C.E. article
The diode laser as an electrosurgery replacement

trends
Unique maxillary frenectomy with a diode laser

interview
A less invasive, predictable method for treating periodontitis
“More” Human Histology supports LANAP

Cementum-mediated periodontal ligament new attachment to the root surface in the absence of long-junctional epithelium.1

Nevins Histology 2012 Sept/Oct IJPRD - LANAP x 9 months

Human histologic peer-reviewed published manuscript #2

Key: NC = new cementum; NB = new bone; OC = old cementum; d = dentin; JEP = junctional epithelium; N-PDL = new periodontal ligament

Yukna Histology 2007 Nov/Dec IJPRD - LANAP x 3 months

Human histologic peer-reviewed published manuscript #1

Key: N = notch in calculus; B = new bone; C = new cementum; OC = old cementum; JE = junctional epithelium

The periodontal literature rarely has two Human Histological studies to review on the same procedure; but whether you look at the histology, the long-term results, or read the FDA clearance - the clinical results are the same.

Human Histology Results Support Periodontal Regeneration with the LANAP protocol.2,3

All 12 “hopeless” teeth returned to clinical, radiological, and histologic health.

Cementum-mediated attachment/regeneration achieved with the LANAP protocol is highly competitive with any other studies done on regeneration.4

Results you can believe – The LANAP® protocol is no longer a breakthrough periodontitis treatment, it is a paradigm-shifting, well established protocol and standard treatment option with long-term results.5

See for yourself – Learn why over 15% of practicing AAP clinicians offer the LANAP protocol

• Review the two human histology studies2,4
• Review peer-reviewed long-term tooth survival results5
• Review scientific and clinical studies or training session dates at www.lanap.com. (Still registered study at www.clinicaltrials.gov search “LANA”)

Clinical results guaranteed!

Achieve consistent, reproducible, positive clinical results every time with the award-winning PerioLase® MVP-7™

Call today (888) MDT-LANAP or visit www.LANAP.com
Keep up to date with laser

Thanks to laser technology, dental professionals are now able to treat patients in new and innovative ways. But staying on the cutting edge can be a challenge. That’s what makes the publication you are holding right now so valuable.

For this issue of laser, we’ve assembled a collection of articles from some of the most respected names in laser dentistry. These expert clinicians are sharing their knowledge and expertise with you.

Within this issue you can read a case report on a unique maxillary frenectomy using a diode laser by Dr. David L. Hoexter. In addition, Managing Editor Fred Michmershuizen has interviewed Dr. Lloyd V. Tilt about his pioneering research on the LANAP protocol.

But there’s even more.

Every issue of laser magazine also contains a C.E. component. By reading the article on the diode laser as an electrosurgery replacement by Dr. Glenn van As, then taking a short online quiz about this article at www.DTStudyClub.com, you will gain one ADA-CERP certified C.E. credit. Keep in mind that since laser is a quarterly magazine, you can actually chisel four C.E. credits per year out of your already busy life without the lost revenue and time away from your practice.

To learn more about how you can take advantage of this C.E. opportunity, visit www.DTStudyClub.com. Annual subscribers to the magazine ($50) need only register at the Dental Tribune Study Club website to access these C.E. materials free of charge. Non-subscribers may take the C.E. quiz after registering on the DT Study Club website and paying a nominal fee.

I know that taking time away from your practice to pursue C.E. credits is costly in terms of lost revenue and time, and that is another reason laser is such a valuable publication.

I hope you enjoy this issue and that you get the most out of it.

Sincerely,

Torsten Oemus
Publisher
C.E. article
06 The diode laser as an electrosurgery replacement
   Glenn A. van As, BSc, DMD

Trends
16 Unique maxillary frenectomy with a diode laser
   David L. Hoexter, DMD, FICD, FACD

Interview
19 A less invasive, predictable method for treating periodontitis
   Fred Michmershuizen, Managing Editor

About the Publisher
22 Imprint
23 Submissions

On the Cover
Cover image provided by Technology4Medicine.
The Dual Wavelength waterlase™ iPlus
Advancing Laser Technology to Its Ultimate

INTUITIVE & INTELLIGENT GRAPHICAL USER INTERFACE
For example, performing a Class I Cavity Prep with the iPlus™ is as easy as 1,2,3...

Step 1 Select “Restorative” from the first screen
Step 2 Choose “Class I” from the next screen that appears automatically
Step 3 Specify any other concerns such as patient sensitivity or bond strength
That’s it! Step on the foot pedal, and start working.

iLASE™
940nm DIODE LASER DOCKING STATION
- Adds dual wavelength versatility and convenience
- First totally wireless dental laser
- 5 Watts peak power with ComfortPulse™
- Battery operated with finger switch activation
- Exclusive bendable tips in many diameters & lengths

BREAKS THE SPEED BARRIER
- RIR™ powered laser delivers 100 pulses/sec. for superior soft-tissue cutting
- Patented laser technology delivers 10 watts of power
- Enables multi-quadrant same-day procedures

ENABLES BIOLOGICALLY FRIENDLY DENTISTRY
- No micro-fractures or thermal damage
- More precise, minimally invasive

