



# The Evolution of Digital Dentistry: Impact on Prosthodontics and Periodontics

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## INTRODUCTION

Digital dentistry has rapidly transformed the landscape of dental care, bringing about a paradigm shift in both prosthodontics and periodontics. The integration of digital technologies such as 3D printing, intraoral scanners, and computer-aided design/computer-aided manufacturing (CAD/CAM) systems has revolutionized the way dental practitioners approach diagnosis, treatment planning, and the fabrication of dental restorations. This article explores the evolution of digital dentistry, its impact on prosthodontic and periodontal practices, and the benefits it offers to both clinicians and patients. The advent of digital dentistry has introduced significant advancements in prosthodontics, particularly in the precision and efficiency of dental restorations. Traditionally, the fabrication of crowns, bridges, and dentures relied on manual impressions and labour-intensive laboratory processes, which were time-consuming and prone to human error. Today, digital impressions captured by intraoral scanners eliminate the need for messy impression materials and reduce the margin for error.

## DESCRIPTION

These digital impressions are highly accurate, capturing detailed topography of the patient's oral cavity in a matter of minutes. This accuracy translates into better-fitting restorations with fewer adjustments required, enhancing patient comfort and satisfaction. CAD/CAM technology further streamlines the restorative process by allowing for the design and milling of prosthetic components directly from digital impressions. The integration of CAD/CAM systems in dental laboratories and clinics enables the production of restorations in a single visit, a concept known as "chairside" dentistry. This approach not only saves time for both the patient and clinician but also reduces the number of visits required, which is particularly beneficial for patients with busy schedules or those with dental anxiety. The

use of biocompatible materials in digital prosthodontics, such as zirconia and lithium disilicate, ensures durable and aesthetically pleasing restorations that mimic the natural appearance of teeth. In periodontics, digital technologies have also made significant contributions, particularly in the diagnosis and treatment of periodontal diseases. Cone Beam Computed Tomography (CBCT) provides three-dimensional imaging of the jawbone and surrounding structures, offering unparalleled visualization of periodontal conditions. This detailed imaging is crucial for accurate diagnosis, especially in complex cases where bone loss or other abnormalities are present. CBCT also plays a pivotal role in the planning of dental implant placements, allowing for precise placement of implants with minimal risk to adjacent structures. Laser technology, another digital advancement in periodontics, has transformed the treatment of periodontal disease.

## CONCLUSION

The evolution of digital dentistry has profoundly impacted prosthodontics and periodontics, enhancing the precision, efficiency, and quality of care provided to patients. The integration of digital tools such as intraoral scanners, CAD/CAM systems, CBCT, and lasers has streamlined clinical workflows and improved diagnostic and therapeutic outcomes. As digital dentistry continues to evolve, it holds the promise of further advancements that will continue to transform the field, benefiting both clinicians and patients alike. Embracing these technologies is essential for modern dental practices aiming to provide the highest standard of care.

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## CONFLICT OF INTEREST

The author's declared that they have no conflict of interest.

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