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Effect of Plyometric Training on Selected Power Related Variables among Volleyball Players

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Abstract

The purpose of the study was to find out the effect of plyometric training on selected power related variables among college volleyball players. It was hypothesized that there would be significant differences on selected power related variables due to the effect of plyometric training among college volleyball players. For the present study the 30 male volleyball players from Scott Christian College, Nagercoil, Tamilnadu, India were selected at random and their age ranged from 18 to 21 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent plyometric training and Group 'B' has not undergone any training. The data was collected before and after six weeks of training. The data was analyzed by applying dependent 't test. The level of significance was set at 0.05. The experimental group showed better improvement on explosive power and elastic power among volleyball players than the control group.

Keywords: Plyometric Training, Explosive Power, Elastic Power, Volleyball.

Introduction

Volleyball is a team game where six players in the court will play as a unit and not like machine. Volleyball is considered as a top level competitive sport played in more than sixty countries and more than sixty million people. The game of Volleyball was invented in 1895 by William G Morgan who worked for the Y.M.C.A in Holyoak, Massachusetts. His early form of the game was designed to provide mild exercise for large groups of businessmen. At first, Morgan tried on Tennis to these people, but the problem of purchasing rockets and materials paved the way for the invention of volleyball. However, the Tennis net was first used to raise it to a height of six feet over which a Basketball bladder was volleyed. Since the bladder was too light and the flight over the net was rather slow, he used the Basketball but it was too large and heavy to volley over the net. A proposal for manufacturing a ball that was neither heavy nor big as Basketball was given to splading and brothers with definite specification. The resulting ball that was smaller and lighter than Basketball and then the net was also approved**.** Since then the game has developed and spread worldwide. The main reason of its popularity was it can be played indoors and outdoors, need little space compared to other games, and it can be played by both sexes and over a considerable age range. Play can be tremendously varying standards from a purely recreations level on the beach and in the park, through all levels of clubs and school level competitions, right up to international level. Volleyball has also been adapted so that people with disabilities can enjoy the sport. The great thing about volleyball is that it can be adapted however the players would like, the net can be lowered, court dimensions can change, and the game can be played just about anywhere. Although there has been some varying rules throughout the history of volleyball, today's competitive world of volleyball has strict rules.

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Methodology

The purpose of the study was to find out the effect of plyometric training on selected power related variables among college volleyball players. It was hypothesized that there would be significant differences on selected power related variables due to the effect of plyometric training among college volleyball players. For the present study the 30 male volleyball players from Scott Christian College, Nagercoil, Tamilnadu, India were selected at random and their age ranged from 18 to 21 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent plyometric training and Group 'B' has not undergone any training. The data was collected before and after six weeks of training. The data was analyzed by applying dependent 't test. The level of significance was set at 0.05.

Table I. Variables and Test

S.No	Variables	Tests
1	Explosive power	Standing Broad Jump
2	Elastic power	3 Hops Test

Results

The findings pertaining to analysis of dependent 't' test between experimental group and control group on selected power related variables among volleyball players for pre-post test respectively have been presented in table II to III.

Table II. Significance of Mean Gains & Losses between Pre and Post Test Scores on Selected Variables of Plyometric Training Group (PTG)

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	't' Ratio
1	Explosive Power	1.58	1.65	0.07	0.04	0.01	3.11*
2	Elastic Power	2.60	3.51	0.91	0.15	0.03	18.26*

* Significant at 0.05 level

Table II shows the obtained 't' ratios for pre and post test mean difference in the selected variable of explosive power (3.11) and elastic power (18.26). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically significant at 0.05 level of confidence. It was observed that the mean gain and losses made from pre to post test were significantly improved in power related variables namely explosive power (0.07 $p<0.05$) and elastic power (0.91 $p<0.05$) thus the formulated hypothesis is accepted.

Figure I. Comparisons of Pre – Test Means and Post – Test Means for Experimental Group in Relation to Power Related Variables

