Irrelevant Predictions: Distractor Rhythmicity Modulates Neural Encoding in Auditory Cortex

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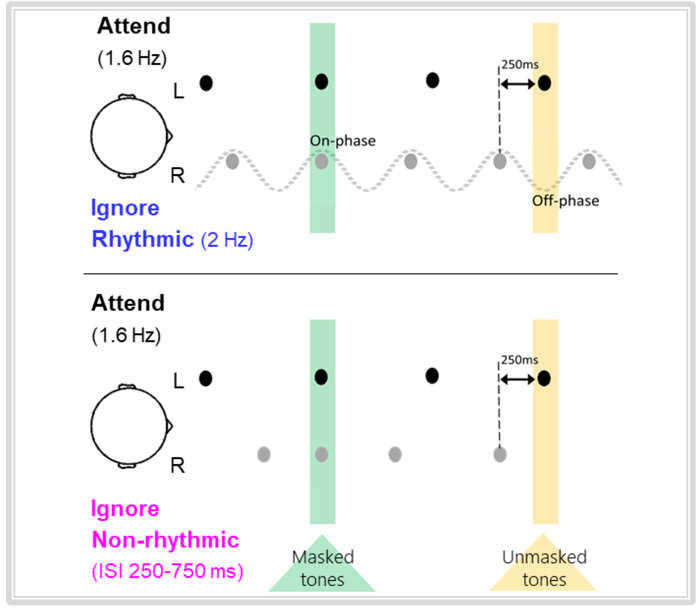
Background

A key question in the field of attention is **whether task-irrelevant stimuli that should be ignored, nonetheless influence performance on an attended task.**

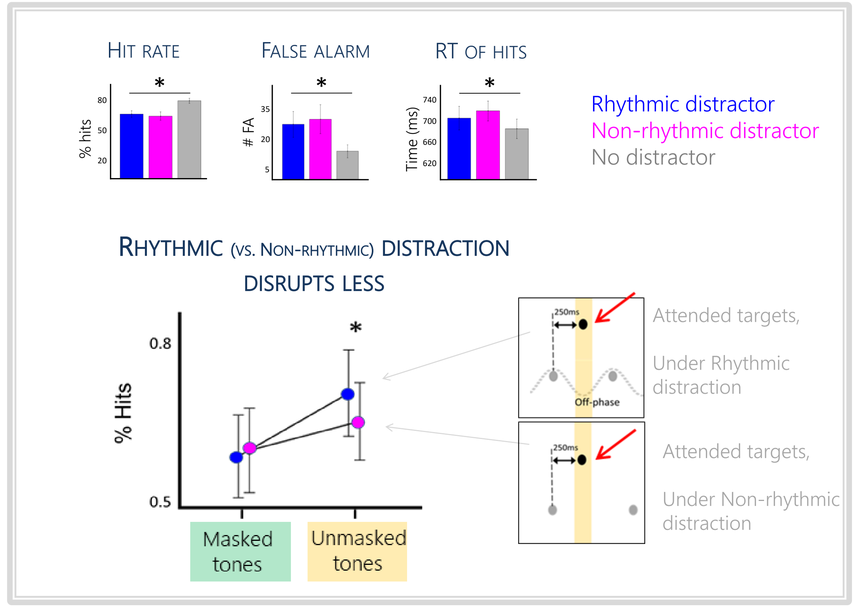
Here we tested a specific facet of this question: **Are the principles of Dynamic Attending Theory applied to task-irrelevant sounds?**

Specifically we ask whether temporal predictions are formed for distractor sounds and do they influence perceptual sensitivity and neural encoding of attended sounds?

