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## 20. Effect of Various Plyometric Training on Coordination in Volleyball Players

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### Abstract

The purpose of this research study was to examine the effect of various plyometric training on coordination on volleyball players. This research study was limited to male volleyball players only. In this research study ST of Valsad district of South Gujarat region. A total of 60 subjects were randomly selected from volleyball players in the age group of 14 to 19 years of Francis School, Vapi. Which was divided into two groups. Group-A was divided into plyometric training and group-B as control group. The experimental training of this research was plyometric training for 06 weeks. In the standard of measurement, eye hand coordination and eye-leg coordination (Nelson test) were measured. 30-30 subjects were selected in both the groups. The components of coordination of these two groups were pre-tested. After that the experimental training group was given plyometric training for 06 weeks. While the control group was kept free from training. After the completion of the training, each group was given an answer test. Analysis of T-Test was applied to the obtained data of both groups and significance was tested at 0.05 level. Findings were found as follows. A systematic 06-week plyometric training program showed significant improvement in subjects' coordination.

**Keyword :** Plyometric Training, Eye-Hand coordination, Eye- Leg Coordination,

### Introduction

The popular team sport of volleyball had its roots in the United States and dates back to the late 1800s. The game was created in 1895 by William G. Morgan, a YMCA physical education director, and was first called as "mintonette". Morgan wanted to create a less demanding sport than basketball, which was growing more and more popular at the time.

On February 9, 1896, the International YMCA Training School in Holyoke, Massachusetts hosted the first-ever volleyball match. The activity immediately became well-liked and extended to other YMCA locations and educational institutions around the country.



Because of the volleying action that is a part of the sport, the game was renamed "volleyball" in 1900 from "mintonette".

Volleyball spread across the United States as its popularity developed. During World Wars I and II, American troops were instrumental in the sport's globalization by introducing it to other nations. The international governing body for volleyball was founded in 1947 and is known as the Federation Internationale de Volleyball (FIVB).

One of the biggest moments in volleyball history was when the sport debuted in the Tokyo Summer Olympics in 1964. The sport of volleyball gained global fame and popularity when it was added to the Olympic program. Only men's teams played in the first Olympic volleyball sport; women's volleyball was added in 1964 in Tokyo.

The creation of the Volleyball Federation of India (VFI) in 1951 was a pivotal moment in the development of the sport's national organization and promotion. Since then, volleyball has gained popularity in India, where the VFI is trying to promote and grow the sport all throughout the nation.

India made its debut in Olympic volleyball in the 1964 Tokyo Summer Olympics. The Indian men's volleyball team participated in the event, marking the country's first appearance in the Olympic Games for this sport. Since then, India has continued to participate in Olympic volleyball competitions, with both men's and women's teams representing the nation in subsequent editions of the Games.

Plyometric training stands as a dynamic and efficient workout method aimed at improving explosive power, agility, and overall athletic performance. At its core, plyometrics centers around the stretch-shortening cycle (SSC), involving rapid muscle stretching immediately followed by a forceful contraction. This mechanism optimizes muscle elasticity, enabling individuals to produce maximum force in minimal time. A diverse range of plyometric exercises, such as box jumps, depth jumps, medicine ball throws, bounding, and jump squats, target distinct muscle groups and facets of power development. Effective implementation of plyometric training necessitates a gradual, progressive approach, commencing with foundational exercises and advancing as individuals enhance strength and coordination. Emphasizing proper form is paramount for injury prevention, with a focus on controlled landings and technique. Tailoring plyometric programs to an individual's fitness level, considering factors like age and pre-existing injuries, is imperative for safe and productive training. When executed with care and

expert guidance, plyometric training emerges as a valuable tool for athletes and fitness enthusiasts, fostering improved neuromuscular adaptations and overall athletic capabilities.

### Objective of the Study

The objective of the present study was to examine the effects of various Plyometric Training on coordination of selected volleyball players.

### Selection of subjects

The male volleyball players from St. Francis High School, Vapi, were selected as subjects in the present study. Male players of 14 to 19 age groups were selected as the subjects in the present study. A total of 60 male volleyball players were selected as subjects, of which 30 were included in each of two groups, such as the plyometric training group and the control group in the present study.

### Measurement criterion

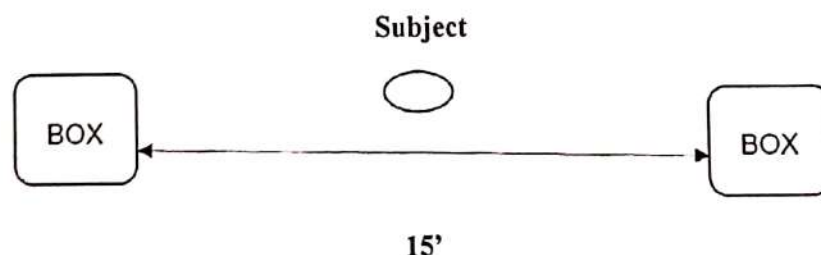
No.	Variable	Test	Measurement Unit
1	Coordination	Eye-Hand and Eye-Leg coordination (Nelson Test)	Time

### Statistical process

Significance of mean difference of data of experimental groups and a control group was examined at 0.05 levels by applying T-test.

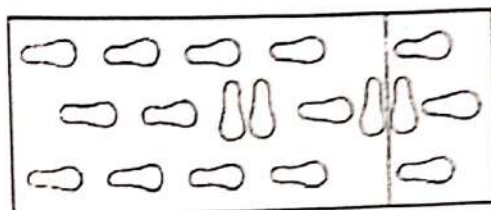
### Method

**Eye-Hand coordination Test :** Subjects were asked to stand in the centre and marked 7.5 feet to the left and right of the subject box to compare hand-eye coordination ability. On the examiner's command the subject would run and collect the ball from the right side and place it in the marked box on the left side, in this way 5 balls were required to be transferred.



**Eye-leg coordination:** To compare eye-foot coordination ability, subjects were asked to stand behind a marked area with one foot. With the start of the examiner's stopwatch and his command, the subjects came to run to marked locations as fast as possible with intense perfection. One trial is allowed.





### Results of the Study

Table - 1: Analysis of covariance of experimental and a control group of Eye- Hand coordination and Eye-leg coordination performance

Variables	Plyometric Group				Control Group			
	Pre Test Mean	Post Test Mean	sd	't' value	Pre Test Mean	Post Test Mean	sd	't' value
Eye Hand Coordination	18.245	17.261	1.881	2.864	18.2987	18.2983	0.091	0.020
Eye - Leg Coordination	7.376	7.272	0.104	6.196	7.3767	7.3753	0.001	0.030

\*Table value-t 0.05 (1,29) = 2.045 = Significant

It is observed from the above table that the 'T' value of the mean of the eye hand coordination performance test of the pre-posttest was found to be 0.020 for the control group, which was not found significant at the (2.045) 0.05 level when compared with the tabular value. The 'T' value of the mean of pre-post was found to be 2.864 for the plyometric group, which was found to be significant at (2.045) 0.05 levels when compared with the tabular value.

It is observed from the above table that the 'T' value of the mean of the eye leg coordination performance test of pre-posttest was found to be 0.030 for the control group, which was not found significant at the (2.045) 0.05 level when compared with the tabular value. The 'T' value of the mean of pre-post was found to be 6.196 for the plyometric group, which was found to be significant at (2.045) 0.05 levels when compared with the tabular value.

### Conclusion

- A significant difference was found in the case of eye-hand coordination between the plyometric training group and the control group.
- A significant difference was found in the case of eye-leg coordination between the plyometric training group and the control group.

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