

## Effect of Transcranial Direct Current Stimulation (tDCS) on Emotional Memory performance across nap and sleep.

The present study attempts to understand the role of tDCS and nap on emotional and prospective memory performance. Justification for the study can be stated as follow:

- REM sleep is known to modulate emotional memory.
- Sleep is known to influence prospective memory.
- Transcranial Direct Current stimulation (tDCS) of different cortical areas has been found to modify perceptual, cognitive, and behavioral functions (Nitsche et al., 2008).
- Daytime napping is a common habit of many people which may be due to prophylactic strategies or recuperative need, respectively before or after sleep loss, or even due to pure appetitive drive. Hence, it is of great theoretical and clinical significance to ascertain the impact of naps on individuals, performance, particularly on cognitive functioning (Gianluca et al., 2009).
- REM sleep helps the consolidation of negative emotional episodic experiences (Wagner et al., 2001, 2006; Nishida et al., 2009).
- Rem sleep is a key process in modulating affective brain processes, ranging from basic emotional reactivity to episodic memory processing (Levin and Nielsen 2009; Walker 2009a, 2009b; Waqlker and van Der Helm, 2009).

### **Applications:**

- Results from this study may help neuroergonomics research on human performance optimization.

- Result from the study will add to the theoretical understanding of sleep dependent consolidation of memory.
- Result from the study can also be used to develop techniques, therapies or product/applications that help elderly from prospective memory intentions with much success.