

# Incisor root length in individuals with and without anterior open bite: a comparative CBCT study

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**Objective:** This study aimed to compare the root length of maxillary and mandibular incisors between individuals with open bite *versus* matched individuals with adequate overbite.

**Methods:** This comparative, matched and retrospective study included 48 cone beam computed tomographies (CBCTs) obtained at a university radiological center. Scans belonged to 24 individuals with open bite (overbite  $\leq 0$  mm) and 24 individuals with adequate overbite (controls). Both groups were matched by age, sex, malocclusion classification and skeletal characteristics (ANB and FMA angles). Root length of each maxillary and mandibular incisor was measured in millimeters (mm) in a sagittal section from a perpendicular line to the enamel cement junction until the root apex (384 length measurements were made). The means of root length in both groups were compared using *t*-tests. In addition, correlations between variables were evaluated with the Pearson correlation coefficient ( $\alpha=0.05$ ).

**Results:** In both groups, the root length of the upper central incisors was approximately 12 mm and the root length of the maxillary lateral incisors was approximately 13 mm ( $p>0.05$ ). Likewise, the root length of lower central incisors in both groups measured approximately 12 mm ( $p>0.05$ ). However, the mandibular lateral incisor roots of open bite patients were significantly longer than in the normal overbite patients (approximately 1 mm,  $p=0.012$  right side,  $p=0.001$  left side).

**Conclusions:** Root length of maxillary incisors and central mandibular incisor is similar in individuals with or without open bite, but the mandibular lateral incisor roots in open bite patients were significantly longer than in the normal overbite patients.

**Keywords:** Open bite. Incisor. Root length. Cone-beam computed tomography.

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