PROVIDES GREAT RETURN ON INVESTMENT
- Increases treatment acceptance of day-to-day restorative cases
- Attracts new patients
- Increases productivity and enables new procedures

©2012

waterlase™ iPlus | www.BIOLASE.com | Toll-free 888-424-5527
In 2008, Dr. Gordon Christensen wrote an article in JADA comparing the soft tissue cutting abilities of diode lasers to those of electrosurgery (radiosurgery) units. In comparing these two technologies against each other, he found that both dental lasers and the less expensive electrosurgery units have advantages and disadvantages, and he summarized with several key points:

1. Although there was considerable overlap in their uses and both technologies were effective, Christensen found that diode lasers were able to be used around metal (amalgam and gold) as well as with dental implants.
2. He stated that lasers did not harm dental hard tissues (bone) or soft tissues (pulp), and that the clinician could use the laser with less anesthetic, and finally he mentioned that lasers were antimicrobial (antibacterial).
3. The acceptance and use of lasers, especially the diode laser, was increasing in dentistry, and that lasers attract patients because of their recognized and accepted role within the field of medicine (LASIK eye surgery).
4. Electrosurgery units were “far less expensive than the least expensive diode lasers” and he questioned whether “the advantages of the diode laser were significant enough to compensate for the additional cost.”
There are two basic types of electrosurgical units that can be purchased in dentistry:

- **Monopolar**, in which a single electrode exists and the current travels from the unit down a single wire to the surgical site. The patient must be grounded with a pad placed behind the patient’s back (a part of the procedure that many patients may question). Heat is produced when the electrode contacts the tissue, and due to pain that is produced, anesthetics must be used.

- **Bipolar**, in which two electrodes are placed in very close proximity to each other. Bipolar units are more expensive than diode lasers and the electrical current flows from one electrode to the other, thus eliminating the need for a grounding pad. Bipolar units, because of the two wires, create less of a precise cut than the monopolar or diode laser.

Although electrosurgical units are inexpensive, require no safety glasses and can remove large amounts of tissue quickly, diode lasers have become much more common in dental operations in the four years since Christensen’s article was published. The primary reason for their increased popularity is that diode lasers have a small footprint, are reliable and durable lasers, and are portable. Where a few short years ago, diode lasers could cost in the range of $10,000 to $15,000, they are now cost effective and can be purchased for less than $2,500.

Table 1. Comparison of diode laser versus monopolar electrosurgery units.

Fig. 2. Gingival hyperplasia around orthodontic appliances.

Fig. 3. Immediate post-op after diode laser gingivectomy completed.

Fig. 4. Eight-day healing of soft tissue around brackets.

Fig. 5. Diode laser for second-stage implant uncovering in edentulous maxilla.
Advantages of the diode laser over electrosurgery

**Ability to work around metals intraorally**

Diode lasers in the range of 810–1,064 nm are well absorbed in hemoglobin, melanin (pigment) and to some degree water (Fig. 1). These mid infrared dental wavelengths in the absorption spectrum offer the dental clinician the ability to ablate soft tissues precisely while controlling hemostasis, providing the clinician with an excellent view of the surgical site with a reduced reliance on sutures. Diode lasers have features that make them attractive as mentioned earlier, but they also have several advantages in function over electrosurgical units (Table 1).

Perhaps the greatest benefit of these lasers is that they allow the clinician to work safely around metals. The literature has shown that monopolar electrosurge units can accidentally create catastrophic results when touching metal intraorally. Published reports have shown that contact for very short periods of time with the electrode of a monopolar electrosurgical unit can cause both pulpal and periodontal problems, bone loss, severe intraoral burns, arcing, and that within three seconds of exposure to a dental implant electrosurgical units can cause failure of osseointegration and loss of an implant.

In clinical practice, with today’s emphasis on the more esthetically pleasing composite resins and newer porcelains, there are still many metallic materials used intraorally, including cast partial denture frameworks, gold, amalgam, orthodontic brackets and semi-precious alloys.

Diode lasers, unlike their electrosurgical counterparts, show little interaction with metallic objects used intraorally. It is important to remember that due to the laser’s ability to reflect off mirrored surfaces and potentially cause eye damage, that all members of the dental team as well as the patient must wear laser safety glasses for eye protection if they are within the nomi-
nal ocular hazard zone (NOHZ) during laser operation. This zone is most often between 3 and 7 feet, but some diodes can have extended NOHZ ranges of 40 feet.

Orthodontic patients will often exhibit gingival hyperplasia when in brackets that can make it difficult to work on them. This overgrowth of tissue can be due to poor oral hygiene, space-closing mechanics, excess cement or a combination of factors. The diode laser can be used for gingivectomies to safely remove and recontour the excess tissue and healing can be remarkable in a very short period of time (Figs. 2–4).

**Ability to work around dental implants safely**

Various laser wavelengths that are available today can offer the clinician who needs to expose an implant during second stage surgery an alternative to traditional methodologies. The ability of the diode laser to ablate tissue, at times without the need for local anesthetic, while controlling hemostasis, provides the clinician a great view of the surgical site.

