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Steady state visually evoked potential (SSVEP) topography changes associated with cocoa flavanol consumption.

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Source

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Abstract

In a randomized, double-blind placebo controlled trial, 63 middle-aged volunteers aged between 40 and 65 years were administered a daily chocolate drink containing 250 mg or 500 mg cocoa flavanols versus a low cocoa flavanol (placebo) drink over a 30-day period. Participants were tested at baseline as well as at the end of the treatment period on a test of Spatial Working Memory. Steady State Probe Topography (SST) was used to assess neurocognitive changes associated with cocoa flavanol supplementation during the completion of the Spatial Working Memory task. SST is an electrophysiological technique which utilizes a 13 Hz diffuse visual flicker in order to generate a steady state visually evoked potential (SSVEP). Changes in the amplitude and phase of the SSVEP response after 30 days were compared between treatment groups. Behavioral measures of accuracy and reaction time were not found to be significantly different between treatment groups, while average SSVEP amplitude and phase differences at a number of posterior parietal and centro-frontal sites were found to be significantly different between groups during memory encoding, the working memory hold period and retrieval. In the absence of significant behavioral effects, these differences in brain activation can be interpreted as evidence of increased neural efficiency in spatial working memory function associated with chronic cocoa flavanol consumption.

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