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**Superior Laser Performance,
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Lares Research and Fotona

A Partnership You Can Count On

Lares Research and Fotona, the leading European manufacturer of all-tissue dental lasers, have partnered to bring you world's most advanced dental laser technology.

Lares Research is a recognized leader in the development, manufacture and distribution of oral cutting technology, supplying dentists with precision handpieces and high performance lasers worldwide. Lares Research was founded in San Carlos, California in 1956 and has been managed by President Craig Lares, second generation of the founding family, since 1986.

Fotona is a pioneering, technology based company that develops and manufactures the highest performance, best made lasers used in the fields of medicine, communications, industry and defense worldwide. Fotona was founded in Ljubljana, Slovenia in 1964 and has been managed by President Matjaz Lukac since 2000.

Together, Lares Research and Fotona are dedicated to providing American dentists the ultimate dental laser ownership experience.



Matjaz Lukac
President, Fotona

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Craig Lares
President, Lares Research

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Partnership Offers the Latest Generation Dental Lasers in the U.S.

In the Autumn of 2008 Fotona has formalized its partnership with US dental equipment manufacturer, Lares Research, to market the next generation dental laser systems for the US market under the combined Fotona Lares brand names. In May 2005, Lares Research first introduced Fotona's internationally established Fidelis® dental laser line to the US hard tissue laser market under the PowerLase® brand name.

The new Fotona, Lares Research partnership marked the launch of the latest generation AT Fidelis® and HT Fidelis® dental laser systems in the US market under the combined Fotona Lares Powerlase® AT/HT brand name. The range is led by the Fotona Lares Powerlase® AT. It incorporates the world's fastest Er:YAG laser for hard tissue drilling with a broadened operating range for soft tissue surgery. In addition, it includes a top-of-the-line Nd:YAG laser to provide trouble-free surgical and aesthetic procedures. This combination of highest performance lasers ensures that dentists will have the most complete set of dental laser treatment options available in one, single treatment station. The Fotona Lares Powerlase® AT/HT range is further completed by the Powerlase® HT, a single Er:YAG laser version. Both systems feature the latest in touchscreen navigation systems with pre-set treatment programs and parameter storage capabilities for complete treatment management. Its Comfort Mode provides a simplified user-interface with pre-set programs allowing standard daily procedures to be performed quickly and safely. Treatment settings can be further fine-tuned using Advanced Mode.

Founded in 1956, Lares Research is a well-recognized and respected name in the US dental industry. Located in Chico, CA, the Lares Research manufacturing facility boasts 30,000 square feet of high technology manufacturing, resulting in high quality state of the art dental handpieces, dental lasers and other dental products. Lares dental products are backed by over 50 years of experience and a well-earned reputation in the dental equipment industry.

This Fotona Lares eBook is a collection of content from "The Successful Laser Dentist" bi-monthly e-newsletters, created by US-based Fotona Lares laser system users. To subscribe to "The Successful Laser Dentist" contact Lares Research or visit www.laresdental.com.

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What is Nd:YAG?

Nd:YAG is an abbreviation for Neodymium Yttrium Aluminum Garnet, which is the type of crystal used to generate laser light in the infrared spectrum at 1064 nm. Nd:YAG lasers are used in ophthalmology, cosmetic medicine, and dentistry, and for some industrial uses as well. Dental Nd:YAG lasers are pulsed, which allow very high powers to be emitted for a very short period of time.

Different wavelengths of light have the characteristic of being absorbed by tissues of different colors. The Nd:YAG laser is well absorbed by red (inflamed) tissue, which makes it ideal for treating inflamed gingival tissues. Dental Nd:YAG lasers are used for soft tissue procedures such as gingivectomies, periodontal sulcular debridement, sulcular disinfection, frenectomies, biopsies, coagulation of graft donor sites, etc.

How do you know which pulse duration to choose?

Discussion of pulse duration (or pulse width) requires the clarification of the various parameters available on dental Nd:YAG lasers. I use the Lares Powerlase AT laser, which has three parameters that are selectable by the operator: power, frequency/repetition rate, and pulse duration. The power for this Nd:YAG laser, represented by watts, is the overall power of the laser light generated. This laser is adjustable from 0.25 to 15 watts of power. Most dental procedures can be accomplished with 4 watts or less.

The frequency/repetition rate is how many times the laser fires per second (Hz). Nd:YAG lasers can have a frequency range of 10-100 Hz. Most dental procedures are accomplished at 20-50 Hz.

The pulse duration is the time length of each pulse of the laser light in milliseconds. The Lares Nd:YAG offers pulse durations of 0.10, 0.18, and 0.32 milliseconds. This feature is extremely valuable and changes how the laser interacts with the target tissue. Shorter pulse duration provides better cutting efficiency, whereas longer pulse duration provides superior coagulation with decreased cutting. This superior coagulation is especially beneficial for treating graft donor sites. When performing sulcular debridement, the increased coagulation is also beneficial.

About the Author

M. Glenn Lucas, D.D.S. is a private practice dentist in Hillsboro, OH. He is a 1976 graduate of the Ohio State University College of Dentistry and has been using Nd:Yag lasers since 1993. He has also trained numerous dentists on the use of the Nd:Yag and Er:Yag lasers.
www.hillsborosmiles.com



Did You Know?

Because there is a direct relationship between the specific wavelength and the corresponding absorption characteristics and depths of penetration, there is decreased risk of damage to surrounding tissues with a laser when compared to that caused by traditional dental equipment.



Visit Fotona's headquarters and participate in a Laser & Health Academy workshop.

- led by laser experts
- live demos and hands-on
- explore all areas of laser dentistry
- see laser systems being made
- great experience-sharing opportunity



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The Successful Laser Dentist

Volume 1, Number 19 January 31, 2008



Is a Laser Difficult to Use?

I love lasers. I've been using them since the late 90's and they are definitely a part of my practice that I would not want to be without. The response of patients to lasers is tremendously positive and the tasks that can be accomplished are many.

One of the questions I'm frequently asked by doctors who are looking into a laser purchase is "Are Lasers Difficult to Use?" Let's take a look at my experiences with both using a laser and teaching laser technique.

Like anything new, there will be a bit of a learning curve with a laser. However, this curve is usually not steep and it doesn't take too long to grasp the clinical technique.

The most important part of learning to use a laser properly is to develop a good working knowledge of the type of laser you are using. It is important for the doctor to read and digest the owner's manual and clinical instructions that are provided with the purchase of a laser. The knowledge that is gleaned becomes the foundation upon which everything else is built.

The other most important part of making a laser easy to use is good clinical training. This aspect cannot be emphasized enough. Any new technique or device has a learning curve associated with it, but a doctor who purchases a laser definitely needs good clinical training.

To that end, I think it is important to ask the manufacturer about training before deciding which laser to purchase. Does the training consist of a couple of hours with the sales rep? Do I need to take time out of my office to visit a far away off-site facility? Is the training provided in my office by an experienced laser clinician who will help me over the shoulder as I treat my patients?

Some companies provide minimal training, leaving the doctor to "figure it out alone" through trial and error. Other companies go the extra mile to provide in-office training and offer feedback on the new user's technique.

As most of us have learned in our careers, a good teacher can greatly influence our clinical successes. Lasers are definitely much easier to use and their use is much easier to grasp with feedback from an experienced clinician.

Continued...

About the Author

Dr. John Flucke is Technology Editor for Dental Practice Report magazine and a member of the Lares Research Laser Training faculty. Dr. John Flucke lectures internationally on all aspects of technology in dentistry including lasers.



As a laser user with more than 10 years of clinical experience, I can tell you from experience that lasers are easy to learn and easy to use. However, the speed and ease of integration as well as the doctor's comfort level in their use is greatly enhanced by quality training.

Did You Know?

An industry survey cited in *Dental Economics* found that 18.9% of North American dentists intend to purchase a dental laser in the next 12 months.



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State of the Art in Lasers for Dentistry

J. LAHA, Vol. 2008; No. 3/1

In his paper Prof. dr. Norbert Gutknecht, President of the German Society for Laser Dentistry (DGL), provides an overview, discusses laser applications and presents possible uses of lasers in various dental application areas.

Lasers have been used in dentistry since 1964. The idea was to be able to treat both soft tissues and hard tissues, including bone, without direct contact, vibrations and pain. Since the early 90's lasers have been applied in a wide variety of dental application areas.

Lasers in Endodontics

J. LAHA, Vol. 2008; No. 4/1

In his paper Prof. dr. Norbert Gutknecht from Aachen Research Institute for Lasers in Dentistry (AALZ), describes and discusses the use of the Nd:YAG and diode lasers in endodontics.

Clinical studies clearly show advantages of laser treatments over currently-used conventional methods and techniques. The most important advantages are improved disinfection efficacy, more effective root canal cleaning, reduction of permeability, reduction of micro-leakage, and elimination of the need to use toxic solvents.

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The Successful Laser Dentist

Volume 1, Number 4 May 30, 2007



Laser Use in Pediatric Dentistry

by Matthew S. McEachran, D.D.S.

The use of lasers in pediatric dentistry has grown substantially in recent years due to improvements in laser technology and manufacturing. This would also hold true for adult dentistry, but children are a group that holds more challenges to the clinician. Among these are irrational fears and limited dental experience. In these situations lasers hold the most promise. A laser provides a much better tactile, percussive, and sensory experience than the customary high-speed handpiece or surgical blade.

