

# Periodic Research

## A Comparative Study of 12 Weeks Medicine Ball Training Vs Traditional Training Programme on Throwing Abilities by Under – 16 Tripura Cricketers

### Abstract

To compare the effectiveness of 12 weeks medicine ball vs traditional training programme on under arm throw, side arm throw, & over arm throwing abilities among Tripura Under – 16 cricketers. For this purpose, a total of 60 (sixty) Tripura Under – 16 cricketers were randomly chosen for the present study. These subjects were divided into two equated training programme groups consisting of 30 (thirty) subjects in each and acted as medicine ball training group - I and traditional training group – II respectively. Under arm throw, side arm throw and over arm throw was selected as a dependent variables and 12 weeks medicine ball vs traditional training programme were considered as independent variables. The data was analyzed by applying analysis of co-variance. Post hoc test was used to draw appropriate conclusions and to find out the effect of 12 weeks medicine ball vs traditional training programme on under arm throw, side arm throw, & over arm throwing abilities among selected Tripura cricketers. The significance level was set at 0.05. The results indicated that there was significant difference found in medicine ball training group – I selected Tripura Under – 16 cricketers on under arm, side arm, & over arm throwing ability variables in comparison to traditional training group – II. The findings of this study showed that 12 week medicine ball training was an effective training technique to improve a cricketer's throwing abilities (i.e., under arm throw, side arm throw and over arm throw) in comparison to traditional training programme.

**Keyword:** Medicine ball, traditional, training, throwing, programme and cricketers

### Introduction

Coaches and Trainers in the past had used a variety of methods to enhance the dynamic performance of the player. Two common training methods have been used mostly i.e., conventional weight training (**Ganong et. al. 1980; Moore, 1983; Climino, 1987; Jacobs, 1987; Baily, 1988; Potteiger et. al. 1989; & Rosenboom, 1992**) and medicine ball training (**Fritzsche, 1977; Newman, 1985; Miller, 1987; Burgener, 1989; Chu et. al. 1989; Kirner, 1990 ; & Radcliffe, 1990**).

In an attempt to validate the methods employed in the field, several research studies had examined training methods for enhancing the various aspects of sports, in particular the effects of various resistance training methods on throwing velocity. Studies that have produced increases in throwing velocity earlier had used training modalities including conventional weight training (**Popescue, 1975; Potteiger, 1992; Wooden et. al. 1992**), ball throws with over and underweight balls (**Brose et. al. 1967; DeRenne et. al. 1990; and Van et. al. 1991**) and loaded pulley systems (**Logan et. al. 1966 and Brose et. al. 1967**). Other investigations had shown non-significant changes in throwing velocity in water polo (**Bloomfield et. al. 1990**) and baseball throwing (**Straub, 1968**).

The research into plyometrics has predominantly been confined to the lower body (**Bosco et. al. 1982 and Schmidtbleicher et. al. 1988**), most often in terms of vertical jump performance based on over the year's research results. It has been difficult to make recommendations with regard to the effects of plyometric training on skill sport movements such as throwing capacities.

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However, Fitness training for cricket has always been an issue of debate. There is, invariably, confusion about which exercises or training programme or methods of training are best suited for particular group of cricketers. The above discussion leads to the present research study to identify and compare the medicine ball vs traditional training used in developing and maintaining of throwing capacities and fitness for cricketers.

## Methodology

A total of 60 (sixty) short listed under – 16 cricketers for season 2011 – 12 by Tripura Cricket Association were randomly chosen for the present study. These subjects were further divided into two equated training programme groups consisting of 30 subjects in each and acted as medicine ball training

group - I and traditional training group – II respectively. The age of the subjects were ranging from 13 years to 15 years of ages. The average age was being 14 years. Under arm throw, side arm throw and over arm throw was selected as a dependent variables and 12 weeks medicine ball vs traditional

training programme were considered as independent variables. Medicine ball training programme were administered three times a week on medicine ball training group - I for a period of 12 weeks (84 days) while the traditional training group – II underwent general training and regular cricketing practice. Before the administration of medicine ball training programme, the 15 meters (under arm), 30 meters (side arm) and 45 meters (over arm) throwing test were respectively administrated by using Stanford cricket balls and stumps (BCCI approved) at same venue on both the groups namely medicine ball training group - I and traditional training group – II respectively to collect pre test data. After the completion of medicine ball training programme again the same selected throwing abilities tests were conducted to collect the post training data. Analysis of co-variance and post hoc test were computed to analyze the data and the significance level was set at 0.05.

