

PREFERRED MUSIC AND ENTRAINED IMPROVISATION: A NEUROPHYSIOLOGICAL STUDY

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Objectives: The use of preferred music and improvised entrainment with a range of clinical populations lacks supporting scientific evidence. A study was designed to indicate if there were measurable differences in neurophysiological responses of healthy individuals to these techniques. This enquiry will provide the basic evidence to further develop a music therapy protocol for people with disorders of consciousness.

Method: 5 participants were recruited into a within subjects multiple baseline study to explore responses to live preferred music, improvised music entrained to respiration, recordings of disliked music, white noise and silence. Neurophysiologic measures were recorded using a 32 channel XLTEK® EEG system with a piezoelectric respiratory belt and pulse oximetry.

Results: Preliminary analysis revealed near significant ($p=0.08$) increases in respiration rate comparing baseline silence to preferred music across participants, with significant increase to both preferred and improvised entrainment in 2 cases ($p\leq 0.001$). Pulse rate for preferred music consistently varied compared to baseline ($p=0.08$), but the direction of change was inconsistent. Whilst localised amplitude increases in alpha, theta and beta EEG frequencies were observed across musical stimuli, further spectral analysis is needed to ascertain the likelihood and nature of consistent EEG responses across or within participants.

Conclusion: Preliminary analysis suggests respiration rate increases in healthy participants may correspond to preferred music and entrained improvisation. Detailed quantitative analysis of a larger sample including a further 5 healthy participants neurophysiologic responses will be explored in relation to the relevance of findings for clinical work.