Brainwave Entrainment Coupled with Cognitive Training: Enhancing Mental Function

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This project is an analytical experiment on the effects of a coupled therapy involving mental exercise and brainwave therapy. Hypothesis: subjects will have improved scores on cognitive tests after 30 days of coupled therapy. Subjects were randomly distributed into four groups: control, Lumosity, entrainment, and coupled. Each subject was required to take four cognitive function tests: memory, reasoning, concentration, and planning. The control and entrainment groups completed crossword puzzles (no exposure to mental exercise), while Lumosity and coupled performed Lumosity games. Entrainment and coupled both listened to isochronic tones at the theta level (6Hz @ 440Hz) for brainwave therapy. Participants completed their assigned tasks for 15 minutes per day for 3 weeks. At the end of the testing window, subjects took the same 4 cognitive tests, followed by a quick survey. 2-factor ANOVA was used to analyze the data and it was found that the memory had no significant results; reasoning individual treatments were positively significant but coupled therapy had a negative interaction; concentration had positive significance for both treatments individually but none for coupled; and planning had no significance individually but when coupled, had negative interaction. These results can potentially be used to treat those with ADHD or other concentration disorders, aid students and professionals through concentration or logic, and possibly help elderly individuals combat senility and age-related cognitive decline.

Awards Won: