Comparison of the results of 4 users of a contemporary CADCAM System

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Abstract

The objective of this study was to investigate the variation of measurements recorded when four different users of the Tracer CAD system trace a model of known dimensions and volume.

This complements a previous study by the same authors Mc Garry and Mc Hugh, (2005) where the accuracy and consistency of a single user was measured.

Landmarks were added to indicate proximal, distal, anterior, medial and lateral regions of a specially manufactured cylindrical nylon 6.6 model. Four circumferential lines were added at regular intervals along the length of the cylinder with a view to calculating diameters and volumes relative to these landmarks.

The model was measured using a comparator with guaranteed accuracy to one hundredth of a millimetre, and was traced using the Tracer CAD system by four different users.

The difference in mean volume between measured results and Tracer CAD scans of differing users ranged to -3%. Individual trace volumes varied by up to -7.85%.

In all volumes measured, eleven out of twelve maximum volume percentage differences measured greater than 2 %, and of these, seven results showed maximum volume percentage difference to measure greater than 4%.