

Poster Abstracts

Specificity of Neurofeedback for Cognitive Deficits

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The specificity of various EEG neurofeedback protocols for the remediation of cognitive deficits was examined. Protocols varied on electrode placement, montage, and reward frequency bands, among other factors. This was a retrospective study of 64 children with attention problems (8-14 y, mean 10.2 y). All subjects received a minimum of 20 sessions of SMR/Beta (12-15 Hz/15-18 Hz) reward training with theta and high-beta inhibits. All children received an extensive battery of neuropsychological tests before and after training.

It was found that on specific cognitive tests, results were significantly improved if as little as 20% of training involved frontal sites along with training at sensorimotor strip. Also, it was generally found advantageous to train on both hemispheres, as opposed to training on the midline or training solely on one hemisphere. Certain cognitive skills benefited preferentially from higher frequency training (15-18 Hz) and from training on the left hemisphere. Protocols that focused on reward of the lower frequencies tended to be driven more by behavioral issues such as hyperactivity and sleep, as well as right-hemisphere functions; both of which were less quantifiable by cognitive testing.

Increasing refinement of EEG neurofeedback through protocol specificity are indicated by these early promising results.
