The Relative Efficacy of Connectivity Guided and Symptom Based EEG Biofeedback for Autistic Disorders

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Author(s): Coben R (Coben, Robert)1,2, Myers TE (Myers, Thomas E.)1,2 Source: APPLIED PSYCHOPHYSIOLOGY AND BIOFEEDBACK Volume: 35 Issue: 1 Pages: 13-23 Published: MAR 2010 Times Cited: 1 References: 76 Citation Map Abstract: Autism is a neurodevelopmental disorder characterized by deficits in communication, social interaction, and a limited range of interests with repetitive stereotypical behavior. Various abnormalities have been documented in the brains of individuals with autism, both anatomically and functionally. The connectivity theory of autism is a recently developed theory of the neurobiological cause of autisic symptoms. Different patterns of hyper- and hypo-connectivity have been identified with the use of quantitative electroencephalogray (QEEG), which may be amenable to neurofeedback. In this study, we compared the results of two published controlled studies examining the efficacy of neurofeedback in the treatment of autism. Specifically, we examined whether a symptom based approach or an assessment/connectivity guided based approach was more effective. Although both methods demonstrated significant improvement in symptoms of autism, connectivity guided neurofeedback demonstrated greater reduction on various subscales of the Autism Treatment Evaluation Checklist (ATEC). Furthermore, when individuals were matched for severity of symptoms, the amount of change per session was significantly higher in the Coben and Padolsky (J Neurother 11:5-23, 2007) study for all five measures of the ATEC. Our findings suggest that an approach guided by QEEG based connectivity assessment may be more efficacious in the treatment of autism. This permits the targeting and amelioration of abnormal connectivity patterns in the brains of people who are autistic. Document Type: Article Language: English Author Keywords: Autism; Quantitative EEG; Neurofeedback; Assessment; Efficacy KeyWords Plus: ATTENTION-DEFICIT/HYPERACTIVITY DISORDER; TRAUMATIC BRAIN-INJURY; CORPUS-CALLOSUM; SPECTRUM DISORDER; FUNCTIONAL CONNECTIVITY; NEUROFEEDBACK TREATMENT; RESONANCE SPECTROSCOPY; CORTICAL CONNECTIVITY; EXECUTIVE FUNCTION; INFANTILE-AUTISM Reprint Address: Coben, R (reprint author), Neurorehabil Serv, 1035 Pk Blvd,Suite 2B, Massapequa Pk, NY 11762 USA Addresses:

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