UNVEILING THE NEURONAL MECHANISM DURING LISTENING TO QURANIC RECITATION

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ABSTRACT

Introduction: Listening to Quranic recitation produces deep relaxation effects thus promotes cognitive capabilities. The brainwaves oscillatory responses were applied in psychotherapy and cognitive rehabilitation approaches. **Objective:** Emphasizing the alpha brainwave (frequency of 8 to 13Hz), we aimed to learn the neural mechanisms from the brain oscillations perspective evoked by the rhythmic acoustic of the Fatihah Chapter of the Holy Quran.

Methods: Twenty-eight healthy participants received three auditory stimulations of Fatihah Chapter, Arabic News, and Rest in random sequence in 5,8,6,6,10,8 and 20 seconds each, in a treated quiet room with dimmed light. Electrical activities were measured using the 128-electrode sensor net of EEG (Electrical Geodesics, Inc). The data was pre-processed by EGI Net Station and then analyzed by Fast Fourier Transform (FFT) using BESA Research 6.0, Germany to yield the power spectrum (amplitude squared, μV^2). Event-Related Synchronization or Desynchronization (ERD/ERS) analysis was subsequently performed.

Result: Listening to the Fatihah Chapter recitation elicited ERD that pronounced as increased cortical excitability, reflecting the attentive behavior and memory consolidation in the listeners.

Conclusion: The highly rhythmic sound waveforms modulated the neuronal amplitudes as referred to the alpha ERD, which was produced during deep relaxation and could contribute to cognition enhancement.

Keywords: brainwaves entrainment, cognition, cognitive neuroscience, event-related