Expiratory Muscle Strength Training Improves Swallowing and Respiratory Outcomes in People with Dysphagia: A Systematic Review

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Background

Expiratory muscle strength training is an emerging intervention option for people with acquired motor based communication and/ or swallowing impairments.

Aim

- To investigate the effects of expiratory muscle strength training on acquired motor based communication and swallowing outcomes in adults with communication and/or swallowing difficulties of any aetiology.

- To investigate the effects on respiratory and quality of life outcomes; and to describe how expiratory muscle strength training has been applied in previous studies.

Method

Six electronic databases (CINAHL, MEDLINE, EMBASE, SPEECHBYTE, AMED, PUBMED) were searched from the earliest date to June 2016. Search terms related to communication and swallowing disorders and expiratory muscle strength training were used. Specific eligibility criteria were applied to identify RCT's, non-RCTs and single group pre/post studies investigating expiratory muscle strength training in participant groups reporting diagnosed and self-reported communication disorder (voice and/or motor speech) and/or swallowing dysfunction using at least one outcome measure related to swallowing, communication, respiratory function or quality of life.

Data extraction:

A customised form was developed for data extraction.
Data extraction was completed by one reviewer and checked for accuracy by a second reviewer.

Assessment of risk of bias:

Two researchers independently applied the PEDro scale to rate the methodological quality of the included studies with moderate agreement (k= 0.571 95% CI 0.378 to 0.763).

Data Syntheses:

Effect sizes and 95% confidence intervals were calculated where data permitted.

Results

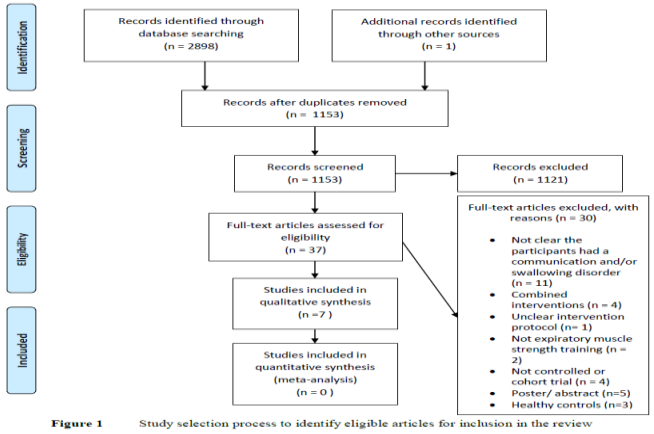

Figure 1 Study selection process to identify eligible articles for inclusion in the review

Seven articles were included in the review

These seven articles reported data from five studies.

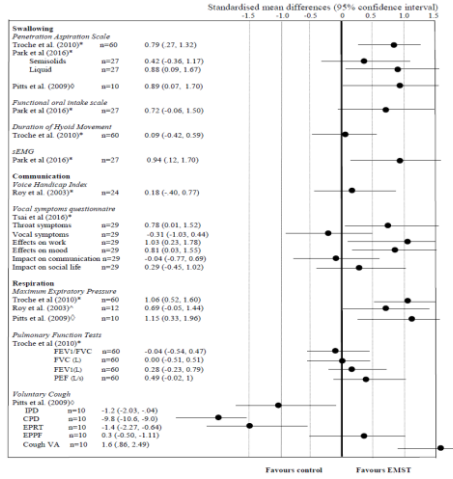

FIGURE 2 Standardised mean differences and 95% confidence intervals for swallowing outcome measures respiratory outcomes measures and communication outcomes measures for expiratory muscles strength training. * RCT, ◊ Pre/Post, ^pre/post data from single group within a RCT

Conclusion:

- Preliminary evidence that expiratory muscle strength training may improve respiratory and swallowing outcomes in individuals with dysphagia due to Parkinson disease and stroke.
- Further research required using specific, reliable and valid communication outcome measures in specific populations with clear participant descriptions highlighting premorbid/ pre-existing communication and/or swallowing impairments.
- The optimal programme design is unclear but it is recommended that training programmes be at least six weeks long and employ progressive overload.

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