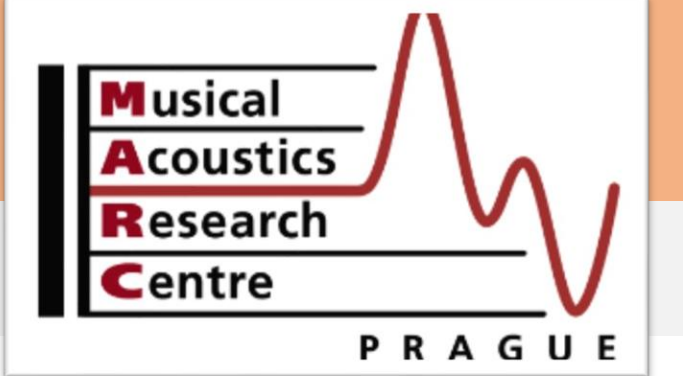


THE APPLICATION OF KINESIOLOGY TAPE AS A TACTILE FEEDBACK FOR MANAGEMENT OF LARYNX POSITION: A PILOT STUDY

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AMU AKADEMIE MÚZICKÝCH UMĚNÍ V PRAZE
DIVADELNÍ FAKULTA
FILMOVÁ A TELEVIZNÍ FAKULTA
HUDEBNÍ A TANEČNÍ FAKULTA

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Introduction: Kinesiology tape (KT) therapy has been incorporated into speech pathology clinical practice for treatment of myofunctional orofacial disorders [1]. The elastic property of the tape allowed for support without hindering movement range [2]. Subjects with hyperfunctional voice disorders often present with a high held larynx position [3]. Therefore, the aim of this study is to assess the possibility of using an adapted application of KT as a tool for the management of the vertical larynx position (VLP).

Results: LTAS analysis reviewed statistically significant changes for Total SPL ($p < 0.01$), Speaker's formant ($p = 0.01$), Alpha ratio ($p = 0.04$) and High/Low ($p = 0.02$) between conditions for the spoken task. No significance was found for the singing task, auditory-perceptual or CQ analyses. Due to the placement of the EGG electrodes the still images were not deemed reliable for assessing the VLP. Formant analysis using FFT showed an overall drop in all formant frequencies apart from the fifth formant for the KT condition.

Method: Twenty-eight normophonics were submitted to acoustic, auditory-perceptual and electroglottographic analyses (EGG) pre and post KT application. Still images were taken to measure changes in the VLP. Sustained vowel [ɜ] and a singing passage ("Happy Birthday") were used as outcome measures. The KT application was done with the aim to promote a lower larynx position during phonation, mimicking the effects of the laryngeal depressor muscles (fig. 1).

