

TO SLEEP, PERCHANCE TO DECIDE: THE EFFECT OF SLEEP DEPRIVATION ON ERROR REACTIVITY

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Abstract

Previous research has shown a host cognitive decrements that result from sleep deprivation including impaired executive function and slowed reaction time (see Durmer & Dinges, 2005). The focus of this research is to understand the effects of sleep deprivation on performance monitoring and adjustment.

Participants were 42 male and female students, ages 18-27. Once a participant qualified during a phone screening-interview by reporting being in good health they were assigned to one of two conditions: the 8-hour sleep condition or the 4-hour sleep condition. In the laboratory, Ps completed self-report measures of sleep habits. They then engaged in a cognitive task (the Weapons Identification Task) while their electroencephalogram (EEG) was recorded.

Results showed a slowed response in the 4-hour sleep group compared to the 8-hour group. Sleep deprived participants also struggled to respond accurately to stereotype inconsistent trials. Furthermore, those in the 4-hour group were less likely to correctly judge the accuracy of their responses. There appeared to be an effect of Sleep Group on ERN responses, however number of hours of sleep did not appear to have an effect on Pe responses. Overall, the results of this experiment point to the possibility that duration of sleep affects error processing. However, the pattern of effects was not entirely clear, thus results should be considered preliminary.