



**ACCURACY OF THE IMPLANT IMPRESSION BY
CONVENTIONAL AND DIGITAL TECHNIQUES**

(A COMPARATIVE STUDY)

(IN VITRO STUDY)

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ABSTRACT

Background and objectives: Precision of the impression taken from implants significantly determines the accurate fit of implant-supported prostheses. An imprecise impression may produce prosthesis misfit. The current study aimed to evaluate the accuracy of the digital implant impression technique as compared to the conventional techniques.

Material and methods: A definitive maxillary edentulous model with four implants, two of them 10° anterior-posteriorly angulated, and the other two were parallel implants served as the standard reference for making all the impressions and later for accuracy evaluation. Three groups of ten samples were evaluated, first: open-tray implant impression technique, second: closed tray implant impression technique, and last group was Digital implant impression technique. All the models have been saved as standard tessellation language files and converted from 3- Dimensional to 2-Dimensional to calculate the distances between the center of the implants, and the implant angulations measurements by both design programs sketch up, and Auto CAD. Corresponding means for each technique and the definitive reference model were compared by using the t-test test.

Results: There was a statistically significant difference between the digital impression technique models and the reference model concerning the distances between the center of the four implants (A, B, C, and D) with p-value 0.027 and 0.000, respectively. Regarding the angular distortion, there was also a statistical significant difference between the digital and both conventional implant impression models with the reference model.

Conclusion: According to this in vitro study it has been concluded that the digital implant impression models in angulated implants were reasonably better than the traditional open tray and closed tray models, whereby for a long span, a conventional open tray impression technique is preferable.

Key words: Implant, impression, open-tray, intra-oral, scanner, closed-tray, digital implant.