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MODERN APPROACHES TO THE FABRICATION OF COMPLETE DENTURES

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Abstract
Complete dentures remain one of the primary treatment options for edentulous patients despite advances in implant dentistry. Modern prosthodontics has significantly evolved through digital technologies, improved materials, and patient-centered treatment concepts. The aim of this study was to analyze contemporary approaches to complete denture fabrication based on current scientific literature. A narrative literature review was conducted using publications from 2015–2025 indexed in PubMed and Google Scholar. The findings demonstrate that digital workflows, CAD/CAM manufacturing, and improved impression techniques enhance accuracy, reduce clinical visits, and improve patient satisfaction. However, conventional methods remain relevant in specific clinical situations. The integration of digital and traditional techniques represents the current trend in prosthodontics.

Keywords: complete dentures, CAD/CAM dentistry, digital prosthodontics, edentulism, removable prostheses.

Introduction

Complete edentulism continues to represent a significant global health issue affecting functional ability, aesthetics, and quality of life. Conventional complete dentures have long served as the standard rehabilitation method. However, modern dentistry increasingly incorporates digital technologies and biomaterials to improve treatment outcomes.

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The introduction of digital impressions and CAD/CAM systems allows prostheses to be designed virtually and fabricated with high precision, reducing human error and laboratory variability.

The purpose of this study is to evaluate modern fabrication approaches and their clinical advantages.

Materials and Methods

A literature review was performed analyzing peer-reviewed articles, textbooks, and clinical studies published between 2015 and 2025. Sources were selected based on relevance to: digital denture fabrication, impression techniques, occlusal registration, patient outcomes.

Comparative analysis between conventional and digital workflows was conducted.

Results

Digital Denture Workflow. Digital fabrication includes intraoral scanning, virtual design, and milling or 3D printing. Advantages include: fewer appointments, standardized production, reproducibility.

Conventional Techniques. Traditional methods involve functional impressions, wax try-ins, and laboratory processing. These techniques allow individualized adjustments but require more clinical time.

Hybrid Protocols. Modern practice increasingly combines digital design with conventional clinical verification.

Discussion

Digital dentures demonstrate improved accuracy and reduced polymerization shrinkage. Clinicians report better fit consistency and easier duplication. However, limitations include equipment cost and learning curve.

Conventional approaches remain valuable for patients with severe ridge resorption or complex anatomical conditions.

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Conclusion

Modern denture fabrication integrates digital technologies with established prosthodontic principles. The future lies in hybrid workflows tailored to patient needs.

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