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ROOT – CROWN RATIO OF MAXILLARY AND MANDIBULAR INCISORS: CONE BEAM COMPUTED TOMOGRAPHY ASSESMENT

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Relevance. Unfavorable root–crown ratios (R/C ratios) for the maxillary and mandibular incisors can affect the prognosis of various dental treatments. Previous studies have shown that the maxillary and mandibular incisors are the most susceptible to external apical root resorption during orthodontic treatment. Several factors are known to contribute to root resorption in the anterior teeth, including ethnic differences, abnormal root shape (blunt or pipette), and an excessive overjet requiring extraction treatment and a longer treatment duration.

Aim: the aim of this study was to assess the root-crown ratio and root length and crown height of permanent incisors using cone-beam computed tomography (CBCT).

Materials and methods. 20 CBCT scans were performed on Galileos GAX5 (Sirona Dental Systems, Bensheim, Germany) using standard settings (85 kV; tube current: 5–7 mA; acquisition period: 14 s; effective radiation time: 2-6 s; voxel size: 0.3 × 0.3 × 0.3 mm). Reformatted sagittal CBCT images were analyzed using GALILEOS Viewer 1.9 (Sirona, Bensheim, Germany).

Results and discussion. Crown height and root length and the R/C ratios of the maxillary and mandibular incisors were measured using CBCT data. The lowest and highest root-crown ratios were recorded in males in females.

Conclusions. These data may enhance the understanding of the clinical R/C ratio as a useful guideline for determining the status of teeth.