Title: Relationship between the Mullen Scales of Early Learning and
Posture Control Measures

Authors: Lauren Wehrle, Jordan Wickstrom, M.S., Alyssa Averhoff,
Anastasia Kyvelidou, PhD

One in 68 children are currently diagnosed with Autism Spectrum Disorder (ASD). Unfortunately, children are left undiagnosed until the average age of four due to a lack of quantitative measures. One way to assess children earlier may be through analyzing their postural sway. In doing so, we can assess their Center of Pressure (COP), which is the sum of forces acting between the environment and the individual.[1] Therefore, this project examined the relationship between sitting posture and developmental assessment scores, as measured by the Mullen Scales of Early Learning (MSEL), between infants with typical development (TD) and infants at-risk (AR) for ASD. The developmental assessment scores were in these skill areas: gross motor, fine motor, visual reception, expressive language, and receptive language. Eighteen TD infants and 10 AR infants were assessed on the MSEL and sat on a force plate for a minimum of three ten-second trials. Dependent variables for posture were root mean square and range in the anterior-posterior (AP) and medial-lateral (ML) directions as well as total excursion. We found that, as total excursion increased, fine motor skills decreased (TD infants) and expressive language skills decreased (AR infants). Additionally, increased ML sway was associated with decreased expressive language skills (AR infants). These results suggest that longer COP paths and increased side-to-side sway may negatively impact language expression in AR infants and fine motor skills in TD infants. Further research is needed to explore the relationship between sitting posture patterns and overall development, as this may allow for earlier diagnoses.

Reference:
[1]Kyvelidou, A., Harbourne, R. T., Stuberg, W. A., Sun, J., & Stergiou, N. (2009). Reliability of Center of Pressure Measures for Assessing the Development of Sitting Postural Control. *Archives of Physical Medicine and Rehabilitation, 90,* 1176-1184.