Design

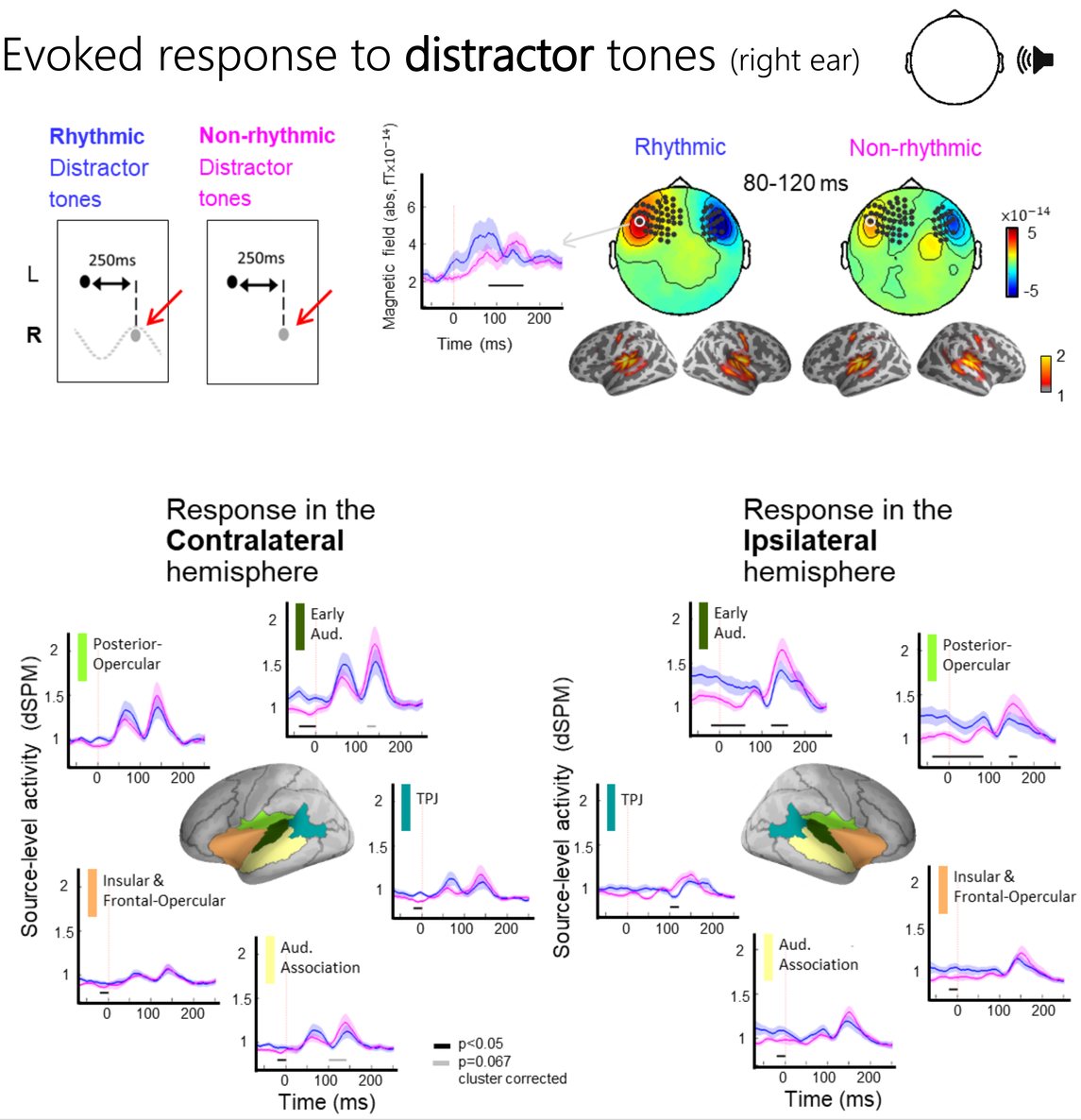


Behavioral results

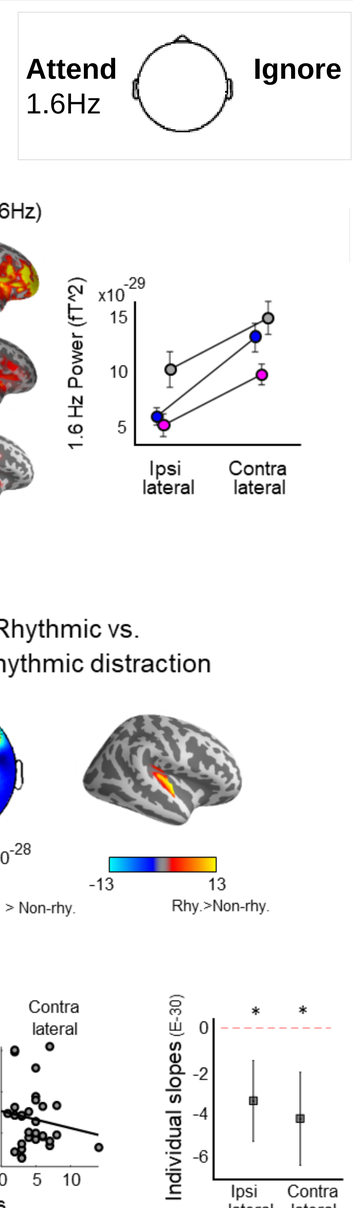


MEG results

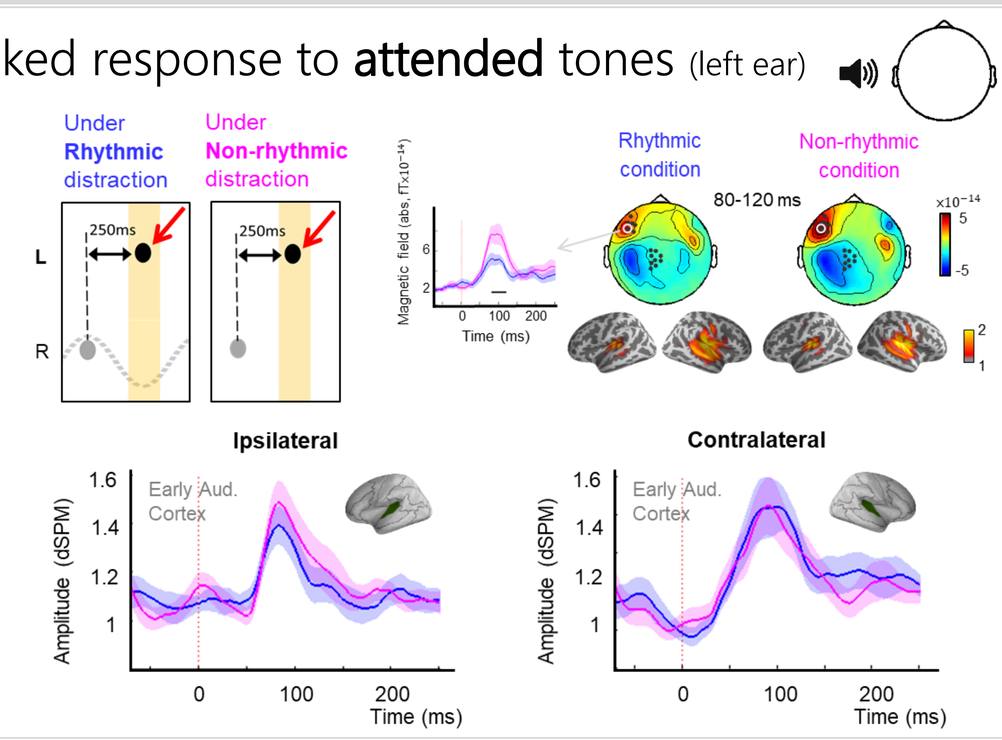
Evoked response to **distractor** tones (right ear)



The neural effect of the distraction on the attended response



Evoked response to **attended** tones (left ear)



Discussion

These findings suggest that temporal predictability not only serves to enhance processing of attended stimuli, as suggested by **Dynamic Attending Theory,** but that **temporal predictions are also utilized for more effectively ignoring task-irrelevant stimuli.**