

Conditioned excitation and inhibition of short latency gamma band oscillations in early visual cortex during fear learning in humans

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Supplementary Information

Supplementary Methods

Induced gamma band activity in sensor space was assessed exactly the same way as evoked gamma band power changes (see Methods in the main text), but instead of averaging the data epochs before applying the Morlet wavelet analysis, Morlet wavelets were convolved with each single trial for each condition, experimental phase and participants. Then, the single trial time frequency representations were averaged afterwards to obtain the induced gamma band power changes. Finally, the same cluster-based permutations statistics as with the evoked responses was applied (see Methods main text).

Supplementary Results

Figure 1S shows the results for the induced gamma band activity. Although a cluster emerged at posterior sensor positions, this cluster did not reach statistical significance (summed $F = 6639$, $p = 0.177$).

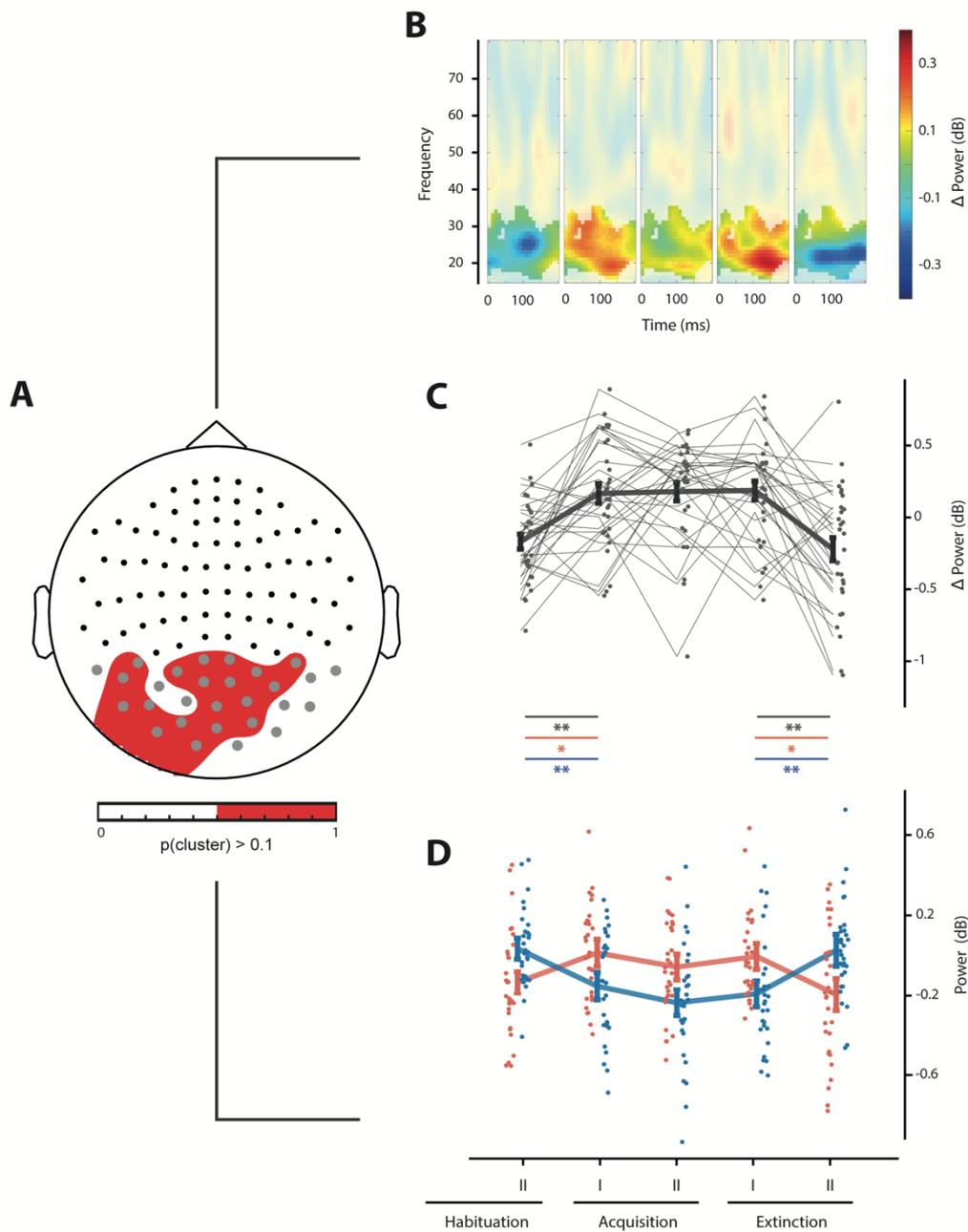


Figure 1S: Sensor space analysis of induced gamma band power. (A) The topography of the quadratic contrast cluster of the CS+/ CS- differences across experimental phases is shown. The colorbar indicates in red which sensors pertain to the cluster ($p_{\text{cluster}} = 0.177$). **(B)** Mean spectral power differences (CS+ minus CS-) in the time-frequency domain across the cluster sensors for each experimental phase are shown. The colorbar represents power changes in dB. **(C)** Mean power differences (CS+ minus CS-) across

the sensor, time, and frequency triplet clusters are shown (grey line). The error bars represent standard errors. Further, a paired observation plot for each subject (connected dots) was overlaid to the contrast plot. **(D)** Mean power changes (dB) to a pre-stimulus baseline across the same sensor, time, and frequency triplet clusters as in D are shown for the CS+ (red) and CS- (blue) conditions separately and for each block. The dots represent individual participants. The error bars represent standard errors.