Dysphagia is the main cause of aspiration pneumonia and death in PD. There are not any established restorative behavioral treatments for aspiration in PD. Reduced swallow safety is associated with decreased hyolaryngeal movement and reduced cough. Increased submental muscle force generation has been previously associated with Expiratory Muscle Strength Training (EMST) and subsequent increases in hyolaryngeal movement provide a strong rationale for its use in dysphagia. EMST also increases peak airflow during cough. A randomized, blinded, sham-controlled EMST trial was performed at an academic center. Sixty participants with idiopathic PD completed a standardized placebo controlled course of EMST. Measures of swallow function and airway protection including judgments of swallow safety, swallow timing, and hyoid movement were assessed using videofluoroscopic images.

No pre-treatment group differences were observed (age 55-85 yrs, H&Y off II-IV). Mean PA scores improved for the EMST group (0.61 ±1.43; 95% CI: [0.10, 1.11]), but not the sham group (0.43 ±1.14; 95% CI: [-.82, -.04]). Age ($F = .64$, $p = 0.426$), sex ($F = 0.02$, $p = 0.894$), and disease severity ($F = 1.73$, $p = .193$) had no significant influence on treatment effects. The EMST group demonstrated improvement in hyolaryngeal function during swallowing (physiological measurements), and the sham group failed to improve ($p< 0.05$).

This intervention study provides Class I evidence that swallow safety as defined by PA score improves post EMST training. EMST may hold potential as a restorative treatment of PD dysphagia due to physiological changes in hyolaryngeal complex movement.