This is the published version of a paper presented at *International Conference on Cerebral Palsy and other Childhood-onset Disabilities, Stockholm, Sweden, 1–4 June, 2016.*

Citation for the original published paper:

Sjöberg, L. (2016)  
Long term results of early myoelectric prosthetic fitting: a prospective case-control study.  
In: *International Conference on Cerebral Palsy and other Childhood-onset Disabilities*  
*Stockholm 1–4 June 2016*

N.B. When citing this work, cite the original published paper.

Permanent link to this version:  
http://urn.kb.se/resolve?urn=urn:nbn:se:oru:diva-50928
Long term results of early myoelectric prosthesis fitting- a prospective case-control study

Lis Sjoberg¹, Helen Lindner² and Liselotte Norling Hermansson³

¹Faculty Of Medicine And Health, Örebro University, School Of Health And Medical Sciences, Örebro, Sweden
²Örebro County Council, Centre For Rehabilitation Research, Örebro, Sweden
³Faculty Of Medicine And Health, Örebro University, Limb Deficiency And Arm Prostheses Centre, Örebro, Sweden

Background: Children with upper limb reduction deficiency (ULRD) are recommended to be fitted with hand prosthesis at an early age because it encourages motor learning and prosthetic integration into the body scheme. Early fitting of a passive prosthetic hand is supported by the litterature but the age for introducing an active, myoelectric, hand varies and is more controversial. In Scandinavia the myoelectric hand prosthesis is introduced to the child at the age of 3 years, but in North America it is recommended that the fitting takes place as early as 10-15 months of age.

Aim: The aim of this study was to compare ability to operate the myoelectric hand, prosthesis use and risk for rejection among two different age groups for paediatric myoelectric prosthesis fitting.

Method: A prospective case-control study design was chosen. Thirty-six children participated; 9 were fitted with myoelectric prosthesis early, before 3 years of age (cases), and 27 after 3 years of age (controls). Ability to operate the hand was measured with Skills Index Ranking Scale (SIRS) ranging from 1-14 with higher score indicating higher ability.

Results: The children fitted early demonstrated ability to operate the hand voluntarily, SIRS level 5, at md 24 (inter-quartile range 12 – 39) months of age, whereas in conventional fitting the corresponding age for this was md 36 (inter-quartile range 33 – 45) months. However, at 42 months of age, the median SIRS level in cases was 7 and in controls 8, showing a catch up in the controls (p= 0.604). Prosthesis use varied over the years and between the groups. Cases demonstrated a higher rejection rate than controls but the difference in risk was not statistically significant.

Conclusion: There is no additional advantage for the long term function of fitting a myoelectric prosthetic hand to children at very early age. The recommended age is around 3 years, with further consideration taken to the individual psychosocial and motor development.