## Findings

The findings of the study are given below:

**Table No. 1.0**  
**Analysis of Covariance on the Data of Throwing Abilities Scores (15 Meters Under Arm Throw; 30 Meters Side Arm Throw; & 45 Meters Over Arm Throwing Test) among Selected Groups**

Source of Variance	Group Means		Sum of Squares	Df	Mean Sum of Square	'F'
	Medicine Ball Training	Body Weight Resistance Training				
<b>Pre Test Means (15 Meters Under Arm Throw)</b>	1.50	1.47	B = 0.02 W = 62.97	B = 1 W = 58	B = 0.02 W = 1.09	0.02
<b>Post Test Means (15 Meters Under Arm Throw)</b>	4.30	1.37	B = 129.07 W = 62.97	B = 1 W = 58	B = 129.07 W = 0.37	352.00*
<b>Adjusted Post Test Means (15 Meters Under Arm Throw)</b>	4.29	1.37	B = 128.50 W = 19.21	B = 1 W = 57	B = 128.50 W = 0.34	381.20*
<b>Pre Test Means (30 Meters Side Arm Throw)</b>	0.37	0.70	B = 1.67 W = 17.27	B = 1 W = 58	B = 1.67 W = 0.30	5.60*
<b>Post Test Means (30 Meters Side Arm Throw)</b>	2.67	0.60	B = 64.07 W = 17.87	B = 1 W = 58	B = 64.07 W = 0.31	207.98*
<b>Adjusted Post Test Means (30 Meters Side Arm Throw)</b>	2.84	0.43	B = 60.70 W = 17.62	B = 1 W = 57	B = 128.50 W = 0.31	198.38*
<b>Pre Test Means (45 Meters Over Arm Throw)</b>	0.40	0.70	B = 1.35 W = 21.42	B = 1 W = 58	B = 1.37 W = 0.37	3.64
<b>Post Test Means (45 Meters Over Arm Throw)</b>	1.77	0.60	B = 20.42 W = 16.57	B = 1 W = 58	B = 20.42 W = 0.29	71.48*
<b>Adjusted Post Test Means (45 Meters Over Arm Throw)</b>	1.88	0.49	B = 21.19 W = 15.75	B = 1 W = 57	B = 21.19 W = 0.28	76.70*

\*Significant at 0.05 level. 'F' 0.05 (1, 57) df = 4.00

B = Between Group Variance

N = 60

W = Within Group Variance

Table no. 1.1 exhibited the result of analysis of covariance of 12 weeks medicine ball training vs

traditional training programme on throwing abilities among medicine training group – I and traditional training group - II differs significantly. As, obtained 'F' value of 15 meters under arm (382.20), 30 meters side arm (198.38), and 45 meters over arm (76.70) throwing tests respectively for adjusted post test

means was significantly higher than the tabulated value of 4.00 at 0.05 level.

The 'Post hoc' test was applied as an extension of analysis of covariance to find out the paired mean

significant difference between adjusted group post means. The findings related this are presented in table no. 1.1.

