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Effect of plyometric training on leg strength among physical education students

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Abstract
The purpose of the study was to find out the effect of plyometric training on leg strength of university men students. To achieve this purpose of the study, thirty men students in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalai Nagar, Tamil Nadu, India were selected as subjects at random. The selected subjects were divided into two equal groups of fifteen subjects each, such as plyometric training group and control group. The group I underwent plyometric training programme for three days per week for twelve weeks. And Group II acted as control group 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 and it was measured by using leg dynamometer. All the subjects of two groups were tested on selected criterion variable at prior to and immediately after the training programme. The analysis of covariance was used to analyse the significant difference, if any between the groups. The level of significance to test the 'F' ratio obtained by the analysis of covariance was tested at.05 level of confidence, which was considered as an appropriate. The results of the study revealed that there was a significant difference between plyometric training group and control group on leg strength. And also it was found that there was a significant improvement on leg length due to plyometric training.

Keywords: plyometric training, physical education

Introduction

From the beginning of recorded history Philosophers and health professionals have observed that regular physical life. Hippocrates the great Greek philosopher wrote the following in regimen about 400BC. Eating above will not keep man, [woman] well, he [she] must also take exercise, while possessing opposite qualities to work together to produce health and it is necessary as it appears, to discern the power of various exercises both natural exercises and artificial, to know which of than tend to increase flesh and which to lessen it.

Physical activity is an important and essential demount in human health and well-being and its importance has achieved widespread acceptance by the public, professional's organizations and medical community.

Plyometrics is one of the best ways to improve and increase explosive power, power is similar to strength, except you are adding the time factor. Therefore power is the relationship between strength and speed.

An example includes jumping of a box on to the ground and rebounding as quickly as possible. The declaration and acceleration of body weight provides the over load to the upper body plyometrics include medicine ball throws and catches and quick type of push-ups plyometrics exercises are beneficial in sports such as basket-ball. The strength training and plyometric training. Strength training is preformed primarily to enhance person's appearance, symmetry, strength and well-being.

Methodology

The purpose of the study was to find out the effect of plyometric training on leg strength of university men students. To achieve this purpose of the study, thirty men students in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalai Nagar, Tamil Nadu, India were selected as subjects at random. The selected subjects were divided into two equal groups of fifteen subjects each, such as plyometric training group and control group. The group I underwent plyometric training programme for three days per week for twelve weeks. And Group II acted as control group 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 and it was measured by using leg dynamometer. All the subjects of two groups were tested on selected criterion variable at prior to and immediately after the training programme. The analysis of covariance was used to analyse the significant difference, if any between the groups. The level of significance to test the 'F' ratio obtained by the analysis of covariance was tested at.05 level of confidence, which was considered as an appropriate.

Analysis of the Data

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

Table 1: Analysis of Covariance of the Data on Leg Strength of Pre and Post Tests Scores Of Plyometric Training and Control Groups

Test	Plyometric training group	Control group	Sources of variance	Sum of squares	df	Mean square	'F' value
Per-test mean	78.87	79.53	Between	3.33	1	3.33	1.813
S.D.	1.36	1.36	Within	51.467	28	1.838	
Post – test mean	81.93	78.87	Between	70.53	1	70.53	40.581*
S.D	1.28	1.36	Within	48.667	28	1.738	
Adjusted Post – test mean	82.11	78.69	Between	82.17	1	82.17	64.175*
			Within	34.57	27	1.28	

***** Significant.05 level of confidence. (The table values required for significance at.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

The table shows that the pre-test mean values on leg strength of plyometric training group are 78.87 and 79.53 respectively. The obtained 'F' ratio of 1.813 for pre-test scores is less than the table value of 4.20 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 plyometric training group and control group are 81.93 and 78.87 respectively. The obtained "F" ratio of 40.581 for post-test scores is more than the table value of 4.20 for df 1 and 28 required for significance at.05 level of confidence on leg strength.

The adjusted post-test means of plyometric training group and control group are 82.11 and 78.69 respectively. The obtained "F" ratio of 64.175 for adjusted post-test means is greater than the table value of 4.215 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 plyometric training group and control group on leg strength.

Conclusions

Based on the results of the study the following conclusions were drawn.

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

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