Stereotypical movements (SM) are repetitive, rhythmic, and patterned behaviors that appear to be purposeless. SM are highly prevalent in individuals with autism and have received much less scientific study than social and communication deficits, the other two hallmarks of the disorder. The most prevalent SM in autism include body rocking, mouthing, and complex hand and finger movements. SM rarely persist in sleep and decrease in number and amplitude with age, especially in less severely affected children. Frequent pathological SM in autism, however, can interfere with learning and social interactions. As they are largely resistant to psychotropic drugs, decreasing or eliminating SM is the goal of many behavioral interventions. Yet, evidence-based research of these intensive and expensive interventions is sparse and lasting success levels disappointing. This talk will describe experiments employing wireless, wearable 3-axis accelerometers and pattern recognition algorithms to automate the detection of SM in individuals on the autism spectrum. I will present results to-date and future plans for parameterizing raw kinematic data to evaluate change in SM across shifting internal (i.e., biological) and external (i.e., environmental) contexts over time. The goal is to determine functional significance of intervention mechanisms.