

# A Comparative Study on the Effectiveness of Shoulder Tap Push-up and Half Kneeling Press in Distance Throwing among Amateur Cricket players

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## ABSTRACT

**Objective:** To find out the effect of shoulder tap push up with grip strengthening in distance throwing among cricket players and to find out the effect of half kneeling shoulder press with grip strengthening in distance throwing among cricket players.

**Materials and Method:** 110 voluntary participants were recruited according to the selection criteria and were randomly allocated to Group A shoulder tap push up exercise (n=55) and Group B half kneeling shoulder press exercise (n=55). The exercise program underwent training for 30 min, 4 times per week for 4 weeks.

**Result:** When post values of Group A for hand dynamometer i.e.,  $39.98 \pm 12.461$  and Group B i.e.;  $47.21 \pm 8.841$  was compared there was improvement in group B as compared to Group A the p-value was extremely significant that is (0.0001). When post value of group A and Group B for 2 kg medicine ball were compared i.e.,  $4.51 \pm 1.259$  and  $5.45 \pm 1.044$  there was improvement seen in group B as compared to group A with an extremely significant p value of (0.0001).

**Conclusion:** The results from the present study are very encouraging and demonstrate the benefit of half kneeling shoulder press with grip strengthening over shoulder tap push up with grip strengthening in improving throwing distance. Thus, half kneeling shoulder press can be incorporated into training programs of cricket players for enhancing their performance levels.

**Keywords:** Shoulder Tap Push Up; Half Kneeling Shoulder Press; 2kg Medicine Ball; Hand Dynamometer.

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## INTRODUCTION

Cricket is a tremendously enduring and well liked sport. In the late 16th century, this sport was developed in the south east of England. It became the national sport of England in the eighteenth century, spread over the world in the nineteenth and twentieth centuries, and is still one of the most popular sports in the world today. It is referred to as the game of uncertainty. The outcome of the game can be predicted using the appropriate

probability model<sup>1</sup>, despite the fact that it is impossible to forecast the result until the very last second. Cricket has been played in a format called a test match for a very long time. Each team gets two innings during the five day test match. This condensed version of the cricket was popular with viewers and was also financially successful. The player's performance becomes a crucial factor for the board in this short format game with a limited amount of overs, such as matches with 20 and 50 over, nevertheless. The International Cricket Council (ICC) is the governing body of cricket, and One-Day International (ODI) cricket, which is played in a 50-over format every four years, is the premier international competition. It is the biggest cricket tournament and one of the most watched sporting events in the world. The Indian Premier competition (IPL), which consists of one day matches with a 20 over limit, is the most watched cricket competition outside of India.<sup>1</sup> Cricket makes considerable use of throwing. Numerous precise important throws are made throughout the course of the game. To play cricket effectively, athletes must be able to toss the ball forcefully and precisely from one end of the field to the other. Athletes who throw incorrectly risk suffering several injuries.<sup>2</sup> The physical contributions of many distinct physical elements, including as core stability, range of motion, limb length, and isokinetic components, contribute to the success of a throw in addition to strong technique. Cricket players need more momentum and strength since the cricket ball goes farther and faster.<sup>3</sup> Additionally, a physical component like cardiorespiratory endurance, or VO<sub>2</sub> max<sup>4-9</sup> flexibility and strength of muscles was essential. Cricket players' handgrip strength also influences their throwing distance.<sup>10</sup> In several aspects of cricket, such as fielding and bowling, strong and accurate throwing is crucial. Few research have compared the effects of various workouts on throwing abilities, and even fewer have proposed some effective activities to increase throwing talents. However, few studies have examined the differences between shoulder push-ups and half-knee shoulder presses. Therefore, the purpose of present research work was to compare the effectiveness of shoulder tap push-up and half kneeling shoulder press in distance throwing among amateur cricket players. This will help players, coaches, athletic trainer and physiotherapists to work better on throwing abilities of cricket players.

