TRUENESS AND PRECISION OF 2 DIFFERENT INTRAORAL SCANNERS IN IMPLANT FIXED PROSTHODONTICS: A COMPRATIVE IN VITRO STUDY

Objectives: To test differences in term of trueness and precision among two different Intraoral Scanners (IOSs) used in implant fixed prosthodontics.

Materials:

A reference stone model was prepared, representing a partially edentulous maxilla on area #23 and from #14 to#16, with three implant analogues and polyether-ether-ketone (PEEK) scanbody screwed on to represent the situation of a single crown on implant (#23) and a implant-supported partial prosthesis (#14,#16). The model was digitized with an laboratory scanner (Aadva lab scanner, GC, Tokyo, Japan) used as a reference, and with two intraoral scanners (Trios 3; 3Shape A/S; I700, Medit). Ten scans were taken using the two different IOS. All datasets were loaded into reverse-engineering software (Geomagic Control X 2018), where intraoral scans were superimposed on the reference model, to evaluate trueness in the full arch, in the single scanbody area (#23) and in the two scanbody area(#14 and #16).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. Non-parametric Kolmogorov-Smirnov test was performed (SPSS software Version 26,IBM). Kruskal-Wallis non-parametric test with independent samples and Bonferroni correction was applied to non-normally distributed samples. Statistically significative was set at 0.05.

Results:

	TRUENESS FULL ARCH (µm)	PRECISION FULL ARCH (µm)	TRUENESS 2 SCANBODIES (µm)	PRECISION 2 SCANBODIES (µm)	TRUENESS 1 SCANBODY (µm)	PRECISION 1 SCANBODY (µm)
TRIOS	29.8±4.05	55±7.19	55.2±3.47	28.2±12.26	44.1±44.1	17.7±5.39
MEDIT i700	40.9±7.18	60.2±7.08	52.3±4.34	50.9±19.85	40.4±15.97	16.8±6.38

No statistically significative differences where found between Medit i700 and TRIOS 3

Conclusions:

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With in the limits of the present study the accuracy of the two scanner evaluated did not report statistical significative differcies nither for single than bridge prothodotics. More esperimental evaluations are raccommendad in ordet ot validdate clinically IOs in implantg prosthodotics.