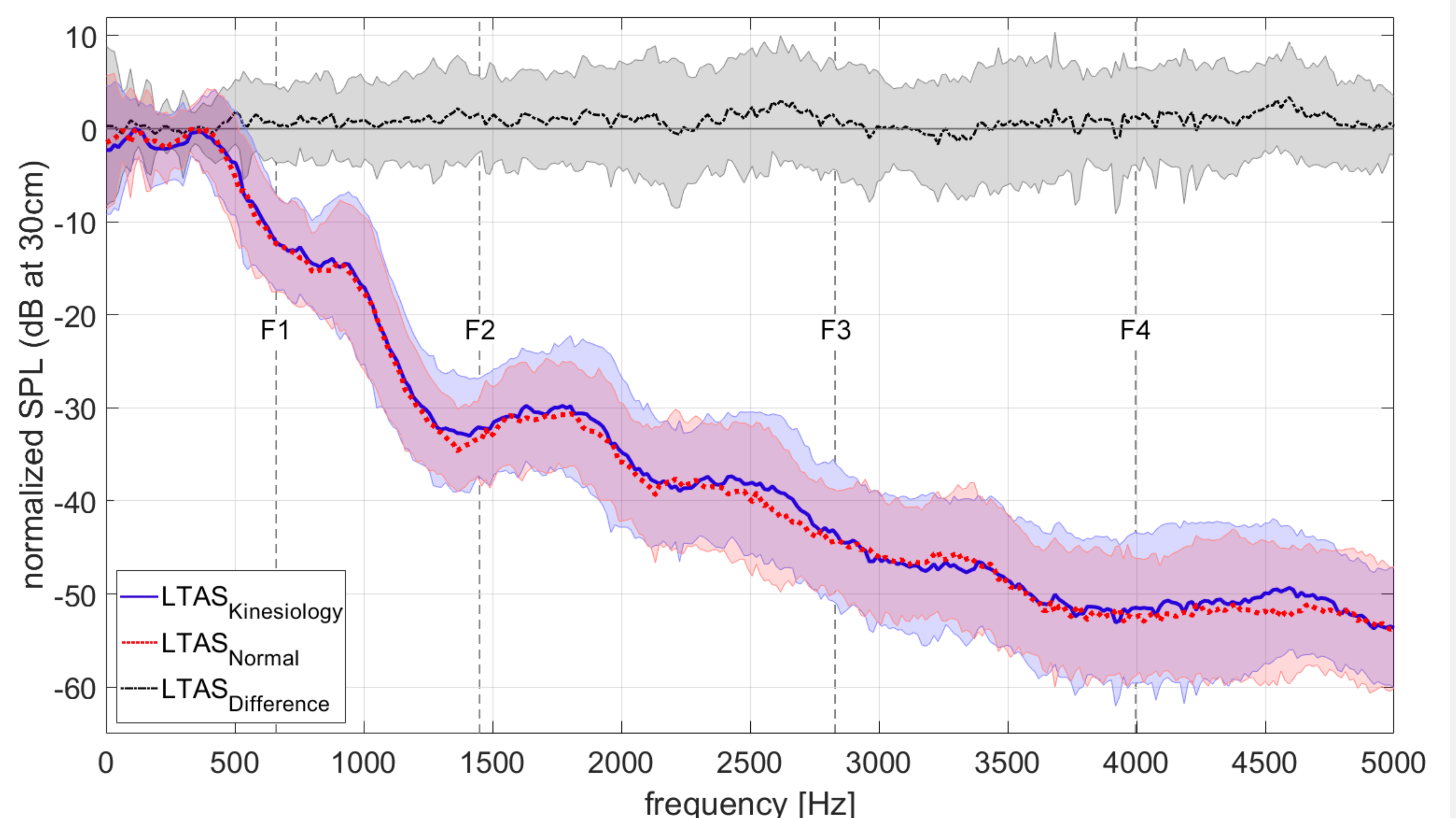


Figure 2 - Kinesiology tape (solid blue line), no tape (dotted red line) and difference between conditions (dot-dashed back line) LTAS mean and standard deviation (shaded area) for all participants. Vertical dashed lines represent the mean values for F1 to F4 extracted using FFT.

