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#### Lucid Dreaming and Prefrontal Task Performance

Activity in the prefrontal cortex may distinguish the meta-awareness experienced during lucid dreams from its absence in normal dreams. However, no study has associated lucid dreaming with neuroanatomical function. The objective of the study was to test the hypothesis that the ability to have lucid dreams is related to the functions of the prefrontal cortex – a brain region implicated in the conscious process. To test this hypothesis, 28 high school students performed cognitive tasks that engage the prefrontal cortex and underwent one week of lucid dream induction training and assessment. Participants who exhibited a greater degree of lucidity performed significantly better on a task that engages the ventromedial prefrontal cortex (the Iowa Gambling Task). However, the degree of lucidity achieved did not distinguish performance on a task that engages the dorsolateral prefrontal cortex (the Wisconsin Card Sorting Task), nor did it associate with differences in reported sleep quality or baseline participant characteristics. The association between performance on the Iowa Gambling Task and lucidity is consistent with the higher activity of the ventromedial prefrontal cortex during rapid-eye movement sleep, and suggests a connection between lucid dreaming and other ventromedial functions, like emotion regulation.

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