



Article scientifique

Article

2023

Supplemental data

Open Access

This file is a(n) Supplemental data of:

Homeostatic normalization of alpha brain rhythms within the default-mode network and reduced symptoms in post-traumatic stress disorder following a randomized controlled trial of electroencephalogram neurofeedback

Nicholson, Andrew A; Densmore, Maria; Frewen, Paul A; Neufeld, Richard W J; Th  berge, Jean; Jetly, Rakesh; Lanius, Ruth A; Ros, Tomas

This publication URL:

<https://archive-ouverte.unige.ch/unige:184176>

Publication DOI:

[10.1093/braincomms/fcad068](https://doi.org/10.1093/braincomms/fcad068)

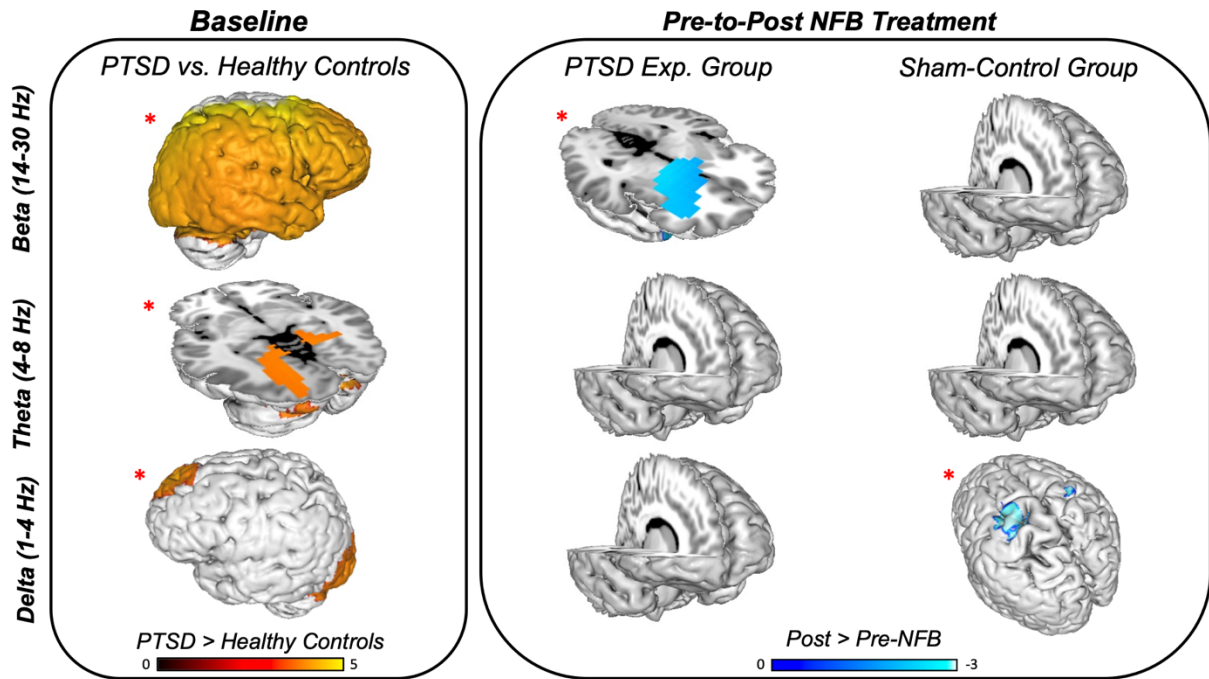
## Supplementary Results

### EEG Comparisons at Baseline: PTSD vs. Neurotypical Control Group

At baseline, individuals with PTSD demonstrated greater relative delta power in the medial frontal gyrus (BA8, BA9, BA10;  $x = -8$ ,  $y = 52$ ,  $z = 39$ ;  $T_{\max} = 3.34$ ,  $p < 0.05$  FDR corrected) and the cuneus (BA17, BA18;  $x = -26$ ,  $y = -104$ ,  $z = -15$ ;  $T_{\max} = 3.01$ ,  $p < 0.05$  FDR corrected) as compared to neurotypical healthy controls. In the theta band, individuals with PTSD exhibited greater relative power in the posterior cerebellum ( $x = 16$ ,  $y = -80$ ,  $z = -18$ ;  $T_{\max} = 2.66$ ,  $p < 0.05$  FDR corrected) and reduced relative power in the superior frontal gyrus (BA6, BA8;  $x = 4$ ,  $y = 31$ ,  $z = 60$ ;  $T_{\max} = 3.72$ ,  $p < 0.05$  FDR corrected). In the beta band, individuals with PTSD displayed greater power globally, but with maxima in the supplementary motor area (BA6;  $x = 16$ ,  $y = -5$ ,  $z = 72$ ;  $T_{\max} = 5.57$ ,  $p < 0.05$  FDR corrected).

### EEG Comparisons Pre vs. Post-NFB: PTSD Experimental and Sham Control Groups

The experimental NFB group demonstrated significant pre-to-post changes within the beta band, with relative power reductions in the right anterior cingulate and insula (BA13, BA33, BA47;  $x = 6$ ,  $y = 9$ ,  $z = 23$ ;  $T_{\max} = 2.18$ ,  $p < 0.05$  FDR corrected). On the other hand, the sham control group displayed a significant reduction in delta relative power within the left precentral gyrus (BA4, BA6;  $x = -26$ ,  $y = -17$ ,  $z = 54$ ;  $T_{\max} = 3.01$ ,  $p < 0.05$  FDR corrected).



Supplementary Figure 1: Relative power comparisons in other EEG bands. Left panel: PTSD > Healthy Controls= Relative EEG source power at baseline in the pooled PTSD group as compared to the neurotypical healthy control group. Right Panel: Post > Pre Treatment= Relative source power post as compared to pre neurofeedback/sham intervention. Blue colours indicate reduced relative power, red/yellow colours indicate increased relative power. NFB= Neurofeedback. Displayed results are t-values, and clusters are  $p < 0.05$  FDR corrected.