



# Effect of Plyometric Training on Volleying and Serving Ability of Volleyball Players

<sup>1</sup> Priyanka N.

<sup>1</sup> Research Scholar

<sup>1</sup> Department of Studies in Physical Education and Sports Science

<sup>1</sup> Karnataka State Akkamahadevi Women's University, Vijayapura-586108, Karnataka, India

**Abstract:** The aim of this research is to identify the effectiveness of plyometric training on skill performance abilities of Volleying and Serving of Volleyball players. For this purpose, twenty eight club volleyball players in the age group of 16 to 18 years were selected as subjects. The selected subjects were divided into two equal groups, in which, Group-A: PTG acted as Plyometric training group (n=14) underwent plyometric exercises with specific skills practice and game & Group-B: CG acted as Control Group (n=14) which did not participate any training but allowed to take part in their regularly participating in physical activities. The training programme was carried out for five days per week for twelve weeks. Prior to and after the training period the subjects were tested for Volleying Ability by administering AAHPER Volleying Test measured in points and Serving Ability by administering AAHPER Serving Test measured in points. The collected data was examined by using dependent 't' test analysis. The Statistical Package for Social Science Version 24.0 and MS Office Excel 2015 was used. The level of significance was fixed at 0.05 level of confidence to identify the significant differences in the selected skill performances such as volleyball volleying and serving abilities of volleyball players. After applying the dependent 't' test, it was found that there was a significant improvement in the Skill Performance Variables such as Volleying and Serving Abilities of experimental group when compared with Control Group. The study suggested that plyometric training with specific volleyball skills practice is suitable to improve the volleying and serving ability of the volleyball players.

**Index Terms** - Plyometric Exercises, Volleying, Serving, Ability, Volleyball, Training

## I. INTRODUCTION

Competitive teams showing very great skills like serve, pass, set, attack, block and dig. These skills accommodate a number of accurate techniques which have been brought through the years and taken into consideration best exercise in extreme level volleyball. Volleying is the motion of passing a ball back and forth over a net. The technique to volleying volleyball takes skill and practice. The volley is a basic skill that anyone playing the game should be able to do proficiently. Volleying is the movement of passing a ball back and forth over a net. The volley is a basic skill that anyone playing the game should be able to do capably. Volley is to set it into a better position for a teammate to bump or spike it onto the other side of the court.

A serve is referred to as an 'ace' whilst the ball lands directly onto the courtroom or travels out of doors the court after being touched by an opponent. A participant stands in the back of the inline and serves the ball, in a try to force it into the opponent's court docket. His or her main objective is to make it land in the court; it is also proper to set the ball's course, pace and acceleration in order that it will become hard for the receiver to address it properly. Plyometric training with specific skills practice is the helpful to survive with the better performance in Volleyball game.

Plyometric is a way to increase sporting performance by exercises with skip, jump and throw methods for strength or explosion. These exercises aim to increase the athlete's explosive reaction with strong concentric contraction after rapid eccentric contraction. Thus such type of specific skill training program is a need for the player to excellent in sport. Thus the present study has been carried out to study the effect of plyometric exercises with specific skill practices on volleying and serving skill performance of volleyball players. The plyometric training has become highly structured training for development of volleyball

game performance. It has vastly different training effects depending upon the intensity and duration of the work and rest period. More research is required concerning the variation in varied intensity of plyometric training and its effects.

Effect of strength and plyometric training on selected skill performance variables of male volleyball players study (Selvakumar and Palanisamy, 2017). Arumugam (2016) studied to identify the effect of in-season training on skill performance of volleyball. The finding suggests that the skill performance improved of volleyball players. Palao and others (2004) examined the effect of a team's level on the performance of skills (serve, reception, spike, block and dig) in high level volleyball. The applicability of plyometric method of training to alter the volleyball skill performance development and fitness is not yet completely known. Performance depends on skills, physical and physiological factors. The poor performance of Indian athletes and sportsmen at the international competition has been of great concern, especially to the coaches and sports scientists. Hence, there is a need to find out whether plyometric training is the helpful for the volleyball players to survive with the better performance in universe and improve the games performance.

