

# Soft-tissue Technology

by Thomas Giacobbi, DDS, FAGD, Editorial Director, *Dentaltown Magazine*

*Our patients think lasers are cool. This is not due to any scientific insight per se, it is more likely the result of what they have witnessed through television and film. Lasers have often been used as powerful methods of destruction and painless forces for healing. Current ads promise laser tattoo removal, laser hair removal and laser skin treatments to remove blemishes and wrinkles. Are lasers becoming the Swiss army knife of health care? When your patients discover that you practice laser dentistry, they immediately think, "No more drill, no more injections; my problems will vanish in the wake of a bright light."*

Dentists are intrigued by the potential for laser therapy, but they certainly understand this technology is not a cure all. Destruction of periodontal pathogens, painless removal of tooth structure, obliteration of endodontic pathogens within a root canal system, bloodless soft-tissue surgery with faster healing and less post-operative pain are all potential benefits that lasers can provide.

For the purpose of this article we have focused our efforts on soft-tissue lasers. Within this category there is a wide variety of options available. The tabletop diode lasers are most portable and least expensive, so these have become the entry-level laser

for many dentists. In order to provide perspective, we asked a couple Townie laser users to answer a short survey about their lasers. We have also published a sample of their clinical cases to demonstrate a few common procedures.

On pages 52-53, you'll find our soft-tissue lasers chart that compares features and specifications of the most popular soft-tissue lasers on the market. We think you will find this information a helpful resource as you shop for the newest toy for dentists. Please remember to post your cases on [Dentaltown.com](http://Dentaltown.com) when you have your new laser in the office.

*continued on page 50*



**Dr. Lou Graham**  
University Dental Professionals  
Location: Chicago, IL  
Lasers Owned: DEKA and Spectra CO<sub>2</sub> lasers; KaVo and Sirona 980 lasers.



**Dr. David Kimmel**  
Florida Center for Laser Dentistry  
Location: Bayonet Point, FL  
Lasers Owned: Periolase, NdYAG, Laser Smile diode, Waterlase, WaterlaseMD and Delight



**Dr. Rod Kurthy**  
Rodger Kurthy, DMD, PC, and Evolve Dental Technologies, Inc.  
Location: Mission Viejo, CA  
Lasers Owned: Waterlase and Waterlase MD; and Zap SoftLase Pro diode

**What was your primary goal for laser ownership?**

**Graham:** First and foremost it was to enhance our soft-tissue periodontal procedures. Thus the reason I purchased a soft-tissue laser and now in fact own four!

**Kimmel:** With lasers in general it was to revitalize my practice with a very specific niche market. In regards to soft-tissue lasers it was to treat perio.

**Kurthy:** To continue showing my patients that I always strive to stay on the cutting edge (marketing/promotion) was the business reason. This was the motivating force that seemed that it would allow a return on investment – whereas the true desire to stay on the cutting edge and provide better treatment was the professional reason.

**Have you had positive patient feedback or do your patients come to expect this type of technology in your office? Please explain.**

**Graham:** Without a doubt our patients totally understand why we offer laser therapy; it’s for them. If we can minimize post-op discomfort, maximize our results with so many of the procedures, they get it!

**Kimmel:** The feedback is extremely positive. Patients want to know why other dentists don’t use lasers. Today, patients seek me out for laser treatment.

**Kurthy:** There is nothing that excites a patient more than being treated with a laser. In external marketing, credibility/proof is king. In your marketing, you might say and show the most wonderful things in the world, but if they do not believe you, you are sunk. Gaining the confidence and belief from the recipient is the biggest key to success in marketing, and that is *not* easy. However, lasers are their own proof. The lay public believes anything you say about lasers. Lasers remove much of the fear of dental treatment. Non-surgical periodontal treatment is a perfect example – people are scared to death to have their gums cut, sliced, diced and stitched back together. I don’t care how you present it to them, it is a huge psychological trauma and prevents many from submitting for treatment. But when

the laser is suggested with a non-surgical approach (compared to “conventional” surgery), they jump at the chance.

**Which procedures do you perform most often with the laser?**

**Graham:** Sulcular debridement in combination with ultrasonic therapy occurs multiple times every day. Additionally we use the laser to uncover implants, remove excess tissue pre impressions, biopsies, pulp caps and so many more procedures; it just depends on which laser we are using.

**Kimmel:** With regard to soft-tissue lasers, I primarily treat periodontal disease. This is followed by troughing for restorative procedures. However we utilize soft-tissue lasers for treatment of cold sores, aphthous ulcers, biostimulation and other soft-tissue lesions.

**Kurthy:** Waterlase MD: certain classifications of filling preparations, especially anterior teeth – also osseous crown lengthening procedures; canker- and cold-sore treatment.

Zap diode: Troughing prior to crown & bridge impressions; cosmetic gingival contouring and “smile lifts;” hemorrhage control during restorative procedures and when bonding indirect restorations; frenectomies, most frequently in cuspid/bicuspid areas where frenum fibers may cause a “pull” on marginal gingiva and result in gingival recession; operculectomies; removal of gingival tissue that rebounds and covers the edges of implant platforms, which could prevent full seating of implant abutments; non-surgical periodontal therapy; aphthous ulcer and herpes lesion treatment.

**Which laser procedures do you submit to insurance, and which procedures are not worth the trouble of an insurance claim?**

**Graham:** Insurance companies couldn’t care less about the patient; they just care about their bottom line, which is evident in their thinking and denial policy. So yes, they will cover frenectomies, biopsies, gingivectomies, but soft-tissue therapy? Highly unlikely. They would rather I put a patient on an antibi-

# A Soft-Tissue Laser Comparison Chart

This comparison chart covers just a sample of the many soft-tissue lasers available on the market today.



<b>Manufacturer</b>	Biolase	Elexion	Hoya ConBio	Ivoclar Vivadent
<b>Machine name</b>	<b>ezlase</b>	<b>claros</b>	<b>DioDent Micro 980</b>	<b>Odyssey Navigator</b>
<b>Type</b>	Soft Tissue	Class IV, Soft Tissue	Soft Tissue	Class IV, Soft Tissue
<b>Wavelength</b>	940/810nm	810nm	980nm	810 +/- 20nm
<b>Lasing Medium</b>	Diode	Diode	Diode	Diode
<b>Autoclave Fiber</b>	No	Yes	Yes	No
<b>Weight</b>	2 lbs.	49 lbs.	4 lbs.	2.5 lbs.
<b>Electrical</b>	110-240V		110-240V	110/220V
<b>Footprint</b>	3.5"x7"x2.5"	18"x20"x34"	9"x2"x7"	9.5"x4"x6"
<b>Warranty</b>	1 year	2 years	1 year	2 years
<b>Retail Cost</b>	\$13,940	\$39,500	\$7,995	\$13,300

otic systemically, and not understand the ramifications. Instead we charge our patients a very fair fee in conjunction with their therapies or procedures and this takes the insurance issue right out. We prefer to spend our time creating positive outcomes than trying to justify the reasons why.

**Kimmel:** As far as lasers and insurance, a laser is a tool. If there is a code for a procedure, we submit it. Insurance companies don't care if you use electric handpieces or air turbines to do a crown prep, it's just a tool.

**Kurthy:** Fillings, osseous crown lengthening, frenectomies, operculectomies. The other things are difficult to get payment on. However, the bottom line is that as dentists we sell "needs" and "wants." Selling wants is easier. Patients want treatment with the laser, so they're very willing to pay themselves.

## Cases by Dr. Lou Graham

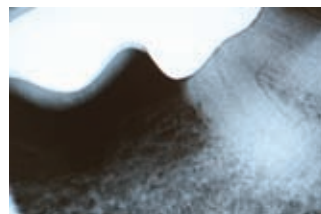
### Case #1

A 70-year-old male patient presents with a chief complaint of a persistent smell in the lower left molar region. He states that the area beneath the bridge traps food and it is very difficult to remove the food and related debris. An X-ray revealed mesial decay under the abutment number 18. Options to the patient included:

- Remaking the four-unit bridge with corrective periodontal therapy, which would include either a gingivectomy or crown lengthening.
- Removal of the bridge, implant placement, corrective periodontal therapy, final restorative therapy.
- Laser gingivectomy and if to osseous crest, then traditional crown lengthening followed by restorative procedure.