The two main procedures that I do with a laser on pediatric patients in my office are cavity preparations and frenectomies. These are best accomplished with two lasers of different wavelengths, the Er:YAG and the Nd:YAG.

Er:YAG lasers are specific for water and hydroxyapatite. This makes them ideal for cavity preparations. When fired at tooth structure, the laser will ablate tooth structure that has more organic matter (i.e. more water) much faster than tooth structure that has less. This means that when doing cavity preparations, the clinician will be able to selectively remove the much higher water containing materials, like decay, and leave healthy enamel relatively unchanged.

The advantage of the laser in pediatric dentistry is that each pulse hits the tooth so fast (50 microseconds to 300 microseconds, depending on manufacturer) that the brain doesn't have time to perceive pain. So in almost all cases local anesthesia is not needed. This phenomenon is seen in adult patients, but not to the degree that it is experienced with pediatric patients. This is due to the somewhat diminished nervous response in primary teeth versus secondary teeth. The laser's ability to prevent pain perception is almost 100% effective in children and as high as 90% in adults, depending on the laser and the area of the mouth. The shorter the pulse duration, the less ability the brain has to perceive pain.

Children also react more favorably to the popping sensation of the laser than the grinding and pushing sensation of the high-speed or low-speed handpiece. I suggest to the patient that it feels like popcorn popping on your teeth. This analogy is readily accepted without any fear.

Nd:YAG lasers are specific for pigmentation. This makes them ideal for soft tissue procedures, where there is always pigmentation. The major use of this laser is for adult periodontics, but in children it works quite well for frenectomies. It provides rapid cutting and excellent hemostasis, depending on the settings you choose. Some clinicians will even use the Er:YAG to cut the frenum, and do a second pass with the Nd:YAG for hemostasis.

Continued...

About the Author

Dr. Matthew McEachran graduated from the University of Detroit School of Dentistry in 1991. He did a GPR with the United States Air Force in Rantoul, Illinois. He has an extensive background in laser dentistry and has used Nd:YAG, Er:YAG, and CO₂ lasers in his practice.



The use of lasers in pediatric patients will help create a generation of people who do not have the fear of dental treatment that their parents and grandparents had. I would strongly urge any dentist wanting to provide the best for his/her patients to research the literature and consider acquiring a laser for their practice.

Did You Know?

Although dentists generally buy a laser for the clinical benefits, many later report that the laser brought back their enjoyment of dentistry.



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The Successful Laser Dentist

Volume 1, Number 4 May 30, 2007



What benefits does the laser bring to dentistry?

Dr. Joel White

Lasers in dentistry allow for minimally invasive procedures, which are less destructive than traditional methods. There are more than 25 uses of lasers in dentistry, and these uses include both soft and hard tissue applications. Lasers in soft tissue applications are unique in their ability to be minimally invasive for cutting and to be able to provide coagulation at the same time. There are no other devices that allow for such precision with coagulation than lasers for soft tissue applications.

Lasers for soft tissue can be utilized for procedures from sulcular debridement and superficial coagulation of herpetic and aphthous ulcers, all the way up to excision of large fibromas, and everything in between. For hard tissue applications, lasers can be utilized for ablation of pit and fissure caries in enamel, caries in dentin, and removal of bone. Lasers for hard tissue allow for precise removal of disease without the noise and vibration of the dental drill.

What Our Research Showed

We completed a clinical trial using Er:YAG lasers on children and found these procedures to be safe and effective. Er:YAG lasers can be used for caries removal, cavity preparation and enamel roughening. They can also be used for osteotomy, osseous crown lengthening and osteoplasty. The Nd:YAG laser can be used for selective caries removal in the enamel. Our research shows that the Nd:YAG laser will remove the soft organic caries but will not remove mineralized enamel.

PK DenBesten, JM White, JEP Pellino, G Furnish, A Silveira, FM Parkins, "The Safety and Effectiveness of an Er:YAG Laser for Caries Removal and Cavity Preparation in Children," *Med. Laser Appl.* 16: 215-222 (2001)

Our soft tissue studies have defined a number of dental laser applications. Our applied sciences have found that pulsed fiber optic delivered lasers have good cutting capabilities and they are very good for coagulation as well. Er:YAG lasers can be utilized for soft tissue cutting but do not coagulate as well as Nd:YAG lasers. Our experience is that diode and carbon dioxide lasers coagulate much more. We also conducted a randomized prospective clinical trial completing 70 soft tissue procedures. Using an Nd:YAG laser we were able to do simple gingivectomies and sulcular debridement 73% of the time without anesthesia. Patients' perceptions of pain were on average 2, with 10 being intolerable pain.

The more common soft tissue applications for lasers are intraoral soft tissue surgery, including incising, excising, ablating and coagulating, sulcular debridement, aphthous ulcer and herpetic lesion treatment, and coagulation of extraction sites.

Continued...

About the Author

Joel M. White, DDS, MS is Associate Dean for Clinic Administration and Professor in the Department of Preventive and Restorative Dental Sciences in the School of Dentistry at the University of California, San Francisco. He has been investigating and using lasers for more than 15 years.



White, JM; Goodis, H; Rose, CL. "Use of pulsed Nd:YAG laser for intraoral soft tissue surgery." *Lasers Surg Med* 11:455-461, 1991.

White JM, Gekelman D, Shin KB, Park JS, Swenson TO, Rouse BP, Tran KT, Bullard SL, Scott-Beckles BL, Oto MG, Buhler JS, Yamamoto A, "Laser Interaction with Dental Soft Tissues: What Do We Know from Our Years of Applied Scientific Research?," in *Lasers in Dentistry VIII*, Peter Rechmann, Daniel Fried, Thomas Hennig, Editors, Proceedings of SPIE Vol. 4610, pgs 39-47 (2002).

Did You Know?

Three of the primary causes of dental phobia and anxiety are fear of pain, fear of injections (or that the injection won't work), and fear of anesthetic side effects.



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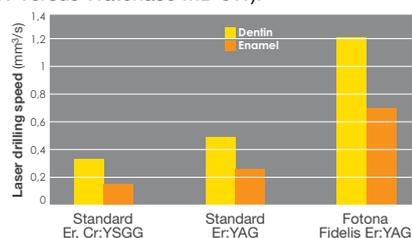
Study compares ablation performance between Er:YAG and Er,Cr:YSGG

J. LAHA, Vol. 2008; No. 2/1

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Measurements of ablation speed show that the Er:YAG laser ablates 3.7 times faster in dentine and 5 times faster in enamel compared to the Er,Cr:YSGG laser. The Er:YAG laser did not cause any thermal damage to tooth tissue, while thermal damage in the form of brownish discolored spots was observed in dentine with the Er,Cr:YSGG laser.

The author attributes the measured differences to (1) the difference in water absorption coefficients in hard dental tissue, (2) the current limitation of Er,Cr:YSGG lasers to pulse widths above 600µs, (3) pulse shape, where VSP-technology keeps the power within Er:YAG laser pulses constant and (4) the difference in performance capabilities (Fidelis Plus III 20W versus Waterlase MD 8W).



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The Successful Laser Dentist

Volume 1, Number 5 June 13, 2007

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How To Afford A Dental Laser

By Craig Lares,
President, Lares Research

At this point in the evolution of dental laser technology, there is no question that a full-performance hard and soft tissue laser can raise the standard of care in a dental practice significantly: Dramatically improved patient comfort (no needles, no vibration, no numbness, shorter appointments), reduced dentist and staff stress, more treatment options, less invasive dentistry, better quality dentistry, more efficient dentistry, etc. The list goes on and on.

And, I think it is safe to assume that every dentist in America would like to elevate the standard of care they offer their patients to the highest level possible.

Why, then, isn't every dentist in America using a laser?
Answer: They perceive they can't afford it!

Yet, when we survey our laser users, they are extremely satisfied, both clinically and financially, with their laser decision. So where is the disconnect?

When we dig deeper and ask these satisfied laser dentists about their financial satisfaction, it becomes very clear that these dentists found a way to make the laser affordable. How did they do it and how can you?

Well first of all, every one of these laser users financed their laser purchase so they are paying for the laser over time with monthly payments. Next, these dentists learned (with proper training) and began performing a short list of new hard and soft tissue laser procedures that they previously had not performed or had referred out. These new procedures were paid for by patients in sufficient total dollars each month to more than cover the monthly payment for the laser. These dentists made the laser affordable for their practices, and their patients now enjoy a higher standard of care as a result.

In fact, these dentists raised the standard of care for their patients at no cost to their practices!

Soft tissue crown lengthening procedures, frenectomies, and treatment of diseased periodontal pockets are examples of easy-to-learn procedures many dentists did not perform prior to acquiring a laser. A qualified laser sales representative can help you develop the short list of new procedures you are willing and able to learn and begin performing with your new laser. Each dentist's list is different, based on the individual's education, skills, experience, and patient demographics. Next, your rep can help you conservatively estimate both how many times you expect to perform these procedures each month and the fee you can expect to receive. Multiply the occurrences times the fee for each type of procedure, add the products, and you have the total new fees available to offset your monthly laser payment.

Many dentists also tell us that after they began performing these new procedures and were "on the

Continued...

About the Author

Craig Lares is President of Lares Research, which he joined full time in 1979. He is Past President of the Dental Manufacturers of America and a corporate member of the Academy of Laser Dentistry. He has a BSME from the University of California, Davis and an MBA from the University of Santa Clara. He is active in his local community as a Past President and founding member of the Rotary Club of Chico Sunrise.



lookout" for them, they discovered many more patients requiring those procedures than they had previously noticed!

