



ISSN 2349-638X

REVIEWED INTERNATIONAL JOURNAL

**AAYUSHI
INTERNATIONAL
INTERDISCIPLINARY
RESEARCH JOURNAL
(AIIRJ)**

MONTHLY PUBLISH JOURNAL

VOL-II

ISSUE-XI

NOV.

2015

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CHIEF EDITOR – PRAMOD PRAKASHRAO TANDALE

Effect Of Weight Training On Anthropometric Characteristics Among Sedentary Students.

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Abstract:

The purpose of this study was to determine the effects of weight training on anthropometric characteristics among sedentary students. The male students of Aurangabad, Jalna and Nanded districts of Marathwada region of Maharashtra was source of data for the present study. The fifty male sedentary students was selected as purposive sampling method. The chest muscle circumference, upper arm muscle circumference, forearm muscle circumference, thigh muscle circumference and calf muscle circumference were selected anthropometric measurements for this study and divided into two equal groups namely experimental group and control group. The experimental group was treated with weight training and no training was given to the control group. The duration of training programme was forty two days. The training was administrated on alternative days i.e. three days per week. The data was collected before and at the end of six weeks training programme, with the help of steel tape. The criterion measures were recorded in centimetres. To find out the significant effect of weight training on selected anthropometric measurements the t-test was employed and mean difference between pre test and post test of experimental group and control group was determined. After the analysis and interpretation of data of collected data the results of this study showed significant effect of weight training on chest muscle circumference, upper arm muscle circumference, fore arm muscle circumference and calf muscle circumference and in case of thigh muscle circumference no significant effect was found on experimental group when compared with control group. Therefore, the weight training programme designed for this study might not be effective on thigh muscle circumference. The significant effect on subjects of experimental group might be due to the nature of weight training programme designed in the present study for the duration of six weeks. Result reveals that there were significant effects of weight training on chest arm muscle circumference, forearm arm muscle circumference, upper arm muscle circumference and calf arm muscle circumference

Introduction :

Weight training is a very important aspect of sports training or physical body training and everybody is aware of their effects on the body's muscles and tendons. Training effect describes the physiological changes that occur from regular participation in a fitness program. In weight lifting terms it simply means that you have to push yourself and not to be afraid of acute pain. For example, after completing a set of bench presses for 12 reps, you have to ask yourself if you could have completed a few more. If so, then the current weight is too light and you should increase the weight so that the 12th repetition will be the last and the most difficult to complete (Joseph, 2000). To achieve the training effect and experience the benefits of exercises the following concepts must be applied. Weight training is an essential component of exercise programs for increasing muscular strength and size. Other terms that are used to refer to

the use of weights or some form of resistance in order to increase muscle strength and size are “resistance training” and “weight training”. The objective of the study was to find out the effect of weight training on chest muscle circumference, upper arm muscle circumference, fore arm muscle circumference, thigh muscle circumference and calf muscle circumference. On the basis of available literature and researcher's own experience and understanding about the problem, it is hypothesized that there would be significant effects of weight training on chest muscle circumference, upper arm muscle circumference, fore arm muscle circumference, thigh muscle circumference and calf muscle circumference

Methods: In this study fifty male students of School of Educational Sciences Swami Ramanand Teerth Marathwada University, Nanded were selected by employing simple random sampling method. The male students of Aurangabad, Jalna and Nanded districts of Marathwada region of Maharashtra was source of data for the present study. The fifty male sedentary students was selected as purposive sampling method. The chest muscle circumference, upper arm muscle circumference, forearm muscle circumference, thigh muscle circumference and calf muscle circumference were selected anthropometric measurements for this study and divided into two equal groups namely experimental group and control group.

Criterion Measures :

Description of training program: The goal of this training programme was to build the muscle. This 3 day workout was divided into three parts over 3 days a week. The first day for legs second day for chest and third day was dedicated to the arms. This training programme was performed by the subjects on Monday ,Wednesday and Friday. Before starting the exercising the subjects performed warming up by doing 5-10 minutes cardio followed by stretching. The training equipment were free weights and machines. The number of sets per exercise was 3 and the numbers of repetitions for each exercise were different in various exercises. the weight used for each set was 60% to 70% of 1-repetition maximum comfortably lifted by the subjects.

Results and discussion: The collected data on fifty subjects before and after six weeks weight trainings programme on selected anthropometric measurements were analyzed by employing t test. The mean, standard deviation and t value analyzed each dependent variable separately. For the sake of convince and methodical presentation of results, following order has been adopted:

Table- I

Mean Scores, Standard deviation and t-ratio of selected anthropometrics characteristics of control groups.

