

The primary somatosensory cortex is differentially involved in vibrotaction and nociception

Cédric, Lenoir (1), Gan, Huang (1), Yves, Vandermeeren (1,2,3), Samar, Marie, Hatem (1,4), André, Mouraux (1)

(1) Institute of neuroscience, Cognition and System department, Université catholique de Louvain, Brussels, Belgium

(2) Neurology Department, Neuromodulation Unit (NeMU), CHU Dinant-Godinne, UCL, Namur, Belgium

(3) Louvain Bionics, UCL, Louvain-la-Neuve, Belgium

(4) Physical Medicine and Rehabilitation, Brugmann University Hospital, Brussels, Belgium

Our aim was to characterize the involvement of the primary somatosensory cortex (S1) in the processing of non-nociceptive and nociceptive somatosensory inputs using (cathodal) high-definition transcranial direct current stimulation (tDCS) combined with EEG.

We observed that tDCS modulates non-nociceptive and nociceptive brain responses differentially: only brain response to tactile inputs originating from the contralateral hand are affected however brain responses to nociceptive inputs are bilaterally affected. Our results demonstrate a differential involvement of S1 in the processing of nociceptive and non-nociceptive somatosensory inputs.