

## عنوان مقاله:

Age Estimation Based on the Pulp Chamber Volume of Multi-rooted Teeth Using Cone Beam Computed Tomography

## محل انتشار:

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## خلاصه مقاله:

Background: Age estimation is a critical issue in forensic medicine for identifying corpses and to determining fake identities. The present study aimed to estimate the age based on the pulp chamber volume of multi-rooted teeth using cone-beam computed tomography (CBCT) images. Methods: CBCT of ۱۴۲ patients, consisting of ۷۷ males and ۶۵ females with an age range of ۱۰-۷۰ years, were selected. The images of ۸۴ maxillary first molars and ۷۹ mandibular first molars were evaluated. All the CBCT images were taken using the CRANEX ۳D system and saved in OnDemand software. The images were converted into the DICOM format and saved in a semi-automatic segmentation software (ITK-SMAP version ۳.۶.۰-beta). Based on the results of logarithmic regression analysis, age, as a dependent variable, was correlated with the pulp chamber volume, as a predicting factor, which can be used in preparing a statistical model for estimating the human age. Results: The correlation coefficient between age and all the morphological variables was negative, indicating a decrease in the mean of all these variables with age. The results of ANOVA showed a significant difference in the means of all these variables between the different age groups. In addition, the means of all these variables decreased with age. There was a relatively high correlation between age and the pulp chamber volume of the first molars ( $R^2 = 0.513-0.543$ , depending on the tooth type and gender). Conclusions: There was a linear correlation between the volume of maxillary and mandibular pulp chambers and the chronological age of the population studied. The regression models achieved in the present study could be used to predict the subjects' age with ۰.۵۴% and ۰.۵۱% accuracy based on the maxilla and mandible, respectively. The mean pulpal volume of the maxilla was a little larger than that of the mandible. Furthermore, the mean volume of the pulp chamber decreased with age.

## کلمات کلیدی:

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