**Table No. 1.1**

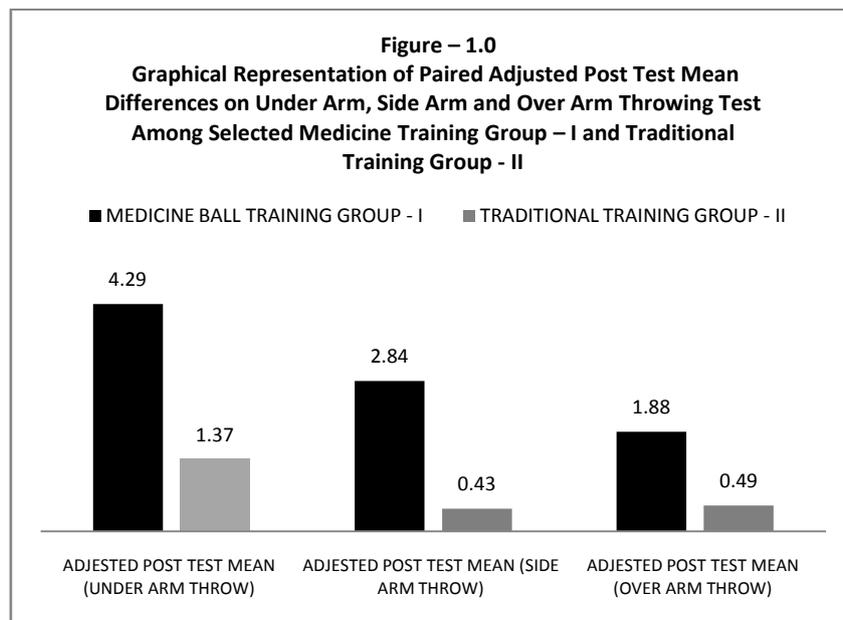
**Adjusted Post Test Means and Difference between Means of Medicine Ball Training Group – I and Body Weight Resistance Training Group - II of 15 Meters Under Arm Throw; 30 Meters Side Arm Throw; & 45 Meters Over Arm Throwing Abilities Test**

Throwing Accuracy		Medicine Ball Training Group - I	Traditional Training Group - II	Mean Difference	Critical Difference
15 Meters Under Arm Throw	Adjusted Post Test Means	4.29	1.37	2.92*	0.34
30 Meters Side Arm Throw	Adjusted Post Test Means	2.84	0.43	2.41*	0.32
45 Meters Over Arm Throw	Adjusted Post Test Means	1.88	0.49	1.39*	0.31

\*Significant at 0.05 level

Table 1.1 indicates that the medicine ball based 12 weeks training programme induced to selected group – I cricketers on under arm throw, side arm throw and over arm throw variables was found

significant, since the difference between the group mean under arm (2.92), side arm (2.41) and over arm throw (1.39) is higher than the critical difference under arm (0.34), side arm (0.32) and over arm throw (0.31), as shown in table above.



### Discussion

Outcomes of this analysis indicated that all selected variable for throwing abilities (i.e, under arm throw, side arm throw, and over arm throw) in Tripura state under – 16 cricketers had improved by medicine ball training method of treatment in comparison to other treatment programme. This improvement could be due to the stimulation exercise methods of medicine training programme which generates actively functioning ability of contraction and relaxation of throwing deep stabilizer muscles areas in the body namely, scapular region involving inner and outer range external and internal rotation combined motions of acromioclavicular, coracoclavicular, and sternoclavicular joints instead of fundamental functioning ability movement of glenohumeral joint by other training programme (i.e. traditional training

programme of general exercises). However, **Szymanski et. al. (2007)** also evaluated the effect of 12 weeks of medicine ball training on high school baseball players and similar facts were reported that performing a 12-week medicine ball training program in addition to a stepwise periodized resistance training program with bat swings provided greater sport-specific training improvements in torso rotational and sequential hip-torso-arm rotational strength for high school baseball players. Another reason could be the fact as the traditional training group – II did not have practiced a qualitative structured training programme in comparison to medicine ball training group – I.

### Conclusion

The results showed that there was a significant improvement shown by the medicine ball training group – I under – 16 cricketers of Tripura state on

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under arm throw, side arm throw and over arm throw in comparison to other treatment programme selected subjects namely body weight resistance training group - II. Therefore, it is concluded that medicine training programme was an effective training method to improve a cricketers' throwing capacities.

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