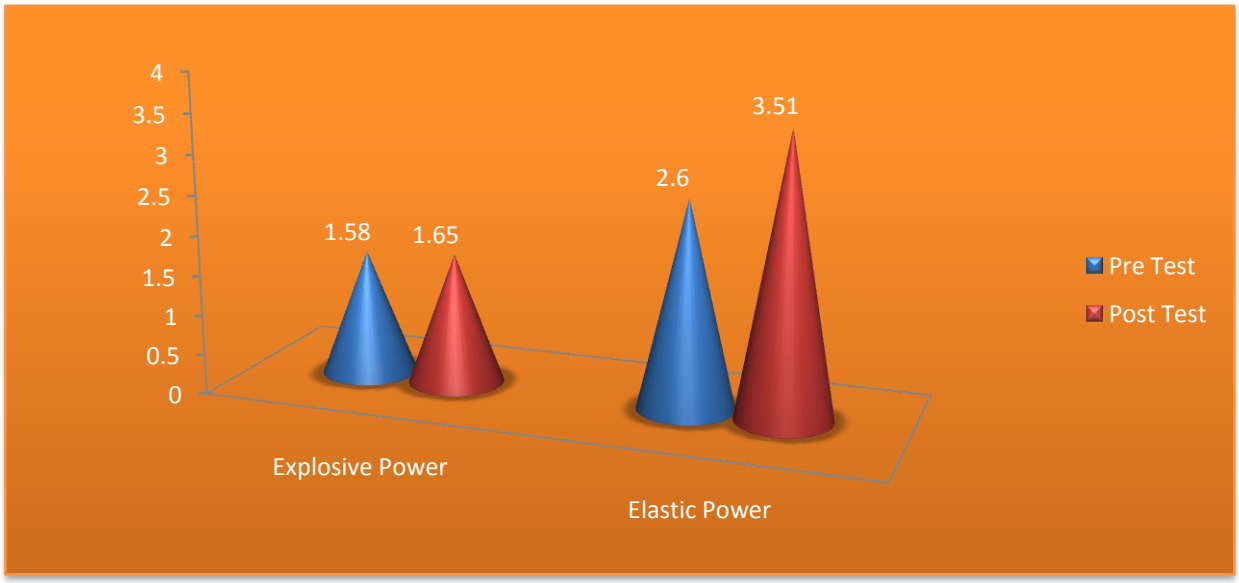


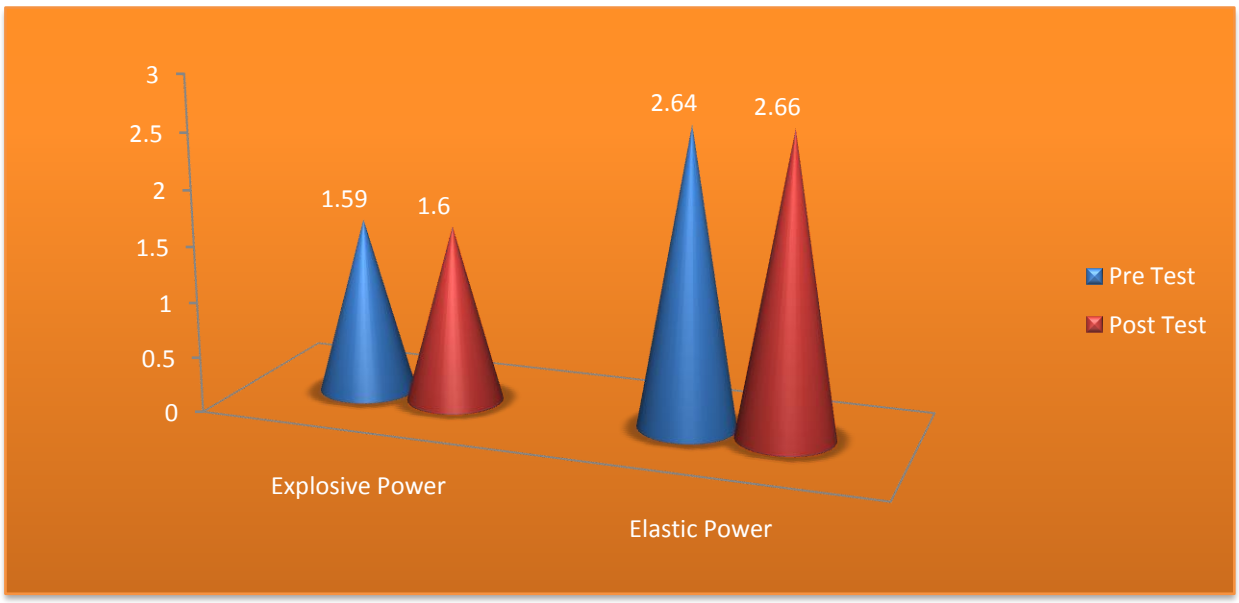
Table III. Significance of Mean Gains & Losses between Pre and Post Test Scores on Selected Variables of Control Group (CG)

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	't' Ratio
1	Explosive power	1.59	1.60	0.01	0.06	0.01	0.34
2	Elastic power	2.64	2.66	0.02	0.06	0.01	0.91

* Significant at 0.05 level

Table III shows the obtained 't' ratios for pre and post test mean difference in the selected variable of explosive power (0.34) and elastic power (0.91). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically significant at 0.05 level of confidence. It was observed that the mean gain and losses made from pre to post test were not significantly improved in power related variables explosive power (0.01 p>0.05) and elastic power (0.02 p>0.05).

Figure II. Comparisons of Pre – Test Means and Post – Test Means for Control Group in Relation to Power Related Variables



Discussions on Findings

In case of power related variables i.e. explosive power and elastic power the results between pre and post test has been found significantly higher in experimental group in comparison to control group. This is possible because due to regular plyometric training which may also bring sudden spurt in power related variables in volleyball players. The findings of the present study have strongly indicates that plyometric training of six weeks have significant effect on selected power related variables i.e., explosive power and elastic power of volleyball players. Hence the hypothesis earlier set that plyometric training programme would have been significant effect on selected power related variables in light of the same the hypothesis was accepted.

Conclusions

On the basis of findings and within the limitations of the study the following conclusions were drawn:

1. The plyometric training had positive impact on explosive power and elastic power among college volleyball players.
2. The experimental group showed better improvement on explosive power and elastic power among volleyball players than the control group.

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