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Sex estimation using canines' maximum length and width: a preliminary study in orthopan-tomograms

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Abstract

Background: Sex estimation is fundamental in the forensic context, as it reduces the number of possibilities identity to a half [1]. In this field, several dental methods can be used, as teeth are very resistant structures and can provide valuable data regarding this estimation [2]. Canines have been described as the most dimorphic teeth in human dentition [3,4]. **Objective:** To aid in the forensic sex estimation process by adding new data considering canines' measurements performed in radiographs. **Methods:** Image J was used to measure canines' maximum length and width in 30 orthopantograms (opts), in pixels, from the clinical services of the Faculty of Dental Medicine, University of Porto. To minimize distortion, the ratio between length and width was analyzed. SPSS version 28.0 was used for data analysis. Categorical variables were described using frequencies and percentages, whereas continuous variables were described using maximal and minimal values, the mean and standard deviation. Mean values of the different ratios were compared, by sex, using the independent samples t-test. Statistical significance was set at 5%. **Results:** Most opts belonged to male subjects (n=17, 56.7%). Males displayed superior ratio mean values in all canines, which ranged from 3.59 to 3.62, whereas, in females, values ranged between 3.38 and 3.52. Regardless of the canine (upper, lower, right or left) no differences were found in the mean ratio between sexes (p>0,05). **Conclusions:** Although male displayed bigger mean ratio in all canines, these differences do not seem to be enough for sex estimation. It is possible that different results may be achieved if the sample is increased.

Keywords: forensics; biological profile; teeth; odontometrics

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