

SENSORY INTEGRATION AND ITS ROLE IN BEHAVIORAL PLASTICITY IN  
CHILDREN DIAGNOSED WITH AUTISM SPECTRUM DISORDER

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PREVIEW

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CHILDREN DIAGNOSED WITH AUTISM SPECTRUM DISORDER

by

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## ABSTRACT

Although commonly characterized by communicative and social impairments, Autism Spectrum Disorder (ASD) presents a number of developmental deficits related to movement planning and action. The extent of these deficits to the entire neuromuscular system, as well as the individual input/output loops are still not well understood. Given the dynamic interplay between our plans, actions and outcomes lay the foundation for later mature motor behavior, it is critical to understand the unique motor learning processes these nervous systems face while a higher level of training plasticity may be present. A recent study examined the kinematics (acceleration, velocity, smoothness, etc.) of upper extremity target movements in high functioning children with ASD compared to age matched neurotypical (NT) peers (Gamez et al., 2020). Although significantly different from their NT peers in the initial pre-test assessment, the study found that the children with ASD were capable of significantly enhancing the kinematic profile of their movement on the target task (post-test) after a brief training paradigm of reciprocal sine wave tracking. Although interesting, the sensory specifics of the training should be considered given the population. The purpose of this study was to further the understanding of this unique motor system, as well as provide insight in to future therapeutic directions by isolating sensory inputs of vision and proprioception with the original sine wave design. The results showed that measures of movement time (MT) were significantly faster after training in the Sine Wave condition compared to their pretest measures, suggesting that the sine wave effect was replicated. Following lifted restrictions of COVID-19, this study will continue to investigate the importance of visual and proprioceptive sensory input in children with ASD.

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