Effect of the Theta-Beta Neurofeedback Protocol as a Function of Subtype in Children Diagnosed with Attention Deficit Hyperactivity Disorder

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The Spanish journal of psychology, Vol. 19, 2016

Neurofeedback is a neuronal self-regulation technique that teaches people to modulate their brain frequencies using visual and auditory reinforcements presented on a computer screen. To assess the effect of neurofeedback training in children with ADHD as far as improved attention and impulse control, and analyze whether or not there are differences between the inattentive and hyperactive subtypes. Fifty children diagnosed with ADHD participated in the study: 14 comprised the control group, and 36 the experimental group (16 with the inattentive ADHD subtype, 20 with the hyperactive ADHD subtype). Attention and impulse control were assessed using the Integrated Visual Auditory CPT (IVA/CPT). Results indicated that the predominantly inattentive group showed significant differences on the Control Scale (p = .023, d = 1.31) and the Attention Scale (p < .01, d = 1.89) of the IVA/CPT; meanwhile the predominantly hyperactive group showed significant improvement on the Control Scale (p = .016, d = 1.21). The control group exhibited no significant differences on either of the two scales (p > .5). In terms of theta/beta ratio, no significant differences were detected (p = .10) between ADHD subtypes. The findings suggest that neurofeedback training using the theta/beta protocol was more effective in the predominantly inattentive subset of individuals with ADHD.