

Summary

The diploma work was based on the evaluation of dental casts of patients with bilateral cleft lip and palate (BCLP) with a mean age of 10. Patients consist of two groups, patients without defect in speech and with speech impairment (palatolaly). Palatolalies in the literature are primarily associated with velopharyngeal insufficiency. The study tested the working hypothesis that in the failure of speech is involved a different, specific in some way, palatal shape.

Dental casts were scanned using a laser scanner and analyzed by 3-D geometric morphometry and multivariate statistics: principal component analysis (PCA), linear regression analysis and finite element analysis (FESA).

Using linear regression it was found that the shape of the palate is affected in younger individuals by age, and so had to be 5 patients excluded for further analysis. Patients with palatolaly have lower variability the palatal shape than patients without palatolalie, so their palates are similar to each other and have a specific shape. Palates are wider and lower than in individuals without speech disorder and they have a characteristic deepening behind the anterior part of the palate. We assume that these features in palate morphology primarily the lower arch and the substantial deepening are most likely to affect the development of palatolaly. Our results which corroborate the working hypothesis will need to be further verified on a broader number of patients.