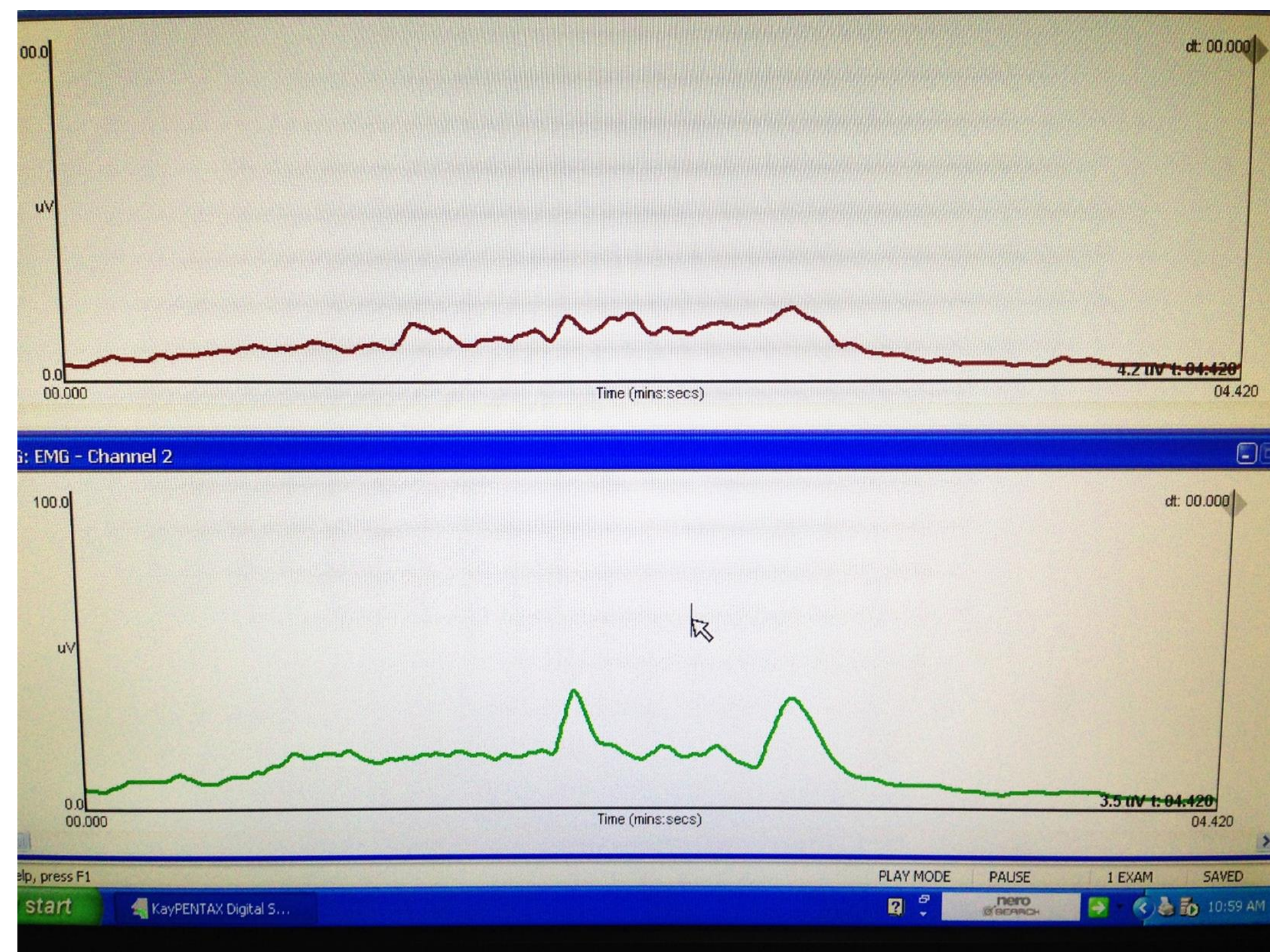
