Benfield, Jacqueline K., et al.2023 Abstract

Swallow Strength And Skill Training Using sEMG In Stroke Patients With Dysphagia

Objective
The study was to determine the feasibility of swallow strength and skill training treatment using **surface electromyographic (**sEMG) **biofeedback** in acute stroke patients with dysphagia.

Results
The study found that swallow strength and skill training with surface electromyography (**sEMG biofeedback)** was a feasible and acceptable treatment for acute stroke patients with dysphagia and the data suggests that it is a safe intervention and investigating treatment with dose and efficacy as warranted.

Participants and Researchers
The researchers recruited 27 patients (average age of 73) had a clinical diagnosis of a new stroke within four weeks.

The researchers were all from the Stroke Trials Unit, Mental Health & Clinical Neuroscience, University of Nottingham, Nottingham, UK and included: *Jacqueline K. Benfield*, Derbyshire Community Health Services NHS Trust, Derby, UK; *Amanda Hedstrom*; *Lisa F. Everton*, Speech and Language Therapy, Nottinghamshire Healthcare NHS Foundation Trust, Nottingham; *Philip M. Bath*, Stroke, Nottingham University Hospitals NHS Trust, Nottingham; *Timothy J. England*, University Hospitals of Derby and Burton, NHS Trust, Derby; and *Amanda Hedstrom*.

Methods
The participants were divided into two groups, 13 in the biofeedback (treatment) group and 14 in the control group. Sessions for those in the biofeedback group lasted for an average of 36 minutes. In addition to usual care, the treatment group received up to ten sessions of 1:1 therapy over a two-week period. The biofeedback group had a lower Dysphagia Severity Rating Scale at two weeks compared to the control group, but the difference did not reach statistical significance.

The NeuroTrac Simplex device (Verity Medical) used in the study is CE0088 marked for use as an **sEMG** tool for **biofeedback**. The Biofeedback in Strength and Skill Training (BiSSkiT) software (University of Canterbury, New Zealand), installed on a laptop received data from the NeuroTrac Simplex **sEMG** device via Bluetooth that was converted to a visual image that allowed participants to visualize the timing and amplitude of their submental muscle activity on the screen and use this **biofeedback** in strength and skill training exercises.

Although most patients in the treatment group found the intervention comfortable with satisfactory administration time, frequency and time post-stroke, some found it challenging. There were no treatment-related serious adverse events.

The full abstract can be found at https://pubmed.ncbi.nlm.nih.gov/36810785/.