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Effects Of Plyometric Exercise On Athletic Power In Women Volleyball Players

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Abstract: The purpose of the study was to effects of Plyometric exercise on Athletic Power in Women Volleyball players. The 25 volleyball players wer selected for sample size of the study and their age ranged between 20 -25 years. Only training was given to the experimental groups. Exclusion criteria were the presence of chronic medical conditions such as asthma, heart disease or any other condition that would put the subjects at risk when performing the experimental tests. The Plyometric exercise training program was planned as 12 weeks 4 day a week and 30 minutes in a day. The Plyometrics exercise includes Front Box Jump, Lateral Box Jump, Weighted Lateral Jumps, Broad Jumps,Skater Jumps, Scissor Jumps, Dot Drill,Lateral Box Shuffles, Athletic Power Athletic power measured by using the Standing Broad Jump etc . The result reveals that there was significant ieffect of Plyometric exercise on athletic power ($p<0.05$) in female volletball players. The athletic power significantly, improve due to Plyometrics exercise

Keywords: Plyometric exercise, Volleyball, Women, Athletic Power

INTRODUCTION

Volleyball is a sport dominated by strength and power. Players need power in their legs to get high in the air and strength in their upper body to spike, block, and dig balls. Lifting weights stimulates muscle fibers to grow, which allows athletes to produce more force at faster rates. Volleyball is a tough sport, demanding speed, agility, and explosiveness all in one athlete . Plyometric exercises enable the athlete to overload and train his/her body in a specific position required for a specific competition situation. Today the high level of professional sport focuses on specific training and plyometric training is a form of overload exercise. The ability to perform quick and vigorous movements is also important in volleyball (Tsunawake, 2003). Athletic power is particularly relevant in volleyball, and is directly linked to the performance in various situations (Menzel, et.al. 2010, Sheppard etl.al 2008). optimal muscle strength and power, together with technical and tactical skills are necessary to practice the sport at a high level of performance(Marques, 2009) . Volleyball has developed into a highly competitive sport which requires a high level of physical, physiological and psychological fitness. The game at a high level of competition, requires quicker sudden movements and fast reaction. Plyometrics includes explosive powerful training exercises that are trained to activate the quick response and elastic properties of the major muscles in the body. Sports using plyometrics include Volleyball, tennis and volleyball as well as the various codes of football.

MATERIALS AND METHODS

Two groups were targeted, plyometrics exercise group (Experimental group) and control group . 25 women Volleyball players from Chandrapur as experimental group selected under plyometrics exercise group and 25 women Volleyball players as a control group . Only training was given to the experimental groups. Voluntary to participate in the stretching exercise training programmes. Exclusion criteria were the presence of chronic medical conditions such as asthma, or any other condition that would put the subjects at risk when performing the experimental tests. The subjects were free of smoking, alcohol and caffeine consumption, antioxidant supplementation and drugs during the programmes. They completed an informed consent document to participate in the study. This study involves the impact of plyometrics exercise intervention training programme on Athelticpower of students in experimental design.

TRAINING PROGRAMME

The Plyometric exercise programme were planned for 4 days a week 30 minutes in a day for 12 weeks including 10 minutes warm up period and 05 minutes cool down. The following Plyometric exercise was taken for women Volleyball players. The Plyometrics exercise includes Front Box Jump, Lateral Box Jump, Weighted Lateral Jumps, Broad Jumps,Skater Jumps, Scissor Jumps, Dot Drill,Lateral Box Shuffles, Barbell Squat Jumps,Medicine ball chest pass test, Squat Jump , Bent knee sit ups, Squat thrust, Strudel thrust, Bench press, Pull ups, Depth jump:

