Innovations in digital dentistry: Enhancing patient care and outcomes.

Ruffle Collard*

Faculty of Medicine, University of Toronto, Toronto, ON, Canada

Introduction

It explores the transformative impact of digital technologies on modern dental practice. From diagnostic imaging to treatment planning and fabrication of restorations, digital dentistry has revolutionized the way dental professionals deliver care, leading to improved patient experiences and outcomes.

Digital diagnostic imaging technologies, such as cone-beam computed tomography (CBCT) and intraoral scanners, have replaced traditional film-based radiography and physical impressions. CBCT provides high-resolution, three-dimensional images of the teeth, jawbone, and surrounding structures, allowing for more accurate diagnosis and treatment planning, particularly in complex cases such as implant placement and orthodontic treatment [1-5].

Intraoral scanners capture detailed digital impressions of the patient's dentition, eliminating the need for messy impression materials and uncomfortable trays. These digital impressions can be quickly and easily transmitted to dental laboratories for the fabrication of restorations, reducing turnaround times and enhancing overall efficiency.

CAD/CAM technology enables the design and fabrication of dental restorations, such as crowns, bridges, and veneers, with unparalleled precision and efficiency. With CAD/CAM systems, dental professionals can digitally design restorations chairside or in collaboration with dental laboratories, eliminating the need for traditional wax-ups and manual sculpting.

Once the restoration is designed, CAD/CAM milling units fabricate the restoration from a block of ceramic or composite material, producing highly aesthetic and durable restorations in a fraction of the time required for traditional laboratory fabrication methods [6-10].

Digital dentistry has revolutionized implant dentistry through guided implant surgery technology. By merging CBCT data with digital impressions and virtual treatment planning software, dental professionals can precisely plan implant placement and design custom surgical guides to ensure optimal implant positioning and angulation.

Guided implant surgery enhances accuracy, minimizes surgical complications, and facilitates faster healing and osseointegration, leading to improved implant success rates and patient satisfaction.

Virtual treatment planning software allows dental professionals to simulate orthodontic treatment outcomes and prosthodontic restorations before initiating treatment. By digitally manipulating virtual models of the patient's dentition, clinicians can visualize the anticipated results, make informed treatment decisions, and communicate treatment goals with patients effectively.

Virtual treatment planning and simulation empower patients to participate actively in their treatment process, leading to greater satisfaction and improved treatment adherence.

The integration of digital technologies has facilitated the adoption of tele-dentistry and remote monitoring solutions, allowing dental professionals to provide virtual consultations, monitor treatment progress remotely, and deliver follow-up care more conveniently.

Tele-dentistry enhances access to care, particularly for underserved populations and patients with limited mobility or transportation barriers. It also enables dental professionals to triage emergencies, provide timely advice, and optimize appointment scheduling, ultimately enhancing patient care and satisfaction.

Conclusion

"Innovations in Digital Dentistry: Enhancing Patient Care and Outcomes" underscores the transformative role of digital technologies in modern dental practice. From diagnostic imaging to treatment planning, fabrication of restorations, and remote monitoring, digital dentistry has revolutionized the way dental professionals deliver care, leading to improved patient experiences, enhanced clinical outcomes, and greater efficiency. As digital technologies continue to evolve, the future of dentistry promises even more innovations and opportunities to enhance patient care and outcomes.

References

1. Veličković TĆ, Gavrović-Jankulović M. Food allergens: Biochemistry and molecular nutrition. Springer; 2014.
2. Foster AP, Knowles TG, Moore AH, et al. Serum IgE and IgG responses to food antigens in normal and atopic dogs, and dogs with gastrointestinal disease. Vet Immunol Immunop. 2003;92(3-4):113-24.
3. Dong H & Rowland I. Immunomodulatory effects of a probiotic drink containing Lactobacillus casei Shirota in healthy older volunteers. Euro J Nut. 2013;52:1853-63.

***Correspondence to**: Ruffle Collard, Faculty of Medicine, University of Toronto, Toronto, ON, Canada. E-mail: collar@sfu.ca

***Received:** 11-May-2024, Manuscript No. AACDOH-24-136289; **Editor assigned:** 12-May-2024, PreQC No. AACDOH-24-136289(PQ); **Reviewed:** 18-May-2024, QC No. AACDOH-24-136289; **Revised:** 22-May-2024, Manuscript No. AACDOH-24-136289(R); **Published:** 29-May-2024, DOI: 10.35841/aacdoh-8.3.208*

***Citation:** Collard R. Innovations in digital dentistry: Enhancing patient care and outcomes. J Clin Dentistry Oral Health. 2024;8(3):208*

4. Lauritzen L. Fish oil supplementation of lactating mothers affects cytokine production in 2 1/2-year-old children. Lipids. 2005;40(7):669-76.
5. Roy R & Kumar S. Zinc oxide nanoparticles provide an adjuvant effect to ovalbumin via a Th2 response in Balb/c mice. Int Immun. 2014;26(3):159-72.
6. Esterházy D & Canesso MC. Compartmentalized gut lymph node drainage dictates adaptive immune responses. Nature. 2019;569(7754):126-30.
7. Mulder IE. Environmentally-acquired bacteria influence microbial diversity and natural innate immune responses at gut surfaces. BMC biology. 2009;7:1-20.
8. Shakya AK. Microneedles coated with peanut allergen enable desensitization of peanut sensitized mice. J cont rel. 2019;314:38-47.
9. Tordesillas L & Berin MC . Immunology of food allergy. Immunity. 2017;47(1):32-50.
10. Shu Q. Kiwifruit extract enhances markers of innate and acquired immunity in a murine model. Food agr immun. 2008;19(2):149-61.

Citation: *Collard R. Innovations in digital dentistry: Enhancing patient care and outcomes. J Clin Dentistry Oral Health. 2024;8(3):208*