

Benefits of Dental Lasers in Oral Surgery

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DESCRIPTION

A dental laser is a medium that is specifically intended for use in oral surgery or dentistry. There are several distinct wavelengths of dental lasers in use, which means they are better suited for various uses.

Soft tissue lasers

Soft tissues, such as the gingivae, are poorly absorbed by diode laser wavelengths in the 810-1,100 nm range, hence they cannot be used for soft tissue cutting or ablation. Instead, the burnt distal end of the diode's glass fibre is heated by the 810-1,100 nm laser beam, which then heats up the glass fiber's tip. The hot charred glass tip cuts the delicate tissue as it comes into contact. This is used for gingivectomy, frenectomy, Pericoronitis therapy, and exposing of superficially impacted teeth, among other treatments. The Michigan School of Dentistry was the first to employ this strategy.

Gingivectomy, periodontal sulcular cleaning, LANAP, frenectomy, biopsy, and coagulation of graft donor sites are all soft tissue operations that are performed using Nd:YAG lasers. The wavelength of the Nd:YAG laser is partially absorbed by tissue pigments like haemoglobin and melanin. Periodontal pockets are frequently debrided and cleaned with these lasers. They can close treatment pockets because of their coagulative ability to produce fibrin.

The CO₂ laser is still the finest surgical laser for soft tissue where photothermal cutting and hemostasis are achieved (radiantly).

Soft and hard tissue lasers

Erbium lasers can be used on both hard and soft tissue. They can be widely used for a variety of dental treatments, and they

enable for the completion of more procedures without the use of lidocaine. Erbium lasers can be utilised for hard tissue treatments such as bone cutting while causing minimum heat and mechanical stress to the surrounding tissues. These hard tissue operations have a very good recovery rate. In comparison to CO₂ lasers, erbium lasers have reduced hemostasis and coagulation capabilities in soft tissue applications. Gum depigmentation was proven to be effective using the Er, Cr:YSGG laser. The new CO₂ laser, which operates at 9,300 nm and is the newest alternative to erbium lasers, has substantial absorption in both soft and hard tissue. The 9,300 nm laser ablates hard tissue at heat above 5,000 degrees Celsius, culminating in brilliant thermal radiation. Hard tissue lasers are incapable of performing some routine operations in the treatment of cavities.

Dental caries removal

There were three types of lasers used: Er: YAG, Er: Cr: YSGG, and Nd: YAG. They were unable to suggest one approach of caries removal over the other due to the low quality of evidence presented. There was no evidence that the marginal integrity or sustainability of the restorations placed significantly. However, there was some evidence that the laser was less painful than the drill and required less anesthetic.

CONCLUSION

Dental lasers, on the other hand, have some advantages, such as reducing morbidity post surgery and reducing the need for anesthetics. Following soft tissue treatments, there will be less bleeding due to tissue cauterization, and some of the hazards associated with alternative electro surgery procedures will be avoided. Moreover, when compared to pneumatic dental drills, the use of dental lasers is associated with reduced vibration and a more desirable noise profile.

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