

Accuracy of Linear Measurements on Polygonal Models of Dry Mandibles Generated from Industrial CT Data

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The aim of the study was to assess the accuracy of linear measurements taken on surface models of dry mandibles generated from industrial CT data compared to the corresponding measurements taken directly on the mandibles. Ten mandibles were scanned through computed tomography. The CT scanning was performed on a Nikon XTH 225 system. The polygonal models were generated using VGStudio-Max 2.2. Ten linear measurements were taken on both dry mandibles and 3D models. The conventional measurements were taken with a digital caliper. The digital measurements were obtained using Geomagic Verify Viewer. All parameters were measured twice by two observers. Almost perfect intra- and interobserver reliability was obtained for all digitally and directly taken measurements. The repeated measures ANOVA did not establish statistically significant differences between both measuring methods for any of the metric parameters. The overall absolute error was 0.37 mm and the overall relative error was 1.00%.

Key words: mandible, CT, polygonal model, measurements, accuracy