

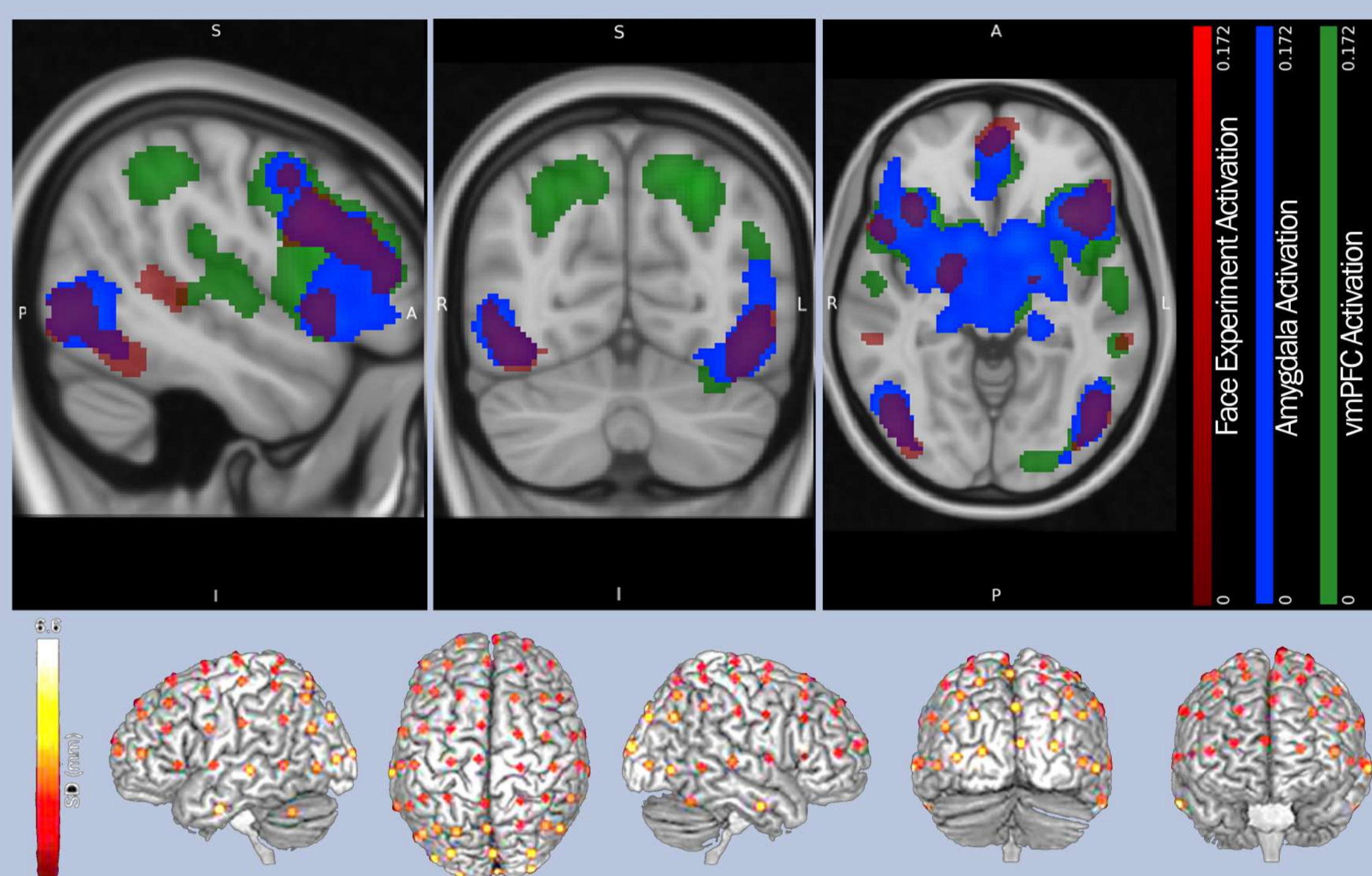


## INTRODUCTION

Capgras Syndrome (CS) is a delusion that appears with the beliefs of a person's relatives, such as spouse, parents, or sibling, who have been replaced by another very similar "imposter"<sup>1</sup>. It is thought that emotional component of face recognition and/or hypothesis evaluation defects cause delusions in CS<sup>2,3</sup>. In this study, electro neurophysiological responses that occur when neurophysiological processes thought to cause CS are triggered by a virtual lesion in the healthy subjects.

