

Inducing an Autonomous Sensory Meridian Response (ASMR) With Electroencephalography as a Novel Intervention to Improve Mental Function

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The autonomous sensory meridian response (ASMR) is a tingling sensation in the scalp, neck, and back caused by sensory stimuli triggering the parasympathetic response. With a wide genre of popular online videos created to induce ASMR, viewers have claimed benefits such as improved sleep, decreased stress, and relaxed mood. This study is the first to investigate the potential of ASMR to revolutionize productivity, mood, and stress-management in a fast and affordable way. To do so, single-case experimental design was utilized, which turns an observational case report into a hypothesis tested under controlled conditions and effectively highlights an individual's distinct changes in state. A uniquely developed research protocol was administered over eight weeks to comprehensively quantify effects of ASMR on mental function, including tests for mood, memory, and executive function; a smartwatch; and a wearable electroencephalography headset. These assessments indicated statistically significant improvement in memory and executive function across the testing period as well as in mood and activation of the parasympathetic response immediately following intervention. Furthermore, wavelet transform analysis demonstrated unique patterns in brain activity during ASMR stimulation, which was supported by in silico validation via a neural network. The established model for detecting successful ASMR stimulation based on brain activity can now be applied to studies on larger populations and make cognitive enhancement by novel biofeedback interventions time-efficient and globally accessible. Overall, this experiment is the first to demonstrate the physiological basis of ASMR's potential to improve cognitive function, therefore encouraging a preventative approach to mental health care.