

附录 1. 摘要样本

Abstract (工科农科文科类)

The Effects of Two Types of **Sleep Deprivation** on **Visual Working Memory Capacity and Filtering Efficiency**

Sleep deprivation has adverse consequences for a variety of cognitive functions. The effects of sleep deprivation, though, are dependent upon the cognitive process examined. Within working memory, for example, some component processes are more vulnerable to sleep deprivation than others. Additionally, the differential impacts on cognition of different types of sleep deprivation have not been well studied. The aim of this study was to examine the effects of one night of total sleep deprivation and 4 nights of partial sleep deprivation (4 hours in bed/night) on two components of visual working memory capacity and filtering efficiency. 44 healthy young adults were randomly assigned to one of the two sleep deprivation conditions. All participants were studied: 1) in a well-rested condition (following 6 nights of 9 hours in bed/night); 2) following sleep deprivation, in a counter-balanced order. Visual working memory testing consisted of two related tasks. The first measured visual working memory capacity and the second measured the ability to ignore distractor stimuli in a visual scene filtering efficiency. Results showed neither type of sleep deprivation reduced visual working memory capacity. Partial sleep deprivation also generally did not change filtering efficiency. Total sleep deprivation, on the other hand, did impair performance in the filtering task. These results suggest components of visual working memory are differentially vulnerable to the effects of sleep deprivation, and different types of sleep deprivation impact visual working memory to different degrees. Such findings have implications for operational settings where individuals may need to perform with inadequate sleep and whose job involve receiving an array of visual information and discriminating the relevant from the irrelevant prior to making decisions or taking actions (e.g. baggage screeners, air traffic controllers, military personnel, health care providers)