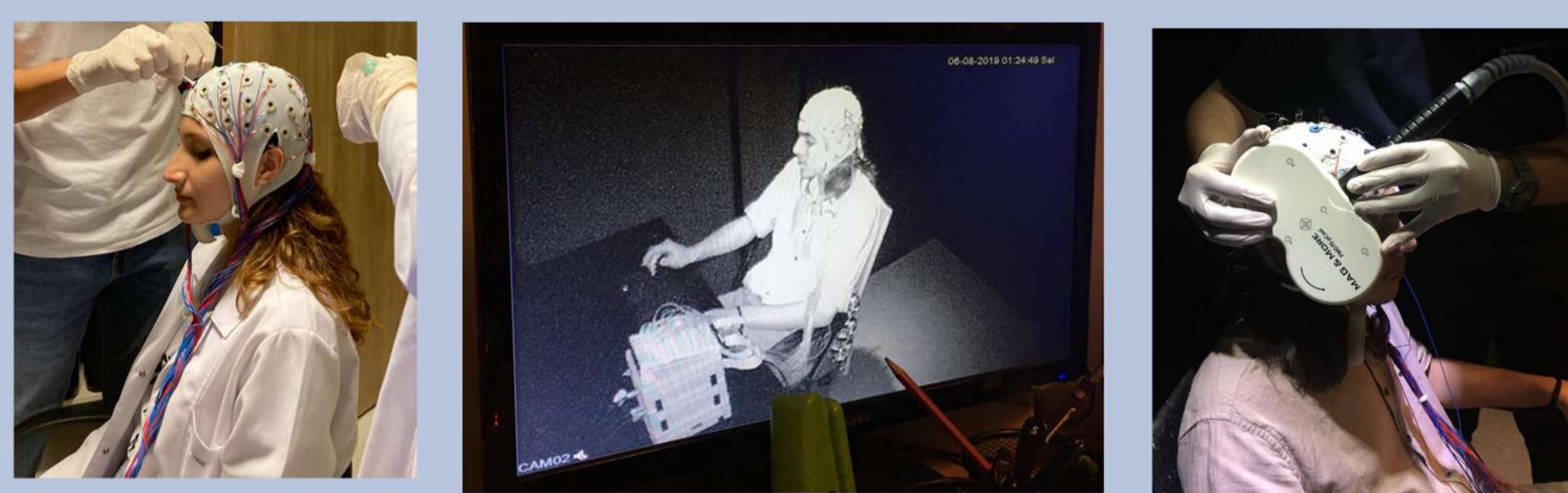
## MATERIAL & METHODS

### MAPPING OF THE INHIBITION AREA



Occipital area for the emotional face component was inhibited in the first session by continuous theta burst stimulation (cTBS). Then ventromedial prefrontal cortex (vmPFC), which is accepted as the hypothesis evaluation and reality monitoring region, was inhibited in the second session.

### EEG AND TMS PROTOCOLS



Fifteen healthy young adults were included in the study. 64 Channel EEG cap was used. 16 of 64 locations were analyzed.

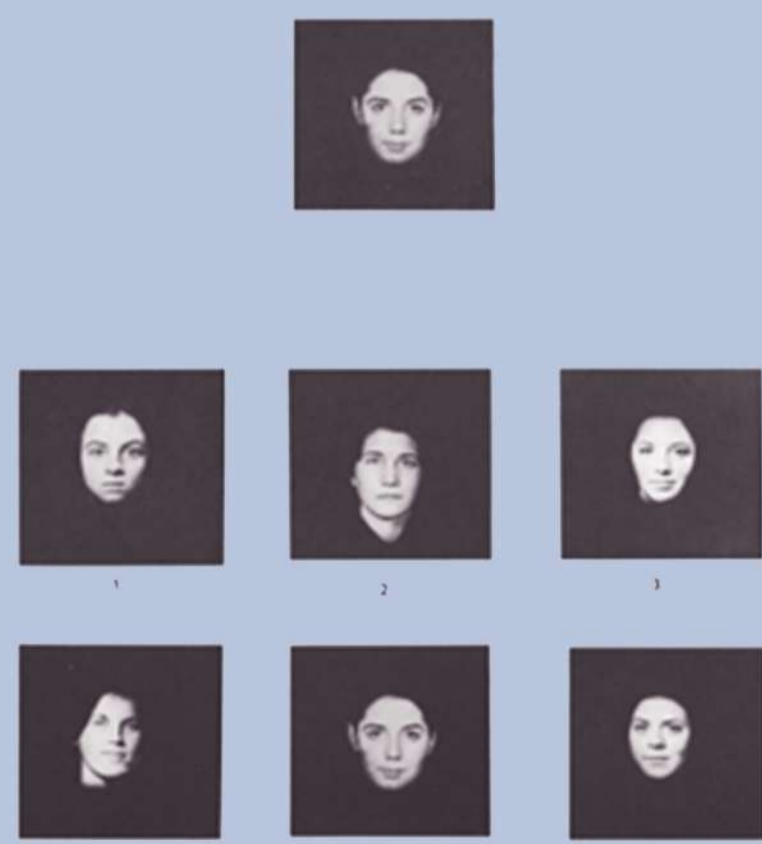
Wavelet function	Frequency Steps	Frequency Layer Steps	Wavelet Normalization	Morlet Parameter	Normalization	Output Values
Morlet Complex	30	Logarithmic	Instantaneous Amplitude (Gabor Normalization)	3	Decibel	Spectral Power - Real Values [ $\mu V^2$ ]