A little willingness to learn and perform a few simple new procedures, and your laser can be free!

Did You Know?

In a survey of laser users conducted by the Academy of Laser Dentistry and Dental Products Report, only 2% were even somewhat dissatisfied and less than 1% were very dissatisfied with their dental laser.



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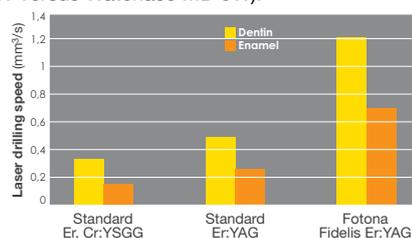
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The Successful Laser Dentist

Volume 1, Number 6 June 27, 2007

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What Are the Advantages of Lasers in Pediatric Dentistry?

- By Lawrence Kotlow, DDS

Imagine if when we graduated dental school we were told that our patients would love visiting the dentist and look forward to having their teeth cleaned and repaired. Imagine if our first big cash investment would almost guarantee a return of more than ten times our initial investment cost in just a few years. Imagine if we could reduce the need to use needles and numb our patients. Imagine if the media would portray dentists as compassionate, caring professionals who made their living providing care without inflicting pain. In the late 1990s when hard tissue lasers were approved by the FDA, this dream became a reality.

I invested in lasers more than seven years ago to meet these objectives. Now the only negative part of using lasers is having patients refuse to transition into an adult dental practice unless the dentist uses lasers.

As a pediatric dentist, I have the unique opportunity to see children as early as birth and under most circumstances, initially, at around one year of age. In spite of fluoride and discussions with parents concerning the prevention and causes of early infant dental decay, there are still a significant number of children who require treatment of congenital soft tissue anomalies such as ankyloglossia, abnormal maxillary frenum attachments, biopsies, and other soft tissue problems as well as repair of dental caries.

The use of Erbium lasers for repair of incipient hard tissue disease allows the dentist to provide a stress-free means of restoring teeth and ablating bone in a minimally invasive manner, often without the need for any local anesthetics.

Soft tissue lasers such as Diodes and Nd: YAG lasers allow for sutureless, less invasive treatments. Defocused hot lasers and lasers known as photobiostimulating lasers allow for rapid healing of traumatic lesions, creating analgesic effects when cutting tooth structures as well as many other yet to be discovered benefits.

Parents are often overwhelmed with relief when I explain to them that using lasers for soft tissue treatments can be completed safely in the dental office rather than in the operating room under a general anesthetic. Completing restorative care on carious teeth without the need for local anesthetics removes my biggest fear of having a child accidentally bite his or her lip due to the numbing effect.

Lasers represent a fundamental change in the entire way dentistry has been taught. We now need to rethink and often modify G.V.Black's principle of extension for prevention with minimally invasive micro-dentistry. We need to understand that laser dentistry is one portion of an entire new way of practicing conservative, pain-free dentistry involving digital radiography, visual enhancement, and micro-dentistry. To quote a pediatric dental resident who attended one of my seminars; "if I was to do dentistry the way you lectured today, I would have to relearn everything I was taught in dental school." I do not think that investing in lasers requires a dentist to relearn everything we were taught, but I do agree it creates a significant change in the way we were originally taught to provide care.

About the Author

Dr. Lawrence Kotlow is a board-certified pediatric dentist who has practiced pediatric dentistry since 1974. He has received advanced proficiency certification from the Academy of Laser Dentistry and is a certified course provider for Standard Proficiency by the Academy of Laser Dentistry. He has written more than 30 articles on pediatric dentistry and using lasers in the practice of pediatric dentistry and lectures both nationally and internationally on lasers and pediatric dentistry. He can be contacted at kiddsteeth@AOL.COM and has a website at KIDDSTEETH.COM.



Question From Dr. E.F.:

I recently purchased a soft tissue diode laser and wondered if there was a medical code that could be applied when using the soft tissue laser during SRP?

Answer from Dr. G.S.: There is no dental insurance code for laser perio. We prefer it that way. You can either up your 4341 fee to include it (which we did) or you can add on a separate code, which we do for plans that restrict our fees for 4341. If you are looking for medical insurance billing, we don't participate. I don't want to invite the camel into the tent.

Did You Know?

In a survey conducted by the Academy of Laser Dentistry and Dental Products Report, laser users were asked to rate their patients' response to laser treatment. Not a single one responded "somewhat negative" or "very negative" and 79% chose "very enthusiastic and accepting."



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A C A D E M Y

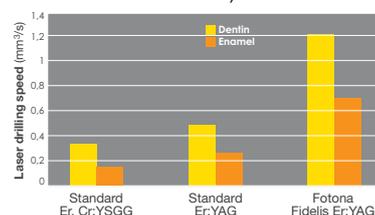
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The Successful Laser Dentist

Volume 1, Number 7 July 11, 2007

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Can a Laser Help You Grow Your Practice?

- By Jon Kirlough, DDS

It's a question often heard from dentists who are considering a laser purchase. The motive behind the question is really "Can this help me grow the practice enough to offset the cost?" The simple answer to the question is "YES!"

I've had a Powerlase AT laser in my office for a little more than a year, and I can say that it has had a tremendous impact on practice growth. My practice has seen an average increase in new patients of about 5-8 a month in the year that we've had the laser on board. We have made a concerted effort to fine tune our internal marketing, and the laser has been a huge part of that effort. We have not, at the time of this writing, made any real effort to market the laser externally. That effort will begin in earnest in the fall, and, quite frankly, I'm expecting to see outstanding results.

The patients that I have seen and treated using the laser (in both hard and soft tissue applications) have raved about the treatment. From cavities fixed with no anesthesia to soft tissue surgery without pain in the recovery period, the patients love the laser! In fact, in the last year, I have given one anesthetic injection to a child when doing a filling...one! And that was only because the tooth had a silver filling in it that had decay around it. The rest of the fillings I've done on primary teeth have required no anesthesia at all. For adult teeth the results vary, but I'm operating at about 65% of the time not using any anesthesia. The prospect of no injection and no numb lip is priceless to most patients. And they tell their friends about it!

There has been a great deal of media exposure touting laser dentistry as the "wave of the future." Today's dental patients are more information-savvy than ever before and they will be expecting you to have this technology available. Depending on what region of the country you live in, market penetration for lasers in dentistry varies from 1% up to maybe 10 or 15%. In layman's terms, this means that despite all the positive press that laser dentistry receives, the vast majority of dental offices are not LASER dental offices. So chances are, you'll be one of the first on your block with this technology.

Yes, I understand that it is a sizeable investment. Yes, I understand that you want to be sure that you'll see a healthy return on that investment. Yes, I can tell you that my practice has grown because I am a LASER dentist, and so will yours!

About the Author

A graduate of The Ohio State University and proud veteran of the U.S. Navy Dental Corps, Dr. Kirlough currently practices in the suburbs of Cleveland, Ohio. He is happily married with 3 children, and number 4 is on the way!



Did You Know?

According to a March 2007 Laser Survey by *Dental Products Report*, in answer to the question "Which procedures do you perform with a laser?" the top answers were:

• Gingival contouring	90%
• Troughing/gingival retraction	76%
• Frenectomy	68%
• Sulcular debridement	61%
• Fibroma removal	58%
• Bacterial reduction	49%
• Caries removal	46%



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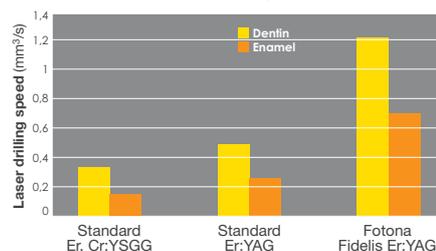
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J. LAHA, Vol. 2008; No. 2/1

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The Successful Laser Dentist

Volume 1, Number 8 July 25, 2007



What are the advantages of Er:YAG for soft tissue?

- By Lawrence Kotlow, DDS

When choosing a laser for your dental practice, you must first determine which laser is able to perform the treatments you want the laser to do. Dental lasers fall into two categories: cold lasers (lasers that use photobiostimulation to produce an effect without generating heat), and hot lasers (lasers that use a photothermal reaction, which generates heat in the target tissue to produce an effect). Considering all the different effects we want our lasers to be able to produce, we should realize that the laser coming closest to doing everything is the Erbium: YAG. I like to call it "the all purpose laser."

Initial manufacturer advertising and marketing for the Erbium:YAG at 2970 nm stressed the laser's primary use for restorative dental treatments. Soft tissue was addressed as a function of lasers operating in the lower ranges of 810,840,890 and 1064 nm or 10,600 nm wavelengths due to their ability to coagulate and eliminate bleeding during soft tissue treatments. The Erbium: YAG's ability to safely ablate enamel, dentin, caries, cementum, and bone is well documented. However, as you develop confidence and skill using your Erbium: YAG laser, you will find that it is an excellent soft tissue laser with many benefits over other wavelengths.

The Erbium:YAG laser has many shared benefits with the other hot laser wavelengths, such as a reduction in the need for local anesthesia to complete many treatments, a bactericidal effect that reduces the potential for infection and eliminates infection-causing agents at surgical sites, a reduction in the need to suture surgical areas, and a reduction in post-treatment discomfort.

