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## Exploring impact of medicine ball exercises among handball players of Nagpur district

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### Abstract

Handball, game played between two teams of 7 or 11 players who try to throw or hit an inflated ball into a goal at either end of a rectangular playing area while preventing their opponents from doing so. A game consists of two 30-minute halves with an intermission, and players wear no protective equipment. The ball is moved by passing, dribbling, or hitting it with any part of the body above the knee. In handball, only the goalkeeper may kick the ball. Running more than three steps with the ball and holding it longer than three seconds are illegal. Medicine ball training can be effective in improving muscular power, and movement velocity is a critical factor in power development. A total of 30 National Handball players were considered as the sample of the study who were aged above 16 years were considered as participated in nationals. All these subjects are receiving regular and systematic training from qualified coaches and proper Nutritional diet at National camps. The subjects were made to do medicine ball exercises training daily for six weeks. To assess the shooting efficiency the five Jump shot and five Standing Shot were taken in Pre Test and Post Test. There is a significance difference among Handball Players in related the Medicine Ball Training to improve their Strength ability and Shooting Efficiency. It is concluded that due to medicine ball exercises there is a improvement of shooting efficiency among Handball Players.

**Keywords:** Handball, medicine ball exercises, shooting efficiency, etc.

### Introduction

Handball is a team sport in which two teams of seven players each (six out court players and a goalkeeper) pass a ball using their hands with the aim of throwing it into the goal of the other team. A standard match consists of two periods of 30 minutes, and the team that scores more goals wins.

Modern Handball is played on a court of 40 by 20 metres (131 by 66 ft), with a goal in the middle of each end. The goals are surrounded by a 6-metre (20 ft) zone where only the defending goalkeeper is allowed; goals must be scored by throwing the ball from outside the zone or while "diving" into it. The sport is usually played indoors, but outdoor variants exist in the forms of Field Handball, Czech Handball (which were more common in the past) and Beach Handball. The game is fast and high-scoring: professional teams now typically score between 20 and 35 goals each, though lower scores were not uncommon until a few decades ago. Players may score hat tricks. Body contact is permitted for the defenders trying to stop the attackers from approaching the goal. No protective equipment is mandated, but players may wear soft protective bands, pads and mouth guards.

The game was codified at the end of the 19th century in Denmark. The modern set of rules was published on 29 October 1917 in Berlin, which is seen as the date of birth of the sport, and had several revisions since.

The first official Handball match was played in the same year in Germany. The first international games were played under these rules for men in 1925 and for women in 1930. Men's handball was first played at the 1936 Summer Olympics in Berlin as outdoors, and the next time at the 1972 Summer Olympics in Munich as indoors, and has been an Olympic sport since. Women's Team Handball was added at the 1976 Summer Olympics.

The International Handball Federation was formed in 1946 and, as of 2016, has 197 member federations. The sport is most popular in Europe, and European countries have won all medals but one in the men's world championships since 1938. In the women's world championships, only two non-European countries have won the title: South Korea and Brazil. The game also enjoys popularity in East Asia, North Africa and parts of South America.

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## Method

A total of 30 National Handball players (Out of which 15 are experimental group and 15 are controlled group) who were aged above 16 years were considered as participated in nationals. All these subjects are receiving regular and systematic training from qualified coaches and proper nutritional diet at National camps. The subjects were made to do medicine ball exercises training daily for six weeks for experimental group and control group was doing the general training of Handball. The following Medicine ball exercises as made to do for the Handball players.

Straddle Ball Roll, Hip Circle, Ski Bends, Total Body Stretch, and Core crunches, Curl-Up, Oblique Twist, V-Sits Shoulder Press and Catch, Bicep Curl, Triceps Extension, Push-Up.

## Jump shot

Material Required: Handball, Scorer and Score Sheet

## Test Administration

The subjects stand at the central line of the court with holding the ball on the signal the subject dribbled the ball towards the goal post and take of the jump shot at 9 meters line, if ball gone into inside the goal post this scorer will be given one point for one shot. The same procedure follows for all the subjects. Each subject takes 5 trails.

**Scoring:** The scorer is must concentrate on the procedure each goal is given one point.

## Testing Personnel

One starter and one scorer are needed to administrate this test. Only one scorer was used, the scorer can record score.

But tester was facilitate subjects during the test.

## Standing Shot

**Material Required:** Handball, Scorer and Score Sheet.

## Test Administration

The subjects stand at the central line of the court with holding the ball on the signal the subject dribbled the ball towards the goal post and shoot the ball at 9 meters line with standing position at that time three steps is compulsory "Left, Right and Left" the last step should be in word, if ball gone into inside the goal post this scorer will be given one point for one shot. The same procedure follows for all the subjects. Each subject takes 5 trails.

**Scoring:** The scorer is must concentrate on the procedure each goal is given one point.

## Testing Personnel

One starter and one scorer are needed to administrate this test. Only one scorer was used, the scorer can record score. But tester was facilitating subjects during the test. To assess the shooting efficiency the five Jump shot and five Standing Shot were taken in Pre Test and Post Test.

## Results and Discussion

There is a significance difference among Handball players in related the Medicine Ball Training to improve their Strength ability and Shooting Efficiency.

Table showing the Mean, Standard Deviation, Standard Error of the Mean and T Ratio of Medicine Ball Exercises Pre-Test and Post Test of Control Group and Experimental Group of Handball Players

**Table 1:** Table showing group test mean STD. Deviation and T-Ratio

Group	Test	Mean	STD. Deviation	Std. deviation error	T- Ratio
Control Group	Pre-Test	4.60	1.110	0.28659	
	Post-Test	4.86	1.1266	0.29088	0.0397
Experimental Group	Pre-Test	6.00	1.071	0.2765	
	Post-Test	6.73	1.0998	0.2839	0.0812

The Mean of Control Group in Pre Test is 4.60 and Mean of Experimental Group is 6.00. The Mean of Control Group is 4.86 in Post Test and Experimental Group is 6.73. There is a improvement of Experimental Group from 6.00 to 6.73 from Pre Test to Post. Due to Medicine Ball Training the Experimental Group has improved a lot. There is a significance difference among Handball Players in related the Medicine Ball Training to improve their Strength ability and Shooting Efficiency.

## Conclusions

It is concluded that due to medicine ball exercises there is a improvement of shooting efficiency among Handball Players.

## Recommendations

It is Recommended that medicine ball exercises training will be included in the training Program for Ball Games like Handball, Basketball, Netball, Korfbal etc. Similar studies can be conducted on other Sports and Games.

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