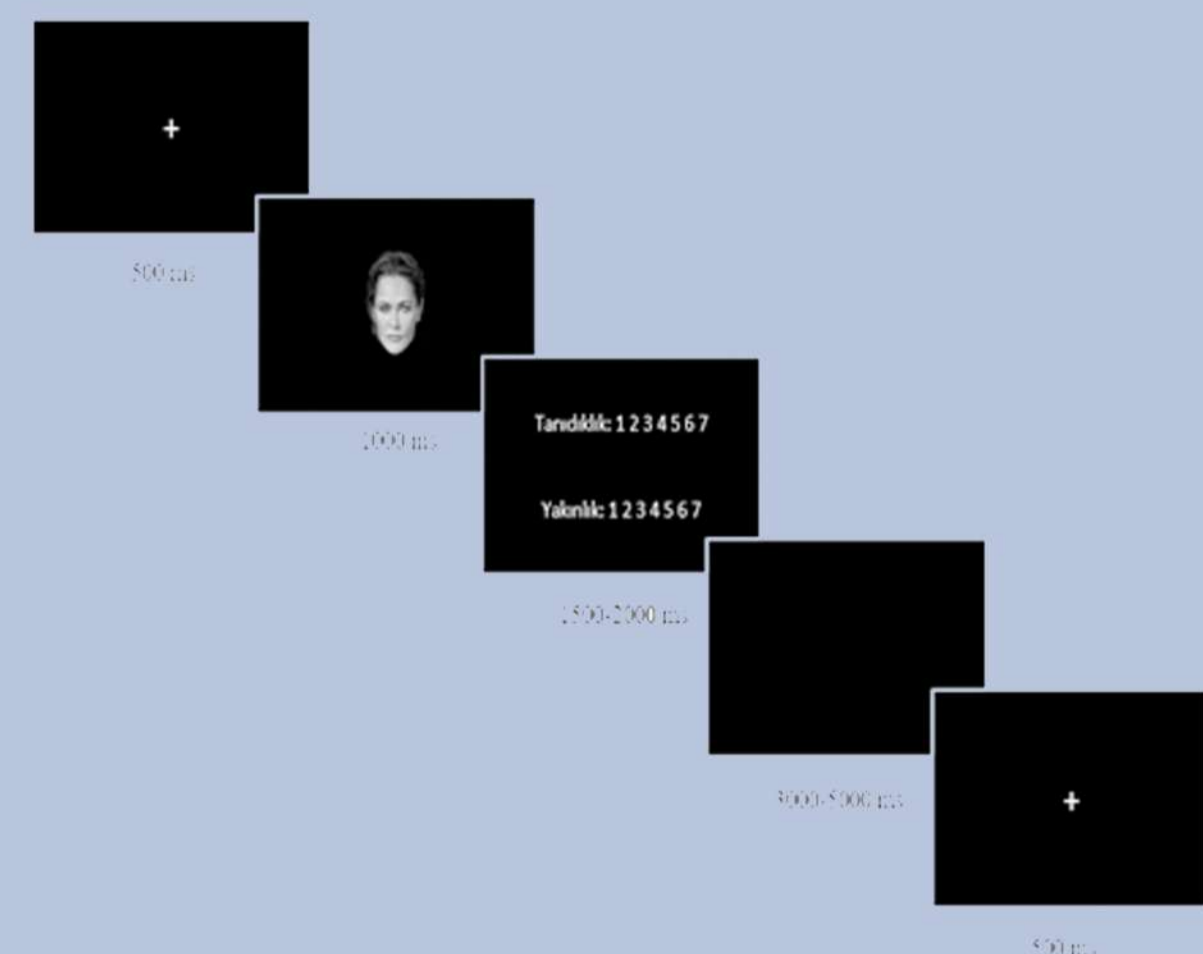
Stimulation Intensity	Magnetic pulse frequency	Pulse in burst	Total Pulse
MT * % 80	50 Hz	300	900