### **Topic of Research**

“Effect of Plyometric Training on Volleying and Serving Abilities of Volleyball Players”

### **Objective of Research**

The aim of research was to examine the effect of plyometric training on volleying and serving abilities of volleyball players.

### **Hypothesis**

It is hypothesized that there would be a significant difference in the volleying and serving abilities of Volleyball players due to intervention of plyometric exercises.

### **2. METHODOLOGY**

For this purpose, twenty eight club volleyball players in the age group of 16 to 18 years were selected as subjects. The selected subjects were divided into two equal groups, in which, Group-A: PTG acted as Plyometric Training Group (n=14) underwent plyometric exercises with specific skills practice and game and Group-B: CG acted as Control Group (n=14) which did not participate any training but allowed to take part in their regularly participating in physical activities. The training programme was carried out for five days per week for twelve weeks. Prior to and after the training period the subjects were tested for Volleying Ability by administering AAHPER Volleying Test measured in points and Serving Ability by administering AAHPER Serving Test measured in points. The collected data was examined by using dependent 't' test analysis. The Statistical Package for Social Science Version 24.0 and MS Office Excel 2015 was used. The level of significance was fixed at 0.05 (significance level) to identify the significant differences in the selected skill performance abilities in volleyball and serving performance of volleyball players.

### **3. ANALYSIS OF DATA**

The data collected prior to and after the experimentation on selected skill performance abilities namely volleying and serving abilities of Volleyball players of CG (Control Group) and PTG (Plyometric Training Group) Group were analyzed and presented in the form of Table and Graphs each variable separately.

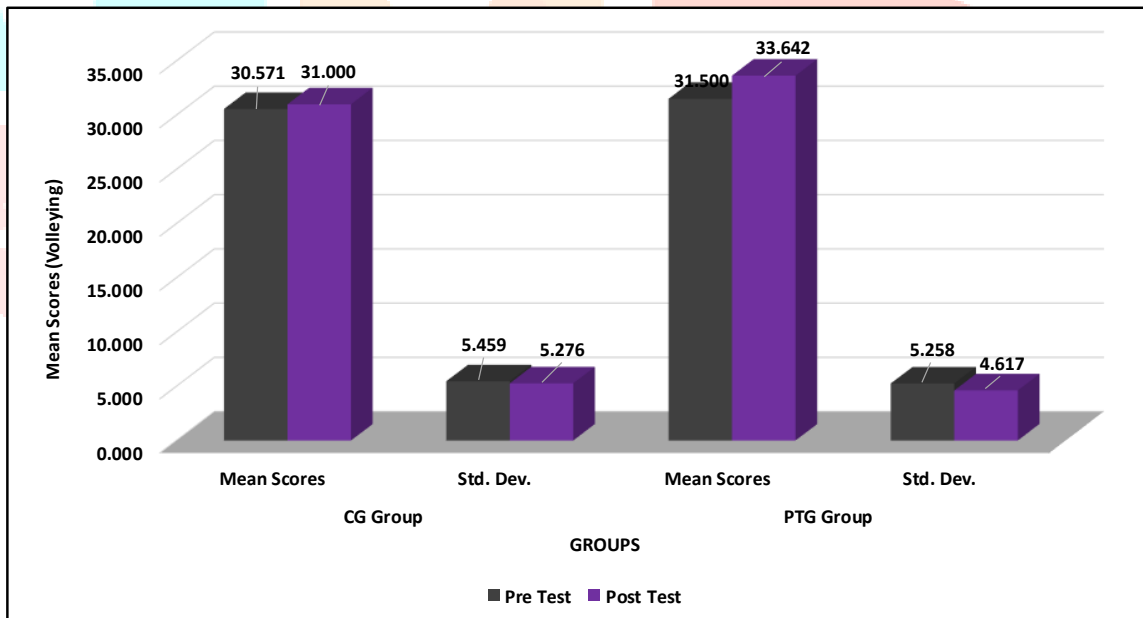
**Table-1:** Dependent ‘t’ test Analysis results on Volleyball players’ pre and post test scores of Volleying performance of CG and PTG groups (Each group contains 14 volleyball players).

