

# Behavioral and EEG effects of rTMS on recall of items inside versus outside the focus of attention

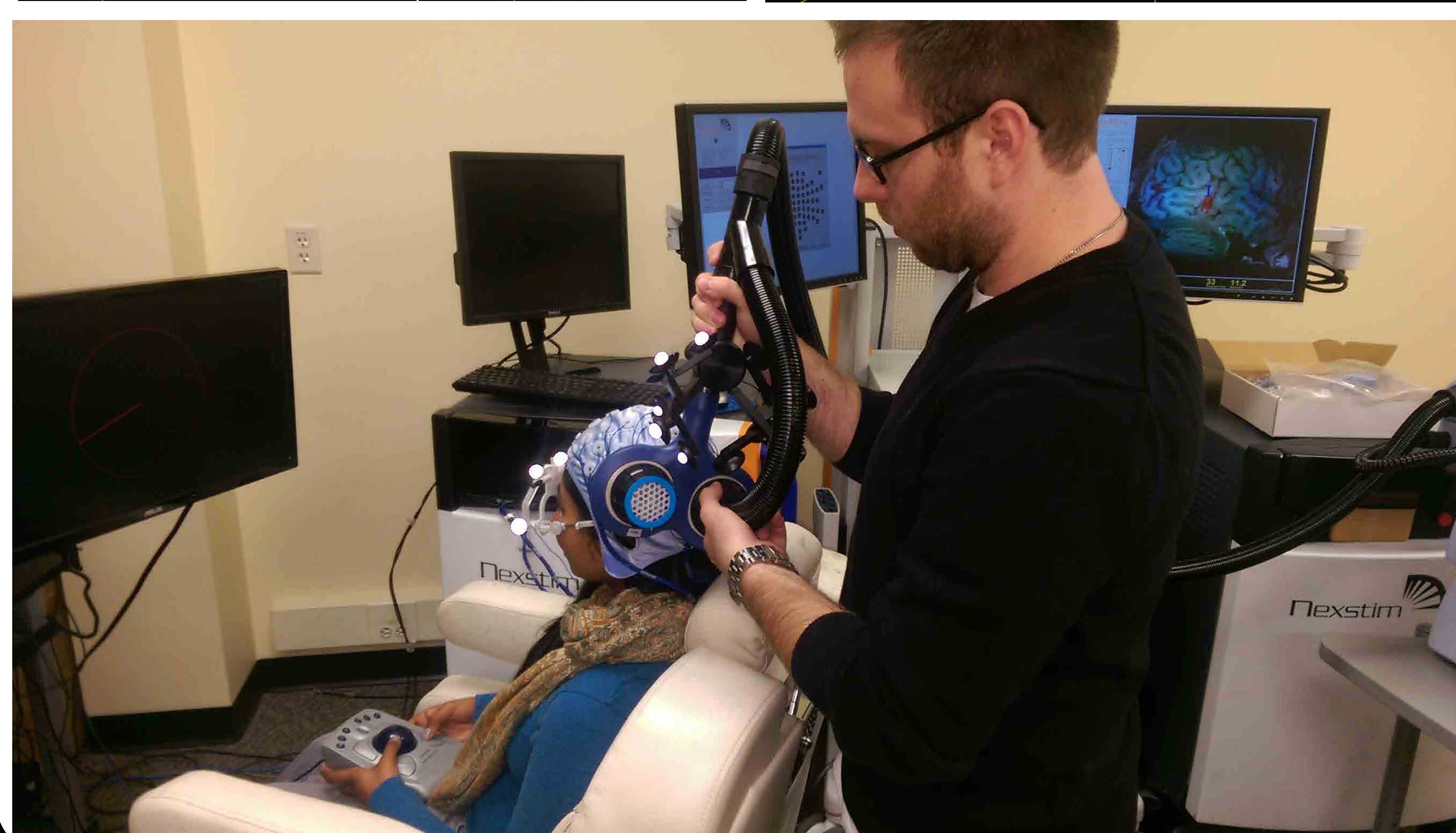