MT: Motor Threshold

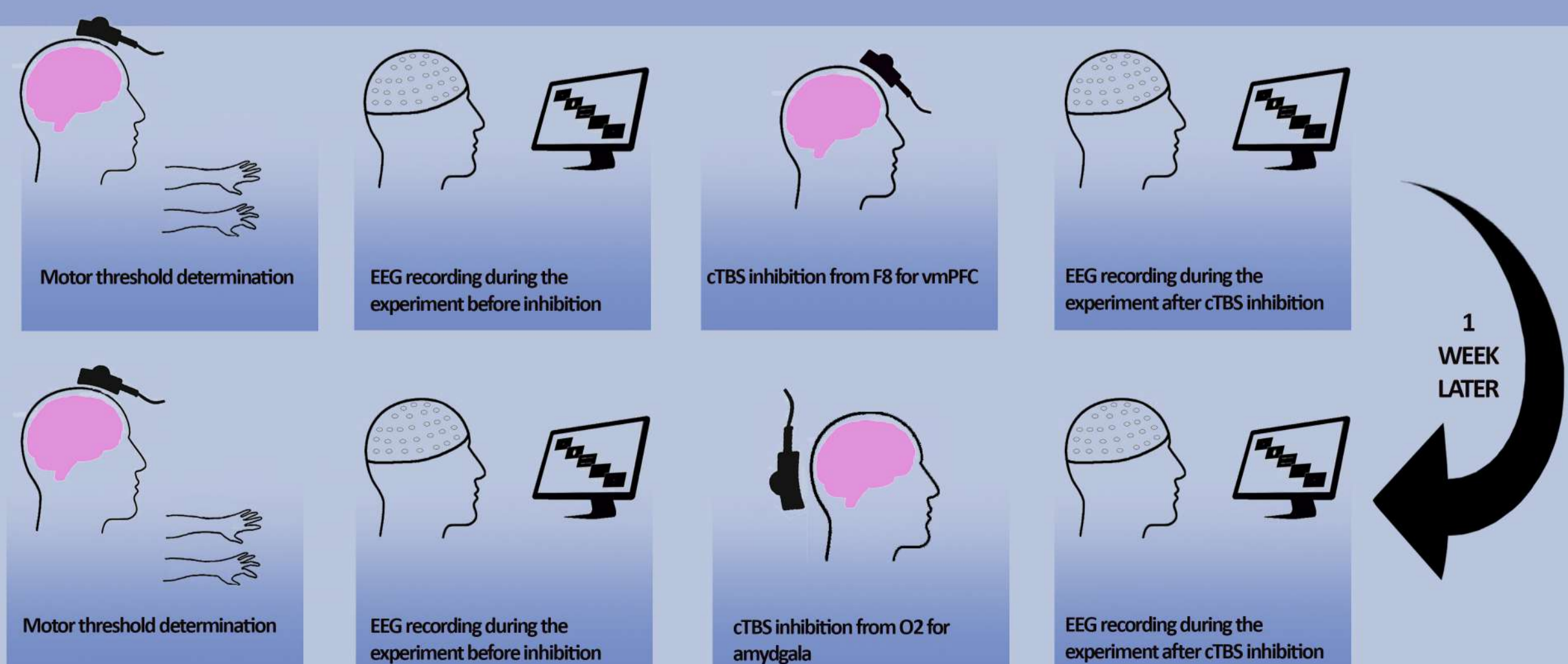
### EXPERIMENT DESIGN



Benton Face Recognition test was used as a conditioner. Familiar, famous and unfamiliar face stimuli were presented before and after the virtual lesion.