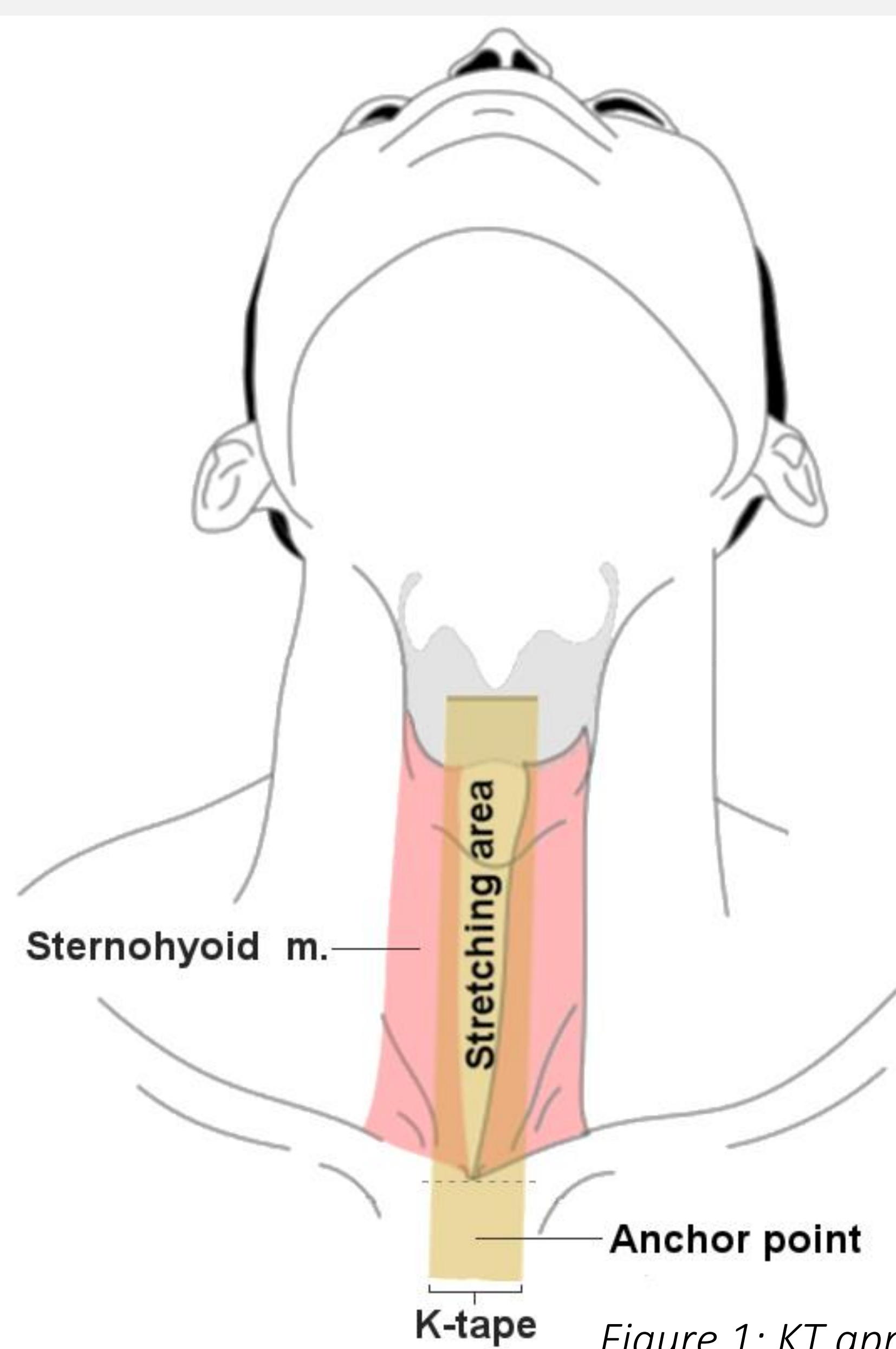


Figure 1: KT application.

Discussion and Conclusion:

Based on the acoustic analysis, the results showed positive outcomes for the KT condition compared to no tape condition. Changes in VLP were not directly measured, however lower values for formant frequencies may be associated with a lower position of the larynx. Considering the small effect size expected for KT application with normophonics it seems reasonable to consider that KT application may produce measurable changes in VLP. Future studies should be carried out with pathological voice to assess the use of KT as a therapeutic tool.

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References

- [1] Bae Y. Change the Myofascial Pain and Range of Motion of the Temporomandibular Joint Following Kinesio Taping of Latent Myofascial Trigger Points in the Sternocleidomastoid Muscle. *J Phys Ther Sci.* 2014;26(9):1321-1324.
- [2] Kenzo K, Hashimoto T, Tomoki O. Development of kinesio taping perfect manual. *Kinesio Taping Assoc.* 1996;6-10:117-118
- [3] Angsuwarangsee T, Morrison M. Extrinsic laryngeal muscular tension in patients with voice disorders. *J Voice.* 2002;16(3):333-343. doi:10.1016/s0892-1997(02)00105