Larocerie-Salgado, Juliana, Shrikant Chinchalkar, et al, 2022 Abstract

Nerve Transfer Surgery Rehabilitation Assisted By EMG Biofeedback

Objective
Nerve transfers take an expendable motor or sensory nerve and coapting it to a damaged nerve for restoration of critical motor or sensory function. Early detection of reinnervation is assessed by postoperative **electromyography** (**EMG**), electrical stimulation, **EMG-triggered electrical stimulation**, and testing with special attention directed to recipient muscles targeted by the nerve transfer(s).

Results
The procedure is a practical five-stage rehabilitation program, emphasizing neuroplasticity, re-education and strength training, driven by **EMG** and electrical stimulation. The program has successfully facilitated function and strength of recipient muscles to engage in basic daily tasks and independent function of donor and recipient muscles. **EMG biofeedback** provides visual and auditory feedback to increase the awareness of skeletal muscle recovery for superior outcome.

Participants and Researchers
The Roth| McFarlane Hand and Upper Limb Centre evaluates more than 400 patients with complex nerve injuries annually and has been routinely using nerve transfers for years.

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Methods
EMG and **EMG**-triggered **electrical stimulation** for muscle re-education is used following nerve transfers in upper extremity rehabilitation following nerve transfer surgery. **EMG biofeedback** is used for reinnervating muscles, to monitor skeletal muscle activity, to focus on regaining motor control and to detect electrical impulses from peripheral nerves by using an EMG device, the **NeuroTrac MyoPlus4 Pro** (Verity Medical).

Clinicians use gravity-eliminated exercises combining donor and recipient muscle function with the assistance of suspension slings and **EMG biofeedback** with the **NeuroTrac MyoPlus4 Pro** (Verity Medical).

The full abstract can be found at
https://www.researchgate.net/publication/355150878_Rehabilitation_Following_Nerve_Transfer_Surgery