There are, however, a few benefits available only to the Erbium: YAG laser, and that is what makes it a truly versatile laser. Unlike other lasers that can cause bone necrosis, the Erbium:YAG laser can safely and quickly ablate bone. This is a major benefit when removing impacted third molars that require bone removal for access, removing bone during crown lengthening procedures, or when reducing or removing bone during a maxillary frenectomy. Unlike other lasers, the Erbium laser ablates tissue faster and with less potential collateral tissue damage due to its shallow tissue penetration. This results in faster healing and almost no post-operative discomfort. Procedures easily completed using the Erbium:YAG laser include pulpotomies, lingual and labial frenectomies, biopsies, crown lengthening, gingival recontouring, operculectomies, periodontal pocket reductions, as well as many others.

To get the maximum benefit and to make sure your laser doesn't become an expensive plant holder, you should have a good understanding of laser physics and laser safety before making an investment in lasers. This begins by taking a comprehensive course designed to teach both laser physics and laser safety. (Lares Research offers this training free.) Once you have a good understanding on how the laser works, patient care will go very smoothly. One philosophy of mine is that although the initial learning curve may take a few months, the real learning curve is never ending. As you become comfortable using your laser, you will be able to add more and more procedures to your practice.

About the Author

Dr. Lawrence Kotlow is a board-certified pediatric dentist who has practiced pediatric dentistry since 1974. He has received advanced proficiency certification from the Academy of Laser Dentistry and is a certified course provider for Standard Proficiency by the Academy of Laser Dentistry. He has written more than 30 articles on pediatric dentistry and using lasers in the practice of pediatric dentistry and lectures both nationally and internationally on lasers and pediatric dentistry. He can be contacted at kiddsteeth@AOL.COM and has a website at KIDDSTEETH.COM.



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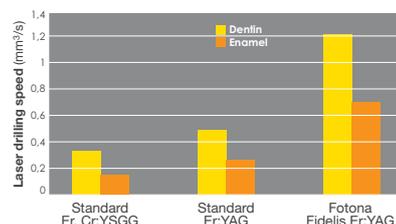
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The Successful Laser Dentist

Volume 1, Number 9 August 8, 2007



Misconceptions about Lasers

- By John Flucke, DDS

Lasers are a fairly new subject in mainstream dentistry. Because of this, I'm frequently asked questions regarding them by both fellow practitioners and patients. Many of these questions show there is a good deal of misunderstanding regarding lasers and their uses. Here are some of the most common misconceptions, along with some responses based on my own experience:

1. Lasers are expensive – While it is true that lasers are not inexpensive tools, this misconception comes from those not familiar with their benefits. Hard tissue lasers allow the doctor to treat multiple teeth in multiple quadrants, thus increasing per-visit production. Also, since lasers (especially dual wavelength models) allow doctors to perform procedures they were not previously performing, this also increases production. Factor in the referrals that lasers generate and it's much easier to understand how a laser can more than pay for itself.

2. Lasers are 100% painless – While it is true that lasers are frequently used without anesthesia, there are certain situations and certain patients that will require some type of local anesthesia. For some soft tissue procedures a topical anesthetic is all that is necessary. For large hard tissue procedures a local injection may be necessary. For an easy way to tell the depth of decay and therefore the odds of needing a local, I recommend either the Kavo Diagnodent or the Neks D-Carie.

3. Lasers are dangerous – This is a concern heard more from patients than from a well-trained doctor. While a laser can be dangerous, so can a high speed handpiece in untrained hands. A good clinical training program is essential and ensures that the laser will be used safely by the treating clinician.

4. Hard tissue lasers cut more slowly than a high speed – This can be true, depending on the delivery system the laser uses. Many hard tissue lasers use a fiber delivery, which means that the energy must be kept low to protect the expensive fiber delivery system. The Lares PowerLase® AT uses an articulated arm, which allows the laser to deliver much more energy for efficient removal of tooth structure. What this means to the user is that the PowerLase® AT can cut at speeds that are much more comparable to a high speed handpiece.

5. Lasers are limited (some work strictly on soft tissue, while others are exclusively for hard tissue) – Although some lasers are appropriate only for hard tissue or for soft tissue (which limits their use), the Lares PowerLase® AT (AT = All Tissue) allows the clinician to select the optimal wavelength for each procedure, which enables the laser to be used for both hard tissue and soft tissue procedures.

6. Lasers scare patients – I explain to patients how the selective wavelength of the laser means that it is actually more precise than a handpiece. And once patients learn that the need for anesthesia will be minimized or even eliminated, and that they won't have that annoying numbness afterward, they're sold!

About the Author

Dr. John Flucke is Technology Editor for *Dental Practice Report* and Technology Editor for the Missouri Dental Association publication *Focus MDA*. He lectures internationally on all aspects of technology in dentistry including lasers. His article, "Laser Know-How," appeared in the July issue of *Dental Practice Report*. For more information, visit www.denticle.com.



Did You Know?

According to the Consumer Guide to Dentistry <http://www.yourdentistryguide.com/laser> the advantages of laser dentistry for the patient include:

- Reduced need for sutures
- Less need for anesthesia
- Minimized bleeding
- Reduced risk of bacterial infection
- Minimized damage to the surrounding tissue
- Faster healing/tissue regeneration



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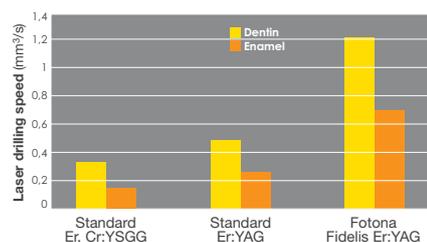
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The Successful Laser Dentist

Volume 1, Number 10 August 22, 2007



Can Lasers Be Used on Infants?

- By Lawrence Kotlow, DDS

Old School says children should begin to see a dentist around age three or when they can behave in the dental office. New school and good medicine says that dental care begins with the mother's oral health before the child is even born. Studies have proven that a mother's oral condition can be passed to the newborn infant. Later, the simple act of having an infant eat food from a spoon that has been in the mother's mouth can inoculate the infant with disease-producing bacteria. Making sure that a mother-to-be is free from oral disease goes a long way toward giving her infant a chance for a cavity-free childhood.

Infant oral care should begin no later than six months after the first tooth appears. This is usually around 12 months of age. This is a good time to examine the infant for oral anomalies and educate the parents on proper oral care. Prevention of "nursing bottle," or early infant caries, as well as evaluating the infant's need for fluoride are important for protecting the young developing oral structures.

There are, however, situations in which dental care should begin as early as the day a child is born. Many mothers look forward to being able to nurse their children for at least the first year of life. It can be a very frustrating as well as disconcerting problem for a mother if her child is unable to nurse. In many instances the cause can be a short lingual frenum attachment. The infant may nurse as often as every two hours, fall asleep without adequate nourishment, fail to thrive, and have difficulty latching on to the breast, all due to the simple problem of a short lingual frenum. As a result, the mother can develop mastitis, painful nipples, and lack of adequate milk production.

In the past this was either ignored or passed off as a problem that would go away if left untreated. In instances where there was agreement that the frenum needed to be revised, the infant was often subjected to general anesthesia and post-operative discomfort for as long as a week. Lasers have changed all that.

Today, using either a soft tissue laser or an Erbium: YAG laser, a dentist can correct the problem in a matter of seconds. The benefits of laser procedures are that they are quick, virtually devoid of complications, and can be completed in the dental office without the need for general anesthesia. I prefer the Erbium: YAG laser for revising an infant's frenum. In many cases just a topical anesthetic is adequate for the procedure. Mothers are relieved to learn that they can indeed enjoy the wonders of nursing a child without pain, and that the infant will be able to get adequate nutrition, sleep longer, and thrive. And of course fathers are happy because the newborn sleeps more and the new mother is able to get adequate rest. This is a dental procedure that is safe, effective, and affects three people, not just one.

Lasers are excellent for other procedures on infants as well. These include revision of an abnormal maxillary frenum attachment, biopsies of soft tissue lesions, and traumatic injuries. Many of the advantages lasers provide for adults (such as minimizing pain, bleeding, and potential for infection) make them even more valuable when treating these tiny patients.

About the Author

Dr. Lawrence Kotlow is a board-certified pediatric dentist who has practiced pediatric dentistry since 1974. He has received advanced proficiency certification from the Academy of Laser Dentistry and is a certified course provider for Standard Proficiency



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Did You Know?

Laser wavelengths target the pigments in soft tissue and pathogens such as *Porphyromonas gingivalis*, as well as inflammatory and vascularized tissue. The light energy that lasers produce can be absorbed by a target tissue, producing a thermal reaction in that tissue.



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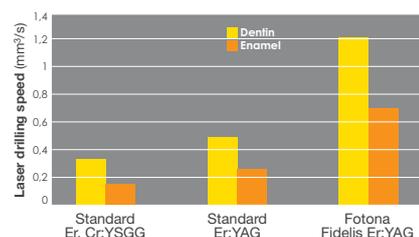
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The Successful Laser Dentist

Volume 1, Number 11 September 7, 2007

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Class V: Hard Tissues and Hard Numbers

- By Jon Dunn, DDS

As both an active practitioner and a continuing education provider, I am by nature a skeptic when I hear reports of any "landmark" technology that will transform a practice. My C.E. clients depend on our objective and impartial evaluation of new products so that they can implement only the best procedures on behalf of their patients. One emerging technology about which we are frequently asked is the use of dental lasers for hard tissue restorative preparations. This would be the killer app of laser applications.

