



Adding parent-delivered therapy does not improve upper limb function more than repeated practice alone in children with cerebral palsy

Synopsis

Summary of: Kirkpatrick E, Pearse J, James P, Basu A. Effect of parent-delivered action observation therapy on upper limb function in unilateral cerebral palsy: a randomized controlled trial. *Dev Med Child Neuro* 2016; doi: 10.1111/dmcn.13109.

Question: Does parent-delivered action observation therapy improve hand function in children with unilateral cerebral palsy? **Design:** Randomised, controlled trial with concealed allocation and blinded outcome assessment. **Setting:** One tertiary hospital centre in England. **Participants:** Children aged 3 to 10 years with unilateral cerebral palsy predominantly affecting arm and hand function. Children with no active grasp in the affected hand or who had undergone or were about to undergo another intervention were excluded. Randomisation of 70 participants allocated 35 to an action observation and repeated practice group and 35 to a repeated practice only group. **Interventions:** Both groups received an individualised parent-delivered home-based play therapy program based on repeated movement practice. Each child received about 12 tailored activities. The control group played independently with parent supervision. Children in the intervention group watched a parent perform the movement each time before attempting it. Both groups were asked to complete 15 minutes of play daily, 5 days a week for 3 months. Families were telephoned fortnightly and received a home visit at 6 weeks.

Outcome measures: The primary outcome was change in spontaneous use of the affected hand in bimanual activities (Assisting Hand Assessment) at 3 and 6 months. Secondary outcomes were unimanual capacity (Melbourne Assessment 2) and hand function in activities of daily living (ABILHAND-Kids questionnaire). **Results:** Fifty-nine participants completed the study. Adherence was 80% in the intervention group and 92% in the control group. There was no difference in change scores between the groups for the primary outcome at 3 months (MD 0.6 units 95% CI -0.7 to 1.9), at 6 months (MD 0.5 units 95% CI -1.4 to 2.4), or for any secondary outcome. **Conclusion:** There were no differences in hand function among children with unilateral cerebral palsy after a home-based parent-delivered action observation and repeated practice therapy program compared to repeated practice only.

[Adherence rates, MD and 95% CI calculated by the CAP Editor]

Provenance: Invited. Not peer reviewed.

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Commentary

Caregiver involvement in therapy is important for children with cerebral palsy, and parents have emphasised that: *Home programs are a form of guidance and advice [that help] parents maximise their child's potential [and] build confidence about how to help their child.*¹ However, the most effective involvement of caregivers in the therapeutic process is poorly understood.² Kirkpatrick et al contribute evidence to family-centred practice by using a well-designed, pragmatic, effectiveness trial set in the home environment. It also improves understanding of the relative effectiveness of new therapies, by comparing action-observation therapy versus traditional repeated practice.

Home-program prescription should only occur following careful consideration of fidelity control and dose feasibility. In the present study, fidelity was well controlled and both groups showed improvements at 3 and 6 months, suggesting that either approach may be clinically useful. However, there was lower adherence in the action-observation group (80% versus 92%), suggesting that this more complex program may be more difficult for parents to sustain. No relative benefit was found for the action-observation therapy; however, it is unclear whether this was dose or delivery related. The dose of 15 hours, while consistent with clinical practice, is substantially lower than effective clinician-led interventions for the upper limb.³ Comparison of parent-led versus clinician-led approaches is needed to determine if relative benefits

are possible with more complex action-observation treatment. As well, the role of home programs as one component of effective intervention needs consideration.⁴

Participant characteristics should be noted before translating study results. Children in this study may have had mild cerebral palsy compared to previous studies in this area, since those with no hand movement, bilateral cerebral palsy or who had received recent interventions such as botulinum toxin were excluded. It is also unclear whether children with more severely affected hand function could perform the prescribed tasks.

Provenance: Invited. Not peer reviewed.

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References

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