ACOUSTIC DATA COMPARISON FROM VOWEL PRODUCTION PRE AND POST LINGUAL FRENECTOMY

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INTRODUCTION
Lingual frenulum disorder may cause, among other things, changes in sound speech productions, so that lingual frenectomy may be sometimes indicated. Clinical experience suggests that surgical intervention alone does not improve patients' speech productions and speech therapy is therefore recommended. As phonetic acoustic analysis allows inferring articulatory movements and making correlations between production and perception findings, it was found to be helpful to be used in conjunction with a perceptual protocol assessing patients' speech productions before and after frenectomy treatment.

PURPOSE
To compare the acoustic characteristics of vowel productions (formant frequencies F1, F2 and F3) before and after lingual frenectomy.

METHODS
- 11 subjects aging average 19y11m
- diagnosed with short lingual frenulum and/or anterior lingual frenulum - from a population treated at the Department of Orofacial Motricity of CEFAC Institute
- recordings were made in an acoustically sound proof room in three sessions: (a) preoperative, (b) postoperative – (one month of frenectomy - without speech therapy) and (c) postoperative (six months - after speech therapy)
- speech samples comprised the productions of the seven oral Brazilian Portuguese vowels inserted in a carrier phrase
- formant frequency values (F1, F2 and F3) were extracted by means of PRAAT software (Boersma, Weenink, 2001)
- the data were statistically analyzed

RESULTS
Formant frequencies values revealed differences between preoperative and postoperative stages (1 and 6 months after surgery). As a general trend, for adults and children of both genders, vowels had higher deviations of measures of formant frequencies in high and medium ones, both anterior ([i] and [e]), and the posterior ([u] and [o]). Although variations of the intra (within 3 stages) and inter-subject, the vowel which was more appropriate values, compared to references for the BP, in the postoperative periods of 1m 6m was [a], indicating that movements like tongue elevation, in both the anterior and posterior directions, were still difficult to perform by patients undergoing tongue frenectomy.

CONCLUSION
The variation of formant frequency values among pre and postoperative stages indicated a progressive improvement in lingual body mobilization after speech therapy. The trend of variation of formant frequencies indicates that the subjects showed a slight evolution from the early postoperative (one month) until the period of six months in terms of mobilization of the tongue in vowel production, for the period preoperatively. The vowel that showed improvements in lower posture in PB was [a], while higher vowels still showed high average F1 values, that are not provided for the BP.