

Effect of Sand Based Plyometric Training on Selected Physical Variables of Volleyball Players

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ABSTRACT

Physical exercise is bodily activity that enhances or maintains physical fitness and overall health and wellness. The purpose of the study was to find out the Effect of sand Based Plyometric training on selected Physical Variables of Male Volleyball Players. Total Thirty volleyball players of 16-21 years of age were randomly selected from Ludhiana. The selected physical variables i.e. Explosiveness, Strength, Agility, Speed and BMI were measured by using respective techniques and equipments. The differences were assessed by using 't' test. The level of $p \leq 0.05$ was considered significant.

Key Words: Physical Fitness, Plyometric, , Physical Variables, Volleyball.

INTRODUCTION

Physical exercise is bodily activity that enhances or maintains physical fitness and overall health and wellness. It is performed for various reasons, including strengthening of muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, and merely enjoyment. Physical fitness provides capacity for activity. Physical fitness has been considered as one of the most important requirement of sports performance. In recent years, there has been record-breaking performance in diverse sports activities. Some of the most important of which are improved techniques and training methods, better selection of the suitable activities and better nutrition. Suitable activity is very important for all the sports. Volleyball player should make Plyometric training an essential component of their overall training. Good vertical jump height is a great skill to possess both offensively and defensively in volleyball. The ability to jump higher can provide a better angle and potentially more force when spiking the ball, especially for a player who lacks physical height. It can also help in defending a spiked ball from an opponent.

Plyometric training is an excellent way to train the players. Training programmes should include repeated high intensity work, followed by period of recovery that imitates the specific tasks related

to basketball. Other terms used in combination with Plyometric training are depth jump, box jump and jump training. Plyometric training has been used in training program as a useful method for improving motor performance. Plyometric exercises are used mainly to increase the maximal power output and jumping ability. It includes training loads with a number of rebounds and intervals between sets of exercises and drills. In plyometric training, athletes perform stopping, starting and changing direction in an explosive way, which helps to improve agility. One of the most effective mean of training for power is through plyometric training. It includes training loads with a number of rebounds and intervals between sets of exercises and drills. These abilities are the necessary skills in many team games including basketball because they enable players to do activity during the game at the required height, speed and at the right moment. Several researchers have used Plyometric training in their research and have shown that it improves

power output and increases explosiveness by training the muscles to do more work in a shorter amount of time.

EXPLOSIVE STRENGTH: Explosive strength connotes the ability of the leg extensors to apply maximum force in the shortest time.

STRENGTH: The capacity of an object or substance to withstand great force or pressure.

SPEED: The rate at which someone or something moves or operates or is able to move or operate.

AGILITY: Agility connotes here as the ability of the body parts to change the direction rapidly and accurately.

BMI: weight (kg) / height (m)*height (m)

MATERIALS AND METHODS

For the present study the investigator selected thirty (30) Male Volleyball players from

Ludhiana. The age of the subjects ranges from 16-21 years. Prior to the administration of tests and training, the investigator held a series of meeting with the subjects, who were made clear about the objectives and purpose of the study. The testing procedure was explained to them in detail. They were requested to co-operate and participate actively in the same. Demonstration of all exercises was after done, so that the subjects would be clear about what they need to do.

The pre and post-test random group design was used as experimental design. The subjects tested on selected criterion variables those were Explosiveness, Strength, Agility, Speed, and BMI Prior to and immediately after the eight weeks of sand based plyometric training.

RESULTS AND DISCUSSIONS

TABLE-1
Mean, S.D and t-value between pre-test & post-test of Explosiveness

Explosiveness	Mean	SD	t-test
Pre-test	19.95	8.88	7.46*
Post-test	28.60	10.10	

*level of significance at 0.01

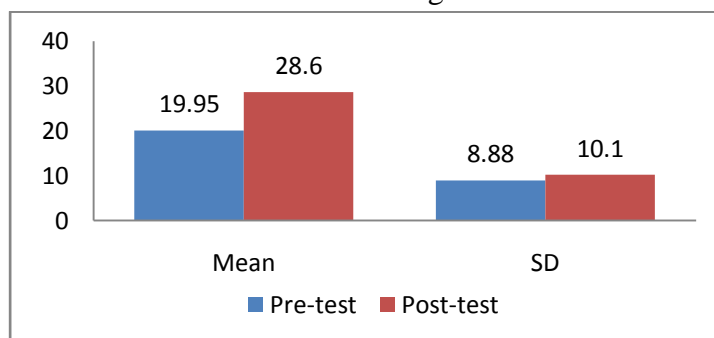


Fig 1.Shows the comparison of mean and S.D between pre-test and post-test of explosiveness
FIGURE 1 –The mean and SD of pre-test and post-test are 19.95±8.88 and 28.60±10.10 respectively. The calculated value of explosiveness (7.46) is more than the table value (2.58), we reject the null hypothesis. There is a significant difference between pre-test and post-test of explosiveness of male Volleyball Players.

