Lay Abstract

autism

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Neural dynamics of executive function in cognitively able kindergarteners with autism spectrum disorders as predictors of concurrent academic achievement

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In the current study, we used electrophysiological (e.g., EEG/ERP) methods, which measure the electrical activity of the brain, to examine brain activity related to executive functions (EF), specifically the ability to monitor errors. We tested the relationship between the EEG/ERP patterns and academic achievement in cognitively-able kindergarteners with a diagnosis of autism spectrum disorder (ASD). A child-friendly game successfully elicited neural dynamics that are associated with error-monitoring in children as young as 5 years. These neural dynamics were found to predict academic achievement, after accounting for performance on the EF task and also cognitive ability levels. These results suggest that the use of the electrophysiological methods may provide new opportunities to investigate the mechanisms of EF and academic achievement in young children with ASD.