

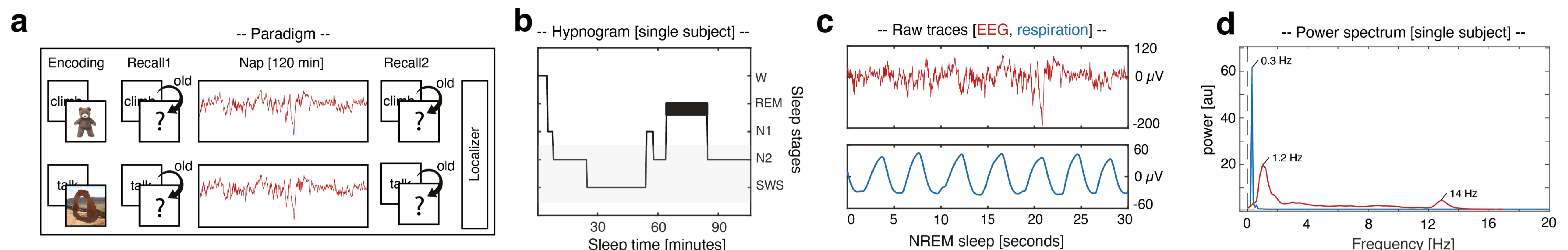
Respiration shapes sleep-oscillations and memory reactivation in humans.

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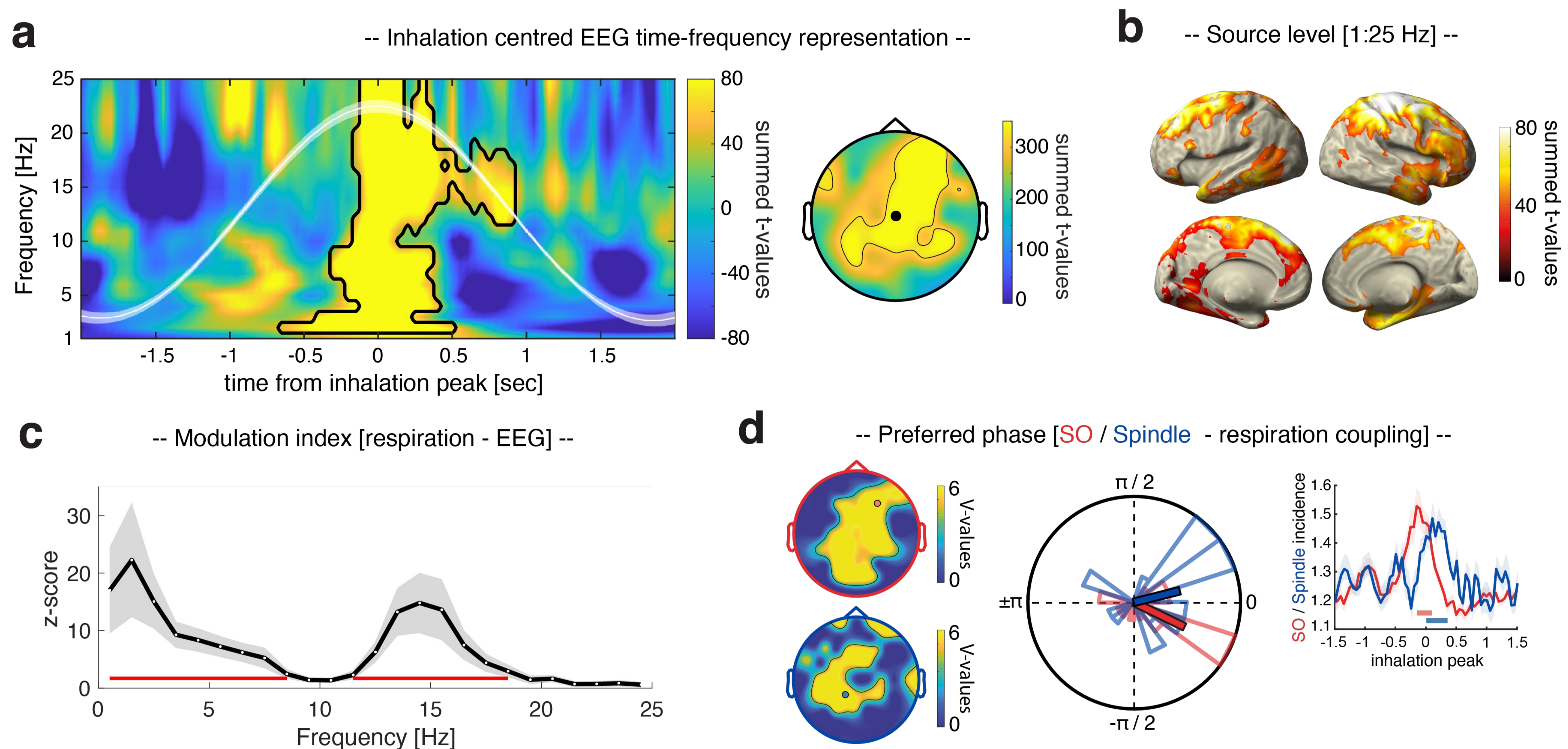
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INTRODUCTION & PROCEDURE