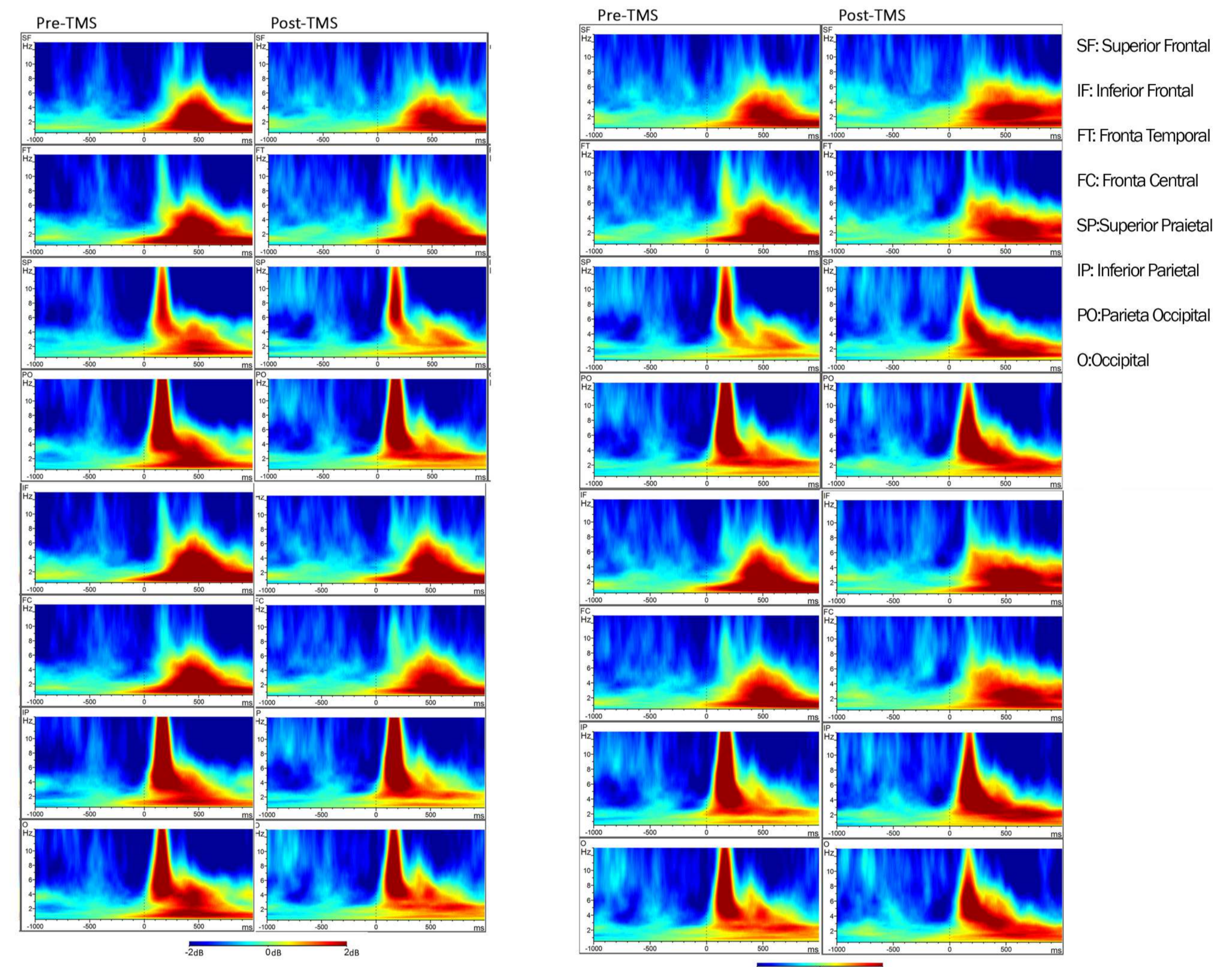
