Abstract

The present work in this thesis aims to investigate the use of visual information in children with Spastic Unilateral Cerebral Palsy (SUCP) during goal-directed movements. Children with SUCP have impairments to the motor system which influences their movement behaviour to a great extend and therefore limit their possibilities when performing interceptive movements. In addition, recent studies have found evidence that children with SUCP show motor planning deficiencies which may just be as detrimental for a proper performance of interceptive movements as are the disorders related to movement execution. The visual information and guidance used in these interceptive movements could influence the planning and might even be related to the planning deficiencies.

The first study this thesis reports is about the use of visual information during the execution of an interceptive movement in typically developing (TD) children. It aimed to investigate the developmental differences during the execution of an interceptive task, and showed that younger and older children both have problems to adequately guide their walking movement without visual information available. In chapter three, children with a left hemisphere lesion (LHL) and their ability to plan a complex interceptive movement with their impaired and less-impaired hand was investigated. The results suggest that children were able to take their disability into account at the beginning of the movement. Chapter four aimed to investigate the visual guidance of the complex interceptive movement. It compared TD children, children with LHL and children with a right hemisphere lesion (RHL) with each other. It showed that children with LHL preferred to use a distance strategy for grasping contrary to TD children and children with RHL who preferred a time strategy. The exact gaze behaviour of children with RHL and children with LHL was investigated in chapter five. It was determined that children with LHL differed in their visual search behaviour in comparison to children with RHL.
It can be concluded that the use of visual information in children with SUCP is connected to the side of the lesion. The motor planning deficiencies found in previous studies and the differences in the use of visual information found in the present thesis implies that these problems might be related to the use of visual information.