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Literature Abstract-

Micromechanics/structure relationships in the human mandible.

This research obtained the micromechanical properties of human mandibular cortical bone as a function of orientation from TMJ to TMJ. A mandible obtained from a deceased 66-year-old woman free of bone disease was used. The mandible was cut into 2-cm blocks and embedded in poly methylmethacrylate. Micromechanical properties were analyzed using the UH3 scanning acoustic microscope (SAM) in the burst mode for high resolution. The coordinates system was defined such that the inferior border of the mandible is positioned on the x-y plane. x is along the anterior-posterior direction, y is in the horizontal direction, and z is in the superior-inferior direction. The osteonal orientations were almost parallel to the x-axis and eventually branched into two directions toward the coronoid process and condylar head. The SAM revealed that almost the whole area of the mandibular body was transversely isotropic in the plane perpendicular to the x-axis. In the parallel and oblique directions, all data were transversely isotropic with respect to the x-axis.

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