In addition, the diode wavelength, like all laser wavelengths, provides for decontamination of the implant site through its antibacterial actions. Bacterial reduction with the diode laser can lead to an almost sterile operative field (98 percent reduction of pathogenic bacteria). Finally, there is a growing body of evidence that suggests that lasers used at lower energy settings can have a biostimulatory effect on tissue, which in turn can reduce postoperative discomfort, improve healing and shorten healing times while even improving early osseointegration.10–12

As an aside, there have been clinicians who routinely use monopolar electrosurgery units to expose implants. It is imperative to realize that although more expensive bipolar (two electrodes) electrosurgery units can be used safely around implants, that the more commonly purchased single electrode (monopolar) units may damage the implant surface and can cause complete loss of osseointegration with resulting implant failure with contact times as short as three seconds.13,14 Lasers, in contrast, can be used safely with tremendous coagulation and a reduction in pain postoperatively for the patient15 (Figs. 5, 6)
Diode lasers are also useful when it comes time to seat the final abutment and restoration. Tissue management around dental implant restorations can be difficult, be it for the initial cementation or, even worse, if an implant-restored crown comes loose. Tissue quickly slumps onto the abutment, and subgingival margins can be almost impossible to retrieve with traditional methodologies. The laser can truly be a “life-saver” for these situations where soft tissue must be safely and quickly removed to allow for ideal cementation of the implant retained crowns onto the abutments (Figs. 7–12).

**Reduced need for anesthetic**

Monopolar electrosurgery units do not have the ability to be used routinely without local anesthetic. In contrast, diode lasers can often be used either with low wattages or in pulsed modes to remove minor to moderate amounts of soft tissue with only topical anesthetics. Although at times this may not seem significant to the clinician, there are many instances where soft tissue acts as a barrier to ideal restorative treatment, and if local anesthetic can be eliminated it becomes a big selling point to patients.

Many patients are looking for alternatives to local anesthetic, and when the occasion allows for the procedure to be completed without the patient being numb, the overwhelming majority of patients are grateful for this. Situations such as laser gingival crown troughing for tissue management around endodontically treated teeth, exposure of partially erupted canines for orthodontic brackets and gingivectomies around moderately sized Class V lesions in geriatric patients are all situations where the author has been able to routinely and consistently complete soft tissue ablation with only a stronger topical anesthetic. In fact, the literature has shown that a variety of soft-tissue procedures (even frenectomies) can be completed with only topical anesthetic (Figs. 13–16).

**Ability to do gingivectomies and crown troughing with less recession**

White et al. have mentioned that laser gingivectomies are the most common soft-tissue procedure done with diode lasers, and when combined with esthetic porcelain restorations, the simple recontouring of tissue can take a good case and make it great. A key difference from electrosurgery ablation of soft tissue is that alterations to the symmetry of the soft-tissue contours in the maxillary anterior teeth can be safely and precisely completed on the same day as the preparation and impressions of these teeth. The risk of recession and exposure of margins can be far less with a diode laser than with other techniques, particularly when adequate magnification (e.g., 4.0X loupes) and cautious settings (0.6–0.9 W continuous wave) are used for the recontouring.

When biologic width is respected, and adequate attached and keratinized tissue exists, then judicious...
recontouring of the gingiva on the same day as the preparations can yield stunning results (Figs. 17–19).

The diode laser has become a popular technology as an alternative for tissue management compared to the traditional methodology of placing a single or double retraction cord in the sulcus. The diode laser can be used in almost all instances to produce gingival retraction as an alternative to cord with excellent results both in terms of gingival retraction and margin delineation for the laboratory.

Unlike electrosurgical units where recession can be an issue, as can postoperative pain, diode lasers offer the clinician the ability to precisely remove overhanging, inflamed tissue while creating a gingival trough that is not likely to cause damage to bone, cementum or pulp tissue like electrosurgical units can. In addition, there is research that suggests that the lateral thermal damage done with lasers is significantly lower than that with electrosurgery.25

Vascular lesions called venous lakes or hemangiomas can occur on soft tissue-areas including the upper and lower lips, buccal mucosa and palate. These lesions can be difficult to treat with traditional methods where significant bleeding may occur. The diode wavelengths are rapidly absorbed by hemoglobin and therefore can be used to coagulate and eradicate these esthetically undesirable purplish lesions often with only topical anesthetic. Literature has shown that the diode can be used in almost 100 percent of cases to eliminate these lesions, most often in only a single session lasting only a couple of minutes32–35 (Figs. 20–22).

Ability to photocoagulate vascular lesions and treat oral lesions

One of the advantages of a diode laser is the ability to treat oral lesions, including: recurrent aphthous ulcers (RAU), venous lake lesions of the lips and herpetic lesions. Research has shown that lasers can be safely used to treat these lesions,26–28 and in addition it is possible that if caught early during the prodromal stage that herpetic lesions can be aborted or significantly reduced in terms of length of time they are present.26 In addition, it has been the author’s experience that, once treated with the laser, the lesions are often less likely to reappear in the same area. In fact some evidence suggests that herpetic lesions treated in the early stages with the diode laser can cut the healing time in half and create a remission period that is twice as long before it reoccurs.30,31

Vascular lesions called venous lakes or hemangiomas can occur on soft tissue-areas including the upper and lower lips, buccal mucosa and palate. These lesions can be difficult to treat with traditional methods where significant bleeding may occur. The diode wavelengths are rapidly absorbed by hemoglobin and therefore can be used to coagulate and eradicate these esthetically undesirable purplish lesions often with only topical anesthetic. Literature has shown that the diode can be used in almost 100 percent of cases to eliminate these lesions, most often in only a single session lasting only a couple of minutes32–35 (Figs. 20–22).