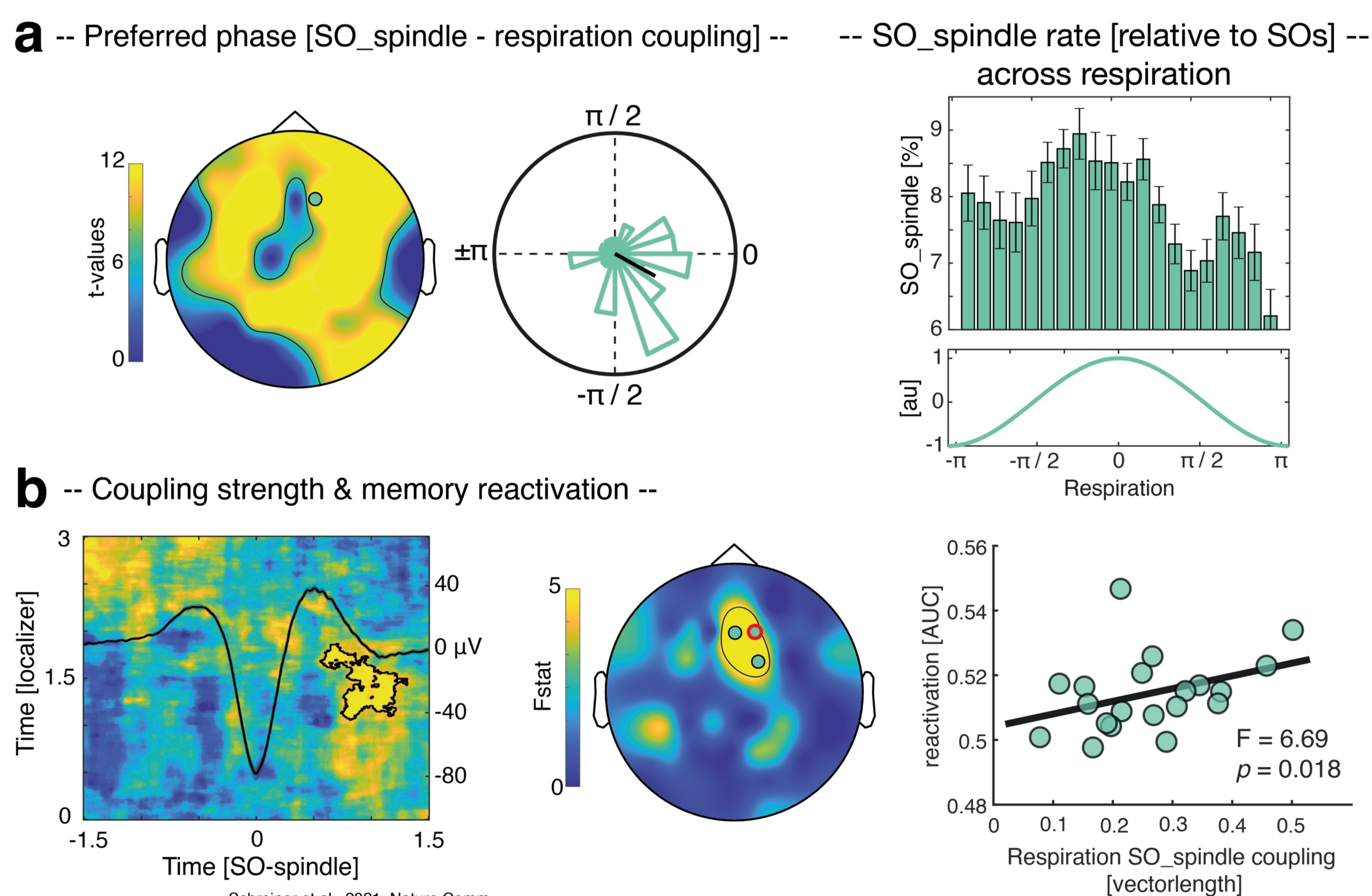
- Sleep's contribution to memory consolidation relies on interplay of brain rhythms (slow oscillations (SOs) & sleep spindles)¹.
- Identifying the mechanisms that orchestrate these rhythms has remained a major challenge.
- Does respiration, which impacts neuronal rhythms and cognition during wake^{3,4}, pace memory consolidation by clocking sleep-related oscillations²?



RESPIRATION GOVERNS SLEEP RHYTHMS



RESPIRATION MEDIATES REACTIVATION VIA SO-SPINDLES



CONCLUSIONS

- Respiration modulates emergence of SOs, spindles and SO_spindles
- Strength of respiration – SO_spindle coupling predicts fidelity of endogenous memory reactivation.
- Results establish respiration as pacemaker for sleep rhythms in humans.
- Results foreground the critical role of brain-body interactions during sleep.

REFERENCES:

- [1] Klinzing & Born (2019), Nat. Review Neurosci.
 [2] Schreiner et al., (2020), Nature Comm.
 [3] Heck et al. (2019), J. Neurophysiol.
 [4] Varga & Heck 2017, Conscious Cogn.

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