Voluntary down-regulation of memory encoding occurs via attentional withdrawal, not active suppression

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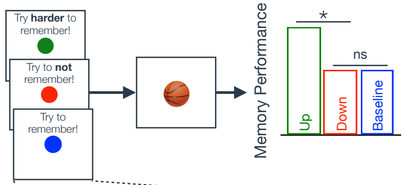
A. Background

Individuals can voluntarily regulate their memory encoding, but regulation is ***asymmetrical*** across learning goals



Spontaneous down-regulation is "difficult, if not impossible"

Tozios & Fukuda (2020)

Does down-regulation improve when learning demands are *predictable*?

Does down-regulation "success" depend on the *operational definition of the baseline* state?

B. Method

Encoding Task

Up-regulate - *"Try extra hard to remember!"*

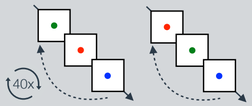
Down-regulate - *"Try to not remember"*

Baseline - Experiment 1 — Active — *"Remember"*

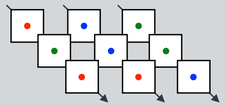
Experiment 2 — Passive — *"Just Look"*

Predictable Cue

Triplet A Triplet B

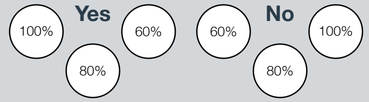


Random Cue

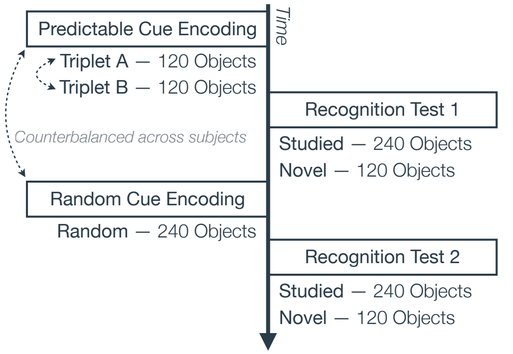


Recognition Task

"Do you remember this picture?"