We have found that using an Er:YAG laser for hard tissue procedures has been a transformational experience in restorative dentistry for both my patients and staff. This has been particularly true in the use of the Er:YAG for cervical restorations. All of our practices abound with Class V restorative challenges: caries, erosions, abrasions and abfractions. Many of these are often broad in appearance, but minimal in depth, and the use of a bur for caries removal and retention removes more tooth structure than is practical or prudent. This is an area where the dedicated hard tissue laser shines.

We utilize a Lares PowerLase® HT instrument that is able to cut, prepare, and etch dentin in these sensitive areas with remarkable precision, efficiency, and comfort. Besides the donning of safety glasses, which has the benefit of alerting patients that they are receiving a specialized new treatment, there is no traditional patient preparation necessary. Neither topical nor injectable local anesthetics have been necessary for any of the dozens of patients we treated just this week for Class V restorative needs. The preparations from our standpoint have been ideal: shallow, precise, and beautifully etched (as research reveals the absence of a smear layer following laser preparation). That all translates into improved treatment and increased revenues: a win-win scenario for patients and practitioner.

Our patients have been universally thrilled with the absence of injections, lack of residual numbness and no need for additional visits due to anesthetic and time considerations. They have expressed to us that they have "lived long enough to see another dental miracle!" For us, the efficiency of beginning each procedure without a wait for local anesthesia, moving from tooth to tooth in multiple quadrants, and removing minimal amounts of tooth structure for retention have been a huge gift. Not to mention the lack of anxiety over administering injections to our elderly, medically compromised, and cardiac-risk patients.

Economically, the Er:YAG hard tissue laser has exhibited a remarkable return on investment. It has enabled us to complete up to 17 Class V restorations in the space of an hour (on a needle-phobic physician). At \$195 per surface, you can easily do the math and realize that \$3,315 of production in an hour, with no lab fee or second appointment, is a success story in anyone's book. And the patient was thrilled.

With the extreme efficiency and level of conservative care offered by this new generation of Er:YAG instruments, performing just Class V restorations on your patients will provide you and your staff with a great motivation to get to the office each day. We typically schedule a patient for 20 minutes for a routine restorative appointment, performing an average of 2 Class V restorations per appointment, averaging \$1,170 per hour in stress-free, patient-appreciated production.

A wonderful additional benefit is that with this degree of efficiency, we are able to gladly accept PPO patients that would have been a decided economic burden in the past. Even with a reimbursement of \$90 for a 1-surface buccal composite; performing just eight such restorations provides us with an hourly production of \$720.

This places our Er:YAG laser in constant demand. It reminds me daily of the comment made by the Cleveland Browns' coach explaining why he had Jim Brown carrying the ball on 40% of all of their offensive plays: "When you have a big gun, shoot it." In our office, the Lares PowerLase® HT has proven to be a big gun "landmark" technology that hasn't gathered dust in the operatory.

About the Author

Jon Dunn, DDS maintains an exclusive private practice in Santa Barbara, California devoted to adult restorative dentistry. He is a member of the American Medical Writers Association and an approved provider of continuing education for the California Dental Board and the Academy of General Dentistry National PACE program. He is a recognized pioneer in internet-based continuing education and may be contacted through his C.E. website at www.DentalDidactics.com



Did You Know?

Many patients equate "dental sounds" with pain due to past unpleasant experiences. For some of these patients, the normal sounds of a handpiece can provoke anxiety and discomfort even when there is no actual pain. Lasers do not make whining, grinding, or other annoying noises, so patients are better able to relax and remain comfortable.



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The Successful Laser Dentist

Volume 1, Number 12 October 9, 2007



Closed Crown Lengthening with an Erbium:YAG Laser

- By Martin Jablow DMD, FAGD

One of the biggest laser controversies revolves around osseous crown lengthening surgery. There are two ways of doing the procedure open flap and no (closed) flap. I believe that in most cases an open flap is the proper choice for osseous crown lengthening. It allows for proper visualization of the surgical field, but with proper case selection and planning a closed osseous crown lengthening may be successfully achieved. The following case is an osseous crown lengthening done to harmonize the patients smile line without laying a flap prior to fixed prosthetics.

The patient had previous crown lengthening surgery and was reluctant to have another one because of sensitivity and packing. That was part of the reason to attempt a no flap osseous crown lengthening. It was determined that the gingival contour of the maxillary right central incisor needed to be raised to harmonize it with the adjacent central incisor. A thorough smile line assessment was performed along with a periodontal assessment including periodontal probing.

The patient was anesthetized and the level of the bone was determined by sounding to bone with the periodontal probe. An Nd:Yag laser was used to perform a gingivectomy (30mj x 100Hz) which established the proper gingival level.

A probe was then inserted to measure the depth of the pocket. A 3mm pocket depth was established to ensure the proper biologic width. The erbium laser tip was placed into the sulcus and slowly moved through the sulcus (50mj x10Hz). This will gently remove osseous structure. The perio probe is then used to measure the depth throughout the procedure and across the facial aspect of the tooth. Incremental amounts of bone were removed until the perio probe measured 3 mm. I was careful not to extend the laser into the interproximal.

After the surgical procedure the tooth was prepared for a crown and temporized.

After the appropriate healing period the maxillary incisors were prepared and the crowns placed.

So with proper treatment planning a closed clinical crown lengthening may be achieved with minimal discomfort to the patient. The patients comments about the procedure were all positive and she stated she only took one ibuprofen and it was just sore for 2 days. She was happy with the results and stated that this crown lengthening was much easier then her previous crown lengthening.



About the Author

Martin Jablow DMD, practices general dentistry in a group setting in Woodbridge, NJ. He enjoys promoting the use of technology in the dental office to improve efficiency and patient care. As a partner in Dental Technology Solutions



(www.dentaltechnologysolutions.com) he lectures and writes articles on the use of technology to enhance the practice of dentistry. Dr. Jablow can be reached by email at marty@dentaltechnologysolutions.com.



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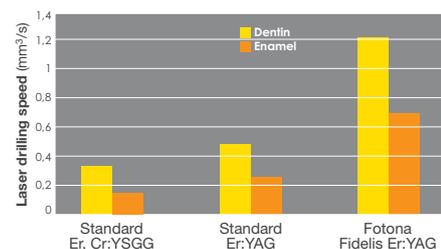
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The Successful Laser Dentist

Volume 1, Number 13 October 17, 2007



Is a Laser Just Another High-Tech Toy?

- By Dr. Lawrence Kotlow

In 2000 I was asked to give a three-hour program on high-tech dentistry at the Academy of Pediatric Dentistry Annual Meeting. I spoke mainly about computers, air abrasion, and using PowerPoint to market the dental practice internally. At the completion of the program, the most commonly asked questions concerned using lasers on children. At that time, my knowledge of lasers was next to zero. In fact, I had my own opinion that lasers would most likely be difficult, if not impossible, to use on small children, who under normal conditions may have difficulty just sitting in one place for more than a few moments. I figured that a laser was just another toy I didn't need.

During the dental meeting a few laser companies were exhibiting hard tissue lasers and I spent the better part of a day and a half trying out their erbium lasers. In the end, I purchased a laser, and since that time have learned a great deal about lasers and their use.

The first hoop dentists need to jump through when looking at lasers, is to realize that purchasing a laser is not an expense, but rather an investment in their dental practice. The key word to incorporating lasers into your office is "investment." The second hoop is that once you have spent the time and money to invest in a laser, you need to invest your time in understanding the physics behind how your laser operates. In doing so, you can appreciate the wonderful advantages of using lasers on your patients, as well as the proper safety measures you need to undertake. You will also learn how to make the use of lasers enjoyable and safe for your patients: children, as well as adults.

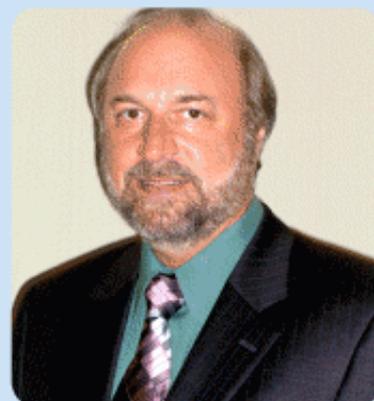
As you begin to develop a deeper understanding of laser energy diffusion, energy density, absorption, laser light characteristics, different wave lengths, and the different targets that laser energy interacts with, you will be able to fully use your new investment. One of the harshest criticisms made by non-laser dentists is that once you buy a laser you must suddenly begin to do procedures that you never did before to pay for your investment. This is far from the truth. In reality, many dentists often postpone treatment or refer out procedures that they are more than qualified to treat. They do not recognize that they are equally capable of providing treatment for many procedures that they either continue to just observe until a problem develops or refer out.

Over the past seven years, dentists I have spoken with often express the idea that the cost of a laser is too high for them to invest in or feel that there are other, more important things they need at that point in time. Unfortunately many of these individuals fail to grasp the benefits of investing in a laser for their patients, their staff, and themselves.

Lasers have introduced me to a new standard of care for my young patients. They provide me the ability to save parents of infants from going to the operating room for procedures that they need, enable me to treat patients who are so needle phobic that they could not get treatment, and have given me the wonderful opportunity to meet colleagues from all over this world. I owe lasers a great deal and cannot even think of practicing dentistry without the lasers I have invested in and incorporated into my dental practice to care for my patients.

About the Author

Dr. Lawrence Kotlow is a board-certified pediatric dentist who has practiced pediatric dentistry since 1974. He has received advanced proficiency certification from the Academy of Laser Dentistry and is a certified course provider for Standard Proficiency by the Academy of



Laser Dentistry. He has written more than 30 articles on pediatric dentistry and using lasers in the practice of pediatric dentistry and lectures both nationally and internationally on lasers and pediatric dentistry. He can be contacted at kiddsteeth@AOL.COM and has a website at KIDDSTEETH.COM.



