

Abstract

Matthew Spence with many thanks to Schacter Lab

The goal of this study was to 1) uncover the effect of subjective ratings of imagined events on subsequent false alarms, 2) discover brain regions in the imagination phase whose activation predict false alarms in the recognition phase using multivoxel pattern analysis (MVPA), 3) train a classifier program to distinguish between false alarms and hits in the recognition phase, focusing on regions involved in memory monitoring.

Background

Previous research has shown that future thinking is tightly linked to the neural circuits for episodic memory, and that it can aid in the creation of memory distortions. The subjective experience of how we imagine things can also aid in false memory creation. However, it is unknown exactly which brain regions mediate this effect during personal episodic memory.

Hypotheses

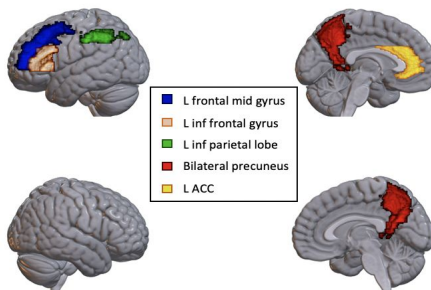
1. Emotional valence - vmPFC
Personal significance- inf parietal lobe
Vividness - precuneus
2. Inf parietal lobe - familiarity processing
3. Inferior frontal gyrus - critical lure eval
Middle frontal gyrus - critical lure eval
Caudate - task difficulty

Methods

16 healthy participants and fMRI imaging

- Imagine future events going well or poorly
- Read stories of what hypothetically happens
- Tested on memory recognition

False Alarms vs Hits



Results & Discussion

1. None of the subjective ratings gave the classifier adequate information to predict
2. No significant relation of ROIs in the imagination phase to false alarms
3. Six regions provided enough information to statistically significantly predict if someone is having a false alarm

