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## ORIGINAL ARTICLE

### NORMATIVE VALUES OF MOBERG PICKUP TEST IN YOUNG ADULTS

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#### ABSTRACT

**Introduction:** Moberg pickup test (MPUT) is a standardized test for hand dexterity developed by Erik Moberg, in 1958. This test also assesses cognition, stereognosis, and comprehension. Aim of the study was to find the normative values for the Moberg pickup test and to find the impact of gender and handedness on hand dexterity among carpal tunnel syndrome patients. **Method:** This was a Cross-sectional study, conducted at JSS College of physiotherapy, Mysuru, Karnataka for a duration of 2 months. This study was done on a population of 171 typical young adults comprising of 37 males and 134 females with an age group between 17 and 25 years. Test objects were placed on the table on the same side of right and left hands being tested with eyes open and closed, whereas the container was placed on the opposite side of the hand being tested. Three trials were done and the best out of the three was taken for analysis to obtain the normative values for Moberg pickup test. **Result:** The results show that the hand dexterity of the subjects was significantly good. Eyes open and close on dominant hand and Non dominant hand with mean values of 7.735, 12.806 and 9.206, 14.327 respectively. **Conclusion:** Females performed the test faster than males, and task performance with the dominant hand was faster than the non-dominant hand.

**Keywords:** Hand dexterity, Moberg Pick-Up Test, Carpal tunnel syndrome, Normative values

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## INTRODUCTION

Dexterity is usually defined as a function of control, the coordination of muscle movements usually in synchronization with the eyes, and it can also be defined as the quality of motor skills of hands and fingers. Dexterity in each person is qualitatively different and unique<sup>1,2</sup>.

Moberg pickup test (MPUT) is a standardized test for hand dexterity developed by Erik Moberg, in 1958. This test also assesses cognition, stereognosis, and comprehension. Moberg defines functional sensation as tactile gnosis, specifically sensitivity present at the fingertips, which allows a significant awareness of the external object<sup>3,4</sup>.

### Need For the Study

Normative value for Moberg Pick-Up Test is important to check hand dexterity. Present available are from western population. Characteristics of Indian population may differ from the western population.

Hence, the need of this study was to establish the normative values of Moberg pickup test in young adults of age 17- 25years in Indian population.

**Objective:** Primary objective was to find the normative values for the Moberg pickup test. Secondary objective was to find the difference on normative values of Moberg pickup test between male and female on their hand dexterity.

## METHODOLOGY

This was a Cross-sectional study conducted at JSS College of physiotherapy, Mysuru, Karnataka. This study was done on a population

of 171 typical young adults comprising of 37 males and 134 females with an age group between 17 and 25 years. Duration of the study was 2 months.

**Inclusion Criteria:** Both genders willing to participate were selected with age group 17 to 25 yrs.

**Exclusion criteria:** Participants with neurological illness, Any congenital deformity of hand, Participants with recent hand injuries and fractures, Participants with visual impairment, Behavioural abnormality that interferes with the test were excluded from the study.

**Materials:** Small container, stop watch, screw, safety pin, cap nut, washer, bolt, key, 2 coins, long hexagon nut, square nut, small hexagon nut, nut and bolts.

**Procedure:** Permission from JSS College of Physiotherapy was obtained. Informed consent from the participants was taken before including the participants in the study. Based on inclusion and exclusion criteria the participants were recruited for the study. Hand dominance is ascertained by asking each subject which hand they used to perform skilful activities like writing, eating etc.

Hand dexterity was measured bilaterally. Twelve objects were spread randomly on a table, next to the container. Objects includes – Screw, Safety pin, Cap nut, washer, bolt, key, 2coins, long hexagon nut, small hexagon nut, nut and bolt, square nut. Test objects were placed on a table and a container was kept on the opposite side to the hand being tested. Participants were asked to drop the items as fast as possible in a box placed nearby. Stopwatch was used to record the time for the Performance.

This test was performed in 2 phases: both dominant and non dominant hand has been tested with open and closed Eyes. The test was repeated three times to obtain an average. First tested the writing ability was tested with the dominant hand followed by non dominant hand was tested. In the second phase: first, the participants were asked to hold the container with the opposite hand and they were made to close their eyes. Second, when only 2 or 3

objects where remaining on the table the participants were informed the number of objects remaining to perform the task.

## RESULT

The outcome value obtained from the data collection was tabulated for the statistical analysis of the data; mean, median and standard deviation of the collected data done.

EYES OPEN	MEAN	MEDIAN	STANDARD DEVIATION
DOMINANT HAND	8.794	8.36	2.197
NON DOMINANT HAND	10.563	10.01	2.623
<b>EYES CLOSED</b>			
DOMINANT HAND	12.954	12.7	2.371
NON DOMINANT HAND	15.051	14.8	2.826

**Table 1:** Mean and median data of females on eye open and closed for dominant and non dominant hand

EYES OPEN	MEAN	MEDIAN	STANDARD DEVIATION
DOMINANT HAND	8.784	8.55	1.815
NON DOMINANT HAND	10.793	10.42	2.162
<b>EYES CLOSED</b>			
DOMINANT HAND	14.022	13.55	2.316
NON DOMINANT HAND	16.449	15.71	3.163

**Table 2:** Mean and median data of males on eye open and closed for dominant and non dominant hand

## DISCUSSION

The normative values of Moberg pick up test in the Indian population are not available. Hence, this study was done to find the normative values of Moberg pick up test in young adults of JSS College of Physiotherapy, Mysuru.

Previous studies have been conducted on subjects with carpal tunnel syndrome, comparison between young adults and middle aged persons, and older population, and a survey of comparison between button test and Moberg pick up test<sup>5,6</sup>.

This study was done on a population of 171 typical young adults comprising of 37 males and 134 females with an age group between 17 and 25 years. Three trials were done and the best out of the three was taken for analysis to obtain the normative values for Moberg pickup test. The present study confirmed that the performance of this test shows major difference between the male and the female population.

Many studies have done to find the score grading for pinch strength, grip strength, fine motor skill and depression among population with carpal tunnel syndrome<sup>7,8,9</sup>.

There is clear evidence from earlier studies that females performed faster than males and this study has also showed similar results. It was observed that the dominant hand was faster in executing this test than the non-dominant hand with the eyes open.

## CONCLUSION

Moberg pick-up test has been a reliable tool to test hand function. The time duration and the dominance of hand show the comparison of reaction in individuals. The results show that

the hand dexterity of the subjects was significantly good. Task performed with dominant hand was faster than the non-dominant hand. Females performed the test faster than males.

**Future Recommendations:** The future studies should include individuals with equal number of males and females for better efficacy of results. Standardized setting can be used to perform the Moberg test.

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