Epicranial stimulation device

- Two-year outcomes of epicranial focal cortex stimulation in pharmacoresistant focal epilepsy
- Epicranial focal cortex stimulation for minimally invasive neuromodulation of the epileptogenic region: A review
- Technical note: preliminary surgical experience with a new implantable epicranial stimulation device for chronic focal cortex stimulation in drug-resistant epilepsy
- Focused Epicranial Brain Stimulation by Spatial Sculpting of Pulsed Electric Fields Using High Density Electrode Arrays
- Focal Cortex Stimulation With a Novel Implantable Device and Antiseizure Outcomes in 2 Prospective Multicenter Single-Arm Trials
- Topographical EEG Recordings of Visual Evoked Potentials in Mice using Multichannel Thin-film Electrodes
- Semi-invasive and non-invasive recording of visual evoked potentials in mice
- Safety parameter considerations of anodal transcranial Direct Current Stimulation in rats

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This study is to report some preliminary surgical considerations and outcomes after the first implantations of a new and commercially available implantable epicranial stimulation device for focal epilepsy.

Methods: We retrospectively analyzed data from clinical notes. Outcome parameters were as follows: wound healing, surgery time, and adverse events.

Results: Five patients were included (17-52 y/o; 3 female). Epicranial systems were uneventfully implanted under neuronavigation guidance. Some minor adverse events occurred. Wound healing in primary intention was seen in all patients. Out of these surgeries, certain concepts were developed: Skin incisions had to be significantly larger than expected. S-shaped incisions appeared to be a good choice in typical locations behind the hairline. Preoperative discussions between neurologist and neurosurgeon are mandatory in order to allow for the optimal coverage of the epileptogenic zone with the electrode geometry.

Conclusion: In this first small series, we were able to show safe implantation of this new epicranial stimulation device. The use of neuronavigation is strongly recommended. The procedure is simple but not trivial and ideally belongs in the hands of a neurosurgeon [1)]

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Coenen VA, Jarc N, Hirsch M, Reinacher PC, Steinhoff BJ, Bast T, Schulze-Bonhage A, Sajonz BEA. Technical note: preliminary surgical experience with a new implantable epicranial stimulation device for chronic focal cortex stimulation in drug-resistant epilepsy. Acta Neurochir (Wien). 2024 Mar 22;166(1):145. doi: 10.1007/s00701-024-06022-0. PMID: 38514531; PMCID: PMC10957708.