2-day Program on Clinical Laser Dentistry

Topics Include

1. Introduction, Principles, Philosophes and Objectives of the course
2. Evolution of lasers
3. Laser Fundamentals science
4. Lasers in Endodontics and Restorative dentistry
5. Lasers in non-surgical Periodontology
6. Laser assisted Periodontal surgery
7. Lasers in Fixed prosthetic and cosmetic reconstruction
8. Lasers Bleaching
9. Lasers in Paediatric dentistry
10. Photodynamic therapy
11. Laser safety

Evolution of lasers

- Early Published Theories of Light
- Theodore Maiman
- Einstein's "Splendid Light"
- Development Of Quantum Theory
- Masers and Lasers

Fundamentals science of lasers: What is a laser?

- Light
- Amplification
- Stimulated Emission
- Radiation

Classification of lasers

- Based on wavelength
- Based on type of tissues
- Based on Active medium

Parts of a laser

- Power source
- Laser cavity
- User interface

- Delivery system (Types and Fluence depending on spot size)
- Activation system
- Safety system

Tissue interactions: How does a laser work?

- Theory of RATS
- Chromophore specificity
- Sergio Schettini's principle of tissue- temperature

Key Parameters: How to work with lasers?

- Power settings
- Pulse settings
- Tissue type
- Tip type
- Tip initiation
- Tip position
- Tip motion

Lasers in Endodontic Practice

- Pulp Diagnosis (Laser Doppler Flowmetry)
- Pulp Capping and Pulpotomy
- Root canal sterilization (Laser vs. Conventional vs. Advanced techniques)
- Obturation of the Root Canal System
- Endodontic Retreatment
- Apical Surgery
- Lasers in Restorative dentistry

Laser Assisted Non-Surgical Periodontal Therapy

- Rationale of laser application in periodontal disease
- Sulcular debridement with Fiberoptic laser delivery
- Healing and tissue rehabilitation
- Complications and adverse reactions
- Appointment wise protocol

Lasers in Surgical Periodontics

- Gingival depigmentation
- Gingivectomy
- Frenectomy
- Mucogingival Surgery
- Crown Lengthening

- Periodontal Surgery
- Postoperative Instructions
- Regeneration
- Lasers in Flap Procedures
- Advantages of Laser Surgery

Lasers in fixed prosthetic and cosmetic reconstruction

- Laser wavelengths for cosmetic/ prosthetic procedures,
- Soft tissue troughing with and without gingivoplasty
- Crown lengthening procedures
- Soft tissue ovate pontic site formation

Low level Lasers in dentistry

- History
- Therapeutic Lasers,
- Mechanisms of Action (ATP and NO pathways)
- Cellular effects of LLLT
- Dosimetry- Arndt Schultz law, Handpieces and their calculation- Power and time
- Acute vs. Chronic Conditions
- Pulsing
- Number of Sessions
- Applications of LLLT
    1. Aphthous Ulcer
    2. Endodontics
    3. Implantology
    4. Inflammation
    5. Mucositis
    6. Pain
    7. Paraesthesia
    8. Pericoronitis
    9. Periodontics
    10. Bone regeneration
    11. Dentinal Hypersensitivity
    12. Temporomandibular Disorders
    13. Wound Healing
- Side effects and Contra indications

Photodynamic therapy : Briefly

- Introduction
- Mechanism
- Photosensitizers
- PAD in Endodontics
- PAD in Periodontics
- PDT in Oncosurgery
- Advantages over conventional treatment

Laser Safety : Briefly

- Classification
- Ideal laser operatory
- Precautions taken by the operator
- Laser regulatory Agencies