

EFFECT OF DEPTH JUMP EXERCISES ON SELECTED POWER PARAMETERS OF MALE VOLLEYBALL PLAYERS

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ABSTRACT

The purpose of the study was to find out the effect of depth jump exercises on selected power parameters of male volleyball players. To achieve this purpose thirty male volleyball players studying in Annamalai University, Chidambaram, Tamilnadu were selected as subjects. The age group of the subjects was ranged between 17 to 24 years. The subjects were randomly divided into two equal groups of fifteen subjects each. Group I underwent depth jump exercises training and group II acted as control. Each group consisted of the fifteen subjects in which group-I underwent depth jump exercises training for three days per week for eight weeks and group II acted as control who did not participate any special training apart from the regular curricular activities. Among the strength and power parameters, the following variables such as, leg strength, explosive power in terms of vertical distance and explosive power in terms of horizontal distance were selected as criterion variables. The selected criterion variables explosive power in terms of vertical distance was assessed by sargent jump and explosive power in terms of horizontal distance was measured by standing broad jump test. The data were collected at prior to and immediately after the experimental period as pre and post-tests respectively. The analysis of covariance (ANCOVA) was used to find out the significant difference if any, between the experimental group and control group on each selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate.

Keywords: *Depth jump, Power parameters, Explosive power*

INTRODUCTION

‘Sports’ is a popular spectacle and a mass social movement of contemporary times. In the process of historical development sports has occupied a prominent place both in the moral culture of a society. Its social significance continues to soar. In the modern days ‘sports for all’ become a very popular slogan. Participation in sports will yield optimum physical fitness and positive health for all. In the hurry scenario of modern life people need

more exercise to keep their body and mind fit to execute the day-to-day activities effectively. The word training means different things in different fields. In sports the word training is generally understood to be a synonyms of doing exercise. In a narrow sense training is physical exercise for the improvement of performance. Leg strength plays a vital role in the daily activities of man. It is an essential factor for including in almost all games and sports. There is an old saying than an athlete will go only as long as his legs will carry him. Jumping ability depends on strong muscles and tendons and flexibility of the ankle, knee and hip joints. One of the best measures of human power is broad jump.

Explosive power mainly depends on strong muscle. The abdominal and leg strength play a vital role on a performance of jumpers. In order to develop the abdominal and leg strength, jumping exercise play a major role. Explosive power represents one of the most important features of track and field. Only the energetic aspect of substrate utilization represents the biological basis, as many investigators believe. Indeed, the most peculiar factors for explosive power development must be formed in neuro-muscular properties.

METHODOLOGY

Selection of subjects and Variables

The purpose of the study was to find out the effect of depth jump exercises on selected strength and power parameters of male volleyball players. To achieve this purpose thirty male volleyball players studying in Annamalai University, Chidambaram, Tamilnadu were selected as subjects. The age group of the subjects was ranged between 17 to 24 years. Group I underwent depth jump exercises training and group II acted as control. Each group consisted of the fifteen subjects in which Group I underwent depth jump exercises training for three days per week for eight weeks and group II acted as control who did not participate any special training apart from the regular curricular activities. The selected criterion variables such as explosive power in terms of vertical distance was assessed by sergeant jump and explosive power in terms of horizontal distance was measured by standing broad jump test.

Training Programme

During the training period, the experimental group (Group I) underwent (n=15) depth jump exercises training three days per week (alternative days) for eight weeks. Every day the workout lasted for 45 to 60 minutes approximately including warming up and warming down periods. Subjects in Group II as control were instructed not to participate in any strenuous physical exercises and specific training throughout the training programmes. Each training session was conducted only in the morning time. Prior to every training session both the groups had a ten minutes warm-up exercise involving jogging, calisthenics and stretching.

