

Functional skills achievements in children with cerebral palsy in relation to manual ability and gross motor function

Ann-Marie Öhrvall¹, Kristina Löwing¹, Ann-Christin Eliasson¹, Pia Ödman², Lena Krumlind-Sundholm¹

¹Karolinska Institutet, Department of Woman and Child Health, Stockholm, Sweden, ²Linköping University, Department of Medical and Health Sciences, Linköping, Sweden

Introduction: Independence in basic self-care is gradually mastered during early childhood. Contextual variables like culture, family values and personal factors influence this development. Acquirements of self-care skills are also entangled with development of motor skills and it is difficult to achieve independence if fine- and gross motor skills are significantly impaired. It is well known, but seldom investigated in research, that children with cerebral palsy (CP) have difficulties to master self-care tasks.

Objectives: To investigate self-care and mobility skills in children with cerebral palsy in relation to the Manual Ability Classification System (MACS) and the Gross Motor Function Classification System (GMFCS).

Methods: A cross-sectional design was used. Data from PEDI self-care and mobility functional skills, MACS and GMFCS was collected from 188 children with CP, 3 to 15 years.

Results: Children were more capable in both self care and mobility domains of PEDI in high functioning levels in MACS and GMFCS than children in low functioning levels. The mean values of PEDI for each level of both classifications were significantly different, verified by one-way ANOVA and t-test. A stepwise multiple regression analysis verified that MACS was the strongest predictor of self-care measures and could explain 66% of the variance, and that GMFCS was the strongest predictor of mobility measures explaining 76% of the variation. Strong correlation to age was found for self-care only for children in MACS levels I ($r_s=0,82$ $p<0,05$) and II ($r_s=0,75$ $p<0,05$) and for mobility for children in GMFCS levels I ($r_s=0,73$ $p<0,05$). Many of these children achieved independence, but at later ages than typically developed children. In the other MACS and GMFCS levels, there was minimal development related to age.

Conclusion: Children with cerebral palsy have different degree and rate of development of self-care and mobility. To predict future development of independence, MACS was shown to be a good predictor for development of self-care and GMFCS of mobility skills.

Contribution to the practice/evidence base of occupational therapy: Knowledge about self-care and mobility skills in children with cerebral palsy is important in goal-setting and when planning treatment.