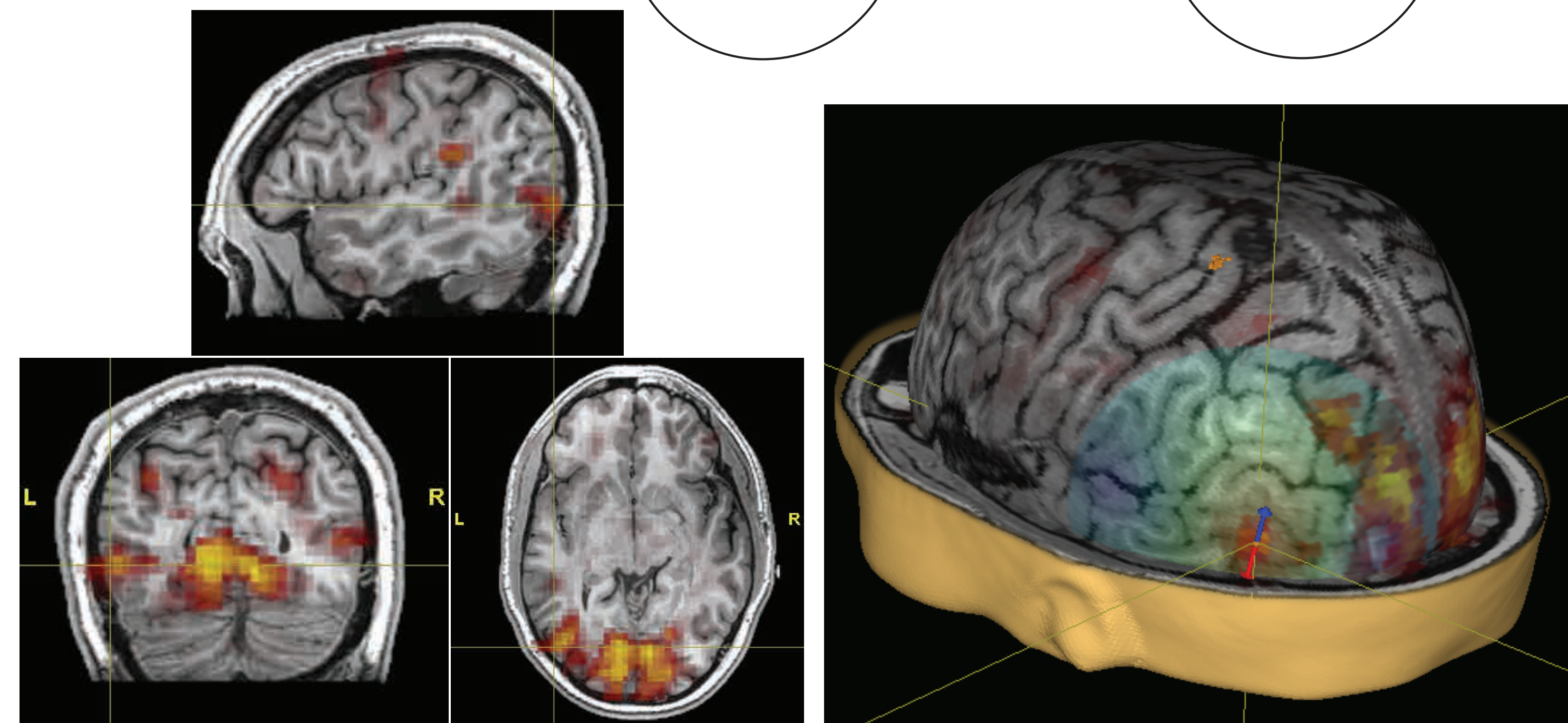