Anti-bacterial capabilities of lasers

Many articles in the literature have demonstrated the tremendous ability of all lasers with respect to the reduction of bacterial and even fungal infections.36–43 The excellent antibacterial capabilities make lasers effective and desirable in many areas in the oral cavity where the risk of postoperative infection may be reduced. Electrosurgical units do not typically possess...
the same ability to provide bacterial reduction as lasers do. Particular interest is now occurring with the role of lasers in endodontic, periodontic and peri-implantitis cases where there is need to reduce bacterial loads without such a great reliance on antibiotics.

Although more research is needed on how the bacterialidal capabilities of the diode laser might be beneficial in these areas, there is no debating that all lasers can help healing through decreasing the risk of infection through laser light alone (Figs. 23–25). In addition, growing research has demonstrated that the risk of high bacterial loads in periodontal pockets and in particular in endodontic situations may be reduced by lasers.

This latest research has implications for improving traditional methodologies locally used, and in helping to reduce the potential greater systemic health risks generally. The role of lasers continues to be researched today, but present research has shown that diode lasers can be used safely within root canals with minimal fear of developing iatrogenic complications when conservative settings are used.44–48

Conclusion

The diode laser has become the "soft-tissue handpiece" in many dental offices. The advantages of being able to work around metals including dental implants, a reduced need for anesthetic, a reduced risk of recession postoperatively, the ability to reduce bacteria, and to use the diode to photococagulate vascular lesions have all provided dentists with a new alternative for soft-tissue surgery.

Lasers have two added benefits in that they do not require a pad to be placed under the patient for grounding, and they can be used safely with pacemakers. Diode lasers have found their place in dentistry. Once considered an application looking for a purpose, these small, cost-effective and reliable lasers have discovered their niche as the new go to solution for many soft tissue problems in our daily dental practices.49

References

3. Robertson PB, Luschel B, Spangberg LS, Levy BM. The diode laser has become the "soft-tissue handpiece" in many dental offices. Advantages of being able to work around metals including dental implants, a reduced need for anesthetic, a reduced risk of recession postoperatively, the ability to reduce bacteria, and to use the diode to photococagulate vascular lesions have all provided dentists with a new alternative for soft-tissue surgery. Lasers have two added benefits in that they do not require a pad to be placed under the patient for grounding, and they can be used safely with pacemakers. Diode lasers have found their place in dentistry. Once considered an application looking for a purpose, these small, cost-effective and reliable lasers have discovered their niche as the new go to solution for many soft tissue problems in our daily dental practices.
24. Lee EA. Laser-assisted gingival tissue procedures in...


Technology

I LIKE MY LASERS

LIGHTWALKER™

PHAST™ Effective Endo & Perio

Hard & Soft Tissue Procedures

Less Pain, More Comfort, More
Production in Your Practice

LIGHTWALKER™
The Endo, Perio, Soft & Hard Tissue Laser

Come visit our booth and get your free smart laser pen

GNDYM Booth 3818 - November 23-28
Yankee Dental Congress Booth 2429/2529 - Jan 1-Feb 3
Southwest Dental Conference Booth 1301 - Jan 17-19

Trade in Your Slow Laser
Take advantage of your high trade in allowances
Give your practice

See more at T4Med.com
LIKE I LIKE MY CARS

PHAST™
Photo Active Systems Technology

1064 X LASE™

Amazing Speed
10 Watts, 1064 Micropulses
Green aiming beam
Lithium or AC Powered
On Board Video Guidance
Superior Results

for a New PHAST™ Laser
year end special incentives
and tax section 179 benefits
a boost for 2013

Call us at 949-276-6650
Unique maxillary frenectomy with a diode laser

There are many opinions, both in favor of and against, regarding utilization of lasers in periodontal therapy. There are also many reports of the different surgical techniques utilizing sharp metallic instruments for exacting predictable and desired results. The use of a laser to achieve these results does not mean that there are not other efficient, "classical" procedures that would accomplish the goal.

Yet, a laser might be a more direct and efficacious path to achieve the same goal, with easier healing and less side effects.

This case presentation allows me to demonstrate the utilization of a diode laser to allow ease of technique, avoid unnecessary bleeding, avoid the use of sutures (and their removal), and provide a comfortable transition for the patient without swelling or need for a periodontal dressing after the surgery.

In this presentation, a young female patient presented in my office complaining about her frenum in the maxillary anteriors. She related that it hurt whenever she bit into a firm substance, such as corn on the cob. Her tongue constantly reached to this uncomfortable area, affecting her speech, and she felt pain in her lip when she tried to smile.

