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Digital Dentistry: The Start of the Revolution

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Abstract: The digital revolution in dentistry is the future, not just a passing fad. With these developments, patients can anticipate receiving dental care that is more accurate, effective, and customized. As technology develops further, there are countless ways to improve your smile. Your next dental appointment may surprise you with how much more digital it has become.

Keywords: 3D Printing; intraoral scanners; artificial Intelligence; tele-dentistry; digital Smile; smart materials

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The dentistry sector is undergoing a huge transition, especially to the digital revolution. Advanced technology are not only boosting the precision and efficiency of dental procedures but also transforming the patient experience. What does the digital era hold for your smile in the future?

1. Intraoral Scanners Revolution

We can now obtain 3D information for the implementation of a prosthetic Computer Assisted Design (CAD) project by performing an intraoral scan of one or more prosthetic preparations using powerful intraoral scanners. Using the modelling software, we can create our restoration, which will subsequently be milled in a highly aesthetic material (ceramic, lithium disilicate, zirconia) and applied to the patient. The same is true for implants; our patients have never liked the need to take traditional physical impressions using impression trays. Concurrently, bone-related data obtained by low-dose radiation Cone Beam Computed Tomography (CBCT) can be superimposed on data pertaining to teeth and gingiva obtained from an intraoral scan. Thus, using software to direct the procedure, it is possible to plan the ideal implant placement. A surgical template, which can be physically constructed using a variety of techniques and materials, receives planning data. By using this guide, the surgeon will be able to place the implants precisely without having to lift a flap.

2. Digital Revolution and 3D Printing

The days of making dental impressions using unpleasant molds are long gone. Your teeth can now be imaged with accuracy, speed, and comfort thanks to digital scanners. Dental labs that use 3D printing technology to create crowns, bridges, and other dental prosthesis can instantaneously access this data. A quicker turnaround time and a flawless fit are the outcomes, guaranteeing that your smile feels and looks natural. One of the most innovative advancements in digital dentistry is 3D printing. It makes it possible to produce dental prosthesis including crowns, bridges, and dentures quickly and accurately like never before. Because custom-fit devices can be created quickly and effectively, this technology decreases the amount of time patients spend in the chair and the number of visits needed.

3. AI-Powered Diagnostics and Treatment Planning

Artificial Intelligence (AI) is playing an increasingly crucial role in dentistry. AI-powered systems can analyze dental photos with astonishing precision, enabling dentists discover diseases like cavities, gum disease, and even oral tumors at an early stage.

Furthermore, by forecasting results and recommending the best course of action, AI helps with treatment planning. In dentistry, artificial intelligence (AI) is starting to revolutionize the game. Dental photos may be analyzed with remarkable accuracy by AI-powered diagnostic systems, which can spot problems that the human eye might overlook. Better results can also be achieved by using AI to help create personalized treatment plans based on each patient's particular oral health pro-file.

4. Tele-dentistry

As tele-dentistry has grown in popularity, patients can now consult with their dentists from a distance. Whether it's for a follow-up appointment, a consultation for a second opinion, or just advice on a dental concern, tele-dentistry offers convenience without compromising the quality of care, which is especially helpful for patients who live in remote areas or have mobility issues.

5. Digital Smile Design

A state-of-the-art method called Digital Smile Design (DSD) plans and visualizes your dental procedures using digital technology before they start. You can see a virtual representation of your new smile with DSD, which helps you decide on your course of treatment. This individualized approach guarantees that the outcome will precisely match your expectations.

6. Smart Dental Devices

In the field of oral care, wearable technology and smart dental gadgets are becoming more widespread. These advancements are enabling patients to take charge of their oral hygiene like never before, from smart toothbrushes that track your brushing habits and provide feedback to devices that check the health of your teeth and gums.

7. Bioprinting and Regenerative Dentistry

Going forward, regenerative dentistry and bioprinting have the potential to completely transform the way we provide dental care. While regenerative techniques may eventually allow for the regrowth of damaged or lost teeth, bioprinting may make it possible to create living tissues for dental repairs.