Statistical Technique

Table- I: Analysis of Covariance on Explosive Power in Terms of Vertical Distance of Depth Jump Exercises Training Group and Control Group

	Depth Jump Exercises Group	Control Group	Source of Variance	Sum of Squares	Df	Mean Squared	'F' ratio
Pre- test Mean	46.87	47.84	Between	93.64	1	93.64	1.69
S.D.	3.58	4.81	Within	1551.33	28	54.40	
Post-test Mean	51.33	48.21	Between	161.64	1	161.64	4.71*
S.D.	4.85	4.80	Within	961.06	28	34.32	
Adjusted Post-test Mean	50.87	48.68	Between	105.85	1	105.85	122.65*
			Within	23.3	27	0.863	

* Significant at .05 level of confidence. Table value required for significance at .05 level with df 1 and 28 and 1 and 27 are 4.20 and 4.21.

Table – I showed that the pre-test values of explosive power in terms of vertical distance for depth jump exercises training group and control group were 46.87 ± 3.58 and 47.84 ± 4.81 respectively. The obtained 'F' ratio value of 1.69 for pre-test score of depth jump exercises training group and control group on explosive power in terms of vertical distance was less than the required table value of 4.20 for significance with df 1 and 28 at .05 level of confidence.

The post-test mean values of explosive power in terms of vertical distance for depth jump exercises training group and control group were 51.33 ± 4.85 and 48.21 ± 4.80 respectively. The obtained 'F' ratio value of 4.71 for post-test scores of depth jump exercises training group and control group was more than the required table value of 4.20 for significance with df 1 and 28 at .05 level of confidence.

The adjusted post-test mean values of explosive power in terms of vertical distance for depth jump exercises training group and control

The data were collected at prior to and immediately after the experimental period as pre and post-tests respectively. The analysis of covariance (ANCOVA) was used to find out the significant difference if any, between the experimental group and control group on each selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate.

Analysis of Data

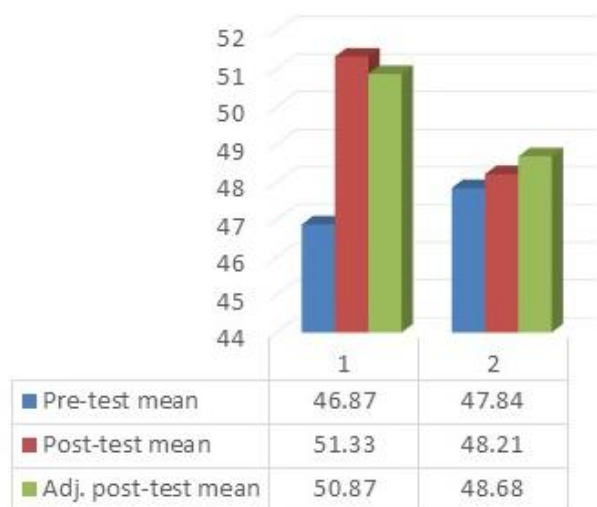
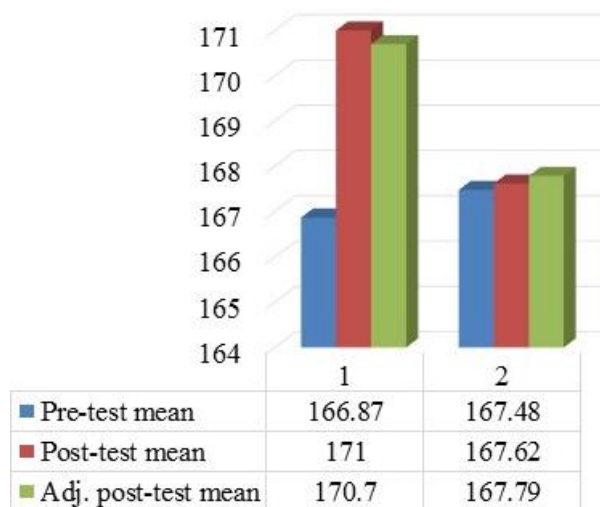
The data collected prior and after the experimental period on explosive power in terms of vertical distance of depth jump exercises training group and control groups were analysed and presented in Table - I.

group were 50.87 and 48.68 respectively. The obtained 'F' ratio value of 122.65 for adjusted post-test scores of depth jump exercises training group and control group was more than the required table value of 4.21 for significance with df 1 and 27 at .05 level of confidence.

The result of this study showed that there was a significant difference between depth jump exercises training group and control group on explosive power in terms of vertical distance.

