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Effectiveness of Swallowing Exercises in Dysphagia: A Literature Review

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ABSTRACT

The researcher aims to assess effect of swallowing exercises on swallowing ability among Patients with dysphagia. Multiple databases were searched focusing of the effect of swallowing exercises to improve swallowing ability in dysphagia patient. It was concluded that to improve swallowing ability, swallowing exercise should be followed.

KEYWORDS

Effectiveness, Swallowing Exercises, Dysphagia

INTRODUCTION

Eating and swallowing are complex behaviors involving volitional and reflexive activities of more than 30 nerves and muscles. They have two crucial biological features: food passage from the oral cavity to stomach and airway protection[1].

The term dysphagia is derived from Greek dys- (bad, difficult) + phagein (to eat). Dysphagia results from problems in nerve or muscle control that may accompany various medical conditions[2].

This article reviews current literature on the subject and summarizes the effectiveness of various swallowing exercise in dysphagia.

MATERIALS, METHODS & FINDINGS

The study is headed mainly on the effectiveness of swallowing exercise.

1. D. Maria Diana, Dr.(Mrs) S.S SharmilaJansi Rani conducted study to assess the Effectiveness of Swallowing exercises on Swallowing Ability among Patients with Cerebrovascular Accident in selected Hospitals, Nagercoil in 2013. Thirty participants were selected in study, subject were selected by using of Non probability purposive sampling technique. The tools used for data collection were demographic, clinical data and Modified Mann Assessment of Swallowing Ability scale. Intervention was done continuously for 7 days in the morning before breakfast. Results showed that the pretest mean swallowing ability score was 50.46 with standard deviation 12.045and post test mean swallowing ability score 77.06% with standard deviation 9.54 among the cerebrovascular accident patient. The study concludes that Swallowing exercises effective among the cerebro vascular accident patients regarding their swallowing ability[2].

2. S. A. C. Kraaijenga, L. van der Molen conducted prospective study on Effects of Strengthening Exercises on Swallowing Musculature and Function in Senior Healthy Subjects. Tenmale participants

were selected who performed exercise 3 times per day for 6 weeks. The multidimensional tool was used to assess the effectiveness. Result showed that theafter 6-weeksexercise, mean chin tuck strength, jaw opening strength, anterior tongue strength, suprahyoid muscle volume, and maximum mouth opening significantly increased (p\.05)[3].

3. Young-Seok Cho conducted study on Effects of bedside self-exercise on oropharyngeal swallowing function in stroke patients with dysphagia: A Pilot Study. Nine subjects were recruited after had dysphagia. Self-exercise including effortful swallowing, tongue strengthening, and shaker exercise was performed 5 times a week for 4 weeks. Videofluoroscopic dysphagia scale (VDS) based on a videofluoroscopic swallowing study used as a tool to evaluate swallowing ability. Result showed that pre- and post-intervention showed a significant decrease in the oral phase of the VDS from 17.8 ± 4.2 to 14.5 ± 4.3 ($p<0.05$). The pharyngeal phase also decreased significantly from 43.9 ± 6.5 to 41.9 ± 5.3 ($p<0.05$). Conclusion of study bedside self-exercise is a positive method to improve oropharyngeal swallowing function in patients with dysphagia after stroke[4].

4. Sophie A. C. Kraaijenga conducted prospective clinical phase II study on Efficacy of a novel swallowing exercise program for chronic dysphagia in long-term head and neck cancer survivors. Study was conducted in theyear 2014-2015. Total Seventeen head and neck cancer survivors with chronic dysphagia participant were selected in study that had performed both swallowing and non-swallow exercise for 6 -8 weeks with a newly developed tool allowing for progressive muscle overload, including chin tuck, jaw opening, and effortful swallow exercises.Outcome parameters were feasibility, compliance, and parameters for effect. Result showed that feasibility in terms of the program completion rate was 88%. Compliance with the exercises was 97%. After the training, chin tuck, jaw opening, and anterior tongue strength had substantially improved. After the training period, chin tuck, jaw opening, and anterior tongue strength had substantially improved[5].

5. Jong-Chi Oh conducted a pilot Study of the Head Extension Swallowing Exercise: New Method for Strengthening Swallowing-Related Muscle Activity. 15 participants were choose as subjects were instructed to extend their head backwards as much as possible, and while watching the ceiling, swallowed their saliva every 10 sec for a duration of 20 min. Surface electromyography used as tool to evaluate

the mean and peak submental muscle activation amplitudes during normal and effortful swallowing anterior and posterior isometric tongue pressures were measured with the Iowa Oral Performance Instrument. Result showed that the muscle activation amplitudes during effortful swallowing increased significantly at 4 and 8 weeks compared to baseline ($p < 0.025$). The isometric pressures of the tongue tip and the posterior part of the oral tongue were significantly higher at 8 weeks compared to baseline ($p < 0.025$). Conclusion of study was the head extension swallowing Exercise appears effective in exercising and strengthening the suprahyoid muscles and tongue muscles in healthy participants[6].

6. Kyoung Don Kim *et al.* conducted a study on Effects of neck exercises on swallowing function of patients with stroke in Hospital in Daegu between May and July, 2014. Twenty-six subjects were selected and randomly divided into an experimental group, who received the PNF-based short neck flexion exercisesfor 30 minutes each time over a period of six weeks and control group, who received the Shaker exercise for three days a week for 30 minutes each time over a period of six weeks. Result showed that the experimental group showed statistically significant improvements in premature bolus loss, residue in the valleculae, laryngeal elevation, epiglottic closure, residue in the pyriform sinuses, and coating of the pharyngeal wall after swallowing, and improvements in pharyngeal transit time, and aspiration on both the new videofluoroscopic swallowing study scale and the American Speech-Language-Hearing Association National Outcomes Measurement System (ASHA NOMS) scale[7].

7. Jung-Ho Kang *et al.* conducted a study on The Effect of Bedside Exercise Program on Stroke Patients with Dysphagia. The study was conducted in 2009-2010. Fifty patients selected for study those who were met to inclusion criteria further subjects were divided in experimental and control group. The control group was treated with conventional swallowing therapy. The experimental group received additional bedside exercise training, which consisted of oral, pharyngeal, laryngeal, and respiratory exercises. All participants were assessed for their swallowing function by Videofluoroscopic Swallowing Study (VFSS), using the New VFSS scale. Result showed that experimental group were found significant improvement in the swallowing function at the oral phase in the New VFSS Scale than that of the control group ($p<0.05$). Further, they also

showed less depressive mood and better quality of life than the control group[8].

CONCLUSION

Various searched studies suggest that swallowing exercises are helpful for improving swallowing ability and researcher recommended swallowing exercises reduce incidence of dysphagia.

CONFLICT OF INTEREST

None

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