				
Lares Research	Lares Research	Millennium Dental Technologies, Inc.	Sirona	Zap Lasers
<b>PowerLase ST6</b>	<b>PowerLase AT</b>	<b>PerioLase MVP-7</b>	<b>SiroLaser</b>	<b>SoftLase Pro</b>
Soft Tissue (Nd:YAG)	Soft Tissue (Nd:YAG) and Hard Tissue (Er:YAG)	Class IV, Soft Tissue	Soft Tissue	Soft Tissue
1064nm	Soft – 1064nm Hard – 2940nm	1064nm	970 +/- 15nm	808 +/- 5nm
Solid State	Solid State	Nd:YAG	Diode	Diode
Yes	Yes		No	Yes
34 lbs.	190 lbs.	43 lbs.	Less than 1 lb.	3.3 lbs.
100-240V	220V	110/220V	110/220V	110/220V
9.4"x14"x18.5"	21.7"x13"x32"	11"x16.5"x24.5" (includes cart)	3.4"x7.5"x2.1"	7"x7"x4"
1 year	1 year	1 year	2 years	3 years
\$29,999 with training	\$81,500 with training	\$69,995	\$13,999	\$7,995

In the case presented, we anesthetized the area, and using the Spectra CO<sub>2</sub> laser, used a short cone to remove the excess tissue in a non-contact mode. The setting was at 70 hertz and 700 microseconds to perform this procedure followed by a setting of 2 watts of continuous pulsing to achieve hemostasis. Once the tissue was removed, and hemostasis achieved, decay was removed first with a traditional 4 round carbide then Komet's new synthetic burs that remove only demineralized dentin, for careful caries removal. The CO<sub>2</sub> was then utilized on another setting 20 hertz and 120 microseconds to further eradicate remaining bacteria. Once this was completed, the dentin was conditioned with Riva Conditioner to remove the smear layer and condition the dentin for glass ionomer placement. Fuji 9Xtra fast set was then placed into the area, allowed to sit four minutes, and then Riva Coat was placed over the area once the glass ionomer was polished. Once healing is complete, the area should be fully self cleansing with a long lasting glass ionomer seal.



Deep pre-existing mesial caries.



Spectra's CO<sub>2</sub> laser in place.



Excess tissue now removed with easy access for full caries removal.



Glass ionomer placement.

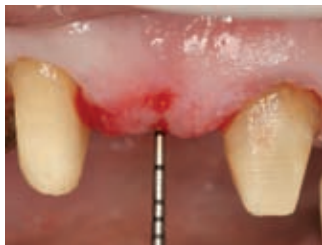
continued on page 54

Case #2

This case involved a 58-year-old woman who wanted her anterior work 6-11 redone, which included a 3 unit bridge 6-8, crowns on 9 and 10 and a veneer on number 11. Top priorities were to change the color, shape and develop a more natural transition of the pontic area. After diagnostic casts and confirmation with a Radica (Dentsply) diagnostic models and temporary fabrication (Radica), a probing of the edentulous demonstrated 4mm of tissue in this area and thus we would be able to ovate the area with a soft-tissue laser. In this case, we are showing Kavo's Gentle Ray 980, which is a contact laser and once the tip is initiated, it is used to remove the tissue in a gingectomy setting. Once this is accomplished, the Radica temporary can be adjusted to develop both the col and papillae. In this case, a flowable composite was placed under the pontic, light cured and then shaped such that it would help develop a final scalloped tissue for the final prosthesis.



Pre-op



Probing pre-laser.



KaVo's Gentle Ray 980



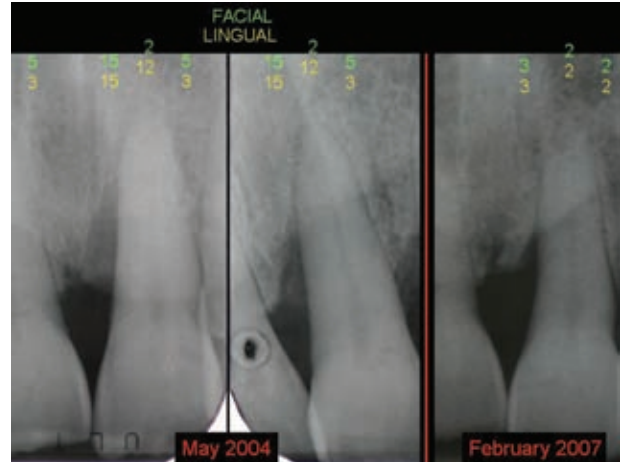
Ready for impression.