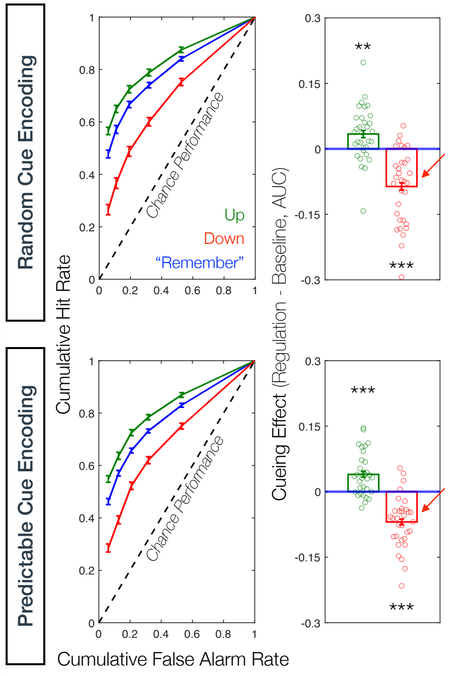


C. Example Procedure

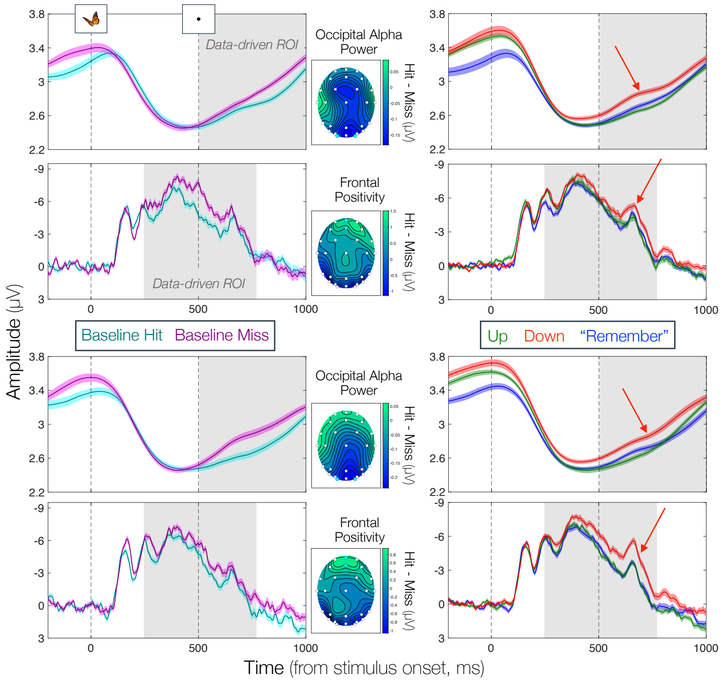


D. Can observers down-regulate encoding from an active learning baseline?

Behavioral Results



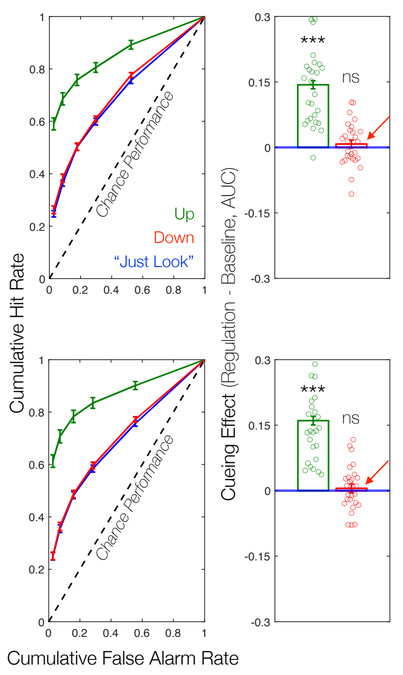
EEG Results



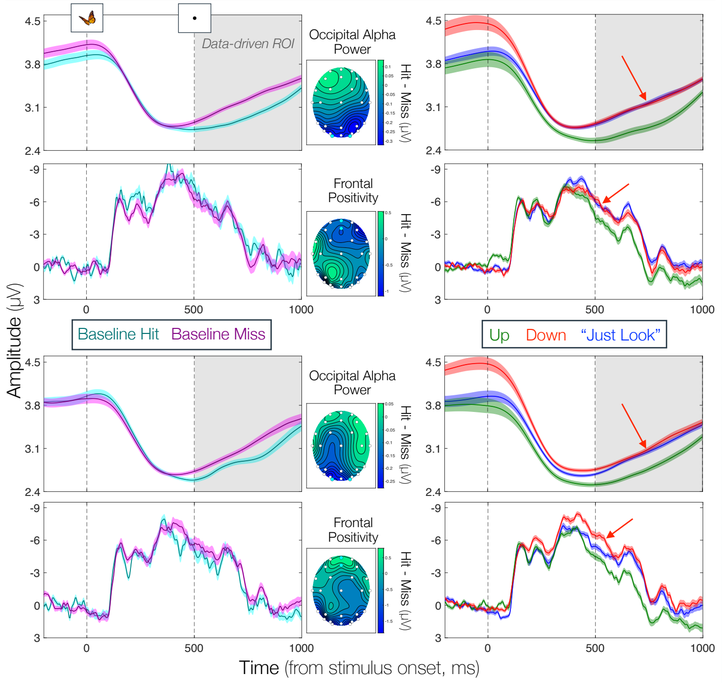
Regardless of predictability, observers down-regulated by reducing attentional allocation to stimulus!

E. Can observers down-regulate encoding from a passive viewing baseline?

Behavioral Results



EEG Results



Unable to suppress encoding beyond passive viewing, even when demands were predictable!

F. Discussion

Observers down-regulated memory encoding ***beyond active learning***, but ***not passive viewing***.

Electrophysiological indices of attention suggest that observers ***can reduce attentional allocation*** towards undesired stimuli, but ***cannot further suppress incidental encoding processes***.

Moving forward...

Can down-regulatory suppression be used when demands are ***predictable and consecutive***?

Digital Poster

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