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THE EFFECT OF TRANSCRANIAL ELECTRICAL STIMULATION ON NEUROPHYSIOLOGY AND MENTAL HEALTH IN CLINICAL CASES

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The effects of brain stimulation methods such as TMS and tES on human health and performance are well established. The literature on brain stimulation efficacy includes both academic and clinical research and documents that the method is safe and non-invasive approach to treat the brain directly without known adverse side effects. The National Institute for Health and Care Excellence (NICE) has reviewed the evidence and has approved both TMS and tDCS for the treatment of depression. However, the uptake of these methods in clinical practice is extremely limited. Only three clinics are providing depression treatment using TMS and there are no known clinics providing treatment using tDCS. Data from three clinical cases will be presented: one patient with intracranial haemorrhage to the parietal region resulting in loss of various functions including visual field; severe and treatment resistant depression and morbid obesity. All patients were treated with tES at individually adjusted parameters. Electroencephalogram and various self-report assessments were recorded prior to treatment, at three weeks of treatment and at six weeks of treatment. A field of vision test was taken prior to treatment and after treatment in the haemorrhage case. All patients presented with hemispheric asymmetry, which was reduced progressively with treatment. Power spectral densities also reduced progressively with treatment. Mental health assessments showed no presence of symptoms in any patients after six weeks. All patients tolerated the treatment well and reported no side effects.

BIOGRAPHY

Monica Berntsen has a unique background that includes counseling Psychology and Neuropsychology/Cognitive Neuroscience. She carried out a PhD at the University of Essex focusing on the recording, interpretation and modulation of brain activity. She has published a few papers demonstrating the effect of tES on brain functioning. Currently she runs a private practice focusing on cognitive function and behavioural control. She works with patients who have lost function after stroke or traumatic brain injury to regain functioning and improve quality of life and with individuals suffering mental health and psychiatric conditions. The practice is a great success and provides a service to suffer of stroke and damage that is not currently available on the NHS.

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