## METHODOLOGY

A total of 150 amateur cricket players voluntarily

gave his consent for participation in this study, and they all were shortlisted. The players were college level cricket players, aged between 18 to 26 years, who were regular for 6 months to 1 year and plays at a frequency of minimum 40 min twice a week, and all had qualified PAR-Q. The players with any recent injuries or surgery which can affect their throwing abilities were excluded from participation. Out of these 150 shortlisted players a total of 110 amateur cricket players randomly selected for participation in this study. Their hand grip strength and throwing distance were recorded before starting intervention.

### Outcome Measures

1. All participants' hand grip strength was assessed using a JAMER hand dynamometer to determine hand grip strength. Three trials with sufficient rest in between were recorded, and the average of these three trials was documented.
2. Participants were requested to stand behind a line on the ground and throw a 2 kg medicine ball as far as they could in order to assess distance. The distance the medicine ball traveled was measured in meters. The best recording was found after three of these trials, with appropriate rest in between each experiment.

All these 110 participants were randomly divided into two equal groups of 55 each. Group A received intervention of shoulder tap push-Up and Group B received half kneeling shoulder press exercises for 4 weeks.

### Intervention: 30 min Duration

- 1 set of 10 repetitions.
- 4 sets (2 sets each with right and left side) a day.
- 4 days a week (on every alternate day either "Mon-Wed-Fri-Sun" or "Sun-Tue-Thur-Sat").

*Group A (Shoulder Tap push-up Exercise): for 4 weeks:*

1. Stand in a plank position with your feet hip width apart and your hands under your shoulders. Participants gently drop their torso toward the ground while keeping their knees and abdominals firm and their elbows bent and directed backward.
2. Exhale as you lift your right hand to the top of the plank, lengthen your arms, and tap your left shoulder with it. Tap your other arm in the same manner.

Group B (half kneeling shoulder press exercises): v 20.  
for 4 weeks:

1. Choose a suitable load, then take a half-kneeling position on the ground. Left leg should be lifted, right knee should be bent, and the right hand should bear the weight. Clean the dumb bell to the shoulder, if necessary with both hands. With the palm facing in, begin with a neutral grip. Keep your spine neutral, shoulders back, and head up. This is where the game will begin.
2. Start the motion by extending your arm, flexing it, and abducting your shoulder so that it rotates and presses above your head. The movement should be reversed to return to the starting position after a brief pause at the top.
3. After completing the required number of repetitions, move to the other side.

After 4 weeks of intervention, once again their hand grip strength and throwing distance were recorded.

This study was approved by Institution Ethics Committee of Dr. A.P.J. Abdul Kalam College of Physiotherapy, Pravara Institute of Medical Sciences (Deemed to be University).

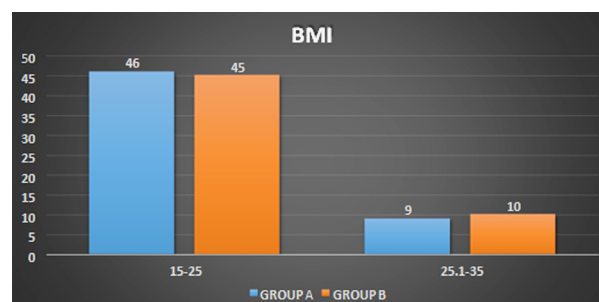
**Data Analysis:** Mean and standard deviation were calculated for descriptive statistics. Students paired t test was used to calculate difference between pre and post values among the group and students, unpaired t test was used to calculate differences between the both groups. The confidence interval was 95%. The statistical analysis was done by SPSS

## RESULTS & ANALYSIS

Data of 110 participants was analysed and randomly distributed into group A (N=55) and group B (N=55). With a mean age of 20.96 for group A and 21.56 years for group B, average BMI of 46 participants of group A and 45 participants of group B lied between 15-25 and only 9 participants of group A and 10 of group B participants lied between 25.1-35. The PAR-Q scale was cleared by 51 in group A participants out of 55 and by all 55 group B participants.