Tests	CG Group			PTG Group		
	Mean Scores	Std. Dev.	‘t’ Value	Mean Scores	Std. Dev.	‘t’ Value
Pre Test scores of Volleying	30.571	5.459	0.67 <sup>NS</sup>	31.500	5.258	4.27*
Post Test scores of Volleying	31.000	5.276		33.642	4.617	

NS=Not Sig. at 0.05 level of confidence: \* Sig. at 0.05 level of confidence [Table Value = 2.16]

The table-1 explains the Dependent ‘t’ test Analysis results on Volleyball players’ pre and post test scores of Volleying performance of CG and PTG groups. The obtained ‘t’ value of 0.67 with regard to performance of Volleying is less than the table value 2.16, hence, it was not found significant at 0.05 level of confidence. The results found that the there was no significant changes made from pre test (M=30.571) to post test (M=31.000) scores on Volleying Performance of Volleyball players of CG group.

Further, the table-1 shows that obtained ‘t’ value of 4.27 with regard to performance of Volleying is higher than the table value 2.16, hence, it was found significant at 0.05 level of confidence. The results found that the there was a significant changes made from pre test (M=31.500) to post test (M=33.642) scores on Volleying performance of Volleyball players of PTG group and this may be due to PTG group subjects participated in plyometric exercises.



**Fig.1:** Comparison of Pre and Post Test scores on Volleying Skill Performance of Volleyball players of CG and PTG groups.

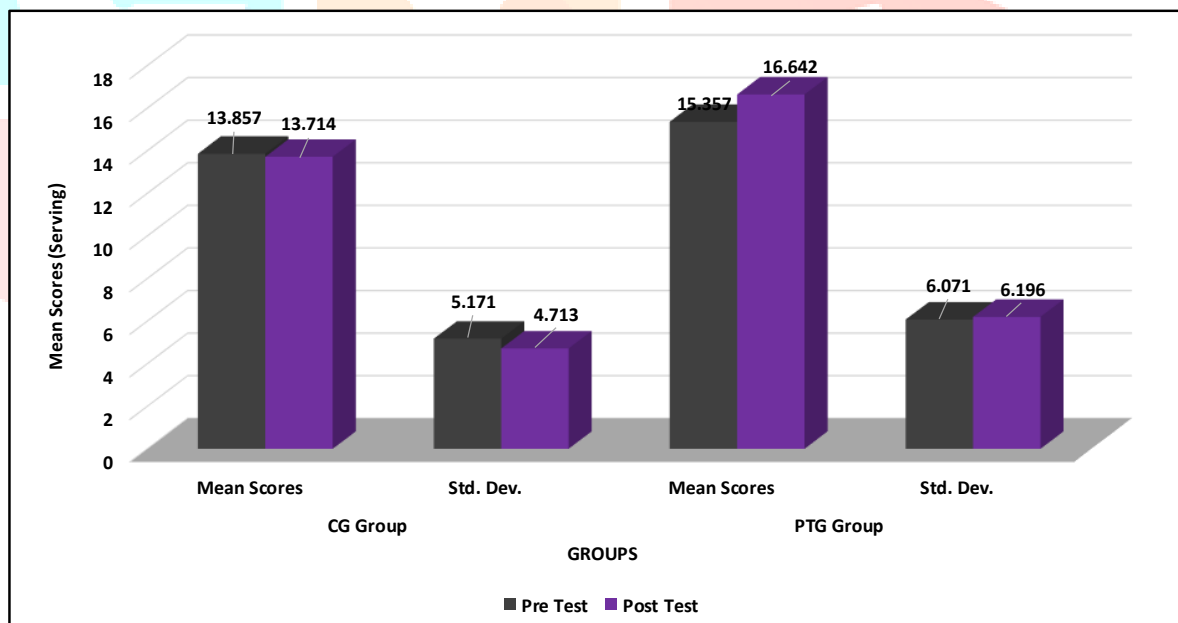
**Table-2:** Dependent 't' test Analysis results on Volleyball players' pre and post test scores of Serving performance of CG and PTG groups (Each group contains 14 volleyball players).

