00304   In Vivo Evaluation of the Effect of Dental Crowding on the Accuracy of Trios 3 (3Shape) Intraoral Scanner When Obtaining Complete-arch Impressions

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Aims: The aim of the study is to evaluate the effect of dental crowding on the accuracy (precision and trueness) of the Trios 3 (3Shape) intraoral scanner in rendering complete maxillary arch digital impressions.

Methodology: Sixteen subjects were recruited. Group Aligned (Group A) (N=8) consisted of subjects with no upper dental crowding and Group Crowded (Group C) (N=8) consisted of subjects with more than 6mm of upper anterior crowding. Intraoral scanning of the upper dentition was performed twice for each subject with the Trios 3 scanner. An upper conventional impression was taken with polyvinyl siloxane (PVS) using a dual viscosity impression technique, then poured in Type IV gypsum. The plaster models were scanned using the R700 (3Shape) laboratory model scanner. Paired superimpositions of the scans were performed to evaluate precision and trueness quantitatively and qualitatively.

Result: There was no statistically significant difference between the Groups A and C for precision or trueness. Overall (Groups A and C) precision and trueness of the dentition were 26.37 μm and 42.17 μm, respectively. Group A had a precision of 25.34 μm while Group C had a precision of 27.39 μm. The trueness of Group A and Group C were 40.21 μm and 44.12 μm, respectively.

Conclusion: Overall accuracy of the dentition scans with the Trios 3 scanner is clinically acceptable. Comparing between aligned and crowded upper dentition, no statistically significant differences were found. The present data shows that Trios 3 scanner may be used to obtain digital impressions intraorally for both aligned and crowded upper teeth with minimal statistically or clinically significant differences in accuracy.