NSW Speech Pathology
Evidence Based Practice Interest Group

Critically Appraised Topic (CAT)

CLINICAL BOTTOM LINE:
There is early evidence to suggest that tongue strengthening exercises improve some aspects of swallowing physiology in adults with dysphagia of varying aetiologies. It is a potentially effective treatment for patients with neurogenic dysphagia, and possibly those with head and neck cancer, however further research that includes functional outcomes in the head and neck caseload is warranted.

Background and Objectives:
We are all aware of the important role that the tongue plays in the swallow function. Our academic link, Dr. Bernice Mathisen, suggested to the group that there has been an increase in research focusing on tongue strengthening in improving the swallow function and it may be a suitable time to investigate the latest research.

Clinical Question [patient/problem, intervention, (comparison), outcome]:
Do tongue strengthening exercises affect the impaired oropharyngeal swallow?

Search Terms/Systems:
Search terms: exercise physiology, stroke, tongue pressure, tongue strength, deglutition, head and neck cancer, dysphagia, aspiration/penetration, tongue base.
Databases: Medline, Embase, CIAP, PsychINFO, CINAHL, science direct, Google scholar.

Selection Criteria: Tongue strengthening exercises, adult populations, dysphagia, oropharyngeal swallow.

Results:
Four studies were deemed relevant for inclusion in the CAT. Levels of evidence represented by these studies included; Level II (Ibayashi et al, 2008), Level III.2 (Carroll et al, 2007), Level III.3 (Robbins et al, 2007) and Level IV (Yeates et al, 2008).

Ibayashi et al (2008) - Clinical Bottom Line:

- In healthy elderly people with 20 or more teeth, daily oral musculature and swallowing exercises (including tongue exercises) can result in enhanced oral movements and swallowing function.
- However, a direct link between tongue strengthening and an enhancement in swallow function cannot be made from this paper, nor can these results be extrapolated to the dysphagia population.

Carroll et al (2007) - Clinical bottom Line:

- The limited improvements in epiglottic inversion and tongue base to posterior wall approximation are promising with regard to pre-treatment exercises in head and neck cancer.
- Further research, including baseline functional and instrumental swallow measures, is needed to determine the potential for functional outcomes.

Robbins et al (2007) – Clinical bottom line:

- In 10 stroke patients with dysphagia confirmed on MBS, an 8 week program of isometric tongue exercises significantly improved swallow function and QOL, in the short term.

Yeates et al (2008) – Clinical bottom line:

- Tongue strengthening exercises may result in positive functional outcomes for some patients with an impaired oropharyngeal swallow of neurological aetiology, depending on the severity of the swallowing impairment.

Appraised By: Adult Swallowing EBP Group
Clinical Group: Adult Swallowing EBP Group

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