

Recovery of Swallowing Function is Accompanied by the Expansion of the Cortical Map

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Objectives: Evaluate effect of use of ES on swallow function in dysphagia patients and evaluate whether swallow changes are accompanied by cortical reorganization.

Methods: 8 adult dysphagic patients were treated via a standardized protocol of electrotherapy. Patient diagnoses included cortical stroke (n=4) and lower motor neuron lesion (n=4). Subjects received treatment for one hour per day, five days per week, for two weeks. Patients received VFSS and TMS (transcranial magnetic stimulation) evaluations before start of treatment and 12 hours after last treatment session.

Results: Swallowing function significantly improved after 2 weeks of ES, and this change was found to correlate with cortical reorganization measured by corticobulbar output maps. This study suggests that multiple sessions of ES applied to the neck muscles improve swallowing function via a mechanism involving long-term cortical reorganization.

Keywords: cortex reorganization, dysphagia, electrical stimulation, swallowing