

## **POSTER: IS THERE A DIFFERENCE IN POSTURAL CONTROL BETWEEN CHILDREN WITH LEARNING DISABILITY AND THOSE WITH A LEARNING DISABILITY ASSOCIATED WITH DEVELOPMENTAL COORDINATION DISORDER (DCD)?**

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Children with developmental coordination disorder (DCD) have sensorimotor and postural deficits that interfere with their performance during school tasks. This neurodevelopmental disorder is often associated with learning disabilities. However, it is unclear whether learning disabilities (LD) also negatively impact postural control in children. Objective: To examine postural control and more specifically stability limits (SL) in different sensory conditions in children with learning disabilities with or without DCD. Method: In this exploratory study, we compared the SL of 70 children with LD (41 LD + DCD, 23 LD only) and 20 typical children (9-13 years old). We evaluated the center of pressure (COP) displacement (root mean square, COP range amplitude and maximal COP excursion) during SL. At the start of each trial, children stood on an AMTI force plate with bare feet at comfortable stance width. Starting from an upright position with arms crossed on the chest, children were asked to lean as far as possible in four directions in separated trials (forward, backward, rightward and leftward) without lifting their feet or flexing their hips. Children were then required to maintain this maximal position for 10 sec. Two sensory conditions were tested: 1-eyes open and 2- eyes closed, standing on a foam. Results: The statistical analysis revealed that LD children in both groups had larger COP ranges amplitude and larger root means square compared to typical children, suggesting that LD children, with and without DCD had stability impairments. There was no difference between the LD groups. Furthermore, both LD groups had significantly smaller maximal COP excursion than typical children indicating that they had smaller limits of stability. Once again, no difference was observed between the LD groups. Implication: Overall, children with LD showed the same postural control deficits than LD children with DCD. Although these signs are not evaluated and considered in clinics and schools, they could interfere with children's performance during daily and physical activities and even negatively impact social inclusion.