

## Influence of object location in different FOVs on trabecular bone microstructure measurements of human mandible: a cone beam CT study

Type: Article

Abstract:

The aim of this study was to assess the influence of different object locations in different fields of view (FOVs) of two cone beam CT (CBCT) systems on trabecular bone microstructure measurements of a human mandible. A block of dry human mandible was scanned at five different locations (centre, left, right, anterior and posterior) using five different FOVs of two CBCT systems (NewTom™ 5G; QR Verona, Verona, Italy and Accuitomo 170; Morita, Kyoto, Japan). Image analysis software (CTAn software v. 1.1; SkyScan, Kontich, Belgium) was used to assess the trabecular bone microstructural parameters (thickness, Tb.Th; spacing, Tb.Sp; number, Tb.N; bone volume density, BV/TV). All measurements were taken twice by one trained observer. Tb.Th, Tb.Sp and Tb.N varied significantly across different FOVs in the NewTom 5G ( $p < 0.001$ ) and the Accuitomo 170 ( $p < 0.001$ ). For location, a significant difference was observed only when measuring BV/TV ( $p = 0.03$ ) using the NewTom 5G. The trabecular bone microstructural measurements obtained from CBCT systems are influenced by the size of FOVs. Not all trabecular bone parameters measured using different CBCT systems are affected when varying the object location within the FOVs.

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