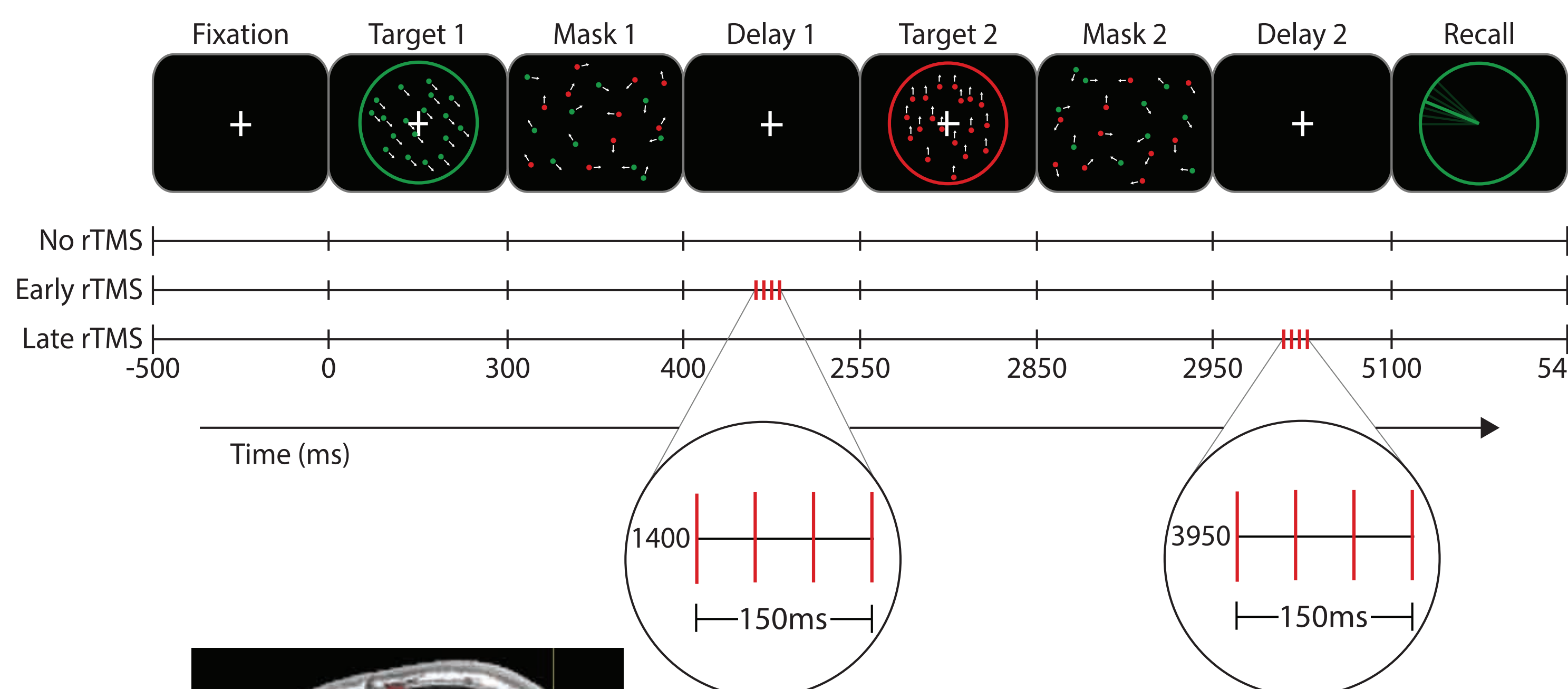
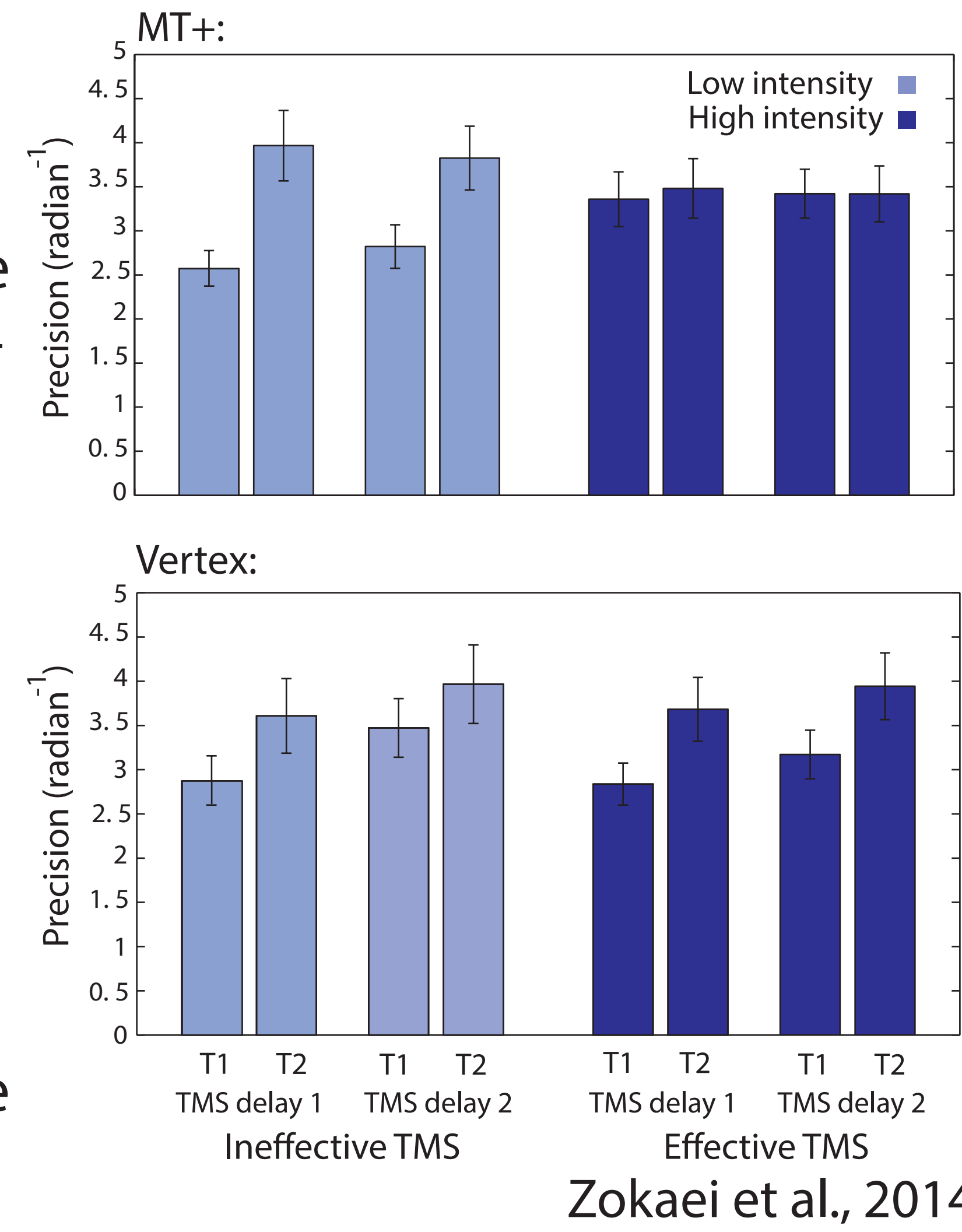


