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ABSTRACT FRM 2023 (250 mots max):

Characterization of the perceptual-motor procedural learning deficit in adults with probable Developmental Coordination Disorder and links with motor, executive, attentional functions and comorbidities

Developmental Coordination Disorder (DCD) is a neurodevelopmental disorder characterized by motor impairments occurring during early development and interfering with daily activities without sensorial or neurologic disease. Motor execution is slow and clumsy and difficulties can persist into adulthood. These motor deficits could result from an alteration in perceptual-motor procedural learning (PMPL). Two categories of PMPL are described in the literature: motor sequence learning (MSL) involving the cortico-striatal loop, and visuo-motor adaptation (VMA) involving the cortico-cerebellar loop. Despite the hypothesis of a dysfunction in the cortico-cerebellar loop in DCD, there is no consensus about the deficit of MSL and/or VMA. Investigating MSL and VMA in adults with probable DCD is a good way to test the specific of the deficit. The aim of the present study is to characterize PMPL deficits in adults with DCD and to explore the possible links with motor, executive and attentional functions. The study design will compare adults with probable DCD and without DCD who will perform a test evaluating the two categories of PMPL. Inter-individual variability will be taken into account by including comorbidity with Attention-Deficit/Hyperactivity Disorder (ADHD) as a covariable and by testing correlations between PMPL and motor, executive and attentional scores.

In line with recent results of the literature showing dysfunction in the cortico-cerebellar loop, we expect that adults with probable DCD will present more deficits in VMA than in MSL. We also expect that PMPL will be impacted by ADHD comorbidity and correlated with motor, executive and attentional scores.