

Longitudinal development of hand function in children with unilateral spastic cerebral palsy, 18 months - 12 years of age

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Introduction: The ability to use our hands is crucial for managing many everyday activities. Children with unilateral spastic cerebral palsy (CP) have difficulties in bimanual activities. To meet the concern of the parents regarding their child's future ability there is a need to expand on the knowledge of development of hand function in children with unilateral spastic CP.

Objectives: To describe the development of hand function among children with unilateral cerebral palsy aged 18 months to 12 years

Method: Children (n=96) from the urban parts of Sweden were included in the study. The children were regularly assessed with the Assisting Hand Assessment (AHA) which measures how effectively the affected hand is used in bimanual activities. Data were analyzed with non-linear mixed model with subgroup analysis based on Manual Ability Classification System (MACS) level and AHA level at 18 months.

Results: The results, based on 702 AHA sessions, showed a rapid development in young age that levelled out to a stable level at 30 months to 8 years. Differences in development pace was identified between MACS levels II-III ($p=0.048$) and the AHA levels moderate-low and low-very low ($p<0.001$). Developmental limit differed between all MACS and AHA levels except for AHA level low and very low ($p=0.230$).

Conclusion: All children increased their use of the affected hand with age but to different degree. The AHA result at 18 months may be used for crude predictions of future use of the hand and may act as a discussion platform between caregivers and therapists.