
Neuromuscular Electrical Stimulation in Combination with Traditional Dysphagia Therapy

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PICO Question

Does NMES combined with TDT result in increased swallowing function in patients with post-stroke dysphagia as compared to TDT alone?

Population & Problem

Population: Patients with post-stroke dysphagia

Problem: What is the most efficient way to improve swallowing function?

Why is this important? Dysphagia...

- Common result of a stroke
- Can be life threatening
- Impacts quality of life
- Increasingly prevalent in adult and pediatric populations
- “Forgotten” role of SLP, but within our scope of practice

Intervention: NMES and TDT Combined

Neuromuscular Electrical Stimulation (NMES)

- Small surface electrodes placed on skin
- Administration of electrical impulses to activate muscles involved in swallowing
- Multiple treatments over time, then treatment is terminated
- Relatively new and still controversial

Traditional Dysphagia Therapy (TDT)

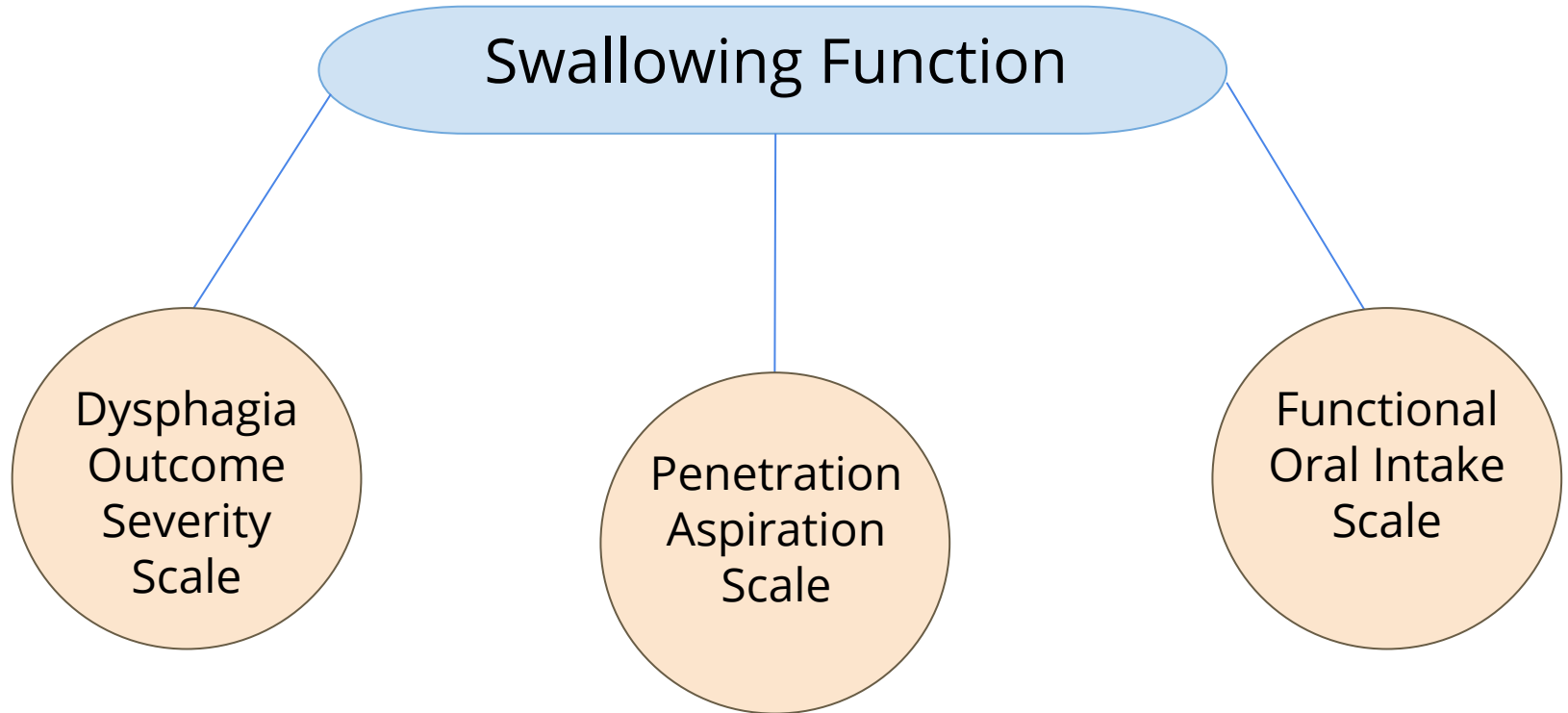
- No electrical stimulation
- External and internal cues for patient
- Muscle retraining
- AKA: Effortful/forced swallow, traditional swallowing therapy

Comparison: TDT Alone

Traditional Dysphagia Therapy (TDT)

- Goal: to perform a “safe” swallow and reduce risk for aspiration
- Underlying goal: muscle retraining through repetition
- Trains patients to elicit a functional and efficient swallow
- Can involve manipulating:
 - Posture
 - Chin tuck, head turn
 - Diet
 - Thickened vs. thin liquids
 - Anatomical structures
 - Mendelsohn maneuver, Masako maneuver, effortful swallow

Outcomes



Evidence Search

- Online search conducted through IC Library Databases
 - PubMed, CINAHL, EBSCO, MEDLINE
- Selected articles with high levels of evidence
- Articles selected directly relating PICO question
- Utilized systematic review/meta-analyses to find other resources

Meng, P. et al (2018)

Level of Evidence: II, Cohort Study

- Compared NMES & TDT to TDT alone
- Used Dysphagia Outcome Severity Scale
- Divided 30 patients into two treatment groups (A vs B) and one control
 - Group A had electrodes placed on both sides suprahyoid (geniohyoid region) and upper and lower borders of thyroid cartilage
 - Group B had electrodes on either side of the geniohyoid and on either side of the mylohyoid
- Results concluded swallowing ability was increased with NMES & TDT in both treatment groups

Simoneli, M. et al (2019)

Level of Evidence: Ia, Randomized Control Trial

- Experimental/treatment group (NMES+TDT) and control group (TDT)
- Effects of NMES on laryngopharyngeal function
- Used Functional Oral intake Scale (FOIS)
- Increase in swallowing function between groups however, the group who received both NMES and TDT demonstrated greater improvement

Chen, Y.W. et al (2016)

Level of Evidence: I, Systematic Review and Meta-Analysis

- Scopus and PubMed databases used to find articles comparing NMES with TDT in improving swallowing function
- 8 studies qualified for analysis
- Results of the study stated that traditional swallowing therapy was not as effective as swallowing therapy in conjunction with NMES
- Little evidence found to support that NMES alone is better than swallowing therapy

Best Therapy Choice

- The best therapy choice depends on the **unique needs** of the patient
- Traditional therapy is more accessible in a variety of settings
- However, research suggests that *a combination of TDT and NMES therapy is most effective for individuals with post-stroke dysphagia*
- Future research is needed to develop a better understanding of the most effective treatments

References

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