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Individually defined multidisciplinary interventions for children with cerebral palsy - The impact of three-dimensional gait analysis on gait and functional mobility

Background: Many children with cerebral palsy (CP) have an altered gait pattern. Three-dimensional gait analysis (3DGA) can be used to optimize indication for multidisciplinary interventions. Based upon three-dimensional gait analysis a Gait Deviation Index (GDI), can be calculated. Reproducibility of GDI has not been described. The multidisciplinary interventions to optimize gait are orthopaedic surgery, spasticity control, orthotic prescription and physical therapy. It has not been investigated whether multidisciplinary interventions directed at impairments identified by 3DGA, results in improvements in gait and functional mobility, compared to care as usual.

Aim: The overall aim is to investigate the effect of individually defined multidisciplinary interventions directed at impairments identified by 3DGA in children with CP aged 5-7 years, in relation to gait and functional mobility.

Material and methods: Twenty normally developed children will form the reference values for the GDI and 20 children with CP will be analyzed twice to investigate intra- and intersession reliability of the GDI. Two randomized controlled trials will include 60 children with CP to investigate the impact of individually defined multidisciplinary interventions.

The project will be conducted at the Gait Analysis Laboratory. The multidisciplinary intervention will be carried out by the section of paediatric orthopaedics, the paediatric departments and physical therapist in the municipalities.

Scope: The present study will provide important knowledge and contribute significantly to the level of evidence regarding the treatment of children with CP.

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