Tests	CG Group			PTG Group		
	Mean Scores	Std. Dev.	't' Value	Mean Scores	Std. Dev.	't' Value
Pre Test scores of Serving	13.857	5.171	0.25 <sup>NS</sup>	15.357	6.071	3.63*
Post Test scores of Serving	13.714	4.713		16.642	6.196	

NS=Not Sig. at 0.05 level of confidence: \* Sig. at 0.05 level of confidence [Table Value = 2.16]

The table-2 explains the Dependent 't' test Analysis results on Volleyball players' pre and post test scores of Serving performance of CG and PTG groups. The obtained 't' value of 0.25 with regard to performance of Serving is less than the table value 2.16, hence, it was not found significant at 0.05 level of confidence. The results found that there was no significant changes made from pre test (M=13.857) to post test (M=13.714) scores on Serving performance of Volleyball players of CG group.

Further, the table-1 shows that obtained 't' value of 3.63 with regard to performance of Serving is higher than the table value 2.16, hence, it was found significant at 0.05 level of confidence. The results found that there was a significant changes made from pre test (M=15.357) to post test (M=16.642) scores on Serving performance of Volleyball players of PTG group and this may be due to PTG group subjects participated in plyometric exercises.



**Fig.2:** Comparison of Pre and Post Test scores on Serving Skill Performance of Volleyball players of CG and PTG groups.

#### 4. DISCUSSION ON FINDINGS

The output of the research concluded that PTG showed significant changes made in the volleying and serving performances of Volleyball players due to intervention of plyometric exercises with volleyball skills practices when compared with CG group. The result showed that twelve weeks practices of plyometric exercises along with volleyball skills practices improved volleying and serving abilities of Volleyball players. This may be due to subjects participated in a plyometric exercises was to specifically target the requirements of competitive volleyball players. The got results had similarity with the results by authors of Abdul Halik (2021), Jenith (2021), Ooraniyan (2021) and Senthil Kumaran (2018). The results of the present study indicate that the specific volleyball training methods is appropriate protocol to improve volleying and serving of volleyball players. The study suggested

that plyometric training by using skater jumps, split squat jumps, box jumps, jump squats with volleyball skills practice is suitable to improve the skill performance (volleying and serving ability) of the volleyball players.

## 5. CONCLUSION

This study confirmed that plyometric exercises group showed significant changes in Volleying and Serving of Volleyball players due to intervention of 12 weeks plyometric exercises. The selected corporeal variables such as volleying and serving improvement significantly due to plyometric exercises with specific volleyball training.

## 6. REFERENCES

- [1] Abdul Halik, Senthil Kumaran, Arun Kumar, Rajesh, Princy. Effect of Complex Training on Strength Endurance and Agility among Basketballers. *International Journal of Research Publication and Reviews* 2021; 2(8): 157-166.
- [2] Arumugam, C., (2016). Effect of in-season training on skill performance of volleyball players. *International Journal of Recent Research and Applied Studies*. 1 (3): 4-6.
- [3] Clark Harrison, H., (1976). *Application of Measurements of Health and Physical Education*. Englewood Cliffs, N. J Prentice Hall Inc.
- [4] Jenith, Senthil Kumaran, Kodeeswaran. Influences of Reaction Time and Agility Response to Shadow Training among Tennis Players. *EPRA International Journal of Multidisciplinary Research* 2021; 7(5): 38-41.
- [5] Johnson, Barry L. and Nelson Jack K., (1988, 3rd ed.). *Practical Measurements for Evaluation in Physical Education*. Delhi: Surjeet Publications, 111-112, 236.
- [6] Ooraniyan and Senthil Kumaran. Effect of Game Specific Aerobic Training on Motor Fitness Components among Handball Players. *International Journal of Yoga, Physiotherapy and Physical Education* 2018; 3(4): 68-70.
- [7] Palao, J. M., Santos, J. A., and Urena, A., (2004). Effect of team level on skill performance in volleyball. *International Journal of Performance Analysis in Sport*. 4 (2): p 50-60.
- [8] Selvakumar, P., and Palanisamy, G., (2017). Effect of strength and plyometric training on selected skill performance variables of male volleyball players. *International Journal of Physical Education, Sports and Health*. 4(3): p 57-59.
- [9] Senthil Kumaran (2018) Impacts of plyometric training on selected physical fitness variables among basketball players, *International Journal of Yoga, Physiotherapy and Physical Education*, 3(4): 52-54.
- [10] Singh Hardayal, (1991). *Science of Sports Training*. Newdelhi: D.V.S Publications.