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ATHLETIC POWER

Athletic Power Athletic power measured by using the Standing Broad Jump. This test measures the power of legs in jumping horizontal distance and may be applied to both sexes aged seven years above. Floor Mat or long jump pit was used, measuring tape, marking tape. A demonstration of the standing Broad jump is given to a group of Subjects to be tested. The Subject is then asked to stand behind the starting line with the feet parallel to each other. He is instructed to jump as farthest as possible by bending knees and swinging arms to take off for the broad jump in the forward direction. The subject is given three trials. The distance between the starting line and the nearest point of landing provides the score of the test. The best trial is used as the final score of the test. Pre and Post Test was taken from 25 other students as a control group.stretching exercise training programme was given to the experimental group. And analysis the data mean, S.D. and t-test was utilized the level of significant was set up at 0.05 level.

RESULTS

Table-1
Descriptive statistics of personal characteristics of women volleyball players

Sr. No.	Components	Means Scores	Standard Deviations
1.	Age (Year)	21.32	3.60
2.	Weight (Kg)	62.21	6.56
3.	Height (cm)	161.20	8.67

Table -1 depicted the morphological characteristics of Women volleyball players , the Mean Scores (S.Ds.) age of women volleyball players was 21.32 (3.60) years, mean scores (S.Ds.) weight was 62.21 (6.56) Kg, and mean scores (S.Ds.) height was 161.20 (8.67) cm

Table-2 , Mean Scores, Standard Deviations and T-test of Pre and Post-test of Athletic Power among Control group.

Components	Test	Number	Mean Scores (cm)	S. D.	T-Test
Athletic Power	Pre Test	25	216.78	18.40	1.67 NS
	Post Test	25	217.17	18.91	

Table - 2 Pre and post-test of mean scores, standard deviation and t-ratio of Athletic power of Control Group. With regards to pre and post-test of Athletic power of control group they have obtained mean values were 216.78 and 217.17 respectively, whereas they obtained standard deviation 18.40 and 18.91 respectively. The result reveals no significant difference of Athletic power was found in control group.

Figure-1 shows the Mean Scores and Standard Deviations of Pre and Post-test of Athletic Power among Control group