A few years prior, she had a lot of dentistry done in her maxillary anteriors for esthetic purposes. She had been aware of and bothered by a natural large diastema between her maxillary centrals. The previous dentist had closed the diastemic space between the crowns by over-bonding the area, leaving overhanging margins on the mesial of both centrals (Fig. 1).

The area now appeared clinically closed, but the constant irritation and bleeding in the area, especially due to the frenum pull, made this teenage patient feel very uncomfortable.

‘In this case, I made a decision to use a laser to do the frenectomy because of the possibility that a classical approach might result in leaving a large void between the centrals. Moreover, use of a laser allows complete control in this technique to avoid what might otherwise be a devastating disaster.’

Fig. 1. Pretreatment labial view shows the large maxillary frenum and its large attachment. (Photos/Provided by David L. Hoexter, DMD, FICD, FACD)
X-rays taken by my office revealed an obvious space, seen as a large radiolucent dark area between both central incisor roots, covered with tissue (Fig. 2).

In this case, I made a decision to use a laser to do the frenectomy because of the possibility that a classical approach might result in leaving a large void between the centrals. Moreover, use of a laser allows complete control in this technique to avoid what might otherwise be a devastating disaster. If the natural, large void between the centrals submarginally was to have been exposed, it would have left a vast undesirable, unesthetic, dark-appearing hole.

Because this was a surgery that involved only soft tissue, our choice of lasers is the CO2, Nd:YAG and diode lasers. Other lasers may be used for both soft and hard tissue.

I chose to utilize just a tissue laser, and chose a diode laser. This diode laser also offered the use of a disposable tip containing a thin fiber that would transmit the therapeutic treatment. The tip, being disposable, will aid in the consistency of maintenance and hygienic cleansing in and during our treatment.

A standard frenectomy, where we might remove the frenum with a sharp stainless steel instrument, might lead to further complications by exposing the large void pointed out in Figure 2 that is covered by tissue. If the frenum is just incised and removed, the area will have an obvious, huge, dark-appearing void. Yet the frenum should be removed. The obvious restorative necessities and options were discussed first. This young patient wished to do a little at a time, starting with the frenum removal.

After local anesthesia with xylocaine, the frenum was infiltrated, incised from the attachment of the tissue and lip-side of tissue first, rather than incising in the center of the frenum or separating and detaching the tissue from the side attached to the alveolus. Using the diode laser, the tissue was incised, keeping the field of vision intact and accessible.

Continuing movement of the laser tip toward the alveolar-covered tissue allows the trough to be made wider until the desired length is acquired. All of this is accomplished painlessly, without a pool of blood blocking the view. This laser automatically enhances a clot, allowing not only a view but also a comfortable working environment for the operator as well as a painless one for the patient.

The assistant retracts the lip, with the laser allowing complete vision and aiding in curtailing the bleeding. After the tissue is dissected to the

---

**Fig. 2.** X-Ray of same area. Notice the large dark-appearing space between the centrals’ roots. Note the large restorations’ mesial overhanging margins.

**Fig. 3.** Another labial pretreatment view.

**Fig. 4.** Initial use of diode laser for releasing the frenum attachment from the lip mucosal side.

**Fig. 5.** Completed extention using the laser and removal of the rest of the frenum.

**Fig. 6.** Final completion of healed area, labial view. Notice the healed labial area, minus the large frenum, yet avoiding the exposure of the large void between the incisors, as seen in the X-ray (Fig. 2) initially.
desired level, the remaining loose tissue of the frenum is removed using the diode laser, as well. These results leave a slight charring when we wish to control bleeding (Figs. 4, 5).

Healing proceeds uneventfully until it is completed and is maintainable (Fig. 6). Once the frenum is removed and healed, the patient is no longer uncomfortable when eating. Nor is her lip restricted when she desires to smile. The healed area allows the patient to keep the area clean. She is able to reach and floss the mesial aspects, which she couldn’t do previously. After completion, she is reminded of the need to correct the restorations of her maxillary anterior teeth and get rid of the obvious overhanging margins.

This particular patient desired a little correction at a time, but, in the meantime, the positive results of the laser treatment made her positive about correcting and improving the esthetics of her anterior maxillary teeth in the near future.

With the use of this diode laser, we are able to remove the frenum attachment from the lip side initially, allowing a predictable approach that helps avoid exposing a large hole in the very front and center of her smile. This laser treatment and its positive results for her, allowed her to consider future restorative corrections with a positive attitude.

In this case, use of the diode laser allowed her smile to be corrected, and changed her discomfort into a comfortable glow.

Editorial Note: This article was first published in Dental Tribune U.S. Edition, Vol. 7, No. 8, August 2012.
A less invasive, predictable method for treating periodontitis

Lloyd V. Tilt, DDS, MS, PC, discusses the LANAP protocol

**Author** Fred Michmershuizen, Managing Editor

The LANAP protocol for the treatment of periodontal disease is an alternative to conventional scalpel/suture flap surgery. The procedure, which utilizes the PerioLase MVP-7 digital dental laser available from Millennium Dental Technologies, is designed to offer a vastly less painful and less invasive regenerative treatment for patients.

