

Static Stimuli's Impact on Postural Linear Parameters in Children with Autism Spectrum Disorder

MEGAN E. PERKINS & BRYON C. APPLEQUIST

Biomechanics; Department of Kinesiology; Texas A&M University – Corpus Christi;
Corpus Christi, TX

Category: Undergraduate

Advisor / Mentor: Applequist, Bryon (Bryon.Applequist@tamucc.edu)

ABSTRACT

Limited or restricted forms of postural control has been reported in children diagnosed with Autism Spectrum Disorder (ASD) in contrast to their neurotypical counterparts. This aligns with the ASD inability to integrate sensory processing properly, thus producing a less adaptive postural response to changes in their environment. Interestingly, although there is a deficit in postural control, visual-spatial perception abilities in those with ASD tend to be advanced. For example, children with ASD have performed well in the block design subtest of the Weschler Intelligence Scale. Additionally, they tend to hyperfocus attention on one item while disregarding the others, another quality which may be advantageous in this research. **PURPOSE:** The purpose of this study was to investigate if a static stimulus, such as a target, will result in a stabilizing effect on posture, reducing postural sway and thereby causing alterations in postural control in children with ASD. **METHODS:** 6 children with ASD and 22 children with typical development had center of pressure (COP) data measured on the basis of two randomized visual conditions. One condition had a static target on a television placed at eye level of each participant, and the other condition was without a static target. During the trials, each child stood still for 3.5 minutes on a force plate, which recorded the COP anterior-posterior (AP) and medial-lateral (ML) data. **RESULTS:** Linear measures of mean, velocity, and root mean square (RMS) were calculated for each direction, utilizing a custom MatLab script. There were no statistical differences in COP AP and COP ML means, velocities, and RMSs for the ASD and neurotypical children ($p>0.05$). **CONCLUSION:** Presentation of a static target stimulus did not seem to drastically alter the linear parameters of posture in ASD. No conclusion can be made as to how the visual target may alter and/or stabilize ASD posture based on this information. Linear measures of postural control may not be sensitive enough to detect differences among the ASD and neurotypical. Future investigations should focus on non-linear measures, which may be more sensitive to postural control differences.