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Analysis of linear measurement accuracy obtained by cone beam computed tomography (CBCT-NewTom VG)

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Background and Aim: the aim of this study was to evaluate linear measurement accuracy of CBCT Newtom VG (Quantitative Radiology, Verona, Italy) in vitro. CBCT is dedicated to dental and Maxillofacial imaging particularly for surgical and prosthetics implant planning in dentistry. Linear measurement accuracy is important in selection of implant type , size , orientation and number of implants.

Materials and methods: 22 anatomic landmarks in 4 dry skulls were marked by gutta – percha. 15 linear measurements were obtained using a digital caliper. These were considered as real measurements. Skulls were scanned at two settings: (a) voxel size 0.3mm (b) voxel size 0.15 mm High Resolution (HR). Radiographic distance measurement were made using the NNT viewer software in axial and coronal sections by three observers. The data were compared by mean difference, standard deviation and IntraclassCorrelation Coefficient (ICC).

Results: Mean difference of real and radiographic measurements was -0.10 0.99 mm in axial sections, -0.27 1.07 mm in coronal sections, +0.14 1.44mm in axial (HR) sections, 0.02 1.4mm in coronal (HR) sections. The ICC for CBCT measurements in axial sections was 0.9944, coronal sections 09941, axial (HR) sections 0.9935, coronal (HR) sections 0.9937. Statistical analysis showed high interobserver and intraobserver reliability.

Conclusion: CBCT is reliable in linear measurement in different image planes in maxillofacial area. Voxel size has no effect on accuracy of linear measurements, so by reducing radiation dose we can have images with the same dimensional accuracy.

Keywords: Cone Beam CT,Accuracy,Skull, Linear measurement

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Social media is an interesting phenomenon, especially for businesses and customers, and the relationship between the two. Looked at one way, social media provides an opportunity for businesses, giving them a personalized platform to connect with their Patients. By using social media we can speak directly to the consumer in an arena they are comfortable with. Social media allows businesses to connect with customers /patients while shaping their perceptions of products and services. Why use social media? As traditional methods of marketing to customers like advertising, or direct mail become less and less effective, businesses are turning to social mediums to connect in positive ways with consumers and the people who influence them. The key to social media success is to not get hung up on the tools and technology but to focus on how you can use them more effectively to:

- increase the visibility of your personal brand and that of your business
- build and cultivate your personal and professional networks
- develop and grow relationships with customers
- answering queries
- publish original content that demonstrates your expertise
- share curated links to relevant information that adds value to the lives of your customers
- communicate with your community of followers
- ultimately generate new leads and boost sales for your business.

We need to be acutely aware just how social media has fundamentally changed the way we are connecting, communicating and collaborating as individuals, and therefore society as a whole.

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