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Project Title: Mental Fatigue and Working Memory

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Abstract: Mental fatigue is the decline in ability that results from prolonged or excessive cognitive activity. There is limited research on mental fatigue, and few studies address its impact on working memory, the ability to maintain and manipulate information over brief delays. The present study is aimed at investigating the cognitive and neural impacts of mental fatigue. This study will use a within-subjects design and will take place over two days. We will induce mental fatigue in participants on one of the days and compare their scores on a working memory task to scores they obtained at baseline. To induce mental fatigue, participants will perform one hour of moderately challenging sudoku puzzles. After each session, spatial working memory will be tested using a paradigm that is sensitive to working memory load and has been shown to robustly elicit Contralateral Delay Activity (CDA), which is a reliable electrophysiological correlate of working memory. Electroencephalographic Activity (EEG) and the CDA will be measured during both sessions. We predict that mental fatigue will lead to a decrease in spatial working memory and a concomitant decrease in CDA amplitude.



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