

ACCURACY OF TWO INTRA-ORAL OPTICAL SCANNERS IN SCANNING HORIZONTAL PREPARATIONS ON ABUTMENTS

Objectives: to test differences in term of trueness and precision among two different IOSs in scanning a chamfer and a shoulder preparation on natural teeth.

Materials: A reference maxillary typodont with exchangeable teeth was prepared first with teeth #16 and #21 prepared with chamfer finish line and then with teeth #16 and #21 prepared with a shoulder finish line. Both models were scanned with a laboratory scanner (Adva lab scanner, GC, Tokyo, Japan) to obtain two digital reference typodont in .stl format. Forty digital IOS casts were obtained by scanning the models 10 times by each of the two different IOSs (Trios 3; 3Shape A/S and I700, Medit). All the STL files were imported into an inspection software program (Geomagic Control X; 3D SYSTEMS) to be superimposed with the reference model acquired with the laboratory scanner to calculate trueness. Therefore, all the scans of the same group were superimposed onto the cast that recorded the best result of trueness whose trueness corresponded to the actual reference value for precision. The accuracy was evaluated with root mean square value (RMS) in the #16 and #21 areas. Kolmogorov-Smirnov was applied to test normal distribution. The nonparametric Kruskal-Wallis test was performed to compare the trueness and precision. Statistically significant was set at 0.05.

Results: No statistically significant difference was found between Medit i700 and TRIOS 3 shape regarding trueness or precision for both #16 and #21 prepared teeth.

Conclusions: The two evaluated scanner reported similar accuracy performance in case of horizontal preparations.