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Editorial

LASERS: A Boon in Prosthodontics

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Editorial

In the era of technological advancements, one of the most significant innovation is the "LASER". An acronym "LASER" stands for "Light Amplification by Stimulated Emission of Radiation." Earlier, the term LASER was pronounced as "MASER" i.e. "Microwave Amplification by Stimulated Emission of Radiation." LASER is a monochromatic and coherent light that is produced by the release of more photons which triggers a chain reaction. The laser compartment consists of six major components, which is important to understand the production of light. LASERs have also been an integral part of dental sciences and helped to provide standard care particularly in the field of Prosthodontics [1]. Lasers interact with the biological tissues by the process of absorption, reflection, transmission and scattering.

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A wide variety of Laser's are being used and upgraded at a very fast pace keeping in view the success rates of various treatments performed under LASER [2]. Based on this, they have been classified generally as soft tissue and hard tissue laser. Soft tissue lasers include – CO_2 lasers, argon lasers, diode lasers, Nd: YAG lasers etc. Out of this, diode lasers have gained a lot of popularity, keeping in view their arena of applications in dentistry. Hard tissue lasers include Er: YAG laser. Lasers can also be classified according to the wavelength i.e. the ultraviolet spectrum range (approximately 400 nm), the visible spectrum range (approximately 400-700nm), and the infrared spectrum range (approximately 700 nm to the microwave spectrum) [3].

Keeping in view the diversified applications of Lasers, they have a very wide arena of applications particularly in the field of Prosthodontics i.e. removable, fixed, implants, maxillofacial and aesthetics. Lasers in removable prosthodontics generally include the management of various pre-prosthetic surgeries to improve the foundation and longevity of the prosthesis. This includes removal of the soft tissues associated with an ill-fitting prosthesis and exposing more hard bone, removal of exostosis & tori, fibromas,

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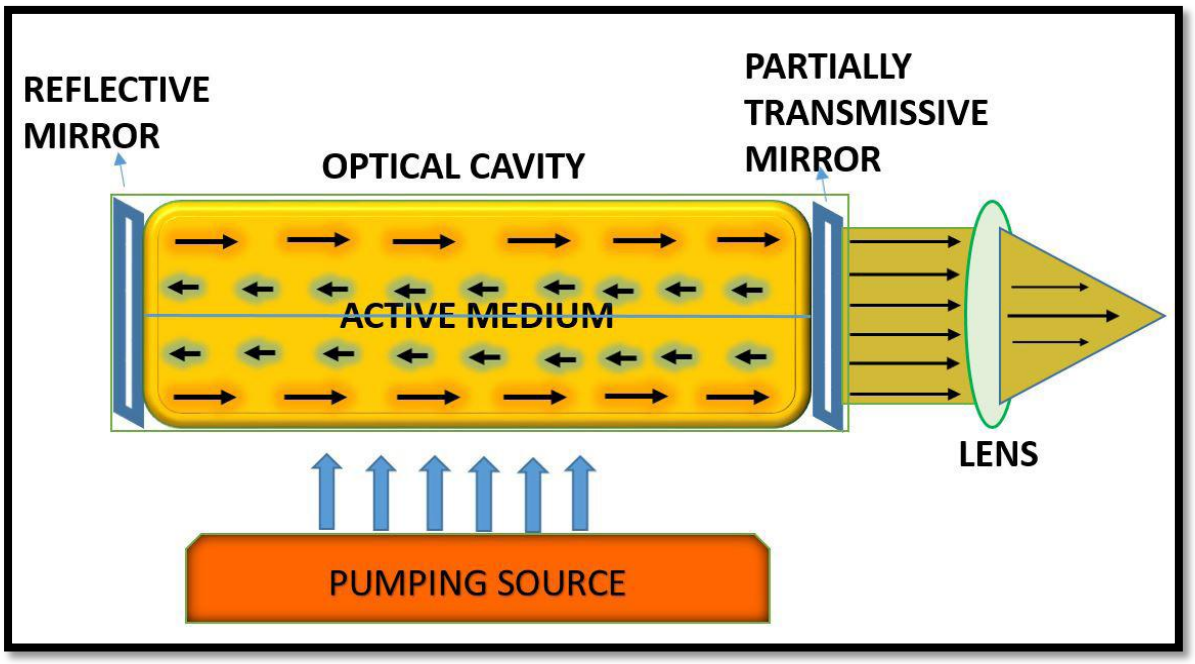
frenectomies, vestibuloplasties, treatment of enlarged maxillary tuberosity, alveolar ridge undercuts, unsuitable alveolar ridges, management of epulis fissuratum, denture stomatitis. Recently, complete dentures have been fabricated using laser 3D printed approach4. Not only this, the accuracy of impressions and occlusion can also be studied in the best possible manner. In partial dentulous situations involving fabrication of cast partial denture (CPD), there are times when the components of CPD are broken. Henceforth, Lasers have been used as a modality to weld the broken parts in CPD with the process of Laser Beam Welding. In consideration to lasers in fixed prosthodontics, they can be used for crown lengthening or coronary elongation, tooth preparation for various designs, troughing or trough placement to avoid cord placement, modification of soft tissues around laminates, management of soft tissues around the abutment, osseous crown lengthening, altered passive eruption management, the formation of oval pontic sites, easy removal of veneer, bleaching, treat dentinal hypersensitivity or dentinal decontamination with high-level laser therapy (HLLT), reduce gingival and subgingival inflammation with low-level laser therapy (LLLT) and provides good design for pontics. Lasers have also done wonders in the field of implantology i.e. implant recovery during 2nd stage surgery for conventional as well as for the mini-implant placement, implant site preparation, removal of diseased tissue and debridement of the implant-abutment interface around the implant to reduce the chances of peri-implantitis, soft- tissue lesions and repair of the ailing implant. In aesthetics, lasers have done exceptionally well in recreating smiles and for maxillofacial prosthetics, it can be used as a tool for bioprinting from 3D printers to ensure reconstruction of both hard and soft tissues [5].

Figure 1: Schematic figure representing the basic components of a LASER compartment.



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Keeping in view a majority of applications, Lasers are now an integral part of dentistry, playing a vital role in all fields of dentistry. Laser offers shorter and painless procedure with minimal or no discomfort and less damage to the surrounding tissue, It is an effective and excellent method to be used in various applications for both hard and soft tissues. The general practitioner or anyone practicing laser in dentistry needs to learn new skills to practice safely this magical technology to improve the longevity of the treatment.

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