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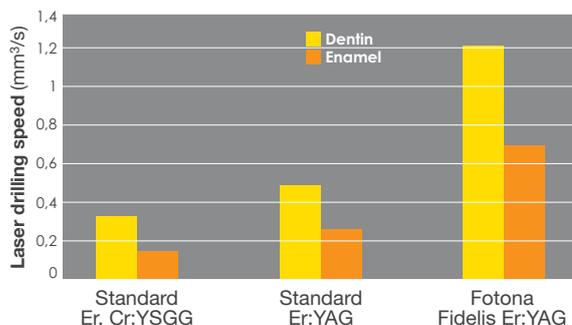
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The Successful Laser Dentist

Volume 1, Number 14 November 9, 2007



Patient Benefits of Laser Treatment

- By Dr. John Flucke

There is no doubt that lasers are a growing part of the dental industry. Current statistics indicate that 7% of dental offices currently offer some type of laser treatment and that number continues to increase.

Doctors are continually given compelling reasons to purchase a laser. Lasers can allow you to perform procedures you currently do not perform, and are a great internal and external marketing tool. A laser purchase is a good business decision for a practice looking to increase production and provide an expanded list of services.

However, let's take a look at lasers from a different perspective... the patient's perspective.

Laser treatment offers patients many benefits. The biggest and most talked about by patients is painless, anesthesia-free dentistry. A hard tissue laser can be used in many clinical applications as a viable alternative to anesthesia and handpieces. Patients can receive restorative treatment without the discomfort of needles and without the lingering after effects of a numb lip and/or tongue. Patients can immediately return to work or other activities with normal speech and sensation. On top of this benefit, the high number of patients who fear needles will be grateful to receive treatment in this low stress manner.

No anesthesia also means that more can be accomplished per appointment. Since most hard tissue laser procedures are performed with no anesthesia, patients can receive treatment in all four quadrants at the same appointment. This means fewer appointments for the same treatment... a huge benefit for today's busy patients! Also, since the patient can actually "feel" how they occlude, the number of return visits for post-op adjustments drops to almost zero.

Hard tissue lasers allow the dentist to be more conservative in treatment, allowing the patient to keep more of their own natural tooth structure. Combined with some type of caries detection system such as the Diagnodent or Caries I.D., decay can be found at the earliest possible time. The result is more conservative treatment delivered in a minimally invasive manner.

Soft tissue treatment also offers several benefits for patients. Do you think your patients would be excited about the possibility of having their periodontal disease treated by a laser instead of a scalpel? Nearly painless periodontal treatment becomes a reality when using an Nd:YAG soft tissue laser.

Treatment performed with a soft tissue laser is fast, bloodless, and nearly painless postoperatively. In my office there is frequent astonishment when I perform a laser frenectomy with no scalpel and no sutures. This is especially amazing for parents who had the same procedure done as a child and know what it's like to receive the treatment "the old way."

About the Author

Dr. John Flucke is Technology Editor for *Dental Practice Report* and Technology Editor for the Missouri Dental Association publication *Focus MDA*. He lectures internationally on all aspects of technology in dentistry including lasers. His article, "Laser Know-How," appeared in the July issue of *Dental Practice Report*. For more information, visit www.denticle.com.



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The Successful Laser Dentist

Volume 1, Number 15 December 6, 2007

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Using your Erbium: YAG Laser to Induce an Analgesic Effect for Restoring a Tooth

- By Dr. Lawrence Kotlow

My goal when treating children is simple: make the dental experience as enjoyable and comfortable as possible without compromising care. Once I move beyond educating my patients and their parents about good oral health care habits and begin to prevent, repair or correct dental disease or abnormalities, this goal often proves more challenging. Traditional dental restorative procedures require needles to numb our patients to allow restorative procedures without the potential to create pain and discomfort. Once this pattern of numbing and drilling is established in the patient's mind, the patient also may also begin to develop a fear of dental handpieces as well as relate this fear to the smells and vibration that remain part of conventional techniques of restorative dental procedures.

The Erbium: YAG laser offers the opportunity to alter this cascading development of the "dental fear factor," which many children carry into adulthood. The Erbium laser works in two ways to remove or ablate dental hard tissues. First, it uses a photothermal mechanism to heat water within the dental tissues; ablation occurs when the heated water creates a photoacustical effect causing the water within the target tissue to explode. There is, however, another benefit from using all types of lasers-photobiostimulation (also known as photobiomodulation and formerly known as a low level laser effect). With this type of laser therapy the Erbium: YAG laser produces an analgesic effect, allowing the tooth not to feel any pain or discomfort while being prepared for a restoration, whether using a laser alone or in conjunction with a conventional handpiece. During the preparation of a primary tooth using the laser with the technique described below, I am often able to create a cavity design using only the laser or, if I wish to place an alloy, by also using a highspeed handpiece.

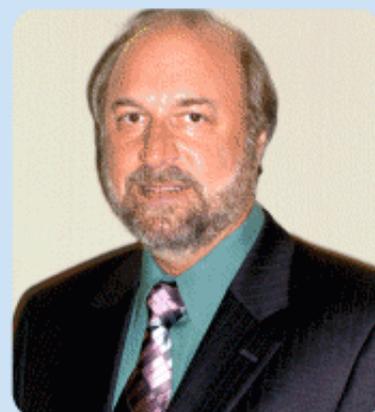
The Technique

Begin by placing the laser tip in a defocused mode (about 3-5 mm) above the occlusal surface of the tooth to prepare for approximately 30 to 90 seconds. In the defocused mode, no tooth structure is ablated and no photothermal effect occurs. In teeth previously restored either with a composite or alloy restoration, it is still possible to obtain some analgesic effect if there is a place on the tooth where there is no restoration present to place the laser tip. In permanent teeth, bicuspids may also derive a similar effect. In the molar area the results are not as consistent. In primary teeth, this will work on over 80% of the teeth on which it is attempted. In permanent teeth, the results will vary from person to person. Using either the Isolite system of tooth isolation or a rubber dam with topical on the soft tissue and a number 3A winged clamp, the tooth is isolated and then lased for 1-2 minutes (defocused), using the same settings as you would for ablating the enamel (such as 7 water/3

air/ VSP/15 Hz and 400 mj). If desired the preparation can then be completed for either an alloy or a composite for a Class II restoration using a high- or slow-speed handpiece. Most other restorations are usually completed using only the laser and composite restorative materials. When this technique is effective the vibration and sound of conventional handpieces will no longer elicit a "fear factor" for future dental visits.

About the Author

Dr. Lawrence Kotlow is a board-certified pediatric dentist who has practiced pediatric dentistry since 1974. He has received advanced proficiency certification from the Academy of Laser Dentistry and is a certified course provider for Standard Proficiency by the Academy of



Laser Dentistry. He has written more than 30 articles on pediatric dentistry and using lasers in the practice of pediatric dentistry and lectures both nationally and internationally on lasers and pediatric dentistry. He can be contacted at kiddsteeth@AOL.COM and has a website at KIDDSTEETH.COM.



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Addressing the Needs of the Geriatric Patient

- By Jon Dunn, DDS

Changing demographics present every dental practice with the challenges and opportunities of treating an increasing number of patients over the age of 70. These patients have had decades of experience in America's dental chairs and are continually amazed by the technology breakthroughs that attend current dental treatment. For a number of reasons the new instrument they appreciate the most remains our hard tissue Er:YAG laser.

These patients now retain their natural teeth for a lifetime and need an increasing amount of dental maintenance. From a restorative perspective, cervical restorations are a vital portion of their treatment planning. Besides the obvious root caries that develop from declining hygiene abilities (whether from arthritis, impaired eyesight, tremor or stroke, etc.) they are susceptible to long term abrasion and abfraction lesions secondary to gingival recession. The ravages of gastric reflux also dramatically affect these patients.

The Er:YAG laser proves especially beneficial when treating the geriatric patient with these challenges. It is common for numerous lesions to occur in all four quadrants and these patients often present with a limited ability to tolerate extended appointments. Patients with Alzheimer's may be intolerant of an appointment lasting even a quarter hour. Without the need for local anesthetic injections we can guide these patients through a number of restorations in short order and the self-etching nature of the laser preparation allows us to bond quickly yet definitively.

These patients also present with an ever-evolving list of cardiac conditions and prescription medications which frequently contraindicate the use of epinephrine. The alleviation of local anesthetic injections benefits these patients psychologically as well as physiologically, as this segment of the population also reports the greatest number of injection sequelae due to fragile tissues and the common use of anti-coagulants. It always makes for a better visit when no catecholamine levels are raised (neither my patient's nor my own!) and when no after-hours calls occur regarding injection site trauma.

The financial aspects of Er:YAG usage are also significant as many of our senior patients have a fixed income. With the immense efficiency of hard tissue laser usage we are able to offer "senior discounts" without hesitation (or regret) and can salvage many cast restorations with a laser-prepped "patch" restoration thanks to the enhanced and predictable bonding we

achieve. These discounts are appreciated by both the patient and any family members who help manage their finances, making the hard tissue laser a wonderful bridge between the generations.

