

## Documents

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**Mirror movements after bimanual intensive therapy in children with unilateral cerebral palsy: A randomized controlled trial**  
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### Abstract

**Aim:** To investigate potential changes in mirror movements after Hand and Arm Bimanual Intensive Therapy Including Lower Extremity (HABIT-ILE) training in children with unilateral cerebral palsy (CP). **Method:** Thirty-one children with unilateral CP (mean age 9 years 4 months, SD 4 years 3 months; range 5 years 4 months–17 years 3 months; 14 females, 17 males) were randomized to either a control or treatment group. After allocation, children were assessed three times: before (T1, baseline) and after (T2) a 2-week interval and again at 3 months after T1 (T3) as follow-up. Between T1 and T2, the treatment group received 90 hours of HABIT-ILE training, while the control group continued their customary treatment. Mirror movements were assessed in all children using the Woods and Teuber Scale, as well as the Assisting Hand Assessment, Pediatric Evaluation of Disability Inventory, and Canadian Occupational Performance Measure. **Results:** Repeated measures analysis of variance indicated a significant decrease in mirror movements in the more-affected (mean difference = 0.97; 95% confidence interval [CI] = 0.51–1.42;  $p < 0.001$ ) and less-affected (mean difference = 0.71; 95% CI = 0.37–1.0;  $p < 0.001$ ) hands of children after HABIT-ILE; these improvements were maintained at the 3-month follow-up. Moreover, the mirror movement changes observed at the second assessment (T2) were inversely correlated with changes in the assessment of activities of daily living, especially in the less-affected hand. **Interpretation:** HABIT-ILE decreased the intensity of mirror movements in a group of children with CP. Furthermore, mirror movement changes were associated with bimanual performance and activities of daily living in these children. What this paper adds: The intensity of mirror movements decreased in both hands after 2 weeks of Hand and Arm Bimanual Intensive Therapy Including Lower Extremity (HABIT-ILE) training. Mirror movement changes were maintained at the 3-month follow-up after HABIT-ILE. Mirror movement changes were associated with improvements in bimanual performance and activities of daily living. © 2022 Mac Keith Press.

### Index Keywords

analysis of variance, Article, assisting hand assessment, canadian occupational performance measure, cerebral palsy, child, clinical article, controlled study, daily life activity, disability assessment, female, follow up, functional assessment, hand and arm bimanual intensive therapy including lower extremity training, human, intensive care, male, mirror therapy, movement (physiology), neurologic disease assessment, pediatric evaluation of disability inventory, randomized controlled trial, school child, woods and teuber scale

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