Resting pulse rate	Pre test	79.7	6.3850	68	92	24
	Post test	75.6	5.6177	66	88	22

The mean and standard deviation of novice weight trainers pertaining to selected physiological variables i.e. vital capacity and resting pulse rate in control group for different experimental conditions are as follows:

Table- 3
DESCRIPTIVE ANALYSIS OF PHYSIOLOGICAL VARIABLES OF NOVICE WEIGHT TRAINERS OF CONTROL GROUP

Variables	Experimental Conditions	Mean	S.D	Minimum	Maximum	Range
Vital capacity	Pre test	3360	499.378	2400	4300	1900
	Post test	3363.33	490.238	2500	4300	1800
Resting pulse rate	Pre test	76.73	8.1618	58	90	32
	Post test	76.67	8.0871	58	90	32

Findings pertaining to Vital capacity 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:

Table- 4

ANALYSIS OF COVARIANCE OF VITAL CAPACITY OF NOVICE WEIGHT TRAINERS

	BST	PST	CG	SOV	df	SS	MSS	F- ratio
Pre Means	3063.33	3196.67	3360	B	2	1324666.67	662333.33	2.08
				W	87	27691333.33	318291.19	
Post Means	3286.67	3356.67	3363.33	B	2	108222.22	54111.11	0.189
				W	87	24898000	286183.91	
Adjusted Post Means	3419.59	3365.92	3221.17	B	2	604390.98	302195.49	3.87
				W	86	1088805.94	12660.534	

Sig. at .05 levels

Tab. 05 (2, 86) = 3.11

Table- 5

ADJUSTED MEAN SCORES ON VITAL CAPACITY DURING POST TESTING IN DIFFERENT GROUPS

Basic Strength Training(A)	Pyramid Strength Training (B)	Control Group (c)	Adjusted Mean Differences	Critical Difference
3419.59	3365.92		53.67	58.104
3419.59		3221.17	198.42	
	3365.92	3221.17	144.75	

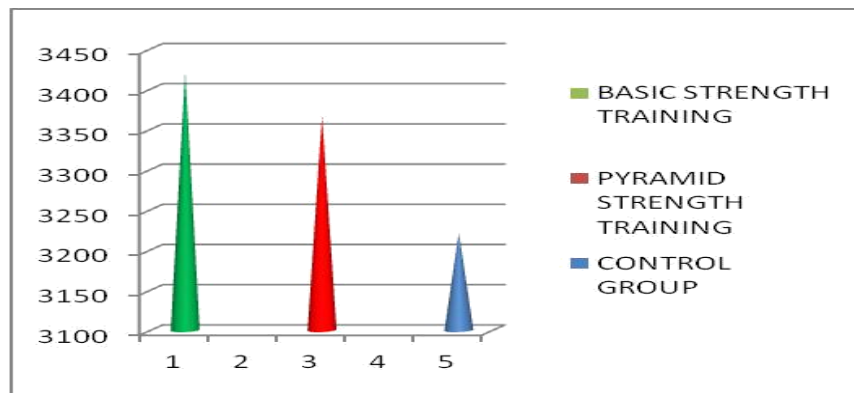


Fig 1. Adjusted Means of different groups on Vital capacity

Comparing the pair wise difference of adjusted means with critical difference, it is evident that group A (3419.59) and group B (3365.92) are equally effective whereas group C (3221.17) is least effective. Thus, it may be concluded that out of two training program group A is preferred as its adjusted mean (3419.59) is greater than adjusted mean of group B (3365.92). Hence, Basic strength training is recommended for improving the Vital capacity of novice weight trainers.

Findings pertaining to Resting Pulse 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:

**Table- 6
ANALYSIS OF COVARIANCE OF RESTING PULSE 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	209.14	4.74
				W	87	3840.17	44.14	
Post Means	76.97	75.63	76.67	B	2	30.95	15.475	0.3224
				W	87	4174.84	47.99	
Adjusted Post Means	74.52	75.38	79.34	B	2	412.44	206.22	32.34
				W	86	548.47	6.377	

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

Table- 7

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	1.304
74.524		79.34	4.816	
	75.387	79.34	3.953	

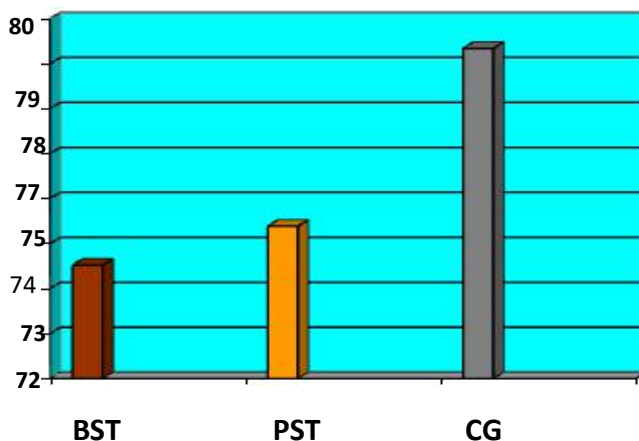


Fig 2. Adjusted Means of different groups on Resting pulse rate

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 pulse 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 improving the vital capacity of novice weight trainers as the adjusted mean of Basic strength training (3419.59) is greater than the adjusted mean of Pyramid strength training (3365.92).

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 pulse 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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