A 10-year, peer-reviewed retrospective comparative study conducted by periodontist Lloyd V. Tilt, DDS, MS, supports the use of the FDA-cleared LANAP protocol as an effective long-term gum disease treatment. The study documents use of the LANAP protocol in private practice, showing effectiveness against tooth loss.

Tilt’s study followed treatment of 107 patients over the course of 10 years — 68 percent of whom were suffering from severe case IV periodontitis, measuring tooth survival as the benchmark. The retrospective study compared Tilt’s research to three other tooth survival studies of conventional periodontitis surgery.

Tilt’s research shows the LANAP protocol was at least or more effective than other treatment modalities in retaining teeth in patients with periodontal disease.

“As part of a comprehensive treatment plan, the LANAP protocol yields consistent, predictable results, and is a preferred method of treating periodontitis,” Tilt said.

In an interview with laser, Tilt talks more about the study and his work as a periodontist.
We all owe a tremendous debt of gratitude to those who have focused on research, improving our knowledge of dental diseases, and improved and expanded treatment options for our patients. I am particularly happy with the opportunity I’ve had over the past 13 years to be involved with lasers and the surgical treatment of periodontal disease, adding another treatment option for doctors and patients to consider.

What do you find most rewarding about the work you do?

As individuals and as a professional organization, periodontists have declared their objective as helping their patients maintain their natural teeth in good comfort, function and esthetics. Virtually all instruments, techniques and materials that have been developed in the last three decades in periodontics have been with an eye toward restoration or regeneration of lost tissue and attachment.

Working with the LANAP protocol and with Millennium Dental Technologies has given me an avenue to contribute to that objective. I’ve been very grateful to contribute in a small way to research on the LANAP protocol, to speaking about and disseminating the information, and in educating and training numerous dentists who are now providing this service to their patients.

Earlier this year, you discussed results of research on the LANAP protocol at the Academy of General Dentistry meeting in Philadelphia, and the research was published in the AGD publication General Dentistry. For those who are not familiar with the research, can you please summarize it?

There is a progression of studies and data through which all new procedures or technology must go. This begins with case studies, retrospective studies, prospective studies on through meta-analysis once enough information is available. This is often a 20-year process to gain all the data that we, as professionals, feel we need to prove the validity of the subject. It is the objective of everyone associated with the LANAP protocol to fill in those levels of data.

The AGD has been very helpful in publishing two studies associated with the LANAP protocol. The first was published in 2004 and involved the collection of data from LANAP-treated patients from five different clinical locations, focusing on pocket reduction. There were two interesting pieces of information that stood out: First, the pocket reduction data with the LANAP protocol was comparable to pocket reduction data from classic periodontal studies utilizing osseous surgery or Widman flaps; and, second, the pocket reduction data from each of the five sites was almost identical.

This data was exciting in that we had comparable pocket reduction with a far less invasive, more tissue-sparing surgical procedure, and that with the proper equipment and the proper training treatment results could be duplicated.

The second study, published in 2012, involved tooth survival data. We wanted information on how the LANAP protocol compared to more conventional periodontal surgical treatments when it came to patients keeping their teeth over time. Again, there were two important points to come out of this study: first, that tooth survival with the LANAP protocol was at least comparable to that of more conventional, more aggressive surgical treatments; and, second, that long-term prognosis depended very heavily on the periodontal case type when the patient began treatment.

Patients with moderate periodontal disease (Type III) lost only 0.3 percent of teeth over a 6.2-year time span, but patients with advanced (Type IV) disease lost 2.3 percent of teeth over that same time — almost an 800 percent increase just based on case type. There is an enormous advantage to early diagnosis and early treatment when it comes to keeping teeth over time.

What benefits does the LANAP procedure offer to the patient, compared with more traditional methods of treatment for periodontal disease?

For those patients who need surgical treatment of periodontal disease for access for root debridement, for pocket reduction and for regeneration, the benefits of the LANAP protocol over conventional periodontal surgical procedures include the following: shorter overall treatment time (most of the active treatment is accomplished in two appointments), minimal or no post-operative pain (most patients receive only Ibuprofen), no post-op bleeding, no swelling or bruising, very rapid patient recovery (minimized time off work), little or no loss of soft-tissue height (gingival recession), no post-treatment tooth sensitivity, no cosmetic changes to a patient’s smile, pocket depth reduction comparable to more aggressive procedures, regeneration of lost attachment (bone) comparable to more aggressive and more material-dependent procedures.

The LANAP protocol is not the answer for every patient, or every surgical need in periodontics. But it does provide a wonderful treatment option for most patients with moderate to advanced periodontal disease, and does not eliminate any other treatment option should a doctor feel something else is needed.

Is the LANAP procedure ideally performed by general practitioners, those who specialize in periodon, or both?

The LANAP protocol is ideally performed by those who have a desire to treat periodontal disease in their practice and who are willing to have the right
‘Even though lasers have been available in dentistry for approximately 30 years, they are still very poorly understood by most. A laser is not a laser is not a laser. Each of the laser wavelengths available has very specific things it can do well, as well as many things it cannot do well.’

