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A small step

towards understanding
impaired walking development
in children with cerebral palsy

Annike Bekius

A small step towards understanding impaired walking development in children with cerebral palsy

Annike Bekius



Abstract

Early brain lesions can give rise to cerebral palsy (CP), which may affect the development of walking. Given the highly plastic brain and still maturing corticospinal tract of young children, early interventions targeting underlying mechanisms of walking impairment may be important to improve functional mobility in children with CP. The overarching aim of this thesis is to identify the underlying mechanisms of impaired walking development in children at high risk of CP. The findings in this thesis suggest that early brain lesions in CP express as modifications of neuromuscular control, already in the early phase of motor development. Muscle synergy analysis, possibly in conjunction with muscle network analysis, is a promising objective method for the detection of impaired neuromuscular control. This may support the design of early interventions to improve walking ability in children with CP in the future.