

Effect of Complex Resistance and Plyometric Training on Leg Strength

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Abstract

The purpose of the study was to find out the effect of complex resistance and plyometric training on leg strength. To achieve this purpose of the study, thirty 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 two equal groups of fifteen subjects each, such as complex training group and control group. The group I underwent resistance training for three days per week for first six weeks and plyometric training for three days per week for remaining six weeks. Group II acted as control who did not participate any special training programmes apart from their regular physical education activities as per their curriculum. The following variable namely leg strength was selected as criterion variable. All the subjects of two groups were tested on selected dependent variables at prior to and immediately after the training programme. The analysis of covariance (ANCOVA) 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. There was a significant difference between complex training group and control group on leg strength. There was a significant improvement on leg strength due to complex resistance and plyometric training.

Key Words: Resistance Training, Plyometric Training and Leg Strength

Introduction

Weight training is use of resistance other than weight of the body to develop specific areas of the body. Generally, it is used to develop muscular strength and power. It also develops muscular endurance elasticity and co-ordination. Weight training is the use of systematic exercises with weight and it is used merely as a mean to increase resistance of the muscle contraction. The primary objective is not to learn to lift as much weight as possible, but to increase strength and power for application to some other sports. Weight training refers to an interest in physical fitness or importance of strong in a particular sport. It is not usually an end in itself but as a means to an end.

Plyometrics is the term now applied to exercises that have their roots in Europe, where they were first known simply as jump training. Interest in this jump training increased during the early 1970s as East European athletes emerged as powers on the world sport scene. As the Eastern block countries began to produce superior athletes in such sports as track and field, gymnastics and weight lifting the mystique of their success began to center on their training methods.

Methodology

The purpose of the study was to find out the effect of complex resistance and plyometric training on leg strength. To achieve this purpose of the study, thirty 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 two equal groups of fifteen subjects each, such as complex training group and control group. The group I underwent resistance training for three days per week for first six weeks and plyometric training for three days per week for remaining six weeks. Group II acted as control who did not participate any special training programmes apart from their regular physical education activities as per their curriculum. The following variable namely leg strength was selected as criterion variable. All the subjects of two groups were tested on selected dependent variables at prior to and immediately after the training programme. The analysis of covariance (ANCOVA) 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.

Analysis of the Data

Leg strength

The analysis of covariance on leg strength of the pre and post test scores of complex training group and control group have been analyzed and presented in Table I.

Table-I

**Analysis of Covariance of the Data on Leg Strength of Pre and Post Tests
Scores of Complex Training and Control Groups**

Test	Complex training group	Control group	Source of variance	Sum of squares	Df	Mean squares	Obtained 'F' ratio
Pre Test							
Mean	91.83	91.86	Between	3.33	1	3.33	2.34
S.D.	0.21	0.22	Within	39.87	28	1.424	
Post Test							
Mean	96.81	91.87	Between	13.33	1	13.33	8.208*
S.D.	0.18	0.22	Within	45.47	28	1.624	
Adjusted Post Test							
Mean	96.69	91.86	Between	27.41	1	27.41	109.64*
			Within	6.79	27	0.25	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively).

The table I show that the pre-test mean values on leg strength of complex training group and control group are 91.83 and 91.86 respectively. The obtained "F" ratio of 2.34 for pre-test scores is less than the table value of 3.34 for df 1 and 28 required for significance at .05 level of confidence on leg strength. The post-test mean values on leg strength of complex training group and control group are 96.81 and 91.87 respectively. The obtained "F" ratio of 8.208 for post test scores is more than the table value of 3.34 for df 1 and 28 required for significance at .05 level of confidence on leg strength.

The adjusted post-test means of complex training group and control group are 96.69 and 91.86 respectively. The obtained "F" ratio of 109.64 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 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 complex training group and control group on leg strength.

Conclusions

1. There was a significant difference between complex training group and control group on leg strength.
2. There was a significant improvement on leg strength due to complex training.

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