Neural correlates of memory encoding as a function of practice

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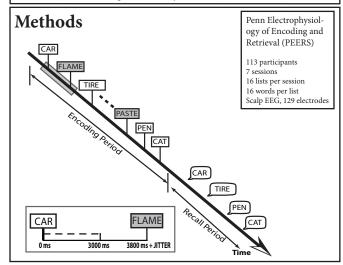
Introduction

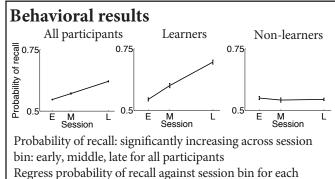
Spectral subsequent memory effects: low frequency decreases, high frequency increases

What are the subsequent memory effects after practice?

No change - retrieval effects Increases - increased recruitment Decreases - less reliance on control

Long et al., 2013; Kelly & Garavan, 2005

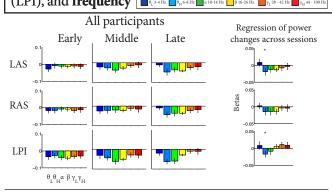


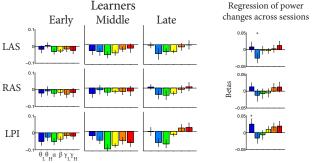


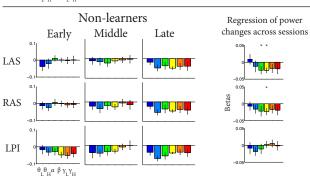
participant, median split betas into learners and non-learners

EEG Oscillatory Power

Z-scored power differences (recalled > not recalled) for each **session bin**: early, middle, late, **ROI**: left and right anterior superior (LAS, RAS) and left posterior inferior (LPI), and **frequency**

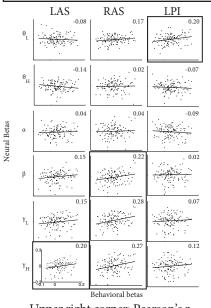






Neural/behavioral correlations

Correlation between neural and behavioral betas for probability of recall across all participants



Upper right corner: Pearson's r Highlighted boxes are significant

Summary

General activation increases with practice

- Suggests increased recruitment, potentially related to increases in attentional or elaborative processing
- Bigger increases in activation for participants with higher learning rate

References

Kelly, AMC and Garavan, H (2005) Human functional neuroimaging of brain changes associated with practice. Cerebral Cortex 15(8)

Long, N. M., Burke, J., and Kahana, M. J. Subsequent memory effect in intracranial and scalp EEG. NeuroImage. In press.

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