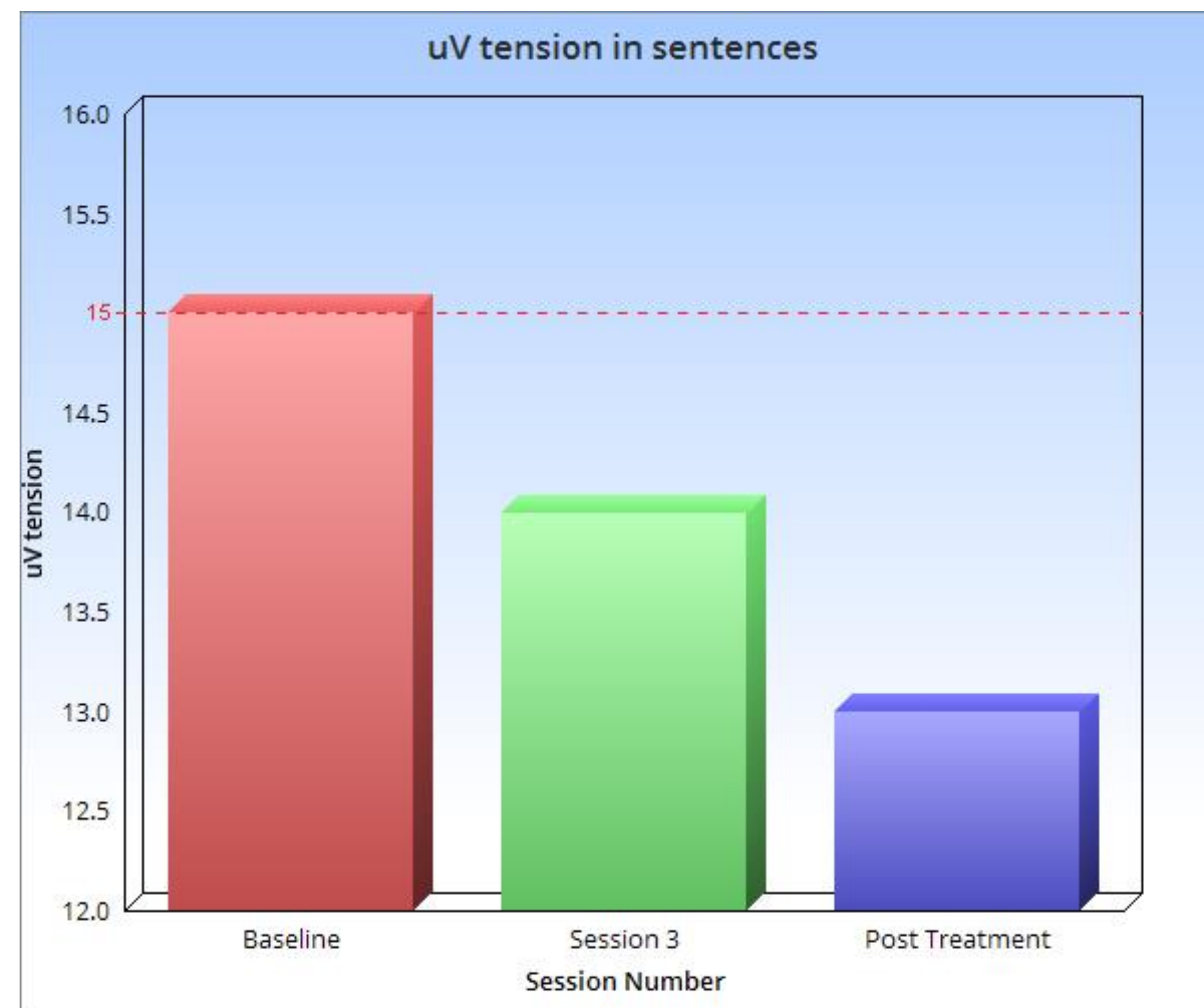


