DOI: 10.7860/JCDR/2025/80478.21658



# Effectiveness of Motion Minder Therapy (MoMT) on Fine Motor Skills among Children with Spastic Hemiplegic Cerebral Palsy: A Pilot Study

**Jeevarathinam Thirumalai, Student, Department of Physiotherapy, Saveetha College of Physiotherapy, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai, Tamil Nadu, India.**
**Vinodhkumar Ramalingam, Professor, Department of Physiotherapy, Saveetha College of Physiotherapy, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai, Tamil Nadu, India.**

**NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:**

Jeevarathinam Thirumalai,

Student, Department of Physiotherapy, Saveetha College of Physiotherapy, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai, Tamil Nadu, India.

E-mail: jeevarathinamhope@gmail.com

**Introduction:** Motion Minder Therapy (MoMT) employs Motion Minder watches to provide tactile vibration prompts, enhancing hand function in spastic hemiplegic cerebral palsy children. This phase 1 study evaluates safety, acceptability and efficacy, laying the groundwork for larger-scale trials. Global cerebral palsy prevalence ranges from 1.5 to 3.4 cases per 1000 live births, varying by income level, while MoMT employs wearable technology to potentially enhance hand function and quality of life in neurological conditions.

**Aim:** To evaluate the feasibility, safety, and acceptability of MoMT in enhancing fine motor skills among children with spastic hemiplegia.

**Materials and Methods:** This pilot study was conducted at Aadhuraa Special School, Kanchipuram, with 5 children (age 9.6±1.81 years) diagnosed with spastic hemiplegic cerebral palsy. Children were screened using functional classification systems, including the Manual Ability Classification System levels I-III, Bimanual Fine Motor Function levels I-III, Modified Ashworth Scale levels I-III, and Communication Function Classification System levels I-III. Additionally, children had a Mini-Mental State Examination score of 15. The study outcomes were measured using the Shriners Hospital Upper Extremity Evaluation and ABILHAND-Kids assessments. Data were analyzed with Repeated Measures Analysis of Variance and Bonferroni post hoc tests. The study is registered with the Clinical Trials Registry - India (CTRI/2024/01/061490).

Abbreviations DFA, GR, AKQ could not be expanded Significant improvements were noted in school function assessment (baseline: 27.80±3.56 to week 4: 36.20±5.01, p=0.010) and DFA (baseline: 37.40±12.44 to week 4: 57.80±8.65, p=0.011). GR improved from week 2 (3.80±0.447) to week 4 (5.00±0.70, p=0.08). AKQ showed a significant increase from baseline (26±3.16) to week 4 (37.60±5.31, p=0.04).

**Conclusion:** MoMT effectively enhances fine motor skills in children with spastic hemiplegia. Despite measurement challenges, the intervention shows promise. Phase II will focus on refining therapeutic strategies and optimising outcomes.

**Keywords:** Behaviour, Mini-Mental State Examination, Modified Ashworth Scale, Upper extremity function.