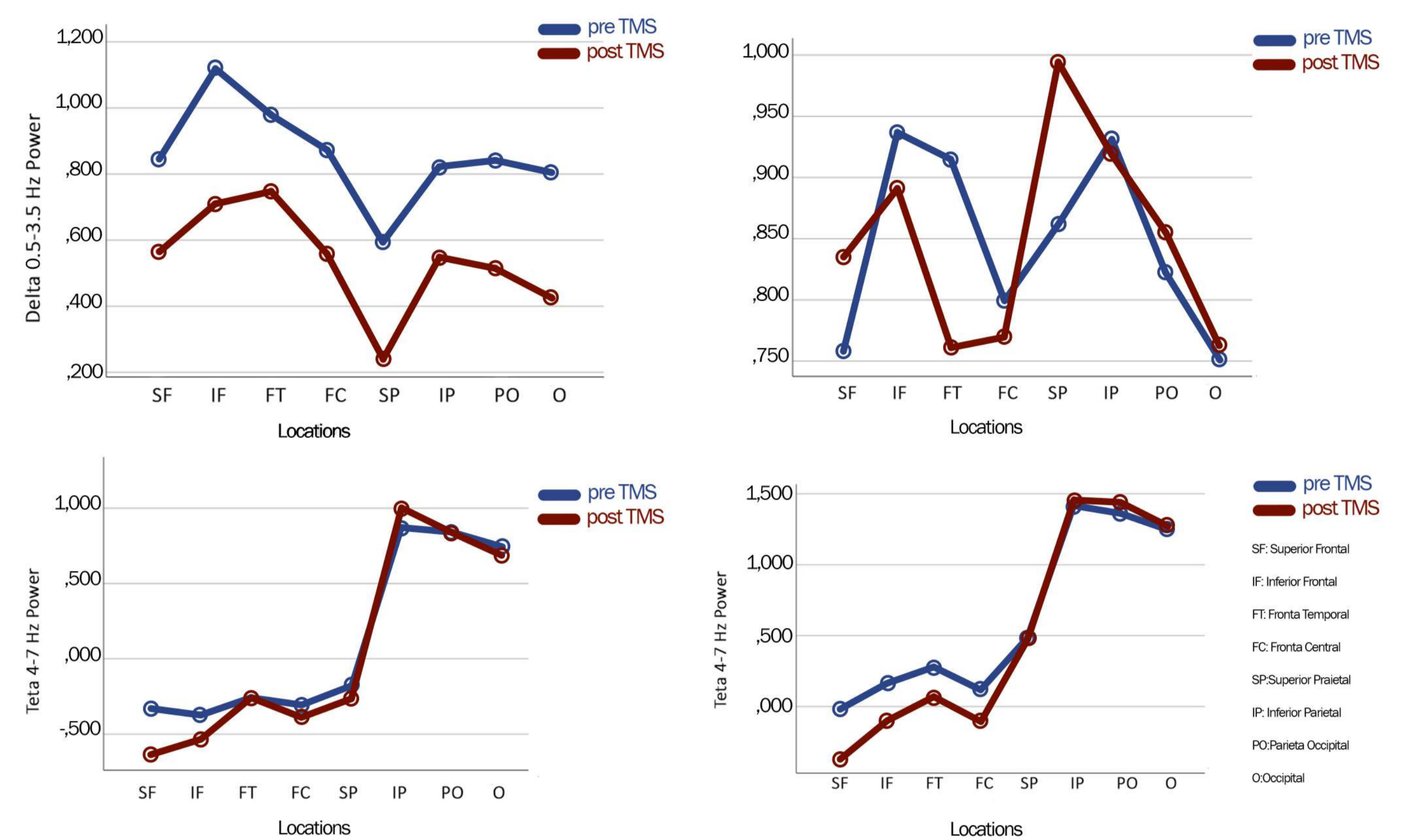


