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MANIPULATING CONSCIOUSNESS: THE ROLE OF AROUSAL AND ATTENTION ON CONSCIOUS PERCEPTION

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Background: Identifying the neural correlates of conscious perception (NCCP) represents a major challenge for the neuroscience, bearing theoretical, empirical and clinical implications. Even more challenging, the chance to “interact” and “modulate” with what is consciously perceived may impact the rehabilitation in disorders of consciousness. Given its cruciality in motor rehabilitation, we focus on somatosensory domain.

Aims: We aim to quantitatively assess the relative contribution of different factors on somatosensory conscious perception. In particular: stimulation intensity (individual sensory and motor threshold), cross-modal interaction, production of report and attentional factors.

Method: We recorded high-density scalp-EEG in a cohort of 40 healthy subjects and evaluate the modulation in early and late SEP (Somatosensory Evoked Potentials) components.

Preliminary results: Our results indicate that SAN (Somatosensory Awareness Negativity) is not affected by stimulation intensity, or report production, rather it is enhanced by the presence of a concomitant visual stimuli. The effect of report production is confined to Late Component of SEP, only when subjects' attention is directed to somatosensory stimulation, proposing a re-valuation of experimental paradigm in the neuroscience of consciousness.

Keywords: Perception, Sensory awareness, EEG

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