#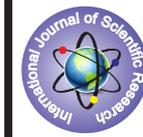 EFFECT OF PROGRESSIVE AND REGRESSIVE RESISTANCE TRAINING ON SELECTED HEMATOLOGICAL COMPONENTS OF UNIVERSITY WEIGHT LIFTERS

## Physical Education

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**ABSTRACT**    Aim of the study was designed to find out the effect of Progressive and Regressive Resistance Training on selected Hematological Components of University weight lifters For this purpose forty five(N=45) men weight lifters studying various Engineering Colleges Affiliated to Anna University Chennai, Tamilnadu, India, during the year 2014-2015 were selected as subjects. The subjects were divided at random into three groups of fifteen each (n=15). Group-I underwent Progressive Resistance Training, Group-II underwent Regressive Resistance Training and Group III acted as control. The Experimental Group-I underwent Progressive Resistance Training, Group-II underwent Regressive Resistance Training, and Group-III acted as Control. The duration of the training period for all the three Experimental groups was restricted to twelve weeks and the number of sessions per week was confined to three in a week. The dependent variable selected for this study was Blood Sugar and it was assessed through Blood samples test (Folin – wu Method). All the subjects were tested prior to and immediately after the training for all the selected variables. Data were collected and statistically analyzed using ANCOVA. Scheffe's post hoc test was applied to determine the significant difference between the paired means. In all the cases 0.05 level of significance was fixed. The results of the study showed that there was a significant difference was found among all the Experimental groups namely Progressive Resistance Training programme group and Regressive Resistance Training programme had significantly decrease in the Blood Sugar. When the Experimental groups were compared with each other, the Progressive Resistance Training programme was found to be greater than the Regressive Resistance Training programmes on the decrease of Blood Sugar.

## INTRODUCTION

Regular exercise not only keeps our body fit but also helps in keeping our mind fresh for a longer period of time. Our mind will not feel tired if we do exercises regularly. It also increases the blood circulation of the body and prepares us for hard work, all day long. Regular exercises also can prevent/arrest chronic diseases and other health problems related to the lungs and the heart. Regular exercises help to strengthen the heart. According to the researcher, muscle mass can increase and the weight can be controlled *(Ganesan, 2009)*.

Training is a programme of exercise designed to improve the skills and increase the energy capacities of an athlete for a particular event. Training is the total process of preparation of a sportsman, through different means and it forms for better performance *(Singh, 1984)*.

Sports Training is done for improving sports performance. The sports performance is not the product of one single system or aspect of human personality. The total personality of a sportsman has to be improved in order to improve his performance.

Resistance training is an anaerobic form of exercise. This training programme can be used to enhance the ability of the body to perform at very high force and/or power outputs for a very short period of time to improve the ability of the body to perform repeated bouts of maximal activity *(Baechles, 1994)*.

The importance of resistance training to sports performance has been supported by studies which have demonstrated that resistance training in the form of weight training and more recently, plyometric training have enhanced some competitive performances. Most typically this has been reported as an improvement in vertical jumping ability. Many studies have reported that resistance training has enhanced muscular strength, but failed to induce changes in dynamic sporting performance *(Bloomfield, 1994)*.

## METHODOLOGY

The purpose of the study is to find out the effect of Progressive and Regressive Resistance Training on selected Hematological components of University Weight Lifters. To achieve this purpose forty five(N=45) men weight lifters studying various Engineering Colleges Affiliated to Anna University Chennai, Tamilnadu, India, during the year 2014-2015 were randomly as subjects. The selected

subjects were divided into three equal groups of fifteen such as Progressive resistance training group, Regressive resistance training group and Control group. Group-I underwent Progressive Resistance Training programme, group-II Regressive Resistance Training programme for three days per week for twelve weeks, group-III acted as Control. Among various Hematological variables Blood Sugar only selected for this study and it was assessed through Blood samples test (Folin – wu Method). All the subjects of the three groups were tested on selected criterion variables at prior to and immediately after the training programme.