### PROCESS OF DATA COLLECTION

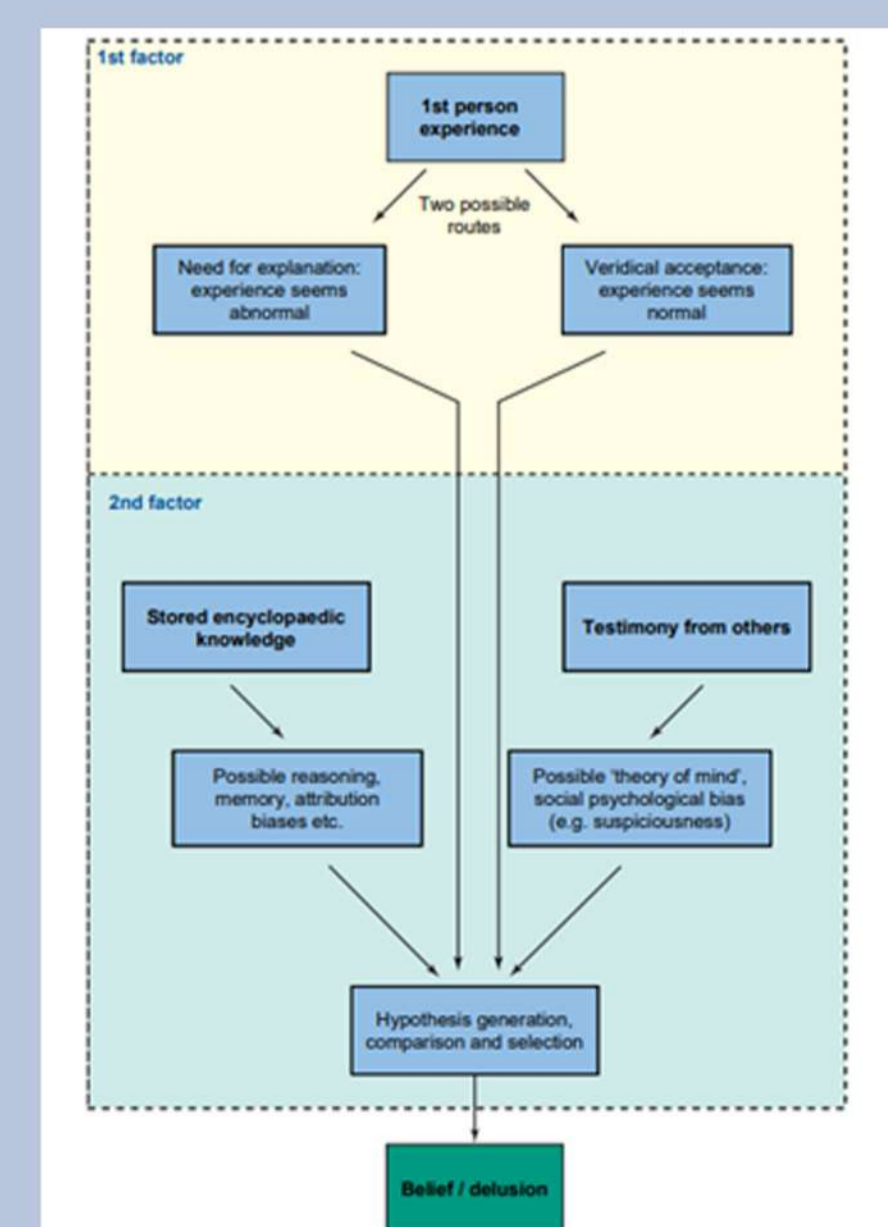
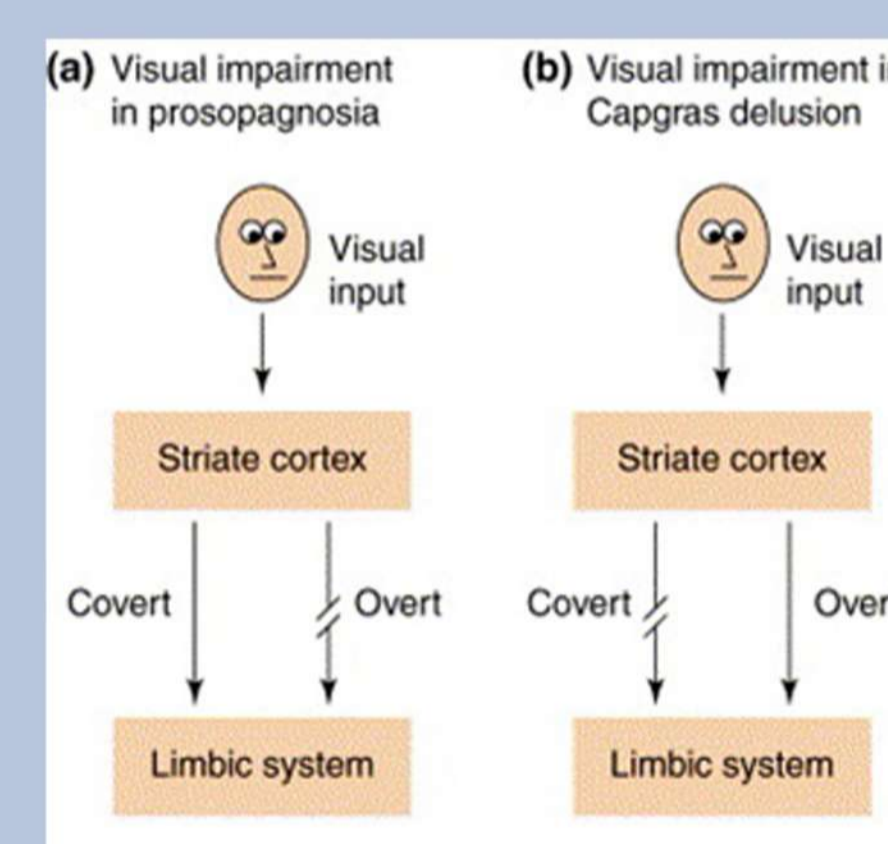


