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An Insight of 3D printing in dentistry

ABSTRACT:

Three dimensional (3D) printing refers to the manufacturing technologies that create physical 3D models from digital virtual information. The term “3D printing” was coined by Prof. Ely Sachs, in 1995 while working on his project to modify an inkjet printer.

There are several phases to progress from a digital model to a printed replica including: image acquisition, image processing, 3D model creation, and translation of model data to 3D printer language and post processing. Types of 3D printing technologies are broadly classified into sintered powdered, thermoplastic, light cured resin and powder binder.

The 3D printing scopes in different disciplines of dentistry includes, in Oral and Maxillofacial Surgery medical modelling, anatomical ‘study model, drill guides and cutting guides allows a virtual 3D plan. In prosthodontics, Crown copings and partial denture frameworks. In conservative dentistry Dental models for restorative dentistry. Patient model data may be digitally archived, and only printed when needed. In Orthodontics, the Envisaging system digitally realigns the patients’ teeth to make a series of 3D printed models for the manufacture of ‘aligners’, which progressively reposition the teeth over a period of months/years.

The potential applications in different fields includes, Forensic Archaeology, Forensic Medicine, Forensic Anthropology, Forensic Taphonomy, Forensic Odontology, Forensic Engineering, Facial Reconstructions, Crime Scene Reconstruction, Ballistic Reconstructions, Pattern and Impression Evidence.

In Forensic Odontology the 3D printing technology helps in Dental age estimation, Human. identification, Sex Determination, Bite mark analysis, 3D-computed tomography facial reconstruction and in Cheiloscopy

Biography

Dr. Humera Ayesha has completed her graduation and post-graduation from Al Badar Dental College & Hospital Gulbarga affiliated to Rajiv Gandhi University of Health Sciences, Bengaluru which is NAAC Accredited. She obtained the position of Senior Lecturer in the same institute. She published her research articles in National and International Journals. She had participated her scientific paper and poster presentation in National and International conferences

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