Neuro-Cardiac Guided rTMS

Many studies suggest a role of the connectivity of the dorsolateral prefrontal cortex (DLPFC) and the subgenual anterior cingulate cortex (sgACC) in depression. Prior research has demonstrated that neuromodulation of either of these nodes modulates parasympathetic activity and results in a heart rate deceleration. A new method called Neuro-Cardiac Guided rTMS helps to adequately target the DLPFC-sgACC network (Iseger T. et al., 2017*).

NCG-**ENGAGE** HR

neuroConn

The NCG-**ENGAGE** HR allows researchers to find the individual spot of maximum heart rate deceleration within the DLPFC.
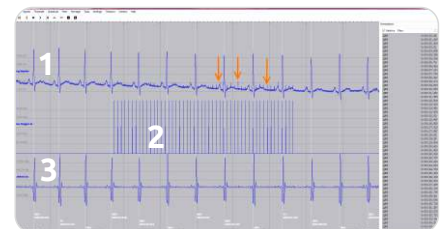
Features:

- touch display for presenting data and user interaction
- easy-to-use ECG cable for safe recording during TMS
- connecting cables for receiving the trigger from different TMS devices
- TMS trigger and ECG stored on SD card (EDF+ format)

Technical data:

- R wave detection sensitivity 99.9 %
- R wave specificity 99.1 % (own data bases without TMS artefacts)
- 24 bit resolution / SNR > 90 dB / noise RTI < 15 μV_{pp}
- ECG input for neuroConn's ECG cable
- input for medical DC power supply
- TTL input via BNC 5V TTL
- SD card: speed class ≥ 10 / memory capacity ≥ 16 GB reading speed ≥ 90 MB/s / writing speed ≥ 45 MB/s

The NCG-**ENGAGE** HR provides robust R wave detection.
1) ECG   2) TMS   3) detected R waves

* *Neuro-Cardiac-Guided TMS (NCG-TMS): Probing DLPFC-sgACC-vagus nerve connectivity using heart rate - First results. Iseger TA et al., 2017*
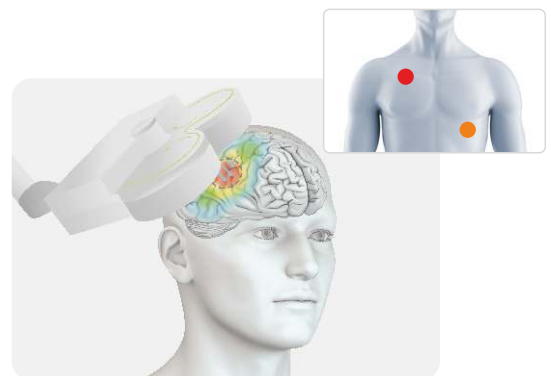
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