Reg. No: RJ17D0105798 ISSN NO: 2582-0362

HEB JOPD

Journal of Prosthodontics Dentistry
An Official Publication of Bureau for Health & Education Status Upliftment
(Constitutionally Entitled as Health-Education, Bureau)

Advances in Intraoral Digital Impression Techniques: A Comprehensive Review

Dr. Rohit Kumar Singh[1], Dr. Nagaraj M[2], Dr Bhawana Tiwari[3], Dr Komal Maheshwari[4], Dr Suyog Pradhan[5], Dr Abhishek Kumar Gupta[6]

1. *Associate Professor, Department of Prosthodontics, ESIC Dental College & Hospital, Rohini, Delhi*
2. *Dean, Head & Professor, Department of Oral and Maxillofacial Surgery, ESIC Dental College & Hospital, Rohini, Delhi*
3. *Director Professor, Department of Prosthodontics, ESIC Dental College & Hospital, Rohini, Delhi*
4. *Professor, Department of Prosthodontics, ESIC Dental College & Hospital, Rohini, Delhi*
5. *Associate Professor, Department of Prosthodontics, ESIC Dental College & Hospital, Rohini, Delhi*
6. *Assistant Professor, Department of Prosthodontics*

ESIC Dental College & Hospital, Rohini, Delhi

Corresponding Author:

Dr Rohit Kumar Singh, Associate Professor, Department of Prosthodontics, ESIC Dental College & Hospital, Rohini, Delhi

Email Id: serviceheb@gmail.com

Abstract

Background:

Intraoral digital imprints, introduced in the early 1980s with the integration of computer-aided design and computer-aided manufacturing (CAD/CAM) technology, have revolutionized prosthodontics. This technology offers a promising shift towards fully digitalized processes in prosthodontic workflows. Traditional impression techniques have been extensively used, but intraoral digital impressions are gaining attention for their potential benefits, especially in fabricating dental prostheses.

Methods:

This review analyzes existing literature on intraoral digital impression techniques, focusing on the classification of current devices, their operating principles, and performance characteristics. A comparison of intraoral digital impression techniques with conventional methods is made to assess manipulation, accuracy, and repeatability.

Results:

The analysis of published studies suggests that dental prostheses produced using intraoral digital impressions show improvements in several areas over traditional impression methods. Key enhancements include better accuracy, ease of manipulation, improved patient comfort, and increased repeatability of results. Current intraoral digital imprint devices differ in their operational characteristics, allowing for a variety of clinical applications.

Conclusion:

Intraoral digital impression techniques have emerged as a superior alternative to conventional methods, offering significant advantages in prosthodontics, particularly in terms of precision and patient comfort. As the technology continues to advance, it is expected to fully digitize the prosthodontics field, providing more efficient workflows and improved outcomes in dental prosthesis fabrication. Further research and technological refinement will enhance its adoption and effectiveness in clinical practice.

Keywords

Digital impression, Conventional impression, CAD/CAM

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Website:http://heb-nic.in/jopd	
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Accepted on 11/12/2024 © HEB All rights reserved	