Three weeks later

Cases by Dr. Rod Kurthy

Case #1



Patient was a 39-year-old female. She was informed seven months prior to seeing me that she needed periodontal surgery and would also lose several teeth. She was afraid and did not schedule. She saw my marketing for non-surgical laser periodontal treatment. She had up to 15mm pocketing, (as seen in photo above). This shows the pre-op bone loss and pocket charting in 2004 and the remarkable bone regeneration and true cementum mediated attachment in 2007. A very important concept for dentists to understand is that lasers are *not* magic. They are simply tools. You *must* be proficient in proper technique, otherwise the treatment will fail, especially when considering laser periodontal treatment. This case and the others I'm presenting here were treated using the protocol in my non-surgical laser periodontal protocol book.

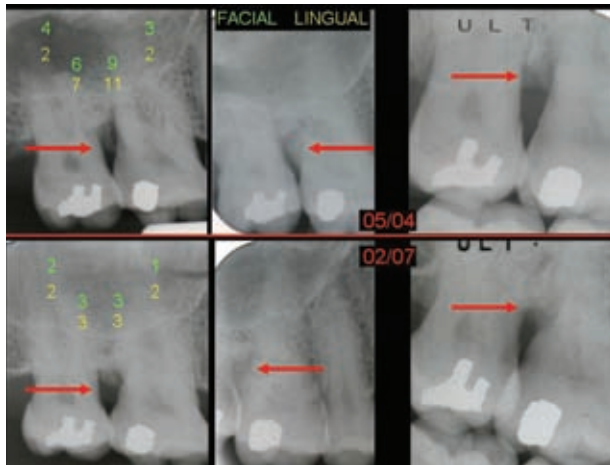
Case #2



This shows the before and after bone regeneration. Case was treated in 2002, and you can see the huge amount of bone regeneration five years later. The red arrows point to the 100 percent stationary

continued on page 56

ble landmark being the DEJ on the mesial of the molar. Unquestionable result using my periodontal diode laser protocol.



This shows before and after of case treated in 2004 and post-2007. One of the most difficult places to achieve bone regen-

eration is between two upper molars with trifurcation involvements. Note that pocketing into trifurcation was up to 11mm. That is a *very* difficult task. But note how much bone regeneration was achieved; again, because of the proper protocol having been used with the diode laser.

Case #3



Note the very significant amount of gingival reduction necessary (a full-blown smile lift). To my surprise, I did not need to open flaps or remove bone. This was all done with a diode laser.

*What we have presented in this article barely grazes the surface of what lasers can do for you and your patients. Laser technology in dentistry is constantly evolving, so you can always expect changes, updates and new machines in the marketplace. And as this technology improves and more and more dentists become proficient in its use, the possibilities for lasers are endless. ■*

**Additional Laser Resources**

Since this article cannot provide every bit of information about soft tissue lasers and their indications, we have provided a few excellent resources to help with your research.

**Book**

*Atlas of Laser Applications in Dentistry*  
 Coluzzi DJ, Convissar RA. 2007 Quintessence. Hanover Park, IL  
 Quintessence Publishing Co., Inc.  
 4350 Chandler Drive  
 Hanover Park, IL 60133  
 Telephone: 800-621-0387 or 630-682-3223  
 Fax: 630-682-3288

**Journal**

*The Journal of Laser Dentistry*  
 Featherstone JDB, editor, 2007 Academy of Laser Dentistry,  
 Coral Springs, FL  
 Academy of Laser Dentistry  
 3300 University Drive Suite 704  
 Coral Springs, FL 33065  
 Telephone: 954-346-3776  
 E-mail: laserexec@laserdentistry.org  
 Web site: www.laserdentistry.org

**Upcoming Dental Meetings**

April 9-12, 2008  
 Lasers in Clinical Practice – Point & Counterpoint  
 Loews Coronado Bay Resort, San Diego, California

**Online**

- Dentaltown.com
- Academy of Laser Dentistry: www.laserdentistry.org