

Benefits of Phototherapy



Phototherapy has been proven useful for its ability to interact with and manipulate biological tissues. Lasers have been widely accepted among medical, dermatological and aesthetic professionals, and now also are quickly becoming the dental industry's "standard of care."

Newer lasers continue to drop in price, contributing to their popularity and marketability. In turn, dental treatments can be offered at more economical rates, saving patient and practice alike both costs and time. Dental hygienists are taking advantage of lasers' absorptive properties, by using them in Phase 1 nonsurgical perio therapy to treat ulcerated tissue that's been damaged by inflammation. Laser curettage, or sulcular debridement, is considered a regenerative and reparative procedure, intended to stimulate the proliferation of long junctional epithelium.

The lasers most commonly used in today's market have been redesigned to operate at lower power settings, enabling practitioners to provide more-therapeutic and less-invasive procedures with greater ease and comfort. These lasers, namely diodes, emit low-level heat and photonic energy, harnessed from specific wavelengths of the electromagnetic spectrum, capable of cutting and stimulating tissues with precision. Most treatments can be completed at low-dose energy densities with little to no anesthetic, making it the favorable tool of choice.

4 ways to incorporate a diode laser into your practice

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Diode lasers can be easily integrated and add value to your practice in the four following ways:

1 SURGICAL APPLICATIONS



Fig. 1: Frenum treatment was postponed until patient completes orthodontics and retention bonding.

Fig. 1 shows a patient who has been out of orthodontic care for two years, whose chief complaint was a “bump on her gums.” She hadn’t complied with instructions to wear her retainer and her teeth had naturally shifted; it was the consensus of the orthodontist and the general dentist to wait to treat the frenum until after the patient had completed the second round of orthodontics and retention bonding. Who will perform the procedure? In this scenario, the orthodontist would be at an increased advantage to provide this service and allow for better long-term treatment outcome.

A soft tissue laser enables orthodontists to perform with ease cutting procedures they may have been formerly reluctant or unequipped to do. During orthodontic care, orthodontists are the providers who see the patient most frequently, enabling them to provide postoperative follow-up. Some unique clinical benefits of utilizing a laser versus traditional scalpel blade are:

- Decrease in immediate postoperative pain
- Accelerated wound-healing time
- Immediate hemostasis with a clearer surgical field
- Less likely to experience muscular reattachment.



Fig. 2: Precorrection smile line



Figs. 3-4: Postoperative smile line

Figs. 2-4 courtesy of Dr. Christopher Mast in Helena, Montana

2 POSTOPERATIVE AESTHETICS

With lasers, smile-line corrections and gingival recontouring can be done in mere minutes with little to no downtime, and often no anesthetic is necessary, or a simple topical such as TacGel.

Lasers have pulsed-gated emission modes that limit the amount of heat distributed to the tissues, providing patients with a more comfortable experience without painful injections. Patients leave with a better postoperative result than they would with an electro surge, which has been found to be more traumatic and carbonizing to the gingiva. Orthodontists are opting to perform laser treatments in their practices because lasers now produce less thermal and collateral damage, allowing the patient to leave the office with a more aesthetically pleasing result (Figs. 2-4).

Many patients are eager to whiten after they’ve completed orthodontic care. Laser whitening results in less posttreatment hypersensitivity than heat-lamp delivery systems; the photonic energy emitted from the laser is attracted to pigments in the gel solution and can lighten up to four or more shades. As with all whitening, preoperative shade, enamel composition and gel-to-tooth time are all factors in the outcome. Assistants can easily perform this procedure in as little chair time as half an hour (Figs. 5 and 6).

3 PAIN THERAPY

Orthodontics patients are especially prone to tissue trauma from brackets and rogue wire. Soft-tissue lasers have the capacity to provide fast relief for patients with pain from sores and ulcerations because the laser’s energy is attracted to inflammatory cells of the ulcerous tissue. With a therapeutic dosage of phototherapy, herpetic lesions, chancre sores and traumatic ulcers can be alleviated. Fig. 7 shows a patient with a cluster of herpetic lesions in the vesicle stage. Although treating in the prodromal stage is ideal, the clinician achieved complete reversal, saving the patient days of discomfort in having a bloody blister. For this, patients are incredibly grateful.



Fig. 5: During whitening process



Fig. 6: Final result

Figs. 5 and 6 courtesy of Drs. Boyd Patummas and Linda Ma of Smile Innovations in Tempe, Arizona



Fig. 7: Herpetic lesions that can be treated with laser, saving the patient days of discomfort.



Fig. 8: Gingival hyperplasia after a few weeks of bracket placement

Patients who suffer from minor muscular aches and soreness from shifting occlusion or other sources would benefit from “pain therapy.” Some diode lasers available on the market come with accessory wands that allow operators to deliver topical thermal energy to surface layers of tissue, providing temporary relief. This treatment takes less than 10 minutes and is FDA-approved for its ability to create an analgesic effect and muscle relaxation. Patients are treated bilaterally in the three primary regions: the temporalis, the masseter and the temporomandibular joint.

4 INFLAMMATORY PAPILLARY HYPERPLASIA

Orthodontic patients are more susceptible to developing gingival hyperplasia from increased plaque retention and lack of good oral hygiene habits. Fig. 8 was taken only a few short weeks after the patient had brackets placed; inflammatory changes are already visible in the gingival margins. Laser bacterial reduction is a three-minute treatment that can be performed on the entire mouth with no discomfort to the patient. The laser energy

interacts with components of the gingival tissues to stimulate white blood cells, red blood cells and connective tissue fibers to increase blood flow, boost immunities and decrease inflammatory mediators. Laser bacterial reduction can be performed on the entire mouth to decrease the bacterial load by way of protein denaturation.

Conclusion

The success of your laser procedures depends on your working knowledge of laser-tissue interaction and technique, so seek training from a course that provides procedural knowledge through a hands-on simulation of all treatments that would benefit your practice.

Dentists and hygienists used to utilize lasers freely, with nothing more than on-the-job training, online courses or manufacturer-based instructions. Most states have begun to enact laws that require dental providers to attend a “live” certification course before using lasers in their practice. Review your home state’s Board of Dental Examiner’s rules and regulations regarding the minimum required hours and curricula for Class IV laser training. If your state employs a Radiation Regulatory Agency, do not fail to check with them regarding updates, required protocols and registration specifications.

You may be pleasantly surprised as to what a useful addition a laser can be to your specialty practice, with the proper training and protocols in place. By incorporating a laser, you could open a new stream of billable procedures you may have been less than inclined to perform. Additionally, laser integration may provide for new marketing strategies, referral bases and networking opportunities. By investing in a laser, this may place you in a more favorable light in your patient’s eyes, because it will reduce chair time and prove your commitment to quality care. In turn, this will encourage positive word of mouth referrals and overall customer satisfaction.

With a better understanding of what photonic energy is capable of accomplishing within our profession, Orthodontists have the option to move forward with the technology or stay with the blade. ■

References

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