

COMPUTERISED TOMOGRAPHY SCANNING CHARACTERISTICS OF THE JAWBONE IN PATIENTS WITH HYPODONTIA

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Objectives: To examine some basic characteristics of the jawbone in patients with hypodontia and evaluate the variations of bone quantity (height and width) and bone quality (density) at sites where teeth are developmentally missing, as measured by CBCT.

Material and methods: Eighteen patients with hypodontia had retrospectively undergone cone beam computerised tomography (CBCT) scans as part of their dental care at a dental hospital. Within this sample, a total of 101 developmentally absent tooth sites were investigated for maximum bone height, minimum and maximum bone width, and bone density using CBCT software. Each developmentally missing tooth site was subcategorised depending on its position within four regions of the jawbone (anterior maxilla, posterior maxilla, anterior mandible, and posterior mandible). Comparisons were made between the measurements obtained for these different jawbone regions.

Results: Median values of the maximum bone height were highest in the posterior mandible, followed by the anterior mandible, anterior maxilla, and finally lowest in the posterior maxilla. Median values of the maximum bone width within the entire height of the jawbone showed the anterior maxilla to have the highest readings of maximum bone width, followed by the anterior mandible, posterior mandible, and posterior maxilla. Assessment of bone density measurements at the four regions of the jawbone revealed that the anterior mandible displayed the highest bone density, followed by the posterior mandible, the anterior maxilla and finally the posterior maxilla.

Conclusions: Significant differences were observed between the bone height, width and density at sites where teeth were developmentally missing in various regions of the jawbone in the group of hypodontia patients investigated. Combining bone height and width measurements showed that there was adequate bone height, but insufficient bone width in all regions of the jawbone for implant placement without the need for bone augmentation procedures. The pattern of bone density observed in the four regions of the jawbone displayed a similar but not exact trend to those in previous studies investigating bone density at missing tooth sites in patients without hypodontia.