

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Know your body by heart: a taVNS study on body→fawareness

Permalink

<https://escholarship.org/uc/item/2ts838bv>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 46(0)

Authors

Scuderi, Angelica

De Martino, Maria Luisa

Leemhuis, Erik

et al.

Publication Date

2024

Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

Know your body by heart: a taVNS study on body awareness

Angelica Scuderi

Sapienza University of Rome, Rome, Italy

Maria Luisa De Martino

Sapienza University of Rome, Rome, Italy

Erik Leemhuis

Sapienza University of Rome, Rome, Italy

Mariella Pazzaglia

Sapienza University of Rome, Rome, Italy

Abstract

Non-invasive vagus nerve stimulation has proven effective in modulating parasympathetic autonomic nervous system activity and various cognitive functions. This study investigated the effects of transauricular vagus nerve stimulation (taVNS) on body ownership and interoception in healthy subjects using a within-subjects experimental design (active taVNS/sham). The rubber hand illusion (RHI) and the Heartbeat Counting Task (HCT) were employed. Cardiac activity was recorded throughout the procedure to measure physiological indices of heart rate (HR) and heart rate variability (HRV). Ownership for the fake hand was observed in both active and sham stimulation, as indicated by drift and scores on illusion-relevant items (Q1-Q3). HR and HRV showed no variations between synchronous/asynchronous RHI or between stimulation conditions. Active taVNS resulted in decreased interoceptive meta-awareness. Individuals with lower interoceptive abilities exhibited heightened susceptibility to RHI during active taVNS, possibly due to perturbation of interoceptive signals and increased reliance on exteroceptive signals in constructing body representation.