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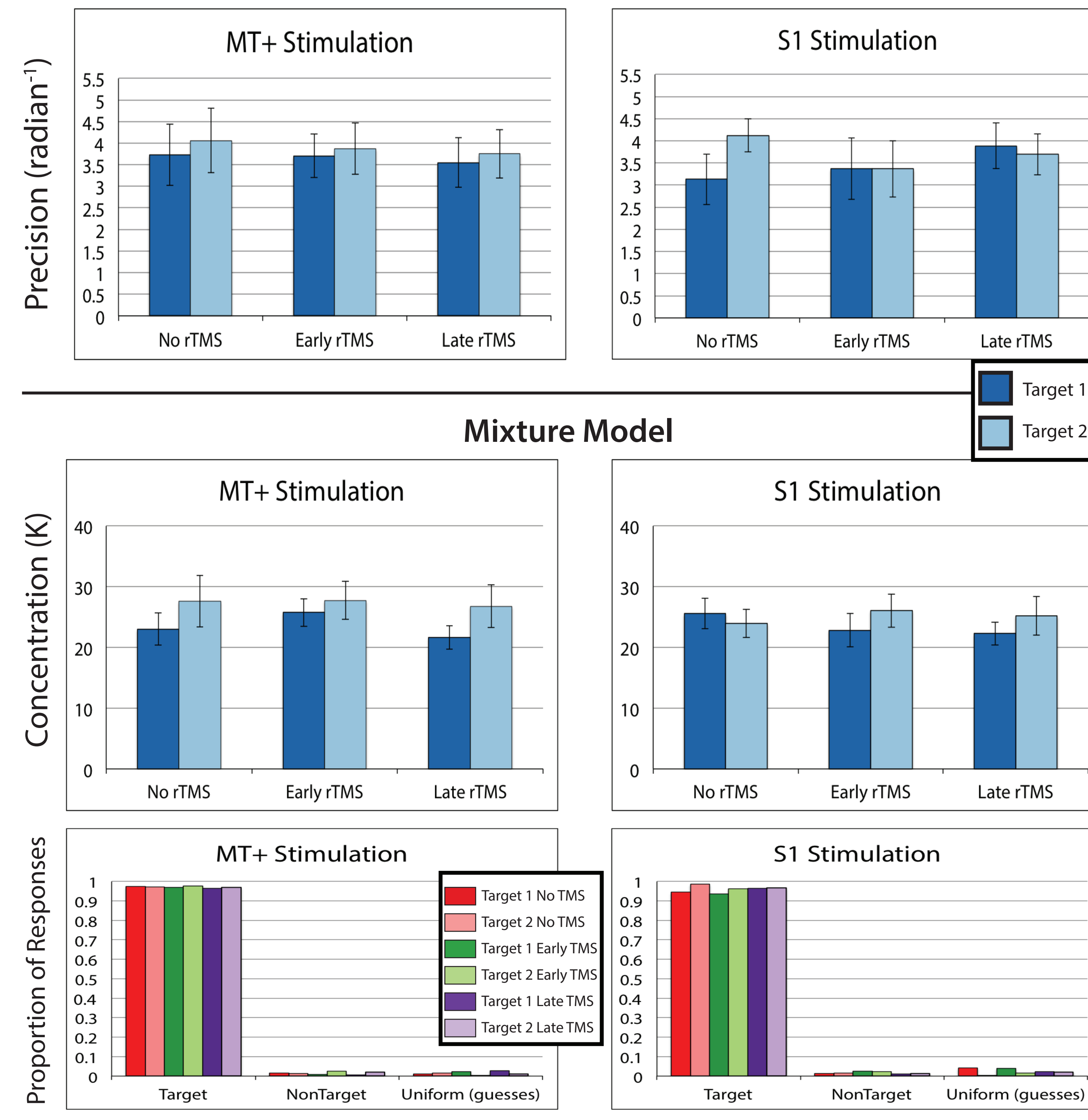
## Introduction

