

Title: Analysis of postural control variability of children with Autism Spectrum Disorders

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Autism Spectrum Disorder (ASD) currently affects one in 68 children, a number that has increased by 78% over the last decade.<sup>1</sup> Standing postural control is a basic movement skill which is rarely examined in children with ASD due to the more obvious social deficits. We measured the Center of Pressure (COP) during standing posture, which is a postural sway measurement defined by the point of summation of all forces acting on a body.<sup>2</sup> One of the goals of this project was to compare COP data to a qualitative measurement, the Mullen Scales of Early Learning (MSEL), which measures visual reception, fine and gross motor, receptive language, and expressive language skills, to determine whether posture and cognitive development are related. Five children (either diagnosed with ASD or with a sibling with ASD) and six children with typical development (TD) participated in the study. Children stood on a force plate for at least 30 seconds and then the MSEL was administered. As total excursion (total length of the COP path) and sway path increased in the ML and AP directions, children with TD experienced a decrease in visual reception, fine motor, receptive language, and expressive language skills, whereas children in the ASD group did not. This suggests that there is a relationship between posture and one's overall development for children with TD but not for children with ASD or a sibling with ASD.

1. Centers for Disease Control and Prevention. (2012). Autism Spectrum Disorder. Retrieved from <http://www.cdc.gov/ncbddd/autism/data.html>.
2. Kyvelidou, A., Harbourne, R. T., Shostrom, V. K., & Stergiou, N. (2010). Reliability of center of pressure measures for assessing the development of sitting postural control in infants with or at risk of cerebral palsy. *Archives of Physical Medicine and Rehabilitation*, 91, 1593- 1601.