The mean values of depth jump exercises training group and control group on explosive power in terms of vertical distance are graphically represented in Figure I.

The data collected prior and after the experimental period on explosive power in terms of horizontal distance of Depth jump exercises training group and control group were analysed and presented in Table - II.

Figure-I: The Mean Values of Depth Jump Exercises Training Group and Control Group on Explosive Power in Terms of Vertical Distance**Figure II: The Mean Values of Depth Jump Exercises Training Group and Control Group on Explosive Power in Terms of Vertical Distance****Table – II: Analysis of Covariance on Explosive Power in Terms of Horizontal Distance of Depth Jump Exercises Training Group and Control Group**

	Depth Jump Exercises	Control Group	Source of Variance	Sum of Squares	Df	Mean Squared	'F' ratio
Pre- test Mean	166.87	167.48	Between	163.52	1	163.52	3.22
S.D.	6.46	6.71	Within	1423.28	28	50.83	
Post-test Mean	171.00	167.62	Between	150.83	1	150.82	4.52*
S.D.	6.62	6.74	Within	935.34	28	33.41	
Adjusted Post-test Mean	170.70	167.79	Between	132.31	1	132.31	69.62*
			Within	51.31	27	1.90	

* Significant at .05 level of confidence. Table value required for significance at .05 level with df 1 and 28 and 1 and 27 are 4.20 and 4.21.

Table – II showed that the pre-test values of explosive power in terms of horizontal distance for depth jump exercises training group and control group were 166.87 ± 6.46 and 167.48 ± 6.71 respectively. The obtained 'F' ratio value of 3.22 for pre-test score of depth jump exercises training group and control group on explosive power in terms of horizontal distance was less than the required table value of 4.20 for significance with df 1 and 28 at .05 level of confidence.

The post-test mean values of explosive power in terms of horizontal distance for depth jump exercises training group and control group were 171.00 ± 6.62 and 167.62 ± 6.74 respectively. The obtained 'F' ratio value of 4.52 for post-test scores of depth jump exercises training group and control group was more than the required table value of 4.20 for significance with df 1 and 28 at .05 level of confidence.

The adjusted post-test mean values of explosive power in terms of horizontal distance for depth jump exercises training group and control group were 170.70 and 167.79 respectively. The obtained 'F'

ratio value of 69.62 for adjusted post-test scores of depth jump exercises training and control group was more than the required table value of 4.21 for significance with df 1 and 27 at .05 level of confidence.

The result of this study showed that there was a significant difference between depth jump exercises training group and control group on explosive power in terms of horizontal distance.

The mean values of depth jump exercises training group and control group on explosive power in terms of horizontal distance are graphically represented in figure II.

DISCUSSION

The results of the study showed that there was a significant difference between depth jump exercises training group and control group on selected criterion variables such as leg strength, explosive power in terms of vertical distance and explosive power in terms of horizontal distance of male volleyball players. And also the results of the study showed that there was a significant improvement between depth jump exercises

training group and control group on selected criterion variables due to depth jump exercises training.

According to Seenivasagam, examined plyometric training improves leg strength, leg explosive power and leg endurance and Blakey and Southard, reported that plyometric training improves strength and power. These findings are also in agreement with the finding of Kubachka., point out the plyometric exercise increased power and strength. Brezzo., plyometric training programme improves the leg power. Gopinath point out that explosive power increased due to plyometric training and Brown., concluded that plyometric training appears to enhance explosive power (vertical Jump).

It is inferred from the above literature and from the results of the present study that systematically designed depth jump exercises training to develop the performance standard as the selected criterion variables. These selected criterion variables are very important qualities for better performance in almost all sports and games. Hence it is concluded from the results of the study that systematically and scientifically designed depth jump exercises training may be given due recognition and be implemented properly

CONCLUSIONS

Based on the result of the study the following conclusions were drawn:

1. There was a significant difference between depth jump exercises training group and control group on selected criterion variables such as leg strength, explosive power in terms of vertical and horizontal distances.

2. There was a significant improvement on selected criterion variables such as leg strength, explosive power in terms of vertical and horizontal distances due to depth jump exercises training.

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