- MT+ implicated in storage during STM of motion (Riggall and Postle, 2012; Emrich et al., 2013)
- rTMS alters motion recall precision; abolishes attentional privilege (Zokaei et al., 2014)
- What are the neural bases of these effects?
- Replicated rTMS procedure using TMS compatible EEG

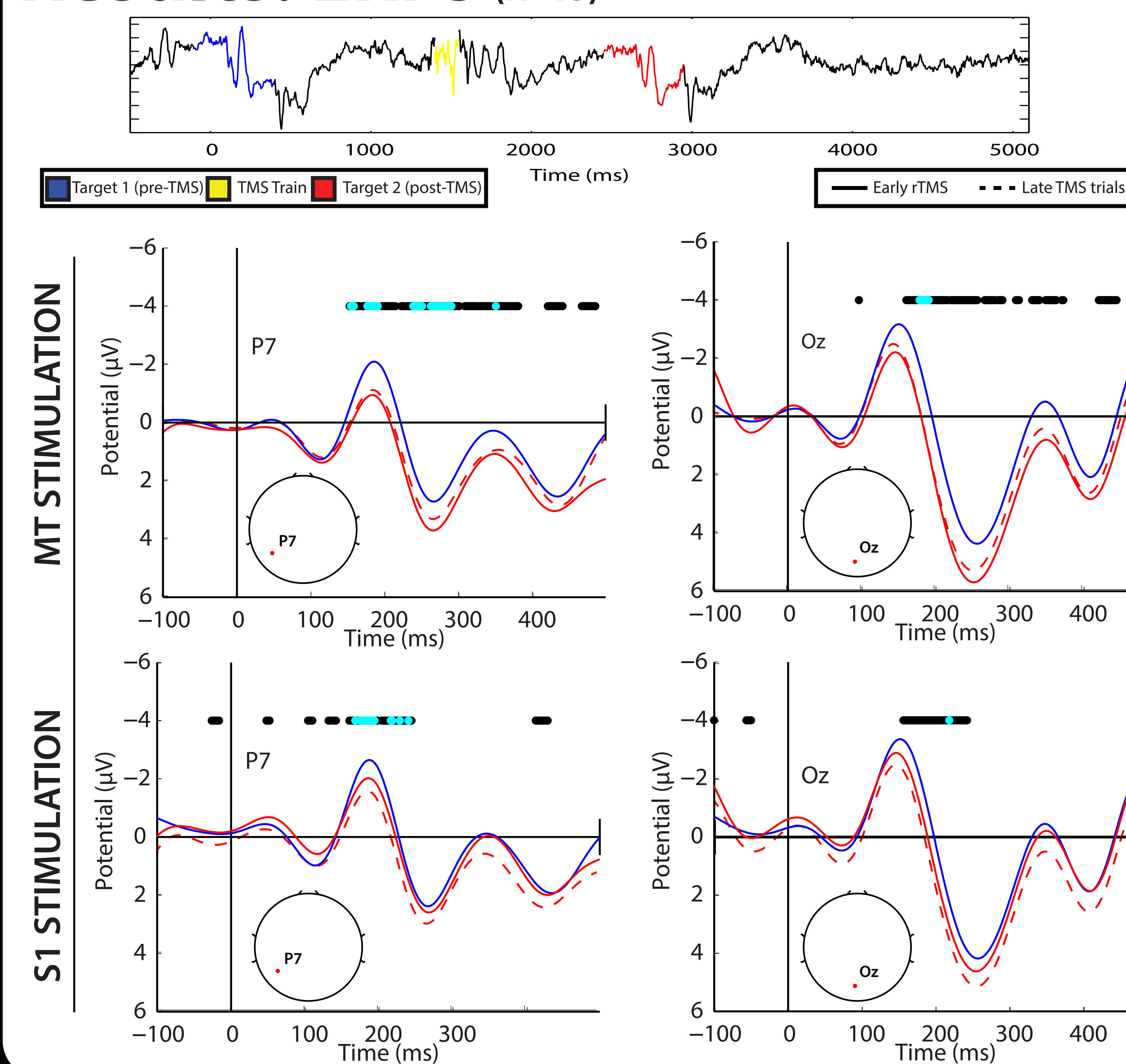


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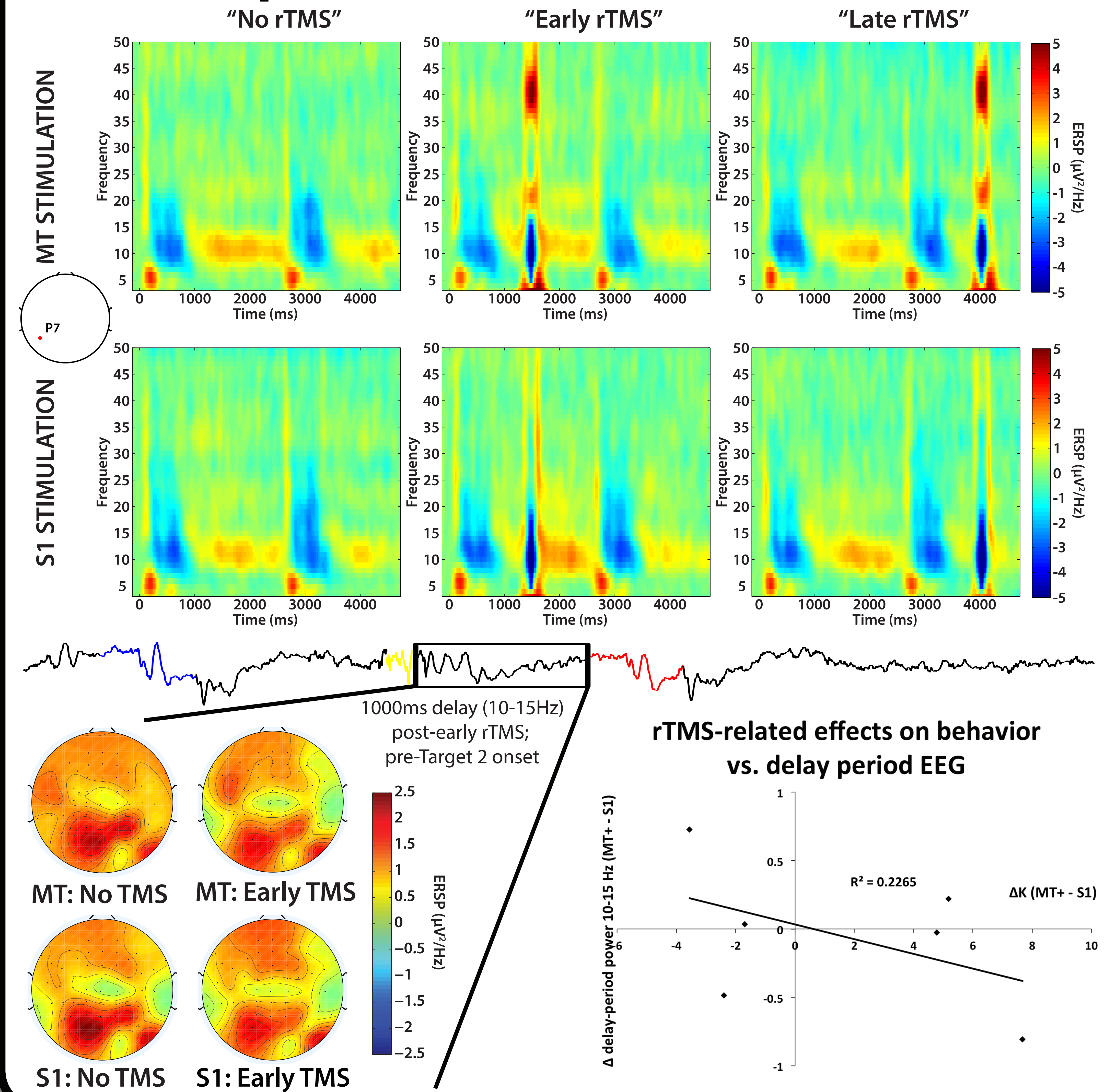
## Results: Behavior (N=6)



## Results: ERPs (N=13)



## Results: Spectral (N=6)



## Conclusions

- Effects of 20 Hz "bursts" rTMS are subtle
- Preliminary, small-n observations hint at several trends
- Both ERPs and TFRs suggest that Early rTMS affects the encoding-related activity for the subsequent item
- Early rTMS may alter ensuing delay-period activity in high-alpha/low-beta

References

1. Bays PM, Catalao RFG, & Husain M (2009). The precision of visual working memory is set by allocation of a shared resource. *J. Vis.*, 9(10): 7, 1-11.
2. Emrich SM, Riggall AC, LaRocque JJ, & Postle BR (2013). Distributed patterns of activity in sensory cortex reflect the precision of multiple items maintained in visual short-term memory. *J. Neurosci.*, 33(15): 6516-6523.
3. Riggall AC & Postle BR (2012). The relationship between working memory storage and elevated activity, as measured with functional magnetic resonance imaging. *J. Neurosci.*, 32(38): 12990-12998.
4. Zokaei N, Manohar S, Husain M, Feredoes E (2014). Causal evidence for a privileged working memory state in early visual cortex. *J. Neurosci.*, 34(1): 158-162.

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Supported by NIH R01 MH095984 and NIH R01 MH064498