

ORAL: DOES THE DEGREE OR DIRECTION OF HANDEDNESS IN CHILDREN WITH DEVELOPMENTAL COORDINATION DISORDER INFLUENCE MOTOR AND COGNITIVE PERFORMANCE?

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Objective. Recent studies have revealed that children with Developmental Coordination Disorder (DCD) exhibit differences in working memory, inhibition and cognitive flexibility compared with typically developing children (TD). A common approach to investigate the relationship between brain lateralization and cognition is to consider handedness as an indicator of cerebral laterality and to compare degree-(consistent vs. inconsistent) or direction-(left vs. right)-performance in cognitive tasks. Few studies report associations between handedness and neurodevelopmental disorders; in particular Darvik et al. (2018) concluded that left-handedness was more common in children with DCD. **Method.** In this study, we investigated the influence of degree and direction of handedness on motor and cognitive performance using the Home Handedness Questionnaire, the Hand-Dominance-Test, the Movement Assessment Battery, and the Digital Trail-Making-Test in children with DCD. Eighteen young children with DCD (9 boys, 9 girls), and 21 age- and gender-matched TD children (8 boys, 13 girls) aged 7-12 years took part. **Results.** The results revealed that degree (Wilks $\lambda=0.49$, $F(12,27)=2.34$, $p=.032$, $\eta^2 p=.510$), but not direction (Wilks $\lambda=0.76$, $F(12,27)=0.73$, $p=.714$, $\eta^2 p=.244$) has a significant influence on cognitive performance: While there was no difference in cognitive flexibility between children with DCD and TD children with inconsistent handedness, children with DCD and consistent handedness needed significantly longer for the decision making process as well as the drawing procedure compared to TD children. **Implications.** Our findings suggest that children with DCD and inconsistent handedness might benefit from greater crosstalk across hemispheres, and increased access to right hemisphere processes, than do consistent hander. Additionally, over the course of development and via occupational therapy these genetic predispositions can be either reinforced or discouraged. Further research is necessary to determine the precise mechanism responsible for the effect of degree of handedness on cognitive and motor processing.