neuroCare

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NEURO
STIMULATION

neuroConn
Technology

Treating depression with tDCS

a non-invasive, safe, highly acceptable and feasible method of neuromodulation using DC-**STIMULATOR** MOBILE

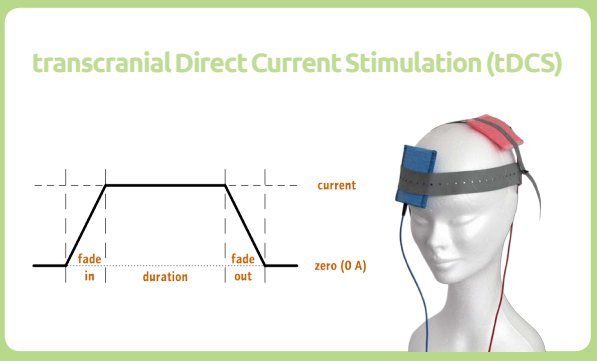
What is tDCS and how does it work?

Transcranial direct current stimulation (tDCS) is a non-invasive, well-tolerated treatment method. Two electrodes (anode and cathode) are placed on defined areas of the head, applying a weak direct current trough the skull and generating an electrical field in the stimulated areas of the brain.
tDCS directly affects the membrane potential. Depending on the duration, used current and current density, the stimulation either inhibits or activates cortical activity by increasing or decreasing the likelihood of neurons firing. tDCS can therefore be applied to modify neuronal excitability and activity. Studies have demonstrated promising therapeutic effects for major depressive disorder without drug resistance.

tDCS in the therapy of depression

Imaging studies show an asymmetrical activity of the neuron populations in the prefrontal cortex of patients with depression. In the left hemisphere (in the dorsolateral prefrontal cortex, DLPFC) the neuronal activity is reduced. Anodal tDCS over the left DLPFC can enhance neuronal excitability in this area. An anti-depressive effect has been observed in several studies after 10 – 15 sessions*.
The evidence for tDCS in depression was rated with Level B - probably effective (excludes drug-resistant depression)

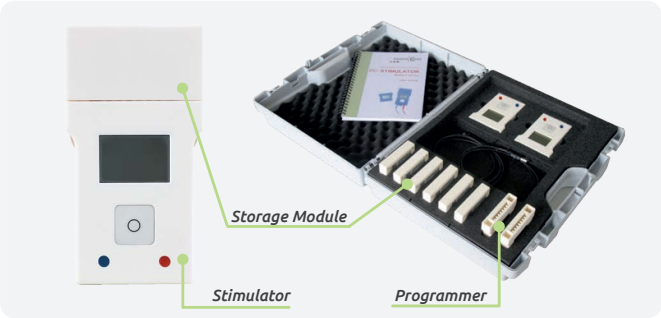
* Please refer to the studies listed on the back.



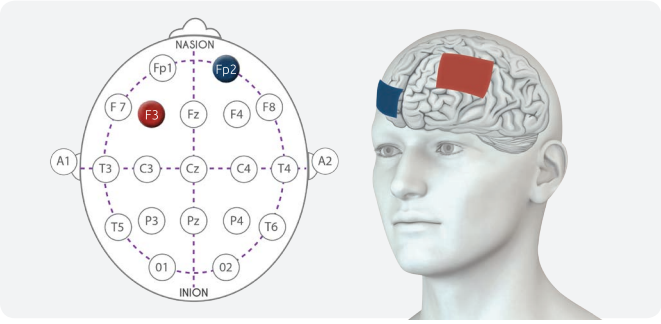
Total stimulation time = fade in + stimulation + fade out

Safety of tDCS

- considered a safe, well-tolerated method with very few side-effects
- no specific treatment-related risks known
- adverse reactions: itching, tingling, headache, burning sensation, discomfort
- contraindications: defibrillator, pacemaker or brain stimulator, implanted intracranial metals, open skull, after trepanation
- application only in conscious adult patient
- application only by physicians and psychologists educated in the use of tDCS in humans
- the DC-**STIMULATOR** MOBILE applies the highest safety standards for exceptional patient safety



DC-STIMULATOR MOBILE basic device set: article number 301210



Position of anode (red) and cathode (blue) in the treatment of depression

DC-**STIMULATOR** MOBILE: **a certified medical device**

Clinical stimulator for use in daily routine in clinics as well as in medical and psychology practices.
Components of a basic device set:

- 6 Storage Modules: store the parameters of the stimulation and stimulation data / ensure power supply during stimulation
- 2 Stimulators: apply the stimulation sequences deposited and activated in the Storage Module
- 2 programmers: transfer all data between the PC software and the Storage Modules
- PC software: configures and charges the Storage Modules and transfers log data into the database (internet access and USB interface necessary)

Further device sets, various extensions as well as different electrodes available.

COURSES & TRAINING

neuroCademy Training & Science

neuroCademy courses provide comprehensive knowledge on the neurophysiological foundations, technical requirements and the application of tDCS in depression and other indications.
In addition to promoting established theoretical knowledge and hands-on training, the 1-day tDCS course includes presentations by external speakers who are internationally recognized as experts on tDCS.

The course is accredited by the Bayerische Landesärztekammer.
Details and dates: **www.neurocademy.com**

Therapeutic recommendation for tDCS in the treatment of depression

tDCS can be applied in addition to established treatments, such as pharmacotherapy or psychotherapy. The following treatment parameters are recommended:

- session: 20 – 30 minutes with an electrical current of 1 – 2 mA
- electrode size: 5 x 7 cm
- treatment schedule: 10 – 15 sessions
- position of electrodes: anode (red) over the left DLPFC - F3 / cathode (blue) right orbitofrontal

Overview of latest key publications

Lefaucheur et al., Clinical Neurophysiology, 2017:
Evidence-based guidelines on the therapeutic use of transcranial direct current stimulation (tDCS):
Level B recommendation is proposed for anodal tDCS of the left DLPFC in major depressive episodes without drug resistance.

Brunoni et al., British Journal of Psychiatry, 2016:
tDCS for Acute Major Depressive Episodes: Meta-Analysis of Individual Patient Data:
Four out of six studies were conducted with the neuroConn DC-**STIMULATOR**. Data from six randomized sham-controlled trials with 289 patients. Effect size of tDCS treatment comparable to those reported for repetitive transcranial magnetic stimulation (rTMS) and antidepressant drug treatment.

Request further studies:
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