Motor and Executive Dysfunction in Children with Primary (Non-Autistic) Complex Motor Stereotypies

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Objective:
Complex motor stereotypies (CMS) are patterned, repetitive, rhythmic, involuntary movements that stop with distraction and persist over time. Stereotypies are grouped into “primary” (otherwise normal) and “secondary” (e.g., associated with autism, intellectual disability, sensory deficits) categories. Although occurring in normal individuals, a careful analysis of the underlying neuropsychological correlates of primary CMS has not been performed.

Methods:
Thirty-seven children with primary CMS (verified by observation or video and screening for autistic spectrum disorders; ages 4-12 years) and 37 typically developing controls (matched on age, sex, handedness, and race) completed neuropsychological assessments including IQ, language, motor, attention, and executive functions. Stereotypy severity was rated by parents of children in the CMS group.

Results:
Compared to controls, children with primary CMS were rated by parents as having significantly more problems with attention, hyperactivity/impulsivity, and executive dysfunction (all p<.01). The primary CMS group performed significantly worse than controls on motor speed, and inhibition of motor overflow (p<.05), but not on core language skills. Identified deficits in motor speed and overflow persisted after controlling for IQ and ADHD symptoms. Within the primary CMS group, none of the neuropsychological variables significantly correlated with parent report of stereotypy frequency or severity.

Conclusions:
Despite having age-appropriate core language and IQ, children with primary CMS manifest neurobehavioral deficits in executive and motor control. Recognition of these deficits is important, since they could potentially affect communication and social skills. Parent report of the frequency and intensity of stereotypies does not appear to be a marker for neuropsychological dysfunction.