

Developmental Trajectory of Motor Deficits in Preschool Children with ADHD.

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Abstract

Motor deficits persisting into childhood (>7 years) are associated with increased executive and cognitive dysfunction, likely due to parallel neural circuitry. This study assessed the longitudinal trajectory of motor deficits in preschool children with ADHD, compared to typically developing (TD) children, in order to identify individuals at risk for anomalous neurological development. Participants included 47 children (21 ADHD, 26 TD) ages 4-7 years who participated in three visits (V1, V2, V3), each one year apart (V1=48-71 months, V2=60-83 months, V3=72-95 months). Motor variables assessed included speed (finger tapping and sequencing), total overflow, and axial movements from the Revised Physical and Neurological Examination for Subtle Signs (PANESS). Effects for group, visit, and group-by-visit interaction were examined. There were significant effects for group (favoring TD) for finger tapping speed and total axial movements, visit (performance improving with age for all 4 variables), and a significant group-by-visit interaction for finger tapping speed. Motor speed (repetitive finger tapping) and quality of axial movements are sensitive markers of anomalous motor development associated with ADHD in children as young as 4 years. Conversely, motor overflow and finger sequencing speed may be less sensitive in preschool, due to ongoing wide variations in attainment of these milestones.