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Advances in Intraoral Digital Impression Techniques: A Comprehensive Review

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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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