EFFECTIVENESS OF A SPEECH BULB COMBINED WITH INTENSIVE SPEECH THERAPY IN HYPERNASAL SPEAKERS WITH CLEFT PALATE

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Objective: To evaluate the efficacy of the combination of a speech bulb with an intensive speech therapy program in hypernasal patients with cleft palate. Methods: Twenty hypernasal speakers with cleft palate (12 females, mean age 28 years), who were wearing speech bulbs underwent an intensive speech therapy program of 45 sessions over 3 weeks. Three experienced speech language pathologists rated the participants' speech recordings before and after therapy, with and without the speech bulb. Nasometric recordings and long term averaged spectra were also analyzed using repeated-measures ANOVAs. Results: The hypernasality ratings showed significant improvement after the speech therapy when patients were also wearing the speech bulb [$F(1,19)=15.97;p<0.05$]. Without the speech bulb, speech therapy by itself did not result in a significant improvement. With speech bulb, nasalance scores for oral sentences were significantly lower at the final session [$F(1,19)=14.07,p<0,001$], indicating an effect of speech therapy. Before and after comparisons of individual nasalance profiles demonstrated improvement in 13 participants, no progress in 4 participants and more severe hypernasality after therapy in 3 participants. Long-term averaged spectra corroborated the findings of the perceptual analysis. Based on a frequency of 300 Hz, there was a significant within-subject effect for with and without speech bulb [$F(1,18)=4.54$, $p<0.05$] as well as for intake vs. final session [$F(1,18)=7.14,p<0.05$]. Conclusion: The speech bulb in combination with intensive speech therapy resulted in improved oral-nasal balance for the majority of patients. More research is needed to investigate long-term outcomes as well as individual patient factors contributing to therapy success.