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EXPERIMENTAL EVALUATION OF INTRAORAL SCANNERS IN EDENTULOUS MANDIBLES

Pietrantonio M., Bonifacio A., Epifania E.

Department of Neuroscience, Reproductive and Odontostomatological Sciences, University of Naples Federico II, Naples, Italy

Aim: the main difficulties for intraoral scanners (IOS) are found in the edentulous mandibles. The reduced bucco-lingual surface, the limited height of the bone crest and the mobility of the soft tissues generate criticalities for the acquisition of the digital impression. The purpose of this study is to evaluate the comparison between digital and analog impressions in these particular conditions.

Methods: two scans were obtained for the 11 subjects. The first intraoral scan was carried out with intraoral scan (Omnicam DentsplySirona) and the second was acquired by digitizing a plaster model, obtained from an impression taken with an analogue method, the best choice in these cases. All scans were converted to standard tessellation language (STL). The STL files obtained for each patient were superimposed by means of the GEOMAGIC Control X software, to evaluate the comparison. The average distance values obtained through the Geomagic 3D software constitute our primary outcome measure. 1 sample t-test was used to prove the hypothesis that the average distances of the points obtained between the two files are relevant ($\alpha = .05$).

Results: concerning the scans ability to reproduce the analog impression the intraoral scans carried out with a intraoral scan generated files with single measurements in terms of minimal distance between objects far from scans obtained with analogue methods ($t = -7.29$, $P < .001$).

Conclusion: regarding the results obtained, it was possible to conclude that the STL files deriving from digital impressions are significantly different from those deriving from analog impressions, highlighting a difference between the two methods.

PERI-IMPLANT TISSUES AFTER 10-15 YEARS IN PATIENTS WITH TREATED CHRONIC PERIODONTITIS

Reda R., Zanza A., Mazzoni A., Del Giudice A., Miccoli G., Di Nardo D., Guarnieri R., Testarelli L.

Department of Oral and Maxillo-Facial Sciences, Sapienza University of Rome, Rome, Italy

Aim: aim of this study was to retrospectively evaluate the peri-implant tissues conditions in treated patients with chronic periodontitis (CP) and in patients without chronic periodontitis (noCP).

Methods: a chart review was used to evaluate 267 implants, 134 placed in 42 CP treated patients and 133 placed in 46 noCP patients. The primary outcome was to evaluate peri-implant tissues condition (health, peri-mucositis, and peri-implantitis). The secondary outcome was to evaluate the possible association of some variables, such as, Plaque Index (PI), Bleeding Index (BI), probing pocket depth (PD), bleeding on probing (BoP), bone level (BL), loading time, type of implant placement and loading protocol, type of prosthesis, type of bone, implant manufacturer, implant diameter and length, with the implant health condition.

Results: the analysis of patient files revealed that after 10-15 years of loading (mean loading time 13.4 ± 2.07 years), six noCP patients (13%) experienced implant loss with a total of nine implants (6.7%) lost. The remaining 124 implants were classified: 54 (43.5%) as healthy, 45 (36.3%) with peri-implant mucositis, and 25 (20.2%) with peri-implantitis. Twelve CP subjects (28.5%) experienced implant loss with a total of 19 implants (14.1%) lost. The remaining 115 implants were classified: 34 (29.5%) as healthy, 40 (34.7%) with peri-implant mucositis and 41 (35.6%) with peri-implantitis. Compared with noCP subjects, only treated CP subjects with recurrent periodontal disease (RPD) showed differences statistically significant ($p < .05$).

Conclusion: after 10–15 years of loading, in CP patients treated in a private practice setting, most implants (70.1%) were classified with some type of peri-implant inflammation. In patients with RPD, a higher tendency for implant loss and peri-implant biologic complications was found.