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Effect of Resistance Training on Selected Strength on Muscle Groups among College Men Volleyball Players

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Abstract

The purpose of this study was to find out the effect of resistance training on selected strength on muscle groups among college men volleyball players. To achieve the purpose of the present study, thirty college men volleyball players from Chidambaram district, Tamilnadu district were selected as subjects at random and their age ranged from 18 to 25 years. The subjects were divided into two equal groups. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n= 30) were randomly assigned to two equal groups of fifteen men subjects each. The groups were assigned as resistance training and control groups in an equivalent manner. The experimental group participated for a period of six weeks and the post-tests were conducted. Analysis of covariance (ANCOVA) was used to test the treatment effect of the training programmes on all the variables used in the study. It was observed that the six weeks of resistance training have significantly improved the selected strength on muscle groups of volleyball players.

Keywords: Resistance, Strength, Volleyball.

Introduction

Resistance training is well established effective methods of exercise for developing muscular fitness. The primary goals of resistance training as improving muscular strength and endurance. The health-related benefits derived from resistance training include increases in bone mass, reduced blood pressure, increase muscle and connective tissue cross-sectional area, reduced body fat, and it may relieve low back pain). Although modern technology has reduced much of the need for high levels of force production during activities of daily living, it is recognised in both the scientific and medical communities that muscular strength is a fundamental physical trait necessary for health, functional ability, and enhanced quality of life. Therefore, exercise induced skeletal muscle growth (muscular hypertrophy) and accompanying gains in strength expression (neuro muscular adaptations) are areas of interest not only for the competitive athlete wishing to enhance performance but also for non-competitive individuals who simply wish to alter their body composition or increase their capacity to perform tasks requiring muscular effort (ACSM, 2002). Research over the past 50 years has utilized various forms of resistance training (i.e.single vs multiple sets, concentric vs eccentric actions, isolation vs compound movements) in order to such development.

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Resistance exercise is a type of exercise that has gained popularity over the last decade. Resistance training is any exercise that causes the muscles to contract against an external resistance with the expectation of increases in strength, tone, mass and endurance. The external resistance can be dumbbells, rubber exercise tubing, own body weight, bricks, bottles of water or any other object that causes the muscles to contract. This training works the muscles of the body and is most beneficial when all the ranges of motion are included. The resistance training is done two to three times a week with an average of 8 to 12 repetitions of a series of different resistance based exercises.

Methodology

The purpose of this study was to find out the effect of resistance training on selected strength on muscle groups among college men volleyball players. To achieve the purpose of the present study, thirty college men volleyball players from Chidambaram district, Tamilnadu district were selected as subjects at random and their age ranged from 18 to 25 years. The subjects were divided into two equal groups. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n= 30) were randomly assigned to two equal groups of fifteen men subjects each. The groups were assigned as resistance training and control groups in an equivalent manner. Quadriceps strength was assessed by using leg extension and hamstring strength was assessed by using leg curl. The experimental group participated for a period of six weeks and the post-tests were conducted. Analysis of covariance (ANCOVA) was used to test the treatment effect of the training programmes on all the variables used in the study.

Results

Table I. Computation of mean and analysis of covariance quadriceps strength of experimental and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	102.06	102.96	BG	24.30	1	24.30	1.42
			WG	478.66	28	17.09	
Post Test Mean	115.06	103.86	BG	1020.83	1	1020.83	74.72*
			WG	382.53	28	13.66	
Adjusted Post Mean	115.29	103.17	BG	1049.24	1	1049.24	80.58*
			WG	351.57	27	13.02	

* Significant at 0.05 level
Table value for df 1, 28 was 4.20, df 1, 27 was 4.21

The above table indicates the adjusted mean value on quadriceps strength of experimental and control groups were 115.29 and 103.17 respectively. The obtained F-ratio of 80.58 for adjusted mean was greater than the table value 4.21 for the degrees of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among experimental and control groups on quadriceps strength. The above table also indicates that both pre and post test means of experimental and control groups differ significantly.

Table II. Computation of mean and analysis of covariance on hamstring strengthof experimental and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	44.20	43.93	BG	0.53	1	0.53	0.06
			WG	243.33	28	8.69	
Post Test Mean	55.53	44.86	BG	853.33	1	853.33	137.74*
			WG	173.46	28	6.19	
Adjusted Post Mean	55.57	44.83	BG	863.18	1	863.18	150.20*
			WG	155.16	27	5.74	

* Significant at 0.05 level
Table value for df 1, 28 was 4.20, df 1, 27 was 4.21

The above table indicates the adjusted mean value of hamstring strength of experimental and control groups were 55.57 and 44.83 respectively. The obtained F-ratio of 150.20 for adjusted mean was greater than the table value 4.21 for the degrees of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among experimental and control groups on hamstring strength. The above table also indicates that both pre and post test means of experimental and control groups also differ significantly.

Conclusion

It was observed that the six weeks of resistance training have significantly improved the selected strength on muscle groups of volleyball players.

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