



NSW Speech Pathology Evidence Based Practice Interest Group

Critically Appraised Paper (CAP)

CLINICAL BOTTOM LINE: Biofeedback of physiologic activity can be effective in altering physiologic parameters associated with speech production (for example, subglottal air pressure, excursion of the abdomen and ribcage, sound pressure level). These effects have been demonstrated in single cases or small groups of people with flaccid, spastic, mixed, and unspecified acquired dysarthria types. In general, the relationship between changes in specific physiologic variables and speech production or communicative participation has not been clearly established. The demonstrated effectiveness of biofeedback in altering physiologic variables justifies a conclusion that it has potential to impact speech production and communicative effectiveness and participation.

Clinical Question [patient/problem, intervention, (comparison), outcome]: In patients with acquired dysarthria, does the use of biofeedback treatment improve intelligibility?

Citation: Yorkston, K.M., Spencer, K.A., Duffy, J.R. (2003). Behavioral Management of Respiratory / Phonatory Dysfunction From Dysarthria: A Systematic Review of the Evidence. *Journal of Medical Speech-Language Pathology*. Volume 14, Number 2, pp xiii-xxxviii

Design/Method: Systematic review of behavioural management of respiratory/phonatory dysfunction from dysarthria. 35 intervention studies reviewed. Summarised in categories; biofeedback studies, devices, Lee Silverman Voice Treatment, and miscellaneous.

Various types of physiologic interventions using biofeedback were the primary form of treatment in 11 studies (of the 35 studies reviewed for the systematic review). Studies were generally case series or single case design. Biofeedback included via pressure biofeedback program, light + clock for voice onset and timing, abdominal binder, visual, intraoral pressure feedback, plethysmography etc.)

Participants: -

Experimental Group: -

Control Group: -

Results: Outcomes of biofeedback treatment for physiologic impairment were usually measured in physiologic terms. Outcomes were reported at the level of impairment in 10 of 11 studies. The outcomes of the studies were uniformly positive in that the speakers were able to modify speech production in the desired way. Frequently the relationship between changes at the level of the impairment and changes in activity/participation is unclear or not systematically reported, so a comparison between changes in impairment and in activity/participation could not be made. The psychometric adequacy of the outcomes measures was satisfactory across the majority of the biofeedback studies. Procedures were moderately or highly replicable (as long as you have the equipment) in all cases. Most studies provided evidence for experimental control.

Comments: systematic review. Studies reported in table format re: type of study, primary focus, number of subjects, type of dysarthria, medical diagnosis, replicability, psychometric adequacy, evidence for control, measures of impairment, measures of activity/participation, conclusions.

Level of Evidence (NH&MRC): This study represents Level IV evidence as although it is a systematic review it contains reviews of single case and case series designs. Further larger group studies are required.

Appraised By:

Clinical Group: Motor Speech

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