

Telemetric Assessment of Movement Stereotypy in Children with ASD

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DESCRIPTION:

Stereotypical behaviors constitute one of the core diagnostic features of Autism Spectrum Disorders (ASD). Movement stereotypies represent one of the most disruptive classes of stereotypical behaviors occurring in children with an ASD. Engagement in these behaviors can lead to social stigmatization, and can complicate social interaction. Moreover, if a movement stereotypy becomes a dominant behavior in an individual's repertoire, it can interfere with the acquisition of new skills and performance of established skills, and may lead to self-injurious behavior. Unfortunately, the lack of accurate and timely measures of these behaviors has slowed the development of interventions to reduce or prevent stereotypical motor movements. The current proposal will evaluate the use of wireless accelerometers and pattern recognition software to automatically detect two of the most common, high frequency stereotypical motor movements, body rocking and hand flapping, in 10 children with an ASD in real-time. New algorithms for real-time body rocking and hand flapping stereotypy detection will be developed that advance the state-of-the-art in ambulatory monitoring in children with an ASD, both for the collection of research data and for the development of novel intervention tools for therapists and caregivers. Obtaining detailed and accurate information on the occurrence, type of movement (i.e., topography), frequency, duration, and setting events associated with movement stereotypy is critical to understanding and treating this potentially disruptive behavior. Reliable recording of movement stereotypies will enable researchers to study what functional relations may exist between these behaviors and specific antecedents and consequences. These measures can also facilitate efficacy studies of behavioral and pharmacologic interventions intended to decrease the incidence or severity of movement stereotypy.