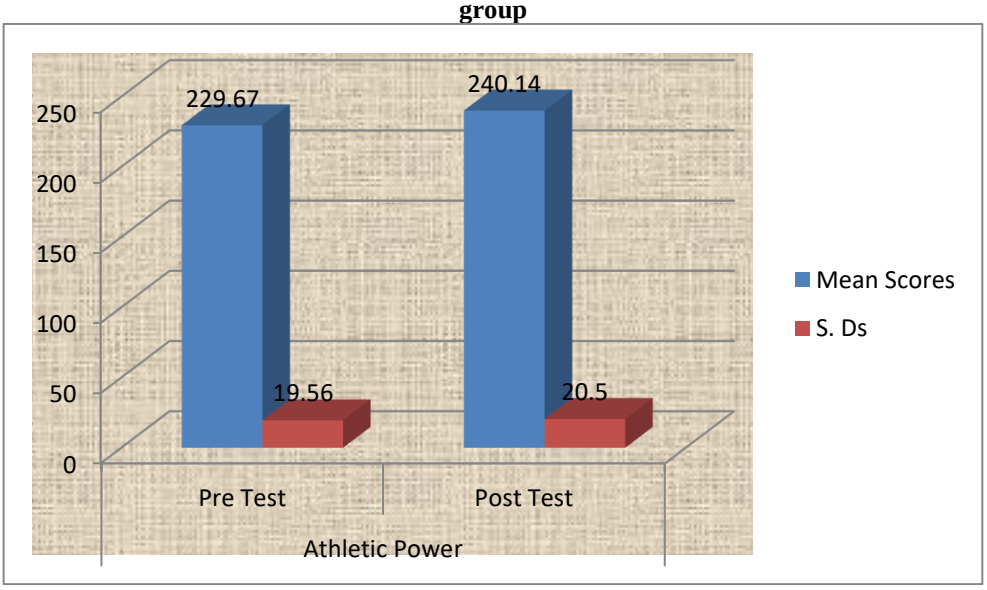

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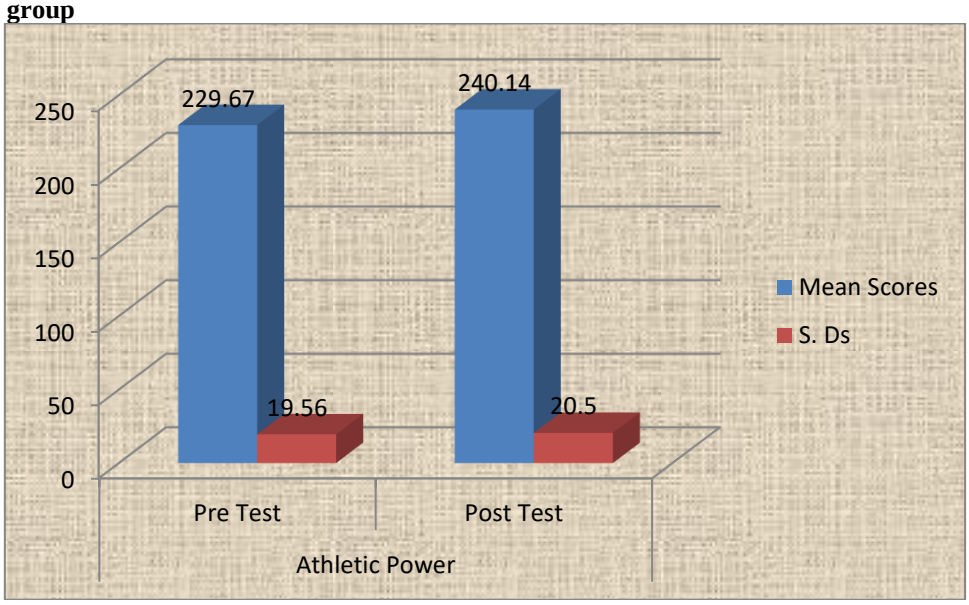
Table-3, Mean Scores , Standard Deviations and T-test of Pre and Post-test of Athletic power ability among Experimental group.

components	Test	Number	Mean Scores	S. Ds	T-Test
Athletic Power	Pre Test	25	229.67	19.56	4.58*
	Post Test	25	240.14	20.50	

As per Table-3, illustrates the mean scores and standard deviations of Athletic power using through Standing Broad Jump test among experimental group.

Figure -2 shows the Mean Scores and Standard Deviations of Pre and Post-test of Athletic power ability among Experimental group



DISCUSSION

The mean scores obtained from Table 3, the mean score of Pre-test was 229.67 and the post test was 240.14 respectively of Athletic power among experimental group. Mean while the standard deviations of Pre-test were 19.56 and the post test was 20.50 respectively of Athletic power among experimental group. The findings of the study illustrates that there were significant effects of Plyometrics training on Athletic Power on women volleyball players. The athletic power is the ability to exert a maximal force in as short a time as possible, as in accelerating, jumping and throwing implements. volleyball skills, such as serving, attacking, blocking, setting, digging and receiving the service require high levels of these functional abilities(Borras et.al.2011). Volleyball is a sport dominated by strength and power. Players need power in their legs to get high in the air and strength in their upper body to spike, block, and dig balls. Lifting weights stimulates muscle fibers to grow, which allows athletes to produce more force at faster rates. players get stronger their explosive power also heightens on the court. Strengthening volleyball-specific muscles ensures that athletes are able to reach their maximum performance potential. Volleyball requires explosive jumps and rapid changes in direction. The ability to jump high is treasured amongst volleyball players because of the importance for spiking the ball as well as defending spikes from opponents.plyometric training seems to increase vertical jump performance, strength, horizontal jump performance, flexibility and agility/speed in volleyball players. However, more studies are needed to better understand the benefits of plyometric training in volleyball players' performance

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