

SUBTYPES OF DEVELOPEMENTAL COORDINATION DISORDER: A MULTIVARIATE INVESTIGATION TO DEFINE SPECIFIC IMPAIRMENTS

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Objectives: The DSM IV-R criteria for Developmental Coordination Disorder (DCD) involve a marked impairment in the development of motor coordination although visual-spatial, digital and visuo-motor perception, neuromuscular tone, qualitative and quantitative measures impairments related to of gross and fine motor coordination might be used to isolate three main subtypes of DCD/dyspraxia: Ideomotor, Visual-Spatial/Constructional, and a Mix group sharing common impairments with additional comorbidities. This study focus on isolating specific markers with high predictive discriminatory power from a wide range testing battery in a sample of DCD children.

Methods: Data were collected on 63 children with DCD aged 5-15 years (median 8.1), enrolled on DSM IV-R criteria. Children were free of previous assessment, medication, and therapy followup-up. Each subject underwent a neuropsychological, neuro-psychomotor and neurovisual testing batteries comprised of 49 milestones assessment.

Results: The most salient markers with respect to the three subtypes of dyspraxia studied in this sample are digital praxia, imitation of gestures, digital perception, visual-motor integration, manual dexterity, visual spatial structuration, coordination between upper and lower limbs, and lego blocks. Clustering results suggest Ideomotor patients define a homogeneous group of patients and Mix group with specific difficulties in coordinating lower and upper limbs or poor manual dexterity.

Conclusion: This study confirms the importance of some aspects of neurovisual processing of spatial information, and motor control in DCD. Less than 15 neurovisual, neuro-psychomotor and neuropsychological milestone tests might be required to provide a sensitive and specific diagnostic of DCD subtypes, and isolated markers allow a better understanding of DCD.