

The Latest Clinical Research Results with LightWalker

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SUMMARY

Since the laser was introduced in dentistry, a continuing interest has been shown by clinicians and researchers. The Er:YAG laser is a promising technology with various applications in every field of Dentistry. Compared with other lasers, the Er:YAG laser can effectively alter enamel and dentin surfaces due to its 2.94 μm wavelength emission.

The LightWalker device is a very effective device which combines the advantages of two different wavelengths (2.940 and 1.064 μm). The LightWalker's X-Runner handpiece further provides a higher precision of irradiation and depth of ablation with a reduced treatment time.

Er:YAG lasers are also very effective in ceramic restoration debonding. It is well known that the Er:YAG laser is highly absorbed in composite resins and is a safe and effective option, which is already used for the removal of composite resin fillings in the clinic. The transmission of the Er:YAG laser beam through ceramic restorations enables the debonding of ceramics from the tooth structure.

In the past 30 years, there has been growing interest in investigating the effects of Low Level Laser Therapy and its various clinical applications in different medical specialties, as either a single or a complementary therapy. According to the results of a recent clinical study, Low Level Laser irradiation with Nd:YAG laser (1064 μm) for pain reduction was very successful in patient treatments with myofascial pain dysfunction syndrome.

This presentation summarizes the different treatment options of the LightWalker device in the light of current literature and case presentations.

EBD – Nd:YAG versus Diode Laser-Tissue Interactions in the Near-Infrared Spectrum; Advantages and Disadvantages of the Most Commonly used Laser Wavelengths

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SUMMARY

A comparison is presented of the abilities of the neodymium lasers and diode lasers, both of which emit near-infrared light. Based on quotes from the global scientific literature in the field, the presentation highlights the advantages and disadvantages of different wavelengths allocated to the different specialties in dentistry. The near-infrared zone is characterized by an excellent absorption of energy in pigments - chromophores (strong absorbers) in the tissue, most preferably hemoglobin and melanin. This fact qualifies the use of lasers for soft tissues, such as periodontal applications and surgery, but also for endodontic disinfection.

A good balance between absorption and controlled penetration provides opportunities for popular diode lasers, with effects approaching those of the gold-standard Nd:YAG lasers. Laser-tissue interactions, with a different specificity for each wavelength, even in the narrow range of around 1 micrometer, demands that we make the best selection and use of lasers for any particular manipulation.

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