**Table 1:** Gender Distribution of Group A and Group B

Gender	Male	Female	Total
Group A	49 89.1%	6 10.9%	55 100%
Group B	54 98.2%	1 1.8%	55 100%
Total	103	7	110



**Fig. 1:** BMI Distribution of Group A and Group B

**Table 2:** Comparison Within the Mean of Pre and Post Values of Group A.

Group A	Assessment	MEAN ± SD	T Value	P- Value	Significant
Hand Dynamometer	Pre	38.76 ± 12.064	7.432	<0.0001	Extremely Significant
	Post	39.98 ± 12.461			
Medicine Ball	Pre	4.37 ± 1.22	4.704	<0.0001	Extremely Significant
	post	4.51 ± 1.259			

**Table 3:** Comparison Within the Mean of Pre and Post Values of Group B

Group B	Assessment	MEAN ± SD	T Value	P- Value	Significant
Hand Dynamometer	Pre	38.8 ± 7.74	4.322	<0.0001	Extremely Significant
	Post	47.21 ± 8.841			
Medicine Ball	Pre	4.22 ± 0.74	9.742	<0.0001	Extremely Significant
	Post	5.45 ± 1.044			

**Table 4:** Comparison Between the Mean Values of Hand Dynamometer for Group A and Group B

Hand Dynamometer	Group A	Group B	T Value	P Value	Significance
Pre	38.76 ± 12.064	38.8 ± 7.742	0.362	0.717	Not Significant
Post	39.98 ± 12.461	47.21 ± 8.841	4.421	<0.0001	Extremely Significant

**Table 5:** Comparison Between the Mean Values of Medicine Ball for Group A and Group B

Medicine Ball	Group A	Group B	T Value	P Value	Significance
Pre	4.37± 1.22	4.22±0.741	0.3226	0.7477	Not Significant
Post	4.51± 1.259	5.45 ± 1.044	5.312	<0.0001	Extremely Significant

## DISCUSSION

This discussion aims to present a fair analysis of many workouts, including grip strengthening, shoulder tap push-ups, half kneeling shoulder presses, and shoulder taps, in terms of their definitions and contributions to athletic feats like throwing distance among amateur cricket players. The study's goal is to contrast the effects of shoulder tap push-ups with grip strengthening and half kneeling shoulder presses with grip strengthening on throwing distance in amateur cricket players. One of the most important aspects of throwing is thought to be an upper body strength training regimen. When throwing, the deltoid, triceps, biceps, and rotator cuff muscles' biomechanics are crucial.<sup>11</sup>

It was discovered that performing shoulder tap pushups for four weeks improved hand grip strength and throwing prowess. Similar to this, 4 weeks of half-kneeling shoulder press workouts have also been reported to improve hand grip strength and throwing prowess. The results of Sharma *et al.* 2020<sup>13</sup> and Vishen & Sen, 2015<sup>12</sup>, which revealed that both of these workouts are effective in developing strength and consequently other relevant abilities, provide more support for this conclusion.

The findings of the current study demonstrated that shoulder tap push-ups with grip strengthening were inferior to half-kneeling shoulder presses with grip strengthening. Flanagan, 2008<sup>11</sup>, which hypothesized advantages of shoulder press, supports it. This finding of the current study is also in agreement with a study by Swanik *et al.* 2002<sup>14</sup>, which indicated that plyometric training increased the shoulder proprioception, kinesthesia, isokinetic strength, and power of female collegiate swimmers.

## CONCLUSION

The benefits of shoulder tap, push-up, and half kneeling shoulder press workouts are clearly shown by the results of the current study, which are highly positive. It has been discovered that both of these exercises help to improve throwing talents.

Further more, it has been discovered that shoulder press exercises done while half kneeling are superior to shoulder tap push-ups for increasing throwing distance. To improve cricket players' performance levels, half kneeling shoulder presses might be added to their training regimens.

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