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**A ENGENHARIA
COMO ALAVANCA
PARA O DESENVOLVIMENTO
E SUSTENTABILIDADE**

Editores

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EVALUATION OF THE CORTICAL BONE THICKNESS IN EIGHT DIFFERENT HUMAN MANDIBLES

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ABSTRACT

The main objective of this study was to investigate if there is a relation between the cortical bone thickness of human mandibles, with age and patient gender. In this work, the measure of the cortical bone thickness was obtained using different medical images.

Different human mandibles were obtained, with high resolution, through computed tomography. Computed tomography is the most common technique used for examination of maxillofacial, because it permits the visualization of soft tissues and bone structures in the same medical image [Cavalcanti, *et al* 2001]. This technique is used in several clinical dentistry applications even by axial slices, in two (2D) and three-dimensional (3D) reconstructed images [Rocha, *et al* 2003], [Fonseca, *et al* 2010].

In this work the cortical thickness was measured using image processing software (Sante DICOM Viewer FREE, Santesoft). The three dimensional visualization of the medical images was obtained using InVesalius 3.0 (FREE Beta 2 Software, C. T. I. Renato Archer). An initial work with this purpose was produced by [Fonseca, *et al* 2010] using other software.

A total of eight medical images were analysed in two different groups, figures 1 and 2. One group was characterized with four female mandibles, from different ages (26-79 years old), figure 1. Other group with four male mandibles has similar age (42-57 years old), figure 2.

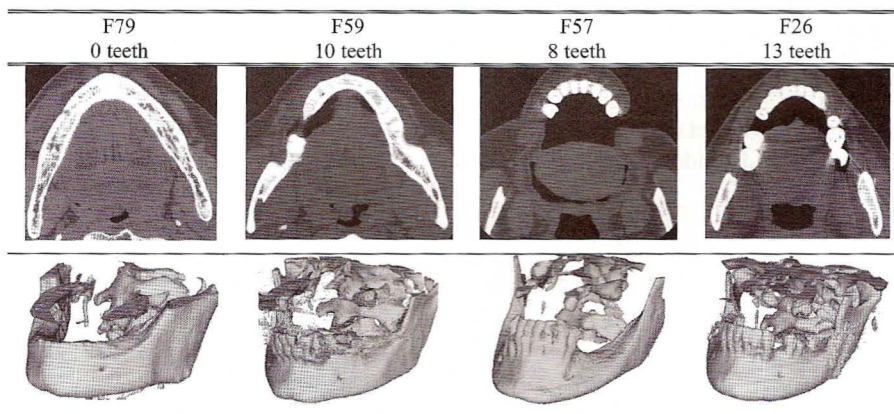


Figure 1. Number of teeth, 2D and 3D scan of F mandibles.

Figure 2 represents all medical images for M mandibles. As shown, the number of teeth is similar between all images, 12 or 13.

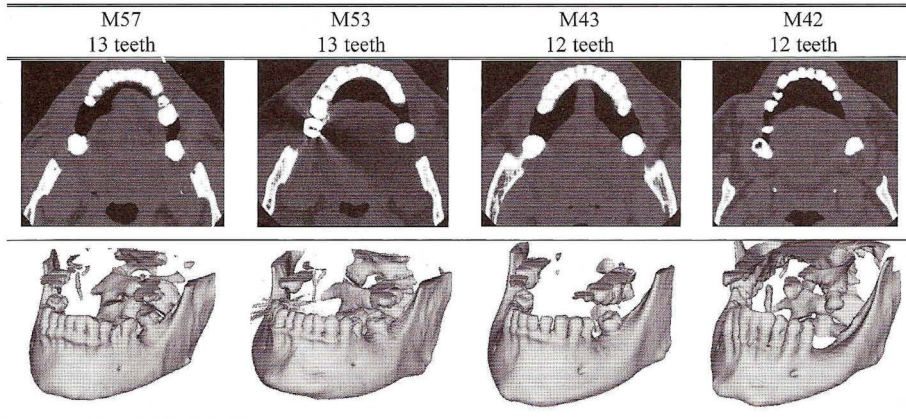


Figure 2. Number of teeth, 2D and 3D scan of M mandibles.

Conclusions about the cortical bone thickness of the mandible affected by tooth extraction, age and gender patient will be produced. The use of this type of information could be useful for complementary diagnostic information and clinical treatment planning.

The use of CT method is an excellent way to distinguish different tissues, as verified in this work. With this capability was possible to determine the cortical mean thickness value in different human mandibles.

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