| **Author, Year, Country, Design, PEDro score, Rating** | **Sample Size** | **Intervention** | **Outcomes and significance:**<br><br>**(+) significant (-) not significant** |
|---|---|---|---|
| Ferre et al., 2017<br><br>USA<br><br>RCT<br><br>7/10<br><br>High quality | **N** = 24 children with unilateral spastic CP<br><br>**Age at enrollment:** 2 years 6 months - 12 years 6 months<br><br>**CP diagnosis:** 100%<br><br>**CP Type:** Unilateral<br><br>**GMFCS (Gross Motor Function Classification System):** I-II (distribution N/A)<br><br>**MACS (Manual Ability Classification System):** I-III (distribution N/A) | Home-based hand-arm bimanual intensive therapy (H-Habit)<br>(n=12)<br><br>vs.<br><br>Lower-limb functional intensive training (LIFT-control)<br>(n=12)<br><br>***Intervention details:***<br><br>• 2 hours per day<br>• 5x/week<br>• 9 weeks<br><br>*H-Habit:*<br><br>• Tasks aimed to improve reaching, grasping, releasing, in-hand manipulation, and using the affected hand as an assisting hand.<br>• Activities done in child-friendly games<br><br>*LIFT-control:*<br><br>• Functional lower limb tasks to improve balance, strength and coordination (emphasis on the involved leg)<br>• Activities embedded in child-friendly play or functional tasks<br>• Activities ex: ball kicking, jumping through squares (hop scotch), walking through obstacles courses<br><br>*Both interventions:*<br><br>• Caregivers were trained to administer assessments and home activities | **Post-treatment (9 weeks):**<br><br>*Dexterity:*<br><br>(+) Box and Blocks Test<br><br>*Bimanual performance:*<br><br>*(-)* Assisting Hand Assessment (AHA)<br><br>*Parent perception of functional goals (occupational performance):*<br><br>(+) Canadian Occupational Performance Measure (COPM) - Performance<br><br>*Parent satisfaction with functional goals (occupational performance):*<br><br>(-) COPM - Satisfaction<br><br>*Note: Between-group differences at 6 months not reported |

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| | | • Hourly supervision continued on a weekly basis (1hr/week for 9 weeks)<br>• Participants were monitored via webcam<br>• Supervisor monitored home training activities by checking logs submitted online<br><br>All participants continued to receive usual and customary care | |
| Gelkop et al., 2015<br><br>Israel<br><br>RCT<br><br>7/10<br><br>High quality | **N** = 12 children with congenital hemiplegic cerebral palsy<br><br>**Age at enrollment:** 1.5 - 7 years<br><br>**CP diagnosis:** 100%<br><br>**CP Type:** Unilateral (hemiplegic) 100%<br><br>**GMFCS level:** N/A<br><br>**MACS level:** *Only available for children under 4 years old (n=9):<br>Level I: 2/9 (22%)<br>Level II: 4/9 (45%)<br>Level III: 3/9 (33%) | Hand-Arm Bimanual Intensive Therapy (HABIT)<br>(n=6)<br><br>vs.<br><br>Modified Constraint-Induced Movement Therapy (modified CIMT)<br>(n=6)<br><br>**<u>Intervention details:</u>**<br><br>*Baseline Period* (2 months prior to HABIT or CIMT intervention):<br><br>• 2-3 sessions per week (40-60 min/session) of occupational therapy (OT) and physical therapy<br>• Focus of sessions was to improve strength, range of motion, and awareness of hand through guided movements (neurodevelopmental theory)<br>• Stretching included in sessions<br><br>*Intervention Period (CIMT and HABIT)*<br><br>• CIMT or HABIT was provided for 2 hrs./day, 6 days/week for 8 weeks | **At post-treatment (8 weeks):**<br>(Post Baseline Period to Immediate post-intervention)<br><br>*Bimanual performance:*<br><br>(-) AHA<br><br>*Upper extremity function:*<br><br>(+) Quality of Upper Extremity Skills Test (QUEST): Dissociated movement<br>(-) QUEST: Grasp<br>(-) QUEST: Protective extension<br>(-) QUEST: Weight bearing |

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| | | • Intervention provided during the children's regular preschool or kindergarten hours<br>• CIMT or HABIT sessions were divided into 1 hour individual sessions (1:1 with OT) and 1 hr. group session with 2-3 interventionalists (ratio of 1:2 or 1:1 interventionist to child ratio)<br>• Interventionists included OTs and therapist assistants<br>• Each child was given an individualized program according to their specific abilities<br>• Both approaches involve intensive, progressive task practice based on motor learning approaches<br>• Age specific encouragement provided to ensure activities were motivating<br>• Activities included activities of daily living and a variety of child-friendly games which could be carried out indoors or outdoors<br><br>*HABIT:*<br><br>• Absence of restraint<br>• Task practice using fine and gross motor movements was progressed bimanually<br>• Activity selection was based on the ability of the child's paretic hand and focused on using the assisting hand for tasks requiring complex bimanual coordination<br>• Children were encouraged to participate in identifying movements to complete an action (problem solving) | |

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|---|---|---|---|
| | | *CIMT:*<br><br>• Restraint of the less-affected upper extremity with practice of unimanual tasks using affected upper-extremity<br>• Custom made gloves on less-affected hand was worn in only the second hour of CIMT<br>• Fine-motor and gross motor activities catered to the age of the child were performed to elicit movements of the more affected hand (unimanual activities) | |