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Rehabilitation

# Ways of Enhancement of the Efficacy of Transcranial Direct Electrical Stimulation in the Elimination of Post-Stroke Disorders

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Introduction: Transcranial direct current stimulation (tDCS) is a non-invasive form of neuromodulation that has shown potential in the elimination of motor, cognitive, speech and other post-stroke disorders.

The aim of this review was to analyze the evidence on the effectiveness of tDCS and the possibility of enhancing its effectiveness in restoring impaired functions in patients after stroke.

Methods: Search of literature was conducted in the PubMed, Google Scholar and Scopus databases according to the following criteria: 1. The effectiveness of tDCS in the elimination of neurological disorders after stroke; 2. Ways to enhance the neuroprotective effect of tDCS in rehabilitation of post-stroke patients.

Main results: A meta-analysis on the first question showed that cathodal tDCS exerts a neuroprotective effect by reducing infarct size and improving neurological deficits after focal ischemic stroke.

Cerebrolysin is currently approved as a neuroprotective medicine for the treatment of ischemic and hemorrhagic stroke. It exhibits neurotrophic effects, promotes neuronal sprouting, improves cell survival, and stimulates neurogenesis. The combination of Cerebrolysin and standard rehabilitation therapy demonstrated additional benefit in motor function recovery and corticospinal tract plasticity among patients with severe motor impairment.

Based on these data, we chose the combined use of tDCS and Cerebrolysin as a way to improve the effectiveness of rehabilitation in post-stroke patients.

Conclusion: Future clinical studies are needed to evaluate the efficacy of tDCS and Cerebrolysin in combination in patients with chronic stroke in order to develop an optimal method for their combined use. For this purpose, the CİNEMA-Cerebrolysin Neuro Modulation Azerbaijan study is currently underway in Azerbaijan.

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Rehabilitation

# "Tele-CO-OP: A Feasible and Effective Telerehabilitation Approach for Enhancing Participation in Chronic Acquired Brain Injury Survivors"

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Background: Acquired brain injury (ABI), including stroke and traumatic brain injury (TBI), results in long-term participation restrictions, highlighting the need for accessible telerehabilitation services to support community integration.

Objectives: This research explored multidimensional participation in adults with chronic ABI and developed a telerehabilitation protocol, tele-CO-OP, based on the Cognitive Orientation to Daily Occupational Performance approach, to enhance participation.

Phase 1:
Methods: Twenty-five adults (≥6 months post-ABI) were assessed using the Canadian Occupational Performance Measure (COPM; subjective participation) and the Mayo-Portland Adaptability Inventory (MPAI-4; objective participation).
Results: Participants reported challenges in subjective and objective participation, with profiles varying by disability level except in social and leisure areas. Partial compatibility was noted between subjective importance and objective limitations.

Phase 2:
Methods: A pilot randomized controlled trial (RCT) with 16 participants evaluated tele-CO-OP`s efficacy. Assessments were conducted at baseline, post-intervention, and three-month follow-up. Outcomes included subjective (COPM, PQRS) and objective (MPAI-4) participation, executive function, self-efficacy, and caregiver burden.
Results: Pooled data revealed significant improvements in participation outcomes, with medium to large effect sizes. Frequency of leaving the house increased, and trends in self-efficacy were noted. Improvements were partially maintained at follow-up. Participants reported high satisfaction and retention rates.

Conclusion: Tele-CO-OP demonstrates feasibility and preliminary efficacy in improving participation for adults with chronic ABI. Larger controlled studies are recommended to confirm its effectiveness.