The Use of Surface Electromyography (sEMG) as a Component of Speech Pathology Intervention for Vocal Nodules: A Case Study

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sEMG visual and numerical biofeedback

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Clinical Profile

Client: 20 year old female singer with diagnosis of unilateral right side vocal nodule with a presumed phonotraumatic etiology. Symptoms: vocal fatigue & decay, effortful phonation. Habitual laryngeal tension and throat clearing were noted. Vocal Handicap Index scores indicated significant negative psychological impact.

Hypothesis

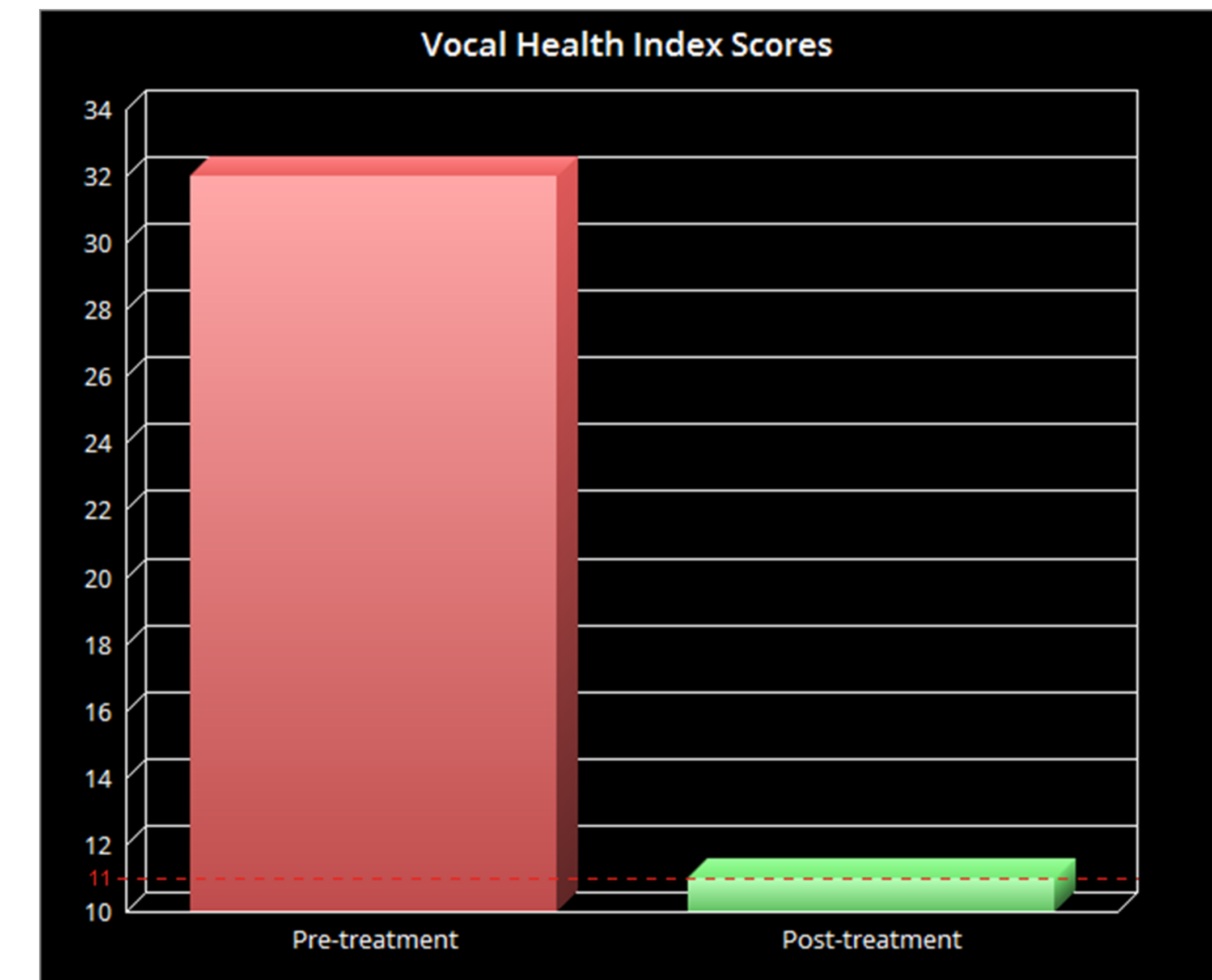
sEMG has been successful in the treatment of dysphagia (swallowing impairments). It was hypothesized that this tool would provide objective data and biofeedback to facilitate client modification of muscular tension associated with the formation of the vocal nodule.

Procedure & Treatment: Weekly 30 minute therapy sessions for 8 weeks

- Client education and establishment of vocal hygiene routine
- Progressive muscle relaxation exercises to decrease overt laryngeal tension
- Hierarchy of specific speech tasks conducted with sEMG feedback at levels less than baseline mean uV value of 15 uV

Conclusion

- 1) The client reported that the sEMG visual and numerical displays helped her to modify tension in her vocal mechanism during phonation.
- 2) sEMG data supported client's perception and ability to modify tension.
- 3) Client demonstrated the ability to maintain decreased tension in functional settings post-treatment.
- 4) Vocal Handicap Index scores indicated that client perception of negative psychological impact was decreased to within normal limits.



References

Mendes Balata, P. M., Justino da Silva, H., Rocha de Moraes, K. J., de Araújo Pernambuco, L., & Arruda de Moraes, S. R. (2013). Use of surface electromyography in phonation studies: an integrative review. *International Archives Of Otorhinolaryngology*, 17(3), 329-339

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The results of this single subject case study have appeared to indicate that the use of sEMG may be beneficial as a component of a speech pathology program in the treatment of a vocal fold nodule. Continued investigation in this area of treatment is warranted.