

Dawson G., Jones E. J. H., Merkle K., Venema K., Lowy R., Faja S., Kamara D., Murias M., Greenson J., Winter J., Smith M., Rogers S. J., Webb S.

Early Behavioral Intervention Is Associated With Normalized Brain Activity in Young Children With Autism

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Objective: A previously published randomized clinical trial indicated that a developmental behavioral intervention, the Early Start Denver Model (ESDM), resulted in gains in IQ, language, and adaptive behavior of children with autism spectrum disorder. This report describes a secondary outcome measurement from this trial, EEG activity. **Method:** Forty-eight 18- to 30-month-old children with autism spectrum disorder were randomized to receive the ESDM or referral to community intervention for 2 years. After the intervention (age 48 to 77 months), EEG activity (event-related potentials and spectral power) was measured during the presentation of faces versus objects. Age-matched typical children were also assessed. **Results:** The ESDM group exhibited greater improvements in autism symptoms, IQ, language, and adaptive and social behaviors than the community intervention group. The ESDM group and typical children showed a shorter Nc latency and increased cortical activation (decreased α power and increased γ power) when viewing faces, whereas the community intervention group showed the opposite pattern (shorter latency event-related potential [ERP] and greater cortical activation when viewing objects). Greater cortical activation while viewing faces was associated with improved social behavior. **Conclusions:** This was the first trial to demonstrate that early behavioral intervention is associated with normalized patterns of brain activity, which is associated with improvements in social behavior, in young children with autism spectrum disorder. *J. Am. Acad. Child Adolesc. Psychiatry*; 2012; 51(11): 1150–1159. Clinical trial registration information—Early Characteristics of Autism; [http:// www.clinicaltrials.gov](http://www.clinicaltrials.gov); NCT00090415. **Key Words:** autism, early behavioral intervention, Early Start Denver Model, event-related potentials, brain activity.