Behavioral inhibition system sensitivity enhances motor cortex suppression when watching fearful body expressions

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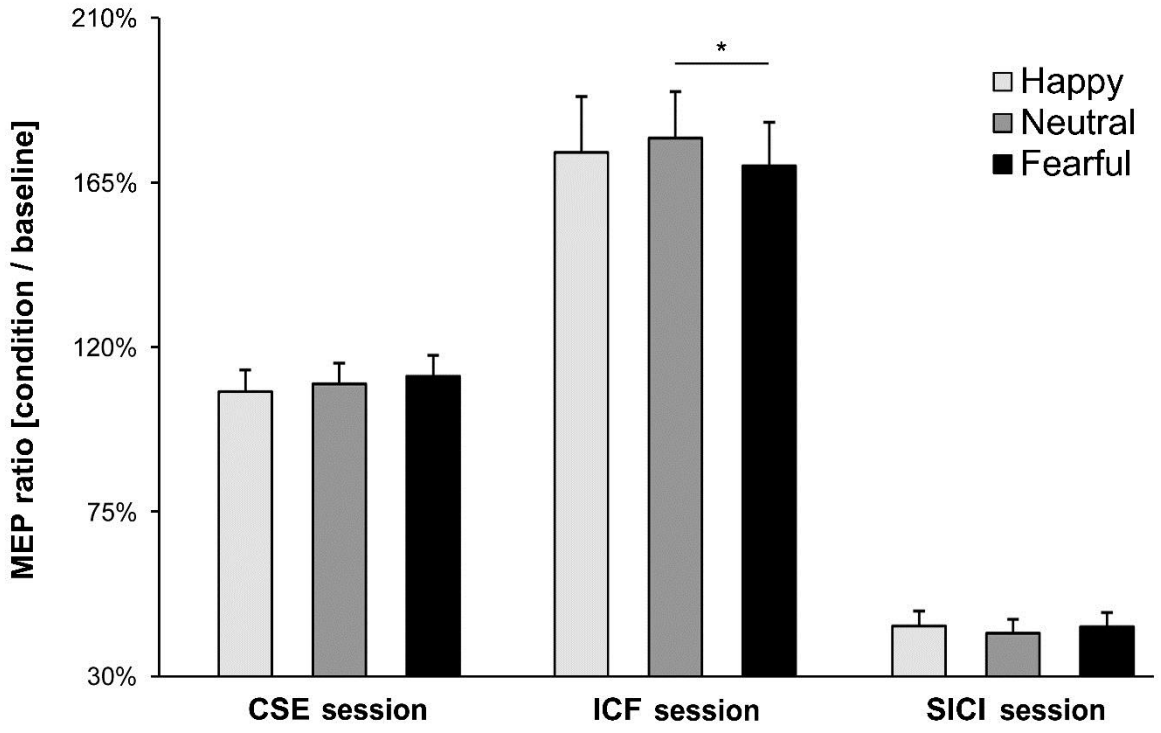
Supplementary Data

Preliminary neurophysiological analysis: MEP amplitudes (% of baseline)

In the preliminary analysis, MEP amplitudes (% of baseline) in the three sessions were analyzed using an Experiment x Session x Muscle x Time x Body Stimulus ANOVA. This analysis showed a main effect of Session ($F_{2,48}$ = 75.51; p < .0001; *partial eta*^{2} = .76) and a Session x Body Stimulus interaction ($F_{4,96}$ = 2.60; p = .04; *partial eta*^{2} = .10; Supplementary Figure 1). No other significant main effects or interactions were found by the ANOVA (all p > .10). The two significant effects were analyzed using post-hoc comparisons (Newman-Keuls).

The main effect of Session was accounted for by the lower MEP amplitudes recorded in the SICI session (mean amplitude ± SD: 43% ± 20) relative to the CSE (111% ± 29; p = .0001, *Cohen's d* = 1.71) and the ICF sessions (175% ± 68; p = .0001, *Cohen's d* = 2.08); moreover, MEPs were greater in the ICF session than in the CSE session (p = .0001, *Cohen's d* = 0.91). The main effect of Session confirms the robustness of the paired-pulse protocols eliciting small and large MEPs in the SICI and ICF sessions, respectively (Kujirai et al. 1993; Ziemann et al. 1996).

The Session x Body Stimulus interaction was accounted for by lower MEPs for fearful (171% ± 62) relative to neutral body postures (179% ± 66; $p = .013$, *Cohen's d* = .51) in the ICF session; neither the comparison of happy postures (175% ± 69) with fearful or neutral postures reached statistical significance in the ICF session (all $p > .13$). Moreover, MEPs were highly comparable in the CSE (all $p > .26$) and SICI (all $p > .52$) sessions. Thus, the interaction effect confirms that in this temporal window (100-125), only MEPs in the ICF, but not in the SICI or CSE sessions were modulated as a function of body stimulus.



Supplementary Figure 1. Corticospinal motor modulations during the emotion recognition task. MEP amplitude (% of baseline) during perception of happy, neutral and fearful body postures in the single-pulse TMS (corticospinal excitability, CSE) and the paired-pulse TMS sessions (intracortical facilitation, ICF; short intracortical inhibition, SICI). Data show the Session x Body Stimulus interaction (average of the two experiments, Experiments 1 and 2, the two time points, 100 ms and 125 ms, and the four muscles, FDI, FCR, APB and ECR). Error bars indicate SEM. Asterisks (*) denote significant comparisons ($p < .05$).