



# EUROPEAN CLEFT PALATE CRANIOFACIAL ASSOCIATION

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## ABSTRACT BOOK

**3d tomographic analysis of internal nasal dimensions in individuals with complete unilateral and bilateral cleft lip and palate.**

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**Background:** The surgical reconstruction of the lip and palate, which aims at restoring the shape and function of the structures, paradoxically impairs maxillary and nasal growth, leading to a class III skeletal discrepancy and reduced nasal patency.

**Aims:** The objective of this study was to three-dimensionally evaluate the internal nasal dimensions of young adults with cleft lip and palate (CLP) by means of cone-beam computed tomography (CBCT).

**Methods:** This was a cross-sectional prospective study. Forty-five subjects were enrolled on this study and divided into 3 groups, as follows: 1) Control group (CON): 15 CBCT scans of individuals without CLP, 2) Unilateral Cleft group (UCLP): 15 CBCT scans of subjects with complete unilateral FLP, 3) Bilateral Cleft Group (BCLP): 15 CBCT scans of individuals with complete bilateral CLP. CBCT-generated nasal 3D models were obtained using Dolphin Imaging 11.8 software. Two trained examiners assessed the images. Significant differences among groups were evaluated using ANOVA and Tukey-s test. ( $p < 0.05$ ).

**Results:** The mean nasal volumes ( $\pm$  SD) of the CON group corresponded to  $18.1 \pm 3.8 \text{ cm}^3$ . In the UCLP and BCLP groups, the values were smaller and corresponded to  $14.7 \pm 2.2 \text{ cm}^3$  and  $17.1 \pm 2.2 \text{ cm}^3$ , respectively. A significantly smaller volume was observed for the UCLP group in relation to CON group ( $p = 0.006$ ). No significant differences were observed between BCLP and CON or between UCLP and BCLP.

**Summary/Conclusion:** The nasal volumes of individuals with complete cleft lip and palate, especially those with unilateral clefts, are dimensionally smaller than that of individuals without CLP. This fact indicates the impact of the cleft *per se* on the internal nasal geometry, probably leading to a reduced nasal patency in this population.