

Influence on Leg Strength due to Different Intensities of Resistance Trainings

G. Santhoshkumar,

B. Kulothungan and

B. Karthikeyan, Assistant Professors, Department of Physical Education and Sports Sciences, Annamalai University.

Abstract

The purpose of the study was to find out the effects of different intensities of resistance training on leg strength. To achieve this purpose of the study, forty-five men students studying in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalainagar, Chidambaram were selected as subjects at random. The selected subjects were divided into three equal groups of fifteen subjects each, such as high intensity resistance training group, low intensity resistance training group and control group. The group I underwent high intensity resistance training programme and group II underwent low intensity resistance training programme for three days per week for twelve weeks. Group III acted as control group they did not participate any special training programmes apart from their regular physical education activities as per their curriculum. Among the strength parameters, the following variable namely leg strength was selected as criterion variables. All the subjects of three groups were tested on selected dependent variables at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the "F" ratio obtained by the analysis of covariance, which was considered as an appropriate. The results of the study revealed that there was a significant difference among high intensity resistance training group, low intensity resistance training group and control group on leg strength. And also it was found that there was a significant improvement on leg strength due to high intensity resistance training.

Key words: Resistance training, Leg strength.

Introduction

Education is the manifestation of perfection in man. Physical education is, no doubt an integral part of general education. It is an education connected with over all development of an individual, but mainly views on the development of physical fitness and participating in sports and games. Sport has very prominent role in modern society. It is important to an individual, a group, a nation indeed the world. To a large extent general education was physical education in early societies, for the environment made great demands on the physical conditions of man. Sports training is a pedagogical process, based on scientific principles, aiming at preparing sportsman for higher performances in sports competition.

Methodology

The purpose of the study was to find out the effects of different intensities of resistance trainings on leg strength. To achieve this purpose of the study, forty-five men students studying in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalainagar, Chidambaram were selected as subjects at random. The selected subjects were divided into three equal groups of fifteen subjects each, such as high intensity resistance training group, low intensity resistance training group and control group. The group I underwent high intensity resistance training programme and group II underwent low intensity resistance training programme for three days per week for twelve weeks. Group III acted as control who did not participate in any special training programmes apart

from their regular physical education activities as per their curriculum. Among the strength parameters, the following variable namely leg strength was selected as criterion variable. All the subjects of three groups were tested on selected dependent variable at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the "F" ratio obtained by the analysis of covariance, which was considered as an appropriate. The Schiff's test was applied as post hoc test to find out the paired mean difference, if any,

Training Programme

High intensity resistance training group and low intensity resistance training group underwent their respective training programme for twelve weeks for three days per week. Training was given in the morning session. The training session includes warming up and limbering down. Every day the workout lasted for 45 to 60 minutes approximately. The subjects underwent their respective training programmes as per the schedules under the strict supervision of the investigator. During experimental period control group did not participate in any of the special training programme.

Analysis of the Data

The influence of high intensity resistance training and low intensity resistance training on leg strength was analyzed and presented below.

The analysis of covariance on leg strength of pre and post tests for high intensity resistance training group and low intensity resistance training group and control group was analysed and presented in Table I.

**Table-I
ANCOVA on Leg Strength of Pre and Post Test for
Experimental and Control Groups**

Test	High intensity resistance training group	Low intensity resistance training group	Control group	Source of variance	Sum of squares	df	Mean squares	Obtained F Ratio
Pre test								
Mean	90.83	90.84	90.86	Between	0.01	2	0.005	0.10
S.D.	0.214	0.237	0.221	Within	2.27	42	0.05	
Post test								
Mean	95.88	92.82	90.87	Between	191.4	2	95.70	187.65*
S.D.	0.209	0.265	0.220	Within	21.43	42	0.51	
Adjusted post test								
	95.46	91.92	90.84	Between	169.17	2	84.59	56.39*
Mean				Within	61.42	41	1.50	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table I show that, the adjusted post-test means of high intensity resistance training

group, low intensity resistance training group and control group are 95.46, 91.92 and 90.84 respectively. The obtained "F" ratio of 56.3.9 for adjusted post-test means is more than the table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on leg strength.

The results of the study indicated that there was a significant difference between the adjusted post-test means of high intensity resistance training group, low intensity resistance training group and control group on leg strength.

Since, three groups were compared and adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table II.

Table-II
The Scheffe's Test for the Differences between Paired Means
on Leg Strength

High intensity resistance training group	Low intensity resistance training group	Control group	Mean differences	Confidence interval value
95.46	91.92	-	3.54*	1.04
95.46	-	90.84	4.62*	1.04
-	91.92	90.84	1.08*	1.04

* Significant at .05 level of confidence.

The results of this study showed that there was a significant difference between high intensity resistance training group and low intensity resistance training group, high intensity resistance training group and control group and low intensity resistance training group and control group on leg strength.

Results

1. There was a significant difference among high intensity resistance training group, low intensity resistance training group and control group on leg strength.
2. There was a significant improvement on leg strength due to high intensity resistance training.

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