

Arpa et al, 2019 Abstract

Can EMG BF Improve Exercise Effects In Hemiplegic Patients?

Objective

The study aimed to assess the efficacy potential of an **electromyographic biofeedback (EMG BF)** assisted exercise programme on clinical and functional outcomes of hemiplegic patients in comparison with “sham” electromyographic biofeedback.

Results

Significant improvements were found for range of motion, muscle strength, Barthel Index and 10-m walking time in both groups. The researchers concluded that exercise with or without electromyographic biofeedback is effective for improving clinical and functional parameters in hemiplegic patients.

They noted that **biofeedback (BF)** that supports the motor learning principles has been used in rehabilitation for over 40 years. Meta-analysis indicates that there is evidence suggesting that **EMG BF** is beneficial when used with standard physiotherapy techniques.

Participants and Researchers

Thirty-four patients with hemiplegia due to vascular causes who were over 18 years old were randomised into two groups of 17 participants each.

The clinicians were *Selcan Arpa* MD, and *Suheda Ozcakir* MD from the Uludag University School of Medicine Department of Physical Medicine and Rehabilitation, Bursa, Turkey.

Methods

Both groups participated in an inpatient rehabilitation programme including exercise interventions and ambulation training five days a week for two weeks. Lower extremity exercises were performed via electromyographic biofeedback using the **Neurotrac ETS Simplex** device (Verity Medical) in Group 1 while a “sham” technique was used for patients in Group 2. Range of motion, spasticity, muscle strength, functional level and walking speed were assessed before and after treatment. Follow-up was performed at one and three months after treatment.

The doctors suggested that it may be possible for individuals to learn how to use the unaffected pathways through the artificial proprioception provided by the **Neurotrac ETS Simplex** apparatus.

The full abstract can be found at <https://pubmed.ncbi.nlm.nih.gov/30667510/> or <https://www.medicaljournals.se/jrm/content/html/10.2340/16501977-2513#:~:text=In%20conclusion%2C%20this%20study%20suggests,functional%20parameter%20in%20hemiplegic%20patients>