About the Author

Jon Dunn, DDS is a member of the American Medical Writers Association and a registered continuing education provider for both the California Dental Board and the Academy of General Dentistry. He maintains an exclusive private practice in Santa Barbara, California devoted to adult restorative dentistry. Dr. Dunn is a pioneer in the delivery of online continuing education and may be contacted through his CE website at www.DentalDidactics.com



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The Successful Laser Dentist

Volume 1, Number 17 January 2, 2008



HOW TO BUY A LASER

- By Dr. Lester

Interest in dental lasers has grown tremendously in recent years, and while new technology is always tempting, it's best to do your homework prior to making a purchase. First, when contemplating the purchase of a dental laser determine what you want to do with it. In spite of the advertising claims of some manufacturers, any one particular laser wavelength is useful only for a limited range of functions, generally divided into soft tissue and hard tissue uses. Each type of tissue responds best to a specific range of wavelengths. Most laser products function on only one wavelength, but two manufacturers offer lasers with two different wavelengths in one system. The Lares PowerLase AT incorporates both Er:YAG and Nd:YAG lasers in one unit, a very efficient arrangement that should be considered if you want to use lasers for both soft tissue and hard tissue procedures.

Many dentists enter the world of laser dentistry by purchasing a soft tissue laser, usually a diode laser. These lasers are relatively inexpensive, portable, and reliable. Purchase prices vary, but range in the vicinity of \$10,000 to \$18,000. Also excellent for soft tissue, Nd:YAG lasers are slightly more expensive, but considered a little kinder to the tissues. With both these devices you can do gingival troughing for crown impressions, soft tissue management, gingivectomy, herpetic and apthous ulcer treatment, and numerous other procedures. Interestingly, the price of the Lares PowerLase AT dual wavelength system (Er:YAG and Nd:YAG) is only \$10,000 more than the Er:YAG only model, making the cost of the Nd:YAG (soft tissue) capability no more than the less expensive diodes!

Hard tissue lasers are more expensive to purchase and maintain, and are more technique sensitive in terms of performing anesthetic-free cavity preparations without sensitivity. Considerations to keep in mind here include purchase price, reliability, training, and support. Prices range widely from \$60,000 to \$80,000. Reliability, a complex issue, begins with the design of the energy delivery system. Some systems, such as the flexible fiber delivery mechanism, look good but prove more prone to failures resulting in expensive part replacement and inconvenient downtime. Moreover, their efficiency, and therefore power output, remains seriously limited which results in slow cutting performance. Other systems, such as the Lares PowerLase AT, use a mirrored articulated arm similar to traditional medical lasers. At first glance these look a little clunky, but excellent reliability, cutting speed (they transmit much more power) and ergonomics (no hand resistance) more than compensate for first impressions.

The quartz or sapphire delivery tips (the equivalent of the bur in an air driven handpiece) constitute one potentially significant hard tissue maintenance expense. These tips cost as little as \$25 from one manufacturer and as much as \$100 from others. Quartz tips can be polished by the dentist to extend their useful life, helping offset the expense. The Lares PowerLase AT includes a tip-less, "non-contact" handpiece which eliminates the expense of tip replacement all together.

When considering a laser purchase, training and support should constitute a key part of the decision-making process. In fact, I cannot overemphasize their importance. As with any new technology, it will prove much easier to obtain training rather than try to reinvent the wheel yourself. Fortunately, training is available from a variety of sources. Many manufacturers offer training with the purchase of their laser, and the Academy of Laser Dentistry (ALD), an independent laser organization,

also offers a full schedule of courses. Like training, a good laser support contract will also prove invaluable because, in spite of your best efforts, something will eventually break or fail to perform as expected.

In these realms, the best advice can be obtained from colleagues who have laser experience, or from the ALD. Members are passionate people who welcome newcomers with open arms and an abundance of knowledge. The ALD offers high quality training, and provides great opportunities to try out most of the lasers on the market. Some manufacturers will allow you to try their laser in your office and while this is a great opportunity, there's much to be learned at an ALD meeting where you can compare lasers and speak to numerous manufacturers in one place.

Once you have narrowed the field and have a good idea of which lasers interest you most, ask the sales representative to provide you with a list of customers. Aim for calling people who have had their lasers for more than several months and avoid calling anyone that has connections to the manufacturer. Key questions to ask include how long the practitioner has had their laser, what procedures they do with the laser, and what experiences they have had with company training and support. Gathering the information needed to make an informed purchase requires some time and commitment, but the addition of a laser to your practice will prove well worth the effort! To contact the Academy of Laser Dentistry call 954-346-3776 or visit www.laserdentistry.org.

About the Author

Dr. Lester has practiced general dentistry for 34 years, and has always had an interest in leading edge dental technology. He has been a laser user for four years and has experience with diode, Nd:YAG, and Er:YAG frequencies.



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The Successful Laser Dentist

Volume 1, Number 18 January 17, 2008

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LASERS: Are They Worth It?

- By Dr. Phillip Bushinger

I have been using lasers in my dental practice for more than ten years and conducting laser demonstrations for seven years. Almost without fail the questions that every doctor asks me during the demonstration are, "How can I pay for it?" and "Is it worth it?" With the Lares PowerLase AT the first answer is that paying for it will be easier than you thought. The answer to the second question is a resounding "Yes!" To demonstrate, I picked a random week, December 3-7, and kept track of how many times I used the PowerLase AT and which services I provided for my patients. I was then able to calculate the fees I collected as well as what I saved by using a laser. I think you'll agree that the numbers leave little doubt of the PowerLase AT's value.

On Monday we performed crown lengthening on tooth # 24. The procedure included bone recontouring to allow for a proper fitting crown without interfering with the biologic width. The procedure took 45 minutes and generated a \$750 fee. Before I purchased the PowerLase AT laser I did not perform this procedure in my office, but referred it out.

The next day we used the laser on two separate patients. First, we did pocket elimination on teeth # 2 and # 3 where the pocket depth was 5-6 and collected a \$560 fee. This treatment is another that I did not do until I purchased the laser. Later, for an eight-year old child we performed composite restorations and sealants on teeth B-OL and 1K-O without any anesthesia. We could have done this procedure with anesthesia, but it is much easier without having to give an injection, especially on a child, and waiting ten minutes for it to work. Because we used the PowerLase AT we finished the procedure within that ten-minute window! More importantly, both the patient and mother left our office very happy and relieved that an injection was not part of the appointment. We did not generate any additional fees, but we saved time and the cost of the injection, as well as ending up with two satisfied customers.

On Thursday we did a MO composite on tooth # 4 for a very fearful adult. Luckily for everyone involved we did not need to use anesthesia. As with Tuesday's patient, no additional fee was generated, but we saved cost, time, and anxiety for the patient. Later Thursday we did pocket elimination on adult teeth 18 & 19 for a fee of \$560. Another procedure that would have been referred out before having a laser, pocket elimination has been added to the services we provide since purchasing the PowerLase AT.

The laser saw the most use on Friday when we used it on three patients, none of whom required anesthesia. As you may have guessed by now, being able to perform procedures without anesthesia is a big benefit of laser dentistry. Patients of all ages appreciate not needing "a shot," and I appreciate saving time and money, as well as having happier patients. I estimate that 90% of my patients do not need anesthesia when I use the PowerLase AT. On Friday's first patient we did two fillings. On the second patient we did # 2-B and # 31-B and # 8 and # 9 mesial. On the third patient we did # 14-O and # 15-OL and # 18- occlusal. Using the laser on these patients saved time for them and my office staff

since we did not have to wait for anesthesia to take effect. At a minimum, we save ten minutes per patient, so on this day we saved 30 minutes. In our office we average \$350 per hour in production, so using the laser on these cases gave us a savings of \$175.

At the end of the week I added up the additional procedures that we performed because of the laser and came up with \$1870. Extrapolating this amount into a 48-week year makes it \$89,760. If you then factor in the time saved by not needing anesthesia during the week, it totals 60 minutes. At \$350 per hour and 48 weeks per year, the value of the time saved in a year would be \$16,800. Adding the value of additional fees generated to the value of time saved equals \$106,560 per year! Furthermore, I could never begin to estimate the value of the goodwill created by obviating the need for anesthesia. In my experience, happy and comfortable patients prove more amenable to and compliant with treatment—a big plus for everyone! Now, you tell me if this math works for your office. It certainly does in mine.

About the Author

Dr. Phillip Bushinger

- Rutgers College 1972-1976
- Fairleigh Dickinson Dental School 1978-1981
- John F. Kennedy Medical Center July 1st, 1981-June 30th 1982
- University of California, SF Standard Proficiency Nd:YAG, March 30, 2001
- ALD Standard Proficiency, March 31, 2001
- Standard Proficiency Er:YAG, March 31, 2005



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The Successful Laser Dentist

Volume 1, Number 19 January 31, 2008

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Erbium Lasers- Shortening the learning curve!

- By Ronald W. Schalter DDS

As more dentists explore laser dentistry and consider how it would benefit their practices, comparisons to highspeed handpieces prove nearly inevitable. Combining an understanding of the differences between the two technologies, with already honed skills, will help shorten the learning curve for doctors who incorporate a laser into their practices. In particular, having a good grasp on how lasers interact with water will prove invaluable to both doctors and staff in expanding laser skills. Unlike highspeed handpieces, which will interact with anything it touches, the laser is highly specific in its interactions. A laser's wavelength determines how it affects the substances it comes in contact with, so the erbium laser has its own unique set of parameters. The erbium wavelength is highly absorbed in water. Absorption causes vibration of the water molecules that in turn heats the target and causes vaporization, which in dental tissue is more precisely called ablation. A rapid phase change from solid to gas, ablation occurs when tissue bypasses the liquid state.