S.No.	Parameter	Name of group	No.	Mean scores	S.D.	t-ratio
1.	Chest muscle circumference	Pre-test	50	88.59	5.12	NS
		Post-test	50	88.43	5.09	
2.	Forearm muscle circumference	Pre-test	50	25.57	2.10	NS
		Post-test	50	25.67	2.12	
3.	Upper arm muscle circumference	Pre-test	50	23.80	2.11	NS
		Post-test	50	23.78	2.10	
4.	Thigh muscle circumference	Pre-test	50	49.04	4.32	NS
		Post-test	50	49.07	4.34	
5.	Calf muscle circumference	Pre-test	50	30.12	3.09	NS
		Post-test	50	30.20	3.15	

Table -2

Mean Scores, Standard deviation, and t-ratio of selected anthropometric characteristics of experimental group.

S.No.	Parameter	Name of group	No.	Mean scores	S.D.	t-ratio
1.	Chest muscle circumference	Pre-test	50	88.90	5.54	*
		Post-test	50	93.99	5.90	
2.	Forearm muscle circumference	Pre-test	50	25.50	2.12	*
		Post-test	50	29.65	2.70	
3.	Upper arm muscle circumference	Pre-test	50	23.80	2.09	*
		Post-test	50	28.25	2.56	

4.	Thigh muscle circumference	Pre-test	50	49.04	4.12	NS
		Post-test	50	54.12	4.57	
5.	Calf muscle circumference	Pre-test	50	30.12	2.01	*
		Post-test	50	35.81	2.25	

* = Significant., NS = Not Significant.

With regards to anthropometric measurements in chest muscle circumference of pre-post-test of control group they have obtained the mean value of 88.59 and 88.43 respectively, no significant effect was in chest muscle circumference of control group. With regards to selected anthropometric measurement in chest muscle circumference of pre- post-test experimental group they have obtained the mean value of 88.90 and 93.99 respectively, reveals that significant effect of weight training was found ($t=p<.05$) chest muscle circumference of experimental group. That means weight training is beneficial for increasing chest muscle circumference among the sedentary students. The results showed that there was significant effect of weight training on chest muscle circumference of experimental group subjects as compared to control group subjects. It has been understood that the weight training results in muscle hypertrophy, an increase in cross-sectional size of existing fibres and also various biochemical changes that occur within muscle. It can be now said that six month weight training was sufficient to increase the chest muscle circumference.

With regards to anthropometric measurement in upper arm muscle circumference of pre-post-test of control group they have obtained the mean value of 25.57 and 25.67 respectively, no significant effect was found in anthropometric measurement with respect to upper arm muscle circumference of control group. With regards to selected anthropometric measurement in Upper arm muscle circumference of pre- post-test experimental group they have obtained the mean value of 88.90 and 93.99 respectively, reveals that significant effect of weight training was found ($t=p<.05$) chest muscle circumference of experimental group. That means weight training is beneficial for increasing chest muscle circumference among the sedentary students. There was significant effect of six week weight training on upper arm muscle circumference as there might have occur several physiological changes in muscle such as increase in ATP,CP and glycogen concentration, a decrease in oxidative enzyme activity, increase in myofibrils, proteins, sarcoplasmic volume.

With regards to anthropometric measurements in fore-arm muscle circumference of pre-post-test of control group they have obtained the mean value of 23.80 and 23.78 respectively no

significant effect was found in with respect to fore arm muscle circumference of control group. With regards to selected anthropometric measurement in Fore arm muscle circumference of pre- post-test experimental group they have obtained the mean value of 88.90 and 93.99 respectively ,reveals that significant effect of weight training was found ($t=p<.05$) in Fore arm muscle circumference of experimental group. That means weight training is beneficial for increasing Fore arm muscle circumference among the sedentary students.

With regards to anthropometric measurement in thigh muscle circumference of pre- post-test of control group they have obtained the mean value of 49.04 and 49.07 respectively no significant effect was found in with respect to thigh muscle circumference of control group. With regards to selected anthropometric measurement in Thigh muscle circumference of pre- post-test experimental group they have obtained the mean value of 49.04 and 54.12 , reveals that significant effect of weight training was found ($t=p<.05$) in Thigh muscle circumference of experimental group. That means weight training is beneficial for increasing Thigh muscle circumference among the sedentary students. Thus the hypothesis was accepted

With regards to anthropometric measurements in calf muscle circumference of pre-post-test of control group they have obtained the mean value of 30.12 and 30.20 respectively ,reveals that no significant effect was found in with respect to calf muscle circumference of the control group.

With regards to selected anthropometric measurement in Calf muscle circumference of pre- post-test experimental group they have obtained the mean value of 30.12 and 35.81 respectively, reveals that significant effect of weight training was found ($t=p<.05$) in Calf muscle circumference of experimental group. That means weight training is beneficial for increasing Calf muscle circumference among the sedentary students. Thus the hypothesis was accepted

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