## RESULTS

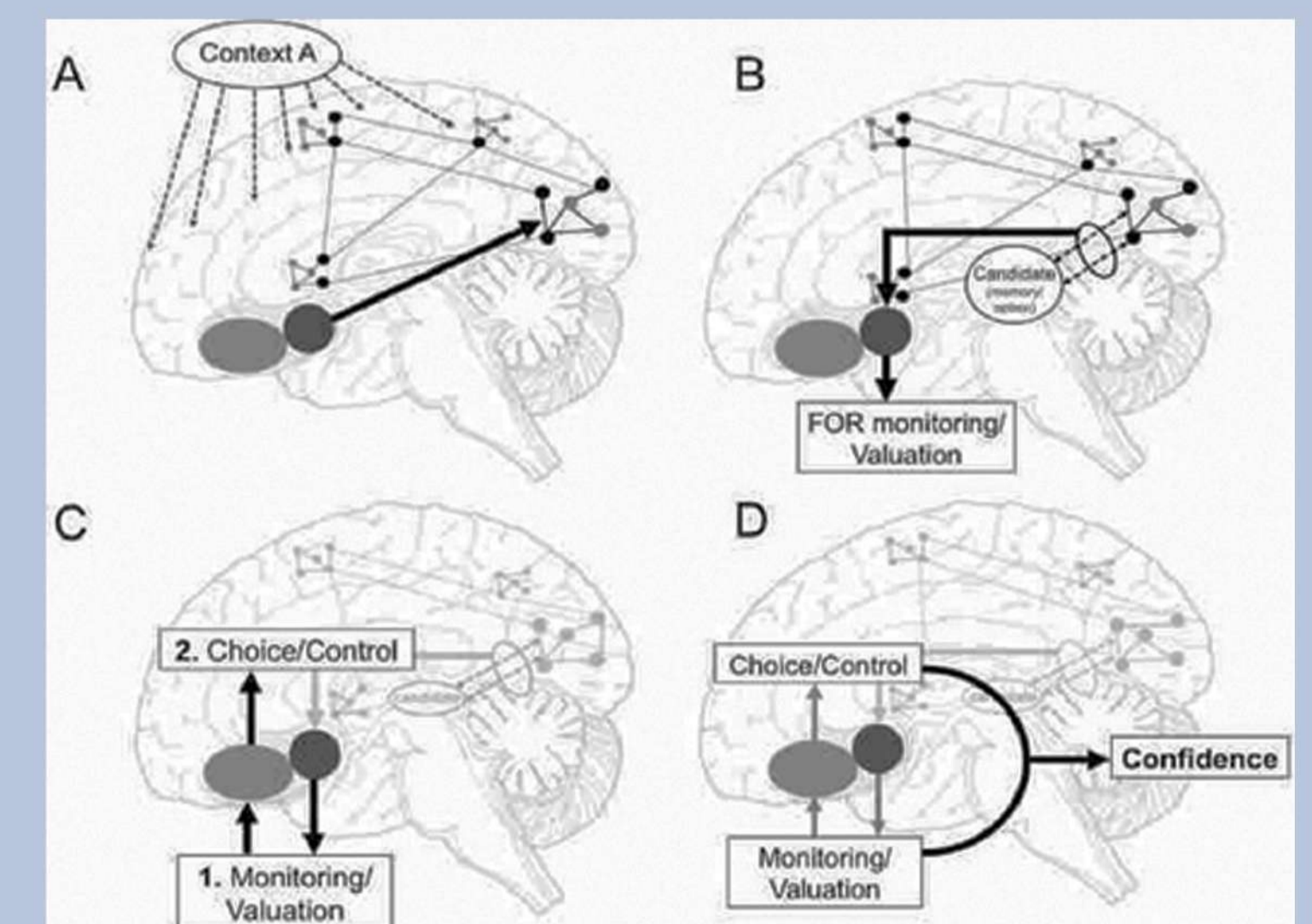
After occipital inhibition in the delta band, the power spectrum was significantly reduced in familiar faces in the frontal and frontocentral regions. In vmPFC inhibition, a decrease in delta power was observed in the frontal regions and an increase in the parietal and parietal occipital regions. Theta band power decreased in the frontal region at familiar face stimulus after inhibition of both regions.



## DISCUSSION



It is thought that delta frequency power changes in CS can be followed as a biomarker for delusional belief. The reason for being relatives of the object of the delusion in CS was associated with the vmPFC dysfunction in reality monitoring, instead of emotional face dysfunction. It was also shown that unlike the two-factor theory, delusional formation can only be triggered by the first factor. Hebscher and Gilboa's Memory Dependent Schema Model on reality monitoring might give better explanation for CS delusions and its content instead of two factor theory<sup>5,6</sup>.



## REFERENCES

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