

# Action prediction is facilitated by contextual cues in children with cerebral palsy but not in children with developmental coordination disorder

Monday, September 23, 2024 4:00 PM (10 minutes)

Understanding others' actions entails the use of internal motor models. Recent findings demonstrated that children with Developmental Coordination Disorder (DCD), as those with Cerebral Palsy (CP), both characterized by the presence of difficulties in performing and learning movements, also display anticipatory planning deficits. However, while DCD children do not use pre-cue information to refine their actions, CP children seem to benefit from contextual cues to adjust their performance. Here, we studied whether this difference in action execution is mirrored during action perception. In particular, we tested whether, compared to typical development peers (TD), DCD and CP benefit from contextual priors in predicting the unfolding of social (actions) or nonsocial (moving shapes) events. Results showed TD were facilitated by contextual priors in both prediction tasks, and the same effects were obtained for CP, despite their extensive motor deficits. Conversely, DCD benefitted from contextual priors only in the non-social task, but not in the social prediction task. These results suggest that anticipatory action planning in DCD is not merely due to a general blindness to contextual changes (since they used contextual priors in the non-social task) or to low-level kinematic alterations (since CP did not alter context-based predictions in either task). They rather support a general action prediction deficit in DCD individuals that prevents them to anticipate and adapt their motor execution and perception to environmental changes. By showing different sensitivity to contextual priors, these results would suggest differentiated intervention strategies in DCD and CP patients.

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