



### F3 Odontometrical Method Useful in Determining Gender in a Sample of Subadult Subjects Using Deciduous Teeth

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After attending this presentation, attendees will learn about determination of sexual dimorphism of the deciduous teeth in subadult subjects.

This presentation will impact the forensic community and/or humanity by demonstrating a new method in gender determination using odontometrical techniques.

**Introduction:** In adult subjects the diagnosis of the sex on skeletal remains is carried out by means of a simple morphological or morphometric analysis looking at the individualization of signs of sexual dimorphism present in the various anatomic regions of which the most significant are the skull and the pelvis.

In sub-adult subjects, however, these anatomic regions can't be used with the same success for the identification of the sex, because they haven't fully expressed their sexual characteristics.

The main objective of this study, therefore, is to assess the dimorphic means of odontometric parameters of deciduous dentition with the aim to reach the diagnosis of sex in sub adults.

**Materials and Methods:** Eighty subjects from Apulia (South of Italy) were analyzed; the sample included subjects between 6 to 10 years old (43 males and 37 females). For each subject, males and females, measurements of dental diameters and palate diameters were carried out by a digital calliper; palatine diameters were analyzed in previous studies in adult subjects.

Measurements concerned the mesio-distal (MD) and bucco-lingual (BL) diameters, except for the incisal group, where only the MD diameter was analyzed. The MD diameter is the greatest distance between the approximal surfaces of the crown measured by the calliper held parallel to the occlusal and vestibular surfaces of the crown. The BL diameter is the greatest distance between the buccal surface and lingual surfaces of the crown measured by the calliper held at right angles to the mesio-distal crown diameter of the tooth.

Also measured was the intercanine-maxillary and intercanine- mandibular distance and the intermolar distance in the upper jaw; the first distance was measured from the cusp of the right canine and the one on the left; the second distance was valued positioning the points of the calliper in the central furrow of the second deciduous molars on the right and the left.

Even though all of the dental elements were considered, the statistical analysis was conducted only on those represented in the majority; or rather canines and first deciduous molars, that from previous studies carried out on the topic were found to be more dimorphic.

The measurements performed by digital calliper for each subject were examined statistically calculating the average, the standard deviation and the interval of confidence at 95%.

**Results:** The results obtained, in accordance with other studies made on topic on different ethnic populations, confirm that: 1) the mesio-distal diameter of deciduous teeth results, in males, were larger compared with the same tooth elements in females, 2) the mesio-distal diameters of the dental elements from primary dentition are more indicative of a sexual dimorphism compared with bucco-lingual diameters, 3) the transverse dimensions of the palate, expressed by the intercanine and intermolar diameters, are markedly larger in the male than in the female examples.

The results obtained, therefore, allow researchers to confirm that dimensions of deciduous teeth in their diameter MD and BL and the wideness of the palate, are very useful in forensic medicine investigations on skeleton remains, isolated skulls, and isolated lower jaws of sub-adults, enabling the presenters to determine a reliable discrimination of the sex with objective criteria.

This study has also confirmed the advantages of the use of a digital calliper compared with a traditional conventional one, whether it be for its speed and simplicity or whether it be for its accuracy in considering the fraction of a millimeter.

**Sexual Dimorphism, Deciduous Teeth, Forensic Odontology**