

# The Effects of MCIMT versus MT in Young Children with Spastic Hemiplegic CP to Improve Hand Function and Strength of the Paretic Arm

Vishwas Vaghela<sup>1</sup>, Dharmesh Parmar<sup>2</sup>

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<sup>1</sup>Senior Lecturer, Ahmedabad Physiotherapy College

<sup>2</sup>Lecturer, Ahmedabad Physiotherapy College

**Abstract:** Background & purpose: Cerebral palsy is the diagnostic term used to describe a group of motor syndromes resulting from disorders of early brain development. Cerebral palsy is the term used to refer to a non-progressive group of brain disorders resulting from a lesion or developmental abnormality in fetal life or early infancy. Impaired hand function is a major disability in children with hemiplegic cerebral palsy (CP). As a result, children with hemiplegic CP often fail to use the involved the upper extremity and learn to perform most tasks exclusively with their non-involved upper extremity. The arm is often more involved than the leg and difficulty in hand manipulation is obvious by one year of age. Objective: This study is done to find out whether restraining of the uninvolved limb and use of mirror and use of hand techniques will help to overcome hand function and improve functional activity in spastic hemiplegic cerebral palsy. Methodology: Subjects were assigned in two Groups A and B (15 patients in each group by randomized sampling) both are experimental group. Group A is treated with Mirror Therapy (MT), with spastic hemiplegic cerebral palsy were asked to perform a bimanual symmetrical circular movement in three different visual feedback conditions (i.e. mirror-viewing the two arms, viewing only one arm, and viewing one arm and its mirror image), combined with two head orientation conditions (i.e. looking from the impaired and looking from the less-impaired body side) and including hand exercise, passive stretching. Group B is treated with Modified Constraint Induced Movement Therapy (MCIMT), with restrain of un-involved arm for 1 hour per day and the involved arm is given group programs and playing activities for 1 hour per day. Each subject is assessed according to assessment scale. Thirty subjects with spastic hemiplegic cerebral palsy of age group between 6-10 years are taken. Duration of the study is 3 months and data collection is done at day zero and at the end of 12 wks. Study design: Experimental design Outcome measure: 1. Motor Activity Log Scale (MAL), 2. Quality of Upper Extremity Skills Test (QUEST) Results: Data for 30 patients were included in the data analysis. Between group analysis shows significant ( $P < 0.01$ ) improvement in group A. Group B was ( $P < 0.00$ ) less significantly improved among both the groups. Conclusion: Data collected through the study showed more improvement in the hand function and functional activities in patients with hemiplegic cerebral palsy in the group A. Thus, it can be concluded that MT are more beneficial in improving hand function for young children with spastic hemiplegic cp. This is one reason in all the literature which emphasizes the importance of above MT over MCIMT.

**Keywords:** Modified Constraint Induced Movement Therapy (MCIMT), Mirror Therapy (MT), Motor Activity Log Scale (MAL), Quality of Upper Extremity Skills Test (QUEST)