

## Tongue-Pressure Resistance Training for Dysphagia in a 4.5-Year-Old Child

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### Abstract

This case study describes treatment in a child who presented with dysphagia at birth, attributed to damage to cranial nerves IX, X and XII. Over the first 4 years of life, liquids were administered by N/G tube or thickened using Simply Thick, Carobel or gelatin. Other foods were eaten without modification. At age 4, a medical review raised questions regarding possible chronic aspiration of thin and gelled liquids as well as secretions. A comprehensive videofluoroscopy was conducted, revealing concerns regarding posterior tongue control of large liquid boluses leading to trace penetration aspiration. Aspiration was also observed on secondary clearing swallows as a consequence of pyriform sinus residue. These observations led to an experimental course of tongue-pressure resistance training with the goal of improving tongue control and bolus clearance. A treatment program including tongue strengthening, tongue endurance and tongue power exercises in addition to the Shaker head-lifting exercise was implemented using a game format and biofeedback from the Iowa Oral Performance Instrument. Twice daily home practice of these exercises was supervised by the parent over a 5-month period. Over that time, tongue strength measures on maximum isometric tasks were observed to more-than-double from 23 KPa to 52 KPa. Parental observations of increased endurance and tolerance of higher repetitions and longer Shaker head lifts were also reported. The impact of treatment on aspiration and residue will be measured using endoscopy in late summer, 2015. The presentation will outline the methods used to deliver and monitor an intensive home program of tongue-pressure resistance training to a young child.

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