TABLE-2
Mean, S.D and t-value between pre-test & post-test of Strength

Strength	Mean	SD	t-test

Pre-test	16.32	8.94	5.77*
Post-test	18.52	8.68	

*level of significance at 0.01

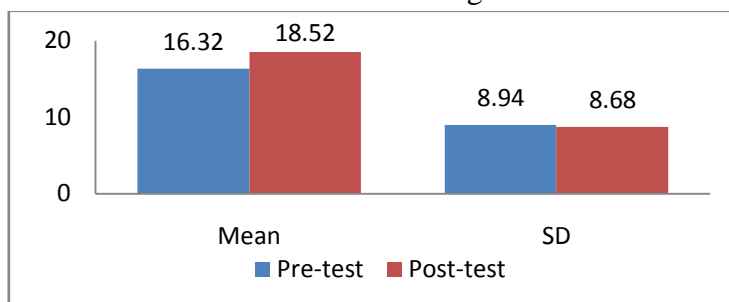


Fig 2.Shows the comparison of mean and S.D between pre-test and post-test of Strength

FIGURE 2 –The mean and SD of pre-test and post-test are 16.32 ± 8.94 and 18.52 ± 8.68 respectively. The calculated value of Strength (5.77) is more than the table value (2.58), we reject the null hypothesis. There is a significant difference between pre-test and post-test of Strength of Male Volleyball Players

TABLE-3

Mean, S.D and t-value between pre-test & post-test of Agility

Agility	Mean	SD	t-test
Pre-test	19.14	.84	2.33*
Post-test	18.53	1.23	

*level of significance at 0.05

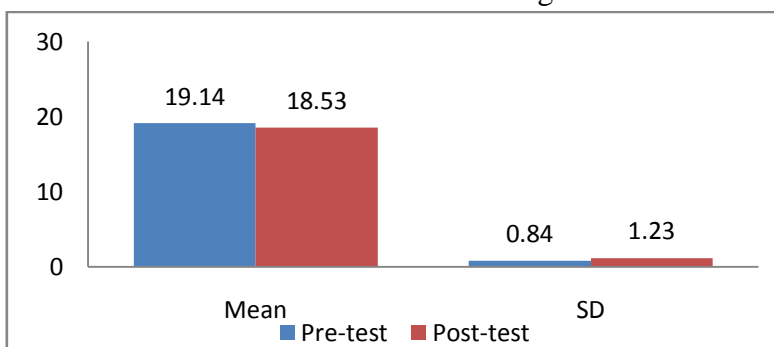


Fig 3.Shows the comparison of mean and S.D between pre-test and post-test of Agility

FIGURE 3 –The mean and SD of pre-test and post-test are 19.14 ± 0.84 and 18.53 ± 1.23 respectively. The calculated value of Agility (2.33) is more than the table value (1.96), we reject the null hypothesis. There is a significant difference between pre-test and post-test of Agility of Male Volleyball Players

TABLE-4

Mean, S.D and t-value between pre-test & post-test of Speed

Speed	Mean	SD	t-test
Pre-test	17.96	5.49	2.20
Post-test	16.60	5.19	

*level of significance 0.05

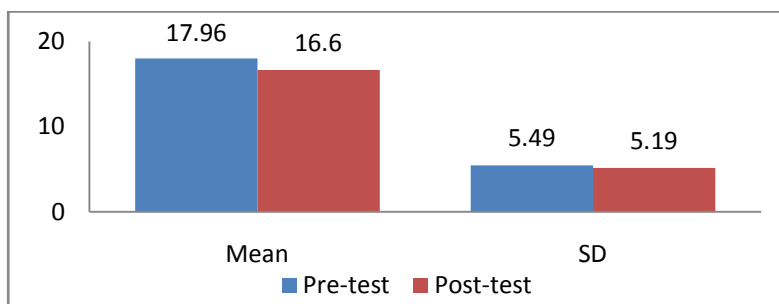


Fig 4. Shows the comparison of mean and S.D between pre-test and post-test of Speed

FIGURE 4 –The mean and SD of pre-test and post-test are 17.96 ± 5.49 and 16.60 ± 5.19 . The calculated value of Speed (2.20) is more than the table value (1.96), we reject the null hypothesis. There is a significant difference between pre-test and post-test of Speed of Male Volleyball Players.

TABLE-5

Mean, S.D and t-value between pre-test & post-test of BMI

BMI	Mean	SD	t-test
Pre-test	18.68	3.04	0.87
Post-test	18.67	2.79	

*level of significance 0.05

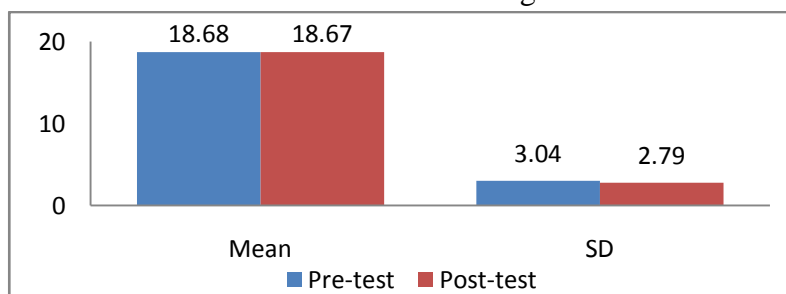


Fig 5. Shows the comparison of mean and S.D between pre-test and post-test of BMI

FIGURE 5 –The mean and SD of pre-test and post-test are 18.68 ± 3.04 and 18.67 ± 2.79 respectively. The calculated value of BMI (0.87) is less than the table value (1.96), we accept the null hypothesis. There is no significant difference between pre-test and post-test of BMI of Male Volleyball Players.

CONCLUSION

These results suggest that after eight weeks of sand based Plyometric training can produce a significant increase in the Physical variables (Explosiveness, strength, Agility, Speed).

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