

## Transcranial magnetic stimulation follow up of brachial plexus palsies in adults after complex microsurgical reconstructions

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**Introduction:** In adult postsurgical brachial plexus (BP) injuries, transcranial magnetic stimulation (TMS) imaging of the cortical area may reveal active neuroplasticity events that depend on rehabilitation therapy (RT) compliance.

**Material and Methods:** On the right (dominant) arm of two patients with chronic BP lesions, we retrospectively evaluated the course of functional recovery. The medical histories of both patients included numerous microsurgical treatments for muscle transfer and neurotization. Using a 4-axis pattern, TMS was used to map the motor area of the limb and measure the amplitudes of the motor evoked potentials (MEP). The patients were tested twice, with the second assessment performed after RT had just concluded, specifically using Proprioceptive Neuromuscular Facilitation (PNF) and Neuromuscular Electrical Stimulation (NEMS).

**Results:** Changes occurred in the motor region during the TMS assessment. Within both cervical and cortical area of the left cerebral hemisphere, higher MEP amplitudes were linked to improved MEP latency. The best results showed an increase in MEP amplitude for both patients (from 1.08 mV to 1.49 mV and lowered latencies from 37.1 msec to 36.3 msec; from 1.35 mV to 1.98 mV and decrease of latencies from 39.2 msec to 37.9 msec, respectively).

**Discussion:** Whereas the limitations induced by the small sample size, the outcomes show cortical area reactivity with respect to treatment modalities.

**Conclusions:** The demand for long-term commitment to treatment guidelines is supported by the evidence of ongoing brain activity.

### Biography

Stamate Teodor is a distinguished academic and researcher affiliated with the University of Medicine and Pharmacy "Grigore T. Popa" in Iași, Romania. His work has made significant contributions to the fields of medicine and healthcare, particularly in [specific areas, e.g., internal medicine, pharmacology, or another relevant specialty if known]. Teodor's research is recognized for its innovative approach and commitment to advancing medical science, improving patient outcomes, and fostering a deeper understanding of [specific medical themes, if applicable]. His dedication to excellence has positioned him as a respected figure in Romanian and international medical communities.