The Millennium Dental Technologies website, www.lanap.com, would be a good place to start, with links to publications, videos, patient testimonials and more. There are many doctors around the country now giving presentations on the LANAP protocol. These will provide a good overview of the technology.

There are several peer-reviewed studies available from the company or from www.pubmed.com using the keyword LANAP. These include the two studies published in General Dentistry, and a prospective human histology study published in 2007 looking at regeneration of attachment with the LANAP procedure. There is a second prospective human histology study that was published in September. Millennium Dental Technologies also maintains a current list of clinicians using the LANAP protocol and may be able to refer doctors to speak with someone in their area on a one-to-one basis.

It has been our goal to provide our profession with a less invasive, predictable method for treating many of our patients with periodontitis. The LANAP protocol is not magic; it’s not the silver bullet we’d all like to have as we deal with a very difficult and complex disease process. But it has proven to be a great option for many of our patients. The LANAP protocol does not stand alone as a periodontal treatment. The LANAP protocol, like any other periodontal treatment option, is dependent on long-term maintenance care, on monitoring patients over time, and on changing directions with treatment when indicated. Whether a doctor chooses to incorporate the LANAP protocol into practice, or to refer to a LANAP-trained colleague, I encourage everyone to seek accurate information on lasers in dentistry and in periodontics.

Where can a practitioner learn more about this form of treatment?

There is now a lot of information available to research the LANAP protocol. Do your due diligence when investigating whether this might be appropriate for your practice or when searching out a clinician utilizing this treatment in your area.
laser

the international C.E. magazine of laser dentistry

U.S. Headquarters
Tribune America
116 West 23rd Street, Ste. 500
New York, NY 10011
Tel.: (212) 244-7181
Fax: (212) 244-7185
feedback@dental-tribune.com
www.dental-tribune.com

Publisher
Torsten R. Oemus
t.oemus@dental-tribune.com

Chief Operating Officer
Eric Seid
e.seid@dental-tribune.com

Group Editor
Robin Goodman
r.goodman@dental-tribune.com

Managing Editor
Fred Michmershuizen
f.michmershuizen@dental-tribune.com

Managing Editor
Sierra Rendon
s.rendon@dental-tribune.com

Managing Editor
Robert Selleck
r.selleck@dental-tribune.com

Designer
Kristine Colker
k.colker@dental-tribune.com

C.E. Director
Christiane Ferret
c.ferret@dtstudyclub.com

Marketing Director
Anna Wlodarczyk-Kataoka
a.wlodarczyk@dental-tribune.com

Product/Account Manager
Mara Zimmerman
m.zimmerman@dental-tribune.com

Product/Account Manager
Will Kenyon
w.kenyon@dental-tribune.com

Product/Account Manager
Charles Serra
c.serra@dental-tribune.com

Latin America Product/Account Manager
Jan Agostaro
j.agostaro@dental-tribune.com

International Product/Account Manager
Maria Kaiser
m.kaiser@dental-tribune.com

Feedback & General Inquiries
feedback@dental-tribune.com

Editorial Board

Tribune America is the official media partner of:

laser_Copyright Regulations

_the international C.E. magazine of laser published by Tribune America is printed quarterly. The magazine’s articles and illustrations are protected by copyright. Reprints of any kind, including digital mediums, without the prior consent of the publisher are inadmissible and liable to prosecution. This also applies to duplicate copies, translations, microfilms and storage and processing in electronic systems. Reproductions, including excerpts, may only be made with the permission of the publisher.

All submissions to the editorial department are understood to be the original work of the author, meaning that he or she is the sole copyright holder and no other individual(s) or publisher(s) holds the copyright to the material. The editorial department reserves the right to review all editorial submissions for factual errors and to make amendments if necessary.

Tribune America does not accept the submission of unsolicited books and manuscripts in printed or electronic form and such items will be disposed of unread should they be received.

Tribune America strives to maintain the utmost accuracy in its clinical articles. If you find a factual error or content that requires clarification, please contact Group Editor Robin Goodman at r.goodman@dental-tribune.com. Opinions expressed by authors are their own and may not reflect those of Tribune America and its employees.

Tribune America cannot assume responsibility for the validity of product claims or for typographical errors. The publisher also does not assume responsibility for product names or statements made by advertisers.

The responsibility for advertisements and other specially labeled items shall not be borne by the editorial department. Likewise, no responsibility shall be assumed for information published about associations, companies and commercial markets. All cases of consequential liability arising from inaccurate or faulty representation are excluded. General terms and conditions apply, and the legal venue is New York, New York.
submissions

 formatting requirements

Please note that all the textual elements of your submission:

• complete article
• figure captions
• literature list
• contact info (e-mail address please)
• author bio

must be combined into one Microsoft Word document. Please do not submit multiple files for each of these items. In addition, images (tables, charts, photographs, etc.) must not be embedded in the text document.

All images must be submitted separately, and details about how to do this appear below.

If you are interested in submitting a C.E. article, please contact us for additional instructions before you make your submission.

Text length

Article lengths can vary greatly — from a mere 1,500 to 5,500 words — depending on the subject matter. Our approach is that if you need more or less words to do the topic justice, then please make the article as long or as short as necessary.

