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82 Heart Rate Variability Biofeedback for Mild Traumatic Brain Injury

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Objective: Heart rate variability (HRV) can be an indicator of the flexibility of the central and autonomic nervous systems. Heart rate variability biofeedback (HRV-BF) has been shown to validate the neuro-peripheral relationship and enhance the interaction between top-down and bottom-up processes. Few previous studies have focused on the treatment outcomes of HRV-BF in traumatic brain injury, and such studies have been mostly limited to pilot studies or case reports. The purpose of this study is to investigate the efficacy of HRV-BF for neuropsychological functioning in patients with mild traumatic brain injury (mTBI).
Participants and Methods: Forty-one patients with mTBI were referred from the neurosurgery outpatient program and randomly assigned to a psychoeducation group or a HRV-BF intervention group. The psychoeducation group received standard medical care and one 60-minute psychoeducation session after brain injury. The HRV-BF group received standard medical care and one 60-minute session of the HRV-BF intervention weekly for 10 weeks. All participants received performance-based and self-reported neuropsychological measures of memory, executive function, mood, and information processing at week 1 of injury (pretest) and week 12 (posttest).
Results: Participants in HRV-BF improved significantly after the intervention compared with the psychoeducation group on the Verbal Learning Test, Frontal Assessment Battery, Verbal Fluency Test, Paced Auditory Serial Addition Test, Trail Making Test, Dysexecutive Questionnaire, Depression Inventory, and Checklist of Post-concussion Symptoms.
Conclusions: HRV-BF was found to be an efficacious and efficient intervention for improving neuropsychological functioning in patients with mTBI and a potential candidate for mTBI rehabilitation.

Categories: Cognitive Intervention/Rehabilitation
Keyword 1: concussion/ mild traumatic brain injury
Keyword 2: neuromodulation
Keyword 3: cognitive functioning
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83 Efficacy of a Tablet-Based Cognitive Flexibility Intervention in Youth with Executive Function Deficits

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Objective: Executive functions (EFs) are considered to be both unitary and diverse functions with common conceptualizations consisting of inhibitory control, working memory, and cognitive flexibility. Current research indicates that these abilities develop along different timelines and that working memory and inhibitory control may be foundational for cognitive flexibility, or the ability to shift attention between tasks or operations. Very few interventions target cognitive flexibility despite its importance for academic or occupational tasks, social skills, problem-solving, and goal-directed behavior in general, and the ability is commonly impaired in individuals with neurodevelopmental disorders (NDDs) such as autism spectrum disorder, attention deficit hyperactivity disorder, and learning disorders. The current study investigated a tablet-based cognitive flexibility intervention, Dino Island (DI), that combines a game-based, process-specific intervention with compensatory metacognitive strategies as

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