



## The Revolution of 3D Printing in Dentistry

In the realm of modern dentistry, advancements in technology continue to reshape the way oral health care is provided. Among these innovations, 3D printing has emerged as a game-changing tool, offering unprecedented possibilities for personalized treatment solutions. The recent International Dental Show (Cologne, Germany) this March demonstrated the significance of 3D printing in dentistry and its potential to revolutionize oral health care, improving patient outcomes and increasing accessibility of dental treatment. The current developments are truly fueling scientific progress. But which areas are—or soon will be—influenced by the new technology?

### PRECISION AND PERSONALIZATION

Traditional dental procedures often involve a time-consuming and labor-intensive process of manual fabrication. However, with the advent of 3D printing, dental professionals now have the power to create highly accurate and customized dental prostheses, implants, and models. By leveraging computer-aided design (CAD) software and state-of-the-art 3D printers, the dental industry can achieve a high level of precision in dental restorations. Furthermore, patient-specific anatomical models enable dentists to plan treatments with greater accuracy, leading to improved (esthetic) results.

### STREAMLINING WORKFLOW AND EFFICIENCY

Implementing 3D printing technology in dental practices streamlines the workflow, reducing the time and effort required for various dental procedures. With the ability to rapidly produce dental appliances and models, clinicians can expedite treatment processes, minimizing patient discomfort and time spent in the dental chair. Additionally, the digitization of dental records and the utilization of cloud-based storage systems allow for seamless communication between dental teams, laboratories, and patients. This integration of technology significantly enhances overall efficiency and productivity within the dental practice.

### ADVANCEMENTS IN MATERIALS AND BIOCOMPATIBILITY

The continual evolution of materials compatible with 3D printing has paved the way for further innovation in dentistry. Biocompatible resins, metals, and ceramics are now readily available, allowing the production of dental restorations that closely mimic natural teeth in terms of strength, durability, and esthetics. In addition, the flexibility of 3D printing also enables the fabrication of complex geometries.

### IMPROVED ACCESSIBILITY TO ORAL HEALTH CARE

3D printing technology holds tremendous potential for improving accessibility to oral health care, particularly in underserved communities. By reducing the costs and complexity associated with traditional manufacturing methods, 3D printing can make dental prostheses and appliances more affordable and readily available. Furthermore, teledentistry, combined with

3D printing capabilities, enables remote communities to receive accurate and timely diagnoses, as well as access to customized dental solutions. This inclusive approach to oral health care has the potential to globally bridge the gaps in dental treatment accessibility.

### **EMPOWERING SCIENTIFIC PROGRESS**

The integration of 3D printing in dentistry not only benefits patient care but also drives scientific progress and innovation. Researchers and dental professionals now have the ability to experiment with novel materials, optimize manufacturing processes, and explore cutting-edge applications. From bioprinting of living tissues to the development of regenerative dental therapies, 3D printing promises to unlock new frontiers in dental research, contributing to the advancement of the entire health care field.

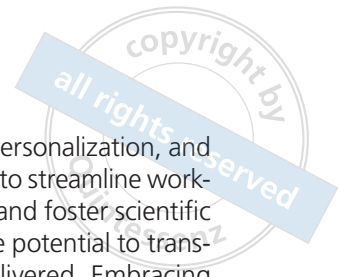
In conclusion, the emergence of 3D printing in dentistry represents a paradigm shift, propelling the field toward

a future characterized by precision, personalization, and improved accessibility. With its ability to streamline workflow, enhance treatment outcomes, and foster scientific progress, 3D printing offers immense potential to transform the way oral health care is delivered. Embracing this technology with scientific rigor, dental professionals can evolve in a new era of patient-centered care where customized solutions and improved oral health outcomes are within reach for all.

Because of these constantly evolving advances and indications, we have begun work on a supplemental issue of IJP focused on this topic—look out for it!

On behalf of the entire Editorial Board team,

**Irena Sailer, Editor-in-Chief**



## In Memoriam: Lori Bateman

Quintessence Publishing has lost a dear friend and valued colleague in the passing of Lori Bateman. Lori was part of the Quintessence family for over 30 years and retired in 2022 as the director of journal publications. While her retirement was cut short due to her lung cancer diagnosis, she still got to enjoy some time in her garden, in yoga class, and with her daughter, Anna.

During her time at Quintessence, Lori developed invaluable relationships with our authors and editors-in-chief as well as with industry partners, and she leaves a legacy in the journals she helped to build: *The International Journal of Oral & Maxillofacial Implants*, *the Journal of Oral & Facial Pain and Headache* (formerly *Journal of Orofacial Pain*), *The International Journal of Periodontics & Restorative Dentistry*, and *The International Journal of Prosthodontics*. She also had an indelible impact on countless staff, including the many editors she developed to work alongside her as well as others who have come and gone over the years. She planted the seeds for a department built on thoughtfulness, care, and of course editorial precision, and those seeds have taken root and continue to sprout in her absence.

For the staff at Quintessence, Lori was a colleague and a friend, but for me personally, Lori was a heart and a compass. In business, there are always the hard decisions that need to be made, but Lori helped me to temper them with empathy and understanding for our editors-in-chief, our contributors, and our authors. Lori cared so much for the people she worked with.

Lori will always be part of our Quintessence family, even if she is no longer with us. She will be remembered as a sharp mind, a kind soul, and a trusted friend. Rest in peace, Lori.

### William Hartman

Executive Vice President & Director  
Quintessence Publishing

