

# **Combined Effect of Plyometric and Resistance Training on Selected Explosive Ability of School Volleyball Players**

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## **Abstract**

The purpose of the study was to find out the Combined Effects of Plyometrics and Resistance Training on selected explosive ability of school volleyball players. For this purpose, forty male volleyball players studying in Government Higher Secondary School- Alangudi, Pudukkottai District, were selected as subjects at random and they were divided randomly into two groups of twenty each, namely Combined Plyometric and Resistance Training Group and Control Group. The training period was limited to twelve weeks and for three days per week. The dependent variables selected for this study were Vertical Jumping Ability. The data obtained from the Experimental groups before and after the experimental period were statistically analyzed with Analysis of covariance (ANCOVA). The level of confidence was fixed at 0.5 levels for all the cases. Vertical Jumping Ability and Horizontal Jumping Ability showed significant difference between the groups

**Key words:** Plyometrics, Resistance training, Vertical jumping ability, Horizontal jumping ability.

## **Introduction**

Sport as an activity offers an opportunity for self-knowledge, self-expression, and fulfillment; personal achievement, skill acquisition and demonstration of ability; social interaction, enjoyment, good health and well-being. It promotes involvement, integration and responsibility in society and contributes to the development of society, especially when sports activities have been accepted as an integral part of the culture of every society in every nation. (Sharma Santhose, 2004)

Healthy living and physical fitness are closely connected. Being physically fit not only helps people live healthy lives: it also helps people live longer. People who make physical activities and exercise a part of their daily lives when they are young are more likely to keep it in their lives as they grow older and benefit from it throughout their life spans. Physical activity is defined as any movement that spends energy. Exercise is a subset of physical activity, but it is an activity that is structured and planned.

While many children engage in physical activity, usually by playing with their friends, the amount of physical activity they get as they grow into adolescents usually decline. In fact, many researchers believe that physical inactivity is a national health problem that can increase the risk of illness and disease.

According to the Centre for Disease Control and Prevention (CDC), doing some kind of physical activity or exercise on a regular basis helps to increase strength and flexibility, improve endurance, control weight, increase bone mass, and improve self-esteem, as well as reduce stress, anxiety, depression, and the risk of developing high blood pressure.

Performances outcomes are more like to be achieved when what is done prior to and during a competition. They have been planned; practiced and shown to be successful. In contests, an athlete should compete with only what is known has been practiced. (John Parthiban, et.al, 2006).

The actual term 'Plyometrics' was first coined in 1975 by Fred Wilt, the American Track and Field coach. The elements ply and metric come from Latin roots for "increase" and "measure" respectively, the combination thus means 'measurable increase'.

## **Methodology**

The study was conducted, forty men volleyball players studying Government Higher Secondary School Languid, Pudukkottai District, were selected as subjects at random and they were divided randomly onto two groups of twenty each, namely Combined Plyometrics and Resistance Training Group and Control Group. The training period was limited to twelve weeks and for three days per week. The dependent variables selected for this study were Vertical Jumping Ability and Horizontal Jumping Ability.

## **Results and Discussion**

The data obtained from the experimental groups before and after the experimental period were statistically analyzed with Analysis of Covariance ANCOVA. The level of confidence was fixed at .05 levels for all the cases. The level of confidence was fixed .05 levels of all cases.

The influence of independent variables on each criterion variables are analyzed and presented below.

### **Vertical Jumping Ability**

The Analysis of covariance (ANCOVA) On Vertical Jumping Ability of Combined Plyometrics and Resistance Training Group and Control Group have been analysed and presented in Table – IV

Table-I

**Analysis of Covariance on Vertical Jumping Ability of Combined Plyometrics and Resistance Training Group and Control Group  
(Vertical Jumping Ability Scores in Meters)**

Adjusted post-test means		Source of variance	Sum of squares	Df	Mean squares	F Ratio
Combined plyometric and resistance training group	Control group					
0.43	0.39	Between	0.01	1	0.01	37.04*
		With in	0.01	37	0.00027	

\*Significant at .05 level of Confidence

(Table value required for Significance at .05 levels with df 1 and 37 is 4.11)

Table-I shows that the adjusted post test mean value of Vertical Jumping Ability for Combined Plyometrics and Resistance Training group and Control Group are 0.43 and 0.39 respectively. The obtained F-ratio of 37.04 for adjusted post test mean is more than the table value of 4.11 for df 1 and 37 required for significant at .05 level of confidence.

The results of the study indicate that there are significant differences among the adjusted post test means of Combined Plyometrics and Resistance Training group on the development of Vertical Jumping Ability.

It may be concluded that Combined Plyometrics and Resistance Training group is better than Control group in improving Vertical jumping Ability.

### **Horizontal Jumping Ability**

The Analysis of covariance (ANCOVA) on Horizontal Jumping Ability of Combined Plyometrics and Resistance Training group and Control Group have been analysed and presented in Table – V.

**Table-II**  
**Analysis of Covariance on Horizontal Jumping Ability of Combined Plyometrics and Resistance Training Group and Control Group**  
**(Vertical Jumping Ability Scores in Meters)**

Adjusted post-test means		Source of variance	Sum of squares	Df	Mean squares	'F' ratio
Combined plyometrics and resistance training group	Control group					
1.94	1.79	Between	0.23	1	0.23	76.67*
		Within	0.11	37	0.0003	

\* Significant at .05 level of Confidence

(Table value required for Significance at .05 levels with df 1 and 37 is 4.11)

The IV shows that the adjusted post test means value of Horizontal Jumping Ability for Combined Plyometrics and Resistance Training Group and Control Group are 1.94 and 1.79 respectively. The obtained F-ratio of 76.67 for adjusted post test mean is more than the table value of 4.11 for 4 df and 1 and 37 required for significant at .05 level of confidence.

The results of the study indicate that there are significant difference among the adjusted post test means of Combined Plyometrics and Resistance Training group on the development of Horizontal Jumping Ability.

It may be concluded that Combined Plyometrics and Resistance Training Training group is better Control group in improving Horizontal Jumping Ability.

## Conclusions

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

1. There was a significant difference between Combined Plyometric and Weight Training Group when compared to the Control Group on Vertical Jumping Ability and Horizontal jumping Ability due to Combined Plyometrics and Weight Training.
2. There was a significant improvement in Combined Plyometrics and Weight Training Group when compared to the Control Group on Vertical Jumping Ability and Horizontal Jumping Ability due to Combined Plyometrics and Weight Training.
3. Combined Plyometrics and Weight Training Group were found to be better than the Control Group in developing Vertical Jumping Ability and Horizontal Jumping Ability.

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