Reliability of linear and angular dental measurements with the OrthoMechanics Sequential Analyzer

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Abstract

Introduction:The aim of this study was to evaluate the reliability of newly developed software in the assessment of orthodontic tooth movement 3 dimensionally. Methods:The sample consisted of pretreatment and posttreatment computed tomography scans and plaster dental models of 20 orthodontic patients treated with a hyraxpalatal expander as a part of their comprehensive orthodontic treatment. Dental-arch measurements,including arch widths, tooth inclinations, and angulation parameters, were measured on the scans using Invivo Dental 3D imaging software (version 5.1; Motionview, Hixson, Tenn). The plaster dental models were laser scanned and superimposed, and measurements were obtained digitally using the new software.Agreement between the digital models and the computed tomography measurements was evaluated with intra class correlation coefficients, paired t-tests, and Bland-Altman plots. A P-value of#0.05 was considered statistically significant.Results:High agreement, a nonsignificant paired t-test, and no indication of agreement discrepancies were observed for most of the measured parameters.Conclusions:The results confirmed that the new software program offers a reliable tool for dental-arch measurements obtained from 3-dimensional laser-scanned models.

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