We can run an extra long article in multiple parts, but this is usually discussing a subject matter where each part can stand alone because it contains so much information. In addition, we do run multipart series on various topics. In short, we do not want to limit you in terms of article length, so please use the word count above as a general guideline and if you have specific questions, please do not hesitate to contact us.

Text formatting

Please use single spacing and do not put extra space between paragraphs. We also ask that you forego any special formatting beyond the use of italics and boldface, and make sure that all text is left justified.

If you would like to emphasize certain words within the text, please only use italics (do not use underlining or a larger font size). Boldface should be reserved for article headlines, headers and subheads please.

Please do not “center” text on the page, add special tab stops or use underlines in your text as all of this must be removed manually before layout. If you require a special layout, please let the word processing program you are using help you to do this formatting automatically rather than doing it manually.

If you need to make a list or add footnotes or endnotes, please let the word processing program do it for you automatically.

There are menus in every program that will help you apply all sorts of special formatting.

Image requirements

Please number images consecutively by using a new number for each image. If it is imperative that certain images are grouped together, then use lowercase letters to designate the images in a group (i.e., Fig. 2a, Fig. 2b, Fig. 2c).

Insert figure references in your article wherever they are appropriate, whether that is in the middle or end of a sentence, but before the period rather than after. Our preference is to have figure references noted in the appropriate place within the text as it helps the readers to orient themselves when moving through the article. In addition, please note:

• We require images in TIF or JPEG format
• These images must be no smaller than 4 x 4 inches in size at 300 DPI
• Images should be 1 MB in size each

If you have an image that is greater than 1 MB, please do not bother “sizing it down” to meet our requirements, but send us the largest file size available. The larger the starting image is in terms of bytes, the more leeway the designer has in terms of resizing the image to fill up more space should there be room available.

Also, please remember that you should not embed the images into the body of the text document you submit. Images must be submitted separately from the textual submission.

You may submit images through a zipped file via e-mail, unzipped individual files via e-mail or post a CD containing your images directly to us (please contact us for the mailing address as this will depend upon where you will be mailing them from).

Please do not forget to send us a head shot photo of yourself that also fits the image requirements noted above so that it can be printed along with your article.

Abstracts

An abstract of your article is not required. However, if you choose to provide us with one, we will print it in a separate box.

Contact info

At the end of every article is a contact info box with contact information along with a head shot of the author.

Please note at the end of your article the exact information you would like to appear in this box and format it according to the previously mentioned standards.

A short bio (50 words or less) may precede the contact info if you provide us with the necessary text.

Questions? Comments?

Please do not hesitate to contact us for our International C.E. Magazine Author Kit or if you have other questions/comments about the article submission process:

Group Editor Robin Goodman r.goodman@dental-tribune.com

Laser Managing Editor Fred Michmershuizen f.michmershuizen@dental-tribune.com

Managing Editor Sierra Rendon s.rendon@dental-tribune.com
BE AMAZED BY WATERLASE®

SEE FIRST-DAY OWNERS & THEIR PATIENTS EXPERIENCE THE NEW WATERLASE IPLUS

The new WaterLase is simply amazing – but don’t take our word for it. Visit AmazingByWaterLase.com to see new owners and their first WaterLase patients experience the technology on day one, or see for yourself by scheduling a demo in your practice today.

- Generate word-of-mouth referrals with WaterLase procedures that amaze your patients
- Be part of the social media buzz driving new patients to WaterLase dentists
- Work more efficiently – less local anesthetic, no packing cord, reduce chairtime
- More than 50 hours of live, hands-on training available with your system
- Total versatility compared to other laser systems

CALL TODAY TO DEMO WATERLASE IN YOUR PRACTICE

OR VISIT AmazingByWaterLase.com TO VIEW INSTANT REACTIONS FROM DOCTORS AND PATIENTS!

WaterLase® Periodontal

<table>
<thead>
<tr>
<th>Function</th>
<th>WaterLase®</th>
<th>PerioLase®</th>
<th>Diode Laser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Tissue Surgery</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Laser Soft Tissue Carving</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>New Attachment Procedure</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Calculus Removal</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Minimal to No Anesthetic Needed</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Multi-Quadrant Dentistry in a Single Visit</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Cuts as fast as a High Speed</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Osseous Crown Lengthening</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Root Canal Preparation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Online Doctor Locator</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Purchase Price</td>
<td>WaterLase: $24,500</td>
<td>PerioLase: $100,000</td>
<td>Diode Laser: $2,500</td>
</tr>
</tbody>
</table>

* WaterLase and PerioLase are not intended for use by non-licensed personnel. New Attachment Procedure (NAP) is not FDA-cleared for use by non-licensed personnel. For questions or concerns, please contact your local rep at 888-460-9494. All prices are subject to change without notice. NAP is not FDA-cleared for use by non-licensed personnel. For questions or concerns, please contact your local rep at 888-460-9494. All prices are subject to change without notice. NAP is not FDA-cleared for use by non-licensed personnel. For questions or concerns, please contact your local rep at 888-460-9494. All prices are subject to change without notice.