## ANALYSIS OF THE DATA

The data collected from the Experimental groups and control group on prior and after experimentation on selected variables were statistically examined by analysis of covariance (ANCOVA) was used to determine differences, if any among the adjusted post test means on selected criterion variables separately. Whenever they obtained f-ratio value in the simple effect was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases 0.05 level of significance was fixed.

The Analysis of covariance (ANCOVA) on Blood Sugar of Experimental Groups and Control group have been analyzed and presented in Table -1.

**Table – 4.1 VALUES OF ANALYSIS OF COVARIANCE FOR EXPERIMENTAL GROUPS ON BLOOD SUGAR**

| Adjusted Post test Means | | | Source of Variance | Sum of Squares | df | Mean Squares | 'F' Ratio |
|---|---|---|---|---|---|---|---|
| Progressiv | Regressive Resistance Training Group – (II) | Control Group – (III) | | | | | |
| 82.11 | 84.42 | 95.01 | Between With | 1333.10 191.2 | 2 41 | 666.55 4.67 | 142.73* |

*Significant at. 0.05 level of confidence
(Blood Sugar Scores in mg/dL)
(The Table value required for Significance at 0.05 level with df 2 and 41 is 3.23)

Table- 4.1 shows that the adjusted post test mean value of Blood Sugar for Progressive Resistance Training group, Regressive Resistance Training group, and Control group is 82.11, 84.42 and 95.01 respectively. The obtained F-ratio of 142.73 for the adjusted post test mean is more than the table value of 3.23 for df 2 and 41 required for significance at 0.05 level of confidence.

The results of the study indicate that there are significant differences among the adjusted post test means of Experimental groups on the decrease of Blood Sugar.

To determine which of the paired means had a significant difference, Scheffe's test was applied as Post hoc test and the results are presented in Table-4.2.

**Table – 4.2 THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TESTS PAIRED MEANS ON BLOOD SUGAR**

| Adjusted Post Test Mean | | | Mean Difference | Confident Interval Value |
|---|---|---|---|---|
| Progressive Resistance Training Group – (I) | Regressive Resistance Training Group – (II) | Control Group – (III) | | |
| 82.11 | 84.42 | --- | 2.31* | 1.21 |
| 82.11 | --- | 95.01 | 12.90* | |
| — | 84.42 | 95.01 | 10.59* | |

*Significant at.05 level of confidence*

Table - 4.2 shows that the adjusted post test means differences on Progressive Resistance Training group and Regressive Resistance Training group, Progressive Resistance Training group and Control group and Regressive Resistance Training group and Control group, are 2.31, 12.90 and 10.59 respectively and they are greater than the confidence interval value 1.21, which shows significant differences at 0.05 level of confidence.

The results of the study further have revealed that there is a significant difference in Blood Sugar between the adjusted post test means of Progressive Resistance Training group and Regressive Resistance Training group, Progressive Resistance Training group and Control group and Regressive Resistance Training group and Control group.

However, the improvement in Blood Sugar was significantly higher for Progressive Resistance Training group than Regressive Resistance Training group and Control group It may be concluded that the Progressive Resistance Training group has exhibited better than the Regressive Resistance Training group and Control group in improving Blood Sugar.

The adjusted post test mean values of Progressive Resistance Training group, Regressive Resistance Training group and Control group on Blood Sugar are graphically represented in the Figure - 4.1



**FIGURE- 4.1: THE ADJUSTED POST TEST MEAN VALUES OF PROGRESSIVE RESISTANCE TRAINING GROUP, REGRESSIVE RESISTANCE TRAINING GROUP AND CONTROL GROUP ON BLOOD SUGAR.**

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

1.  The Progressive Resistance Training programme had registered significant improvement on the selected Hematological components namely Blood Sugar.
2.  The Regressive Resistance Training programme had registered significant improvement on the selected Hematological components namely Blood Sugar.
3.  When the Experimental groups were compared with each other, the Progressive Resistance Training programme was found to be greater than the Regressive Resistance Training programmes on the decrease of selected criterion variable namely Blood Sugar.

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