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Modulating Pain in Fibromyalgia: The Role of tDCS and Exercise therapy

Friday, September 12, 2025 12:30 PM (1h 45m)

Objective
Fibromyalgia is a chronic condition characterized by widespread pain, fatigue, and psychological symptoms, significantly affecting quality of life. Non-pharmacological treatments, such as non-invasive neuromodulation and exercise therapy, have shown potential in alleviating symptoms. This study aimed to evaluate the effects of transcranial direct current stimulation (tDCS) alone or combined with exercise therapy, in patients with fibromyalgia.
Materials and Methods
45 patients were randomly assigned to three groups: (A) tDCS alone, administered three times per week for three weeks (20 minutes per session, 2 mA; n=15); (B) computer-based exercise therapy on the same schedule (n=15); (C) combined treatment with alternating tDCS and exercise therapy (n=15). Stimulation was applied over the somatosensory cortex and spinal cord at the T10 level. Assessments were conducted at baseline (T0), post-treatment (three weeks, T1), and at three-month follow-up (T2), using pain and quality of life questionnaires (BPI, VAS, SF-12, HADS) and Laser Evoked Potentials (LEP).
Results
All groups showed a reduction in pain scores. A significant Time × Group interaction was found for HADS-Anxiety, with a marked reduction in anxiety symptoms in Group C ($p < .001$). LEP data revealed increased nociceptive thresholds and decreased N2/P2 amplitudes at T1 and T2, particularly in Groups A and C, suggesting central modulation of pain processing.
Conclusion
tDCS and exercise therapy were both effective in reducing pain, with the most promising outcomes in the tDCS-only and combined groups. These findings highlight the therapeutic potential of non-invasive neuromodulation, alone or combined with exercise therapy, in fibromyalgia treatment.

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No

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