Accepted Manuscript

Combining non-invasive transcranial brain stimulation with neuroimaging and electrophysiology: Current approaches and future perspectives

Til Ole Bergmann, Anke Karabanov, Gesa Hartwigsen, Axel Thielscher, Hartwig Roman Siebner

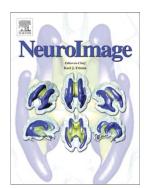
PII: S1053-8119(16)00119-1

DOI: doi: 10.1016/j.neuroimage.2016.02.012

Reference: YNIMG 12937

To appear in: NeuroImage

Received date: 3 August 2015 Revised date: 26 January 2016 Accepted date: 7 February 2016



Please cite this article as: Bergmann, Til Ole, Karabanov, Anke, Hartwigsen, Gesa, Thielscher, Axel, Siebner, Hartwig Roman, Combining non-invasive transcranial brain stimulation with neuroimaging and electrophysiology: Current approaches and future perspectives, *NeuroImage* (2016), doi: 10.1016/j.neuroimage.2016.02.012

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Combining non-invasive transcranial brain stimulation with

neuroimaging and electrophysiology: current approaches and future perspectives

Til Ole Bergmann^{1,2,3}, Anke Karabanov⁴, Gesa Hartwigsen^{3,5}, Axel Thielscher^{4,6,7}, Hartwig Roman Siebner^{4,8*}

- 1 Department of Neurology and Stroke, and Hertie Institute for Clinical Brain Research, University of Tübingen, Tübingen, Germany.
- 2 Institute for Medical Psychology and Behavioral Neurobiology, University of Tübingen, Tübingen, Germany
- 3 Department of Psychology, Christian-Albrechts-University, Kiel, Germany
- 4 Danish Research Centre for Magnetic Resonance, Centre for Functional and Diagnostic Imaging and Research, Copenhagen University Hospital Hvidovre, Hvidovre, Denmark
- 5 Department of Neuropsychology, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany
- 6 Department of Electrical Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark
- 7 Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany
- 8 Department of Neurology, Copenhagen University Hospital Bispebjerg, Copenhagen, Denmark

*Corresponding author: Hartwig Roman Siebner

Keywords: non-invasive transcranial brain stimulation (NTBS), transcranial current stimulation (TCS), transcranial magnetic stimulation (TMS), neuroimaging, electrophysiology, closed-loop

Running title: Combining NTBS with neuroimaging

Number of Tables: 1
Number of Figures: 3

Number of words: Abstract: 224 words; Main document: 11.440 words

Table of contents

- 1. Introduction
- 1.1. A primer on non-invasive transcranial brain stimulation (NTBS)
- 1.2. Combining NTBS with neuroimaging and electrophysiology
- 2. Neuroimaging and electrophysiology approaches to inform NTBS
- 2.1. Where to stimulate?
- 2.1.1. Consecutive application to derive spatial information
- 2.1.2. Concurrent application to derive spatial information
- 2.2. When to stimulate?
- 2.2.1. Consecutive application to derive temporal information
- 2.2.2. Concurrent application to derive temporal information
- 2.3. How to stimulate?
- 2.3.1. Consecutive application to derive stimulation parameter information
- 2.3.2. Concurrent application to derive stimulation parameter information
- 3. Neuroimaging and electrophysiology as readout for NTBS effects
- 3.1. Consecutive application to read out after-effects induced by offline NTBS
- 3.2. Concurrent application to read out immediate effects of online NTBS
- 4. Closing the loop with brain-state dependent non-invasive transcranial brain stimulation
- 5. Conclusion

Download English Version:

https://daneshyari.com/en/article/6023169

Download Persian Version:

https://daneshyari.com/article/6023169

<u>Daneshyari.com</u>