Each of the primary tissues a laser dentist encounters has a different amount of water as a part of its makeup. Water comprises 2-3% of enamel, 10-13% of dentin, and 10-30% of bone. Because tissues have different water contents, these tissues require different energy levels for effective ablation. Utilizing the proper amount of energy for the target tissue provides for very efficient removal.

In addition to the tissue's water content, another water-related factor also contributes to a practitioner's ability to ablate tissue efficiently. The amount of water spray delivered from the laser handpiece plays a large role in the ablation process. One of the first items a laser operator should check on his laser is this water flow rate. Verifying the amount of water that is released proves relatively simple—fire the laser into a calibrated container for one minute (many of the alginate water measuring containers work nicely for this). It has been determined that optimal ablation occurs with water flow set at approximately 13-15 ml per minute. This flow rate will provide for sufficient cooling of the target while allowing for proper energy absorption. If more or less than 13-15 ml of water is released during the one minute test, the handpiece spray should be adjusted.

Monitoring the water flow rate is important both for the comfort of the patient as well as ensuring optimal power output of the laser. Insufficient water flow can lead to a rapid rise in temperature causing unwanted tissue damage including carbonization and sensitivity for the patient. On the other hand, using excess water will require more energy to accomplish the same amount of work. At some point, too much water can cause the laser to stall because the excess water absorbs all the energy and prevents it from reaching the target tissue. Because water plays a central role in erbium laser interaction with oral tissue the evacuation of water by the dental assistant also affects the efficacy of ablation. Subtle changes in the dental assistant's routine high-speed water evacuation may be needed for success with an erbium laser. As with the water flow rate, evacuation needs to be fine-tuned to take into account how the laser works. Too rapid evacuation will lead to patient sensitivity during dental procedures and possible tissue damage while too slow of an evacuation rate will cause the laser to stall.

An exercise that works quite well in training the dentist and dental assistant to recognize the proper rate of evacuation involves a change in the instrument used for the evacuation.

When attempting to master the proper evacuation technique, it often proves quite useful to switch to either the slow, straw type suction or an Isolite. The straw type suction can actually be placed to catch the pool of water rather than using the close proximity of typical highspeed suction application.

Finally, there is one more water-related consideration that, while not overly scientific, can help lead to a more successful laser experience. Doctors who work in colder climates should consider their laser's water temperature, especially at the start of cold days. Many offices in colder climates have automatic setback programs on their thermostats which regulate room temperature. While these setbacks ensure comfortable room temperature, the water in the laser may not warm up at the same rate and remain quite cool first thing in the morning. In my experience, cooler water causes more sensitivity in patients. Fortunately, the problem can be easily remedied by warming the water in a microwave for less than one minute.

The benefits of using an erbium laser will make mastering its learning curve an enjoyable experience. Understanding how the wavelength interacts with water, both within oral tissue and from external sources, as well as learning simple techniques will help ensure laser dentists have a successful experience with this new technology.

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The Successful Laser Dentist

Volume 1, Number 20 February 13, 2008



Laser Dentistry and Pregnancy

- By Jon Dunn DDS

Does the phrase "safety of administration has not been established during pregnancy" give you pause when reading the package insert for dental local anesthetics? In today's litigious society it sends shivers up the backs of most practitioners and their malpractice attorneys. Treating (or declining to treat) a pregnant woman when local anesthetic administration is required always proves an exercise in clinical judgment -- a balancing act of costs versus benefits with the safety of the fetus always foremost in the equation. Until recently, dentists had few choices when dealing with pregnant patients, but the advent of laser dentistry offers an option that everyone can be comfortable with.

Recent papers by the American College of Obstetrics and standard of care articles in Anesthesia & Analgesia highlight the issue of fetal safety during local anesthetic administration and recommend no local anesthetic administration whatsoever during early pregnancy (before 24 weeks gestation) due to potentially serious or fatal fetal effects associated with a maternal adverse reaction. Such cases have been well documented and cited in several litigations involving adverse local anesthetic reactions during pregnancy. The mandate to "first, do no harm" is never more evident than in cases such as this, where fetal health may be compromised for the sake of dental restorative treatment. A judge and jury never find it compelling that a dental professional so concerned about a patient losing a tooth was willing to lose a fetus.

Dramatic lawsuits aside, there are few pregnant women and obstetricians who are not justifiably concerned about fetal effects of local anesthesia and even the residual effects of anesthetic in breast milk in nursing mothers. As practitioners it is our mandate to reduce those risks, as well as protect ourselves from litigation. Fortunately, the dental laser provides us with an admirable instrument for accomplishing both of those objectives.

Pregnancy is often accompanied by distinct dental pathologies secondary to pregnancy gingivitis and acid reflux through morning sickness emesis and a variety of damaging food addictions. We treated one patient who subsisted on warm lemon juice and pineapple for months with accompanying erosion and generalized cervical caries. Since local anesthetic administration remains a significant concern, many practitioners will merely "watch" initial lesions instead of treating them at an early and conservative stage. Waiting several months to treat and "watching" carious lesions can place numerous teeth in endodontic jeopardy. Moreover, dentists risk losing rapport with a patient when, after delivering a perfectly healthy baby, the patient pointedly asks, "What were you watching—the cavity getting bigger?"

We have had great success treating pregnant women, with the blessing and thanks of their obstetricians, utilizing both hard and soft tissue lasers without local anesthetic. Early cervical caries have been restored quickly

and painlessly with our hard tissue laser. Soft tissue procedures such as excision of a pyogenic granuloma secondary to pregnancy gingivitis have been performed bloodlessly during the second trimester. Use of the laser has both greatly benefited our patients and built up incredible and invaluable goodwill with the local obstetric community. Our malpractice carrier's risk management specialists sleep better each night as well. Having an all-tissue laser in our armamentarium has greatly enhanced our ability to treat many new classes of patients, including pregnant women.

About the Author

Jon Dunn, DDS, is a member of the American Medical Writers Association and a registered continuing education provider for both the California Dental Board and the Academy of General Dentistry. He maintains an exclusive private practice in Santa Barbara, California devoted to adult restorative dentistry. Dr. Dunn is a pioneer in the delivery of online continuing education and may be contacted through his C.E. website at www.DentalDidactics.com



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State of the Art in Lasers for Dentistry

J. LAHA, Vol. 2008; No. 3/1

In his paper Prof. dr. Norbert Gutknecht, President of the German Society for Laser Dentistry (DGL), provides an overview, discusses laser applications and presents possible uses of lasers in various dental application areas.

Lasers have been used in dentistry since 1964. The idea was to be able to treat both soft tissues and hard tissues, including bone, without direct contact, vibrations and pain. Since the early 90's lasers have been applied in a wide variety of dental application areas.

Lasers in Endodontics

J. LAHA, Vol. 2008; No. 4/1

In his paper Prof. dr. Norbert Gutknecht from Aachen Research Institute for Lasers in Dentistry (AALZ), describes and discusses the use of the Nd:YAG and diode lasers in endodontics.

Clinical studies clearly show advantages of laser treatments over currently-used conventional methods and techniques. The most important advantages are improved disinfection efficacy, more effective root canal cleaning, reduction of permeability, reduction of micro-leakage, and elimination of the need to use toxic solvents.

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The Successful Laser Dentist

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Eliminate Cerec Crown Biologic Width Invasion Problems

- By M. Glenn Lucas, DDS

Over the last few years dentistry has undergone a high-tech revolution. Dentists who work on the leading edge of innovation can offer many new treatment options to their patients, who have also come to appreciate the advantages of technology-enhanced dentistry. Perhaps one of the most exciting outcomes of this revolution has been the combination of new technologies. On their own, CAD-CAM technology systems such as Cerec and lasers like the PowerLase® AT offer both practitioners and patients many benefits, but when used in tandem they offer even greater advantages.

The Cerec system enables dentists to give patients high quality, aesthetically pleasing restorations in one appointment. Similarly, the Lares PowerLase® AT allows doctors to perform treatments in one appointment that would otherwise require several office visits. Offering a high-tech treatment option for more conservative restorations, the Powerlase® AT combines the ultimate laser wavelength for periodontal treatment, Nd:YAG, with the Er:YAG wavelength, which is used mainly for hard tissue cutting.

Have you ever recommended a porcelain crown for a patient with a badly broken down tooth only to find after preparation that you have severely invaded the biologic width? Conventional treatment would necessitate a costly and uncomfortable crown-lengthening procedure requiring a referral to a periodontist and resulting in more cost, discomfort and inconvenience for the patient, not to mention your difficulty in explaining why it costs so much more to get their crown. The situation gets even more unpleasant if you've promised the patient a one-visit, Cerec crown!

With the PowerLase® AT a closed-flap crown-lengthening can be accomplished using the Er:YAG wavelength at the same appointment in just a few minutes and with very little post-op discomfort to the patient. Moreover, the precision of the Er:YAG laser allows you to remove bone without damaging the root surface. Using the Nd:YAG wavelength to assist in hemostasis allows you to obtain your optical impression easily. In this way, the Lares PowerLase® AT proves the perfect complement to a CAD-CAM system.

In addition to crown lengthening, the soft tissue laser application also works well with CAD-CAM technology. The Nd:YAG wavelength can be used to treat periodontal pockets in a less invasive, less painful treatment option that has excellent patient acceptance. Using the laser for tissue retraction during crown and bridge work in a healthy sulcus gives you a well-exposed margin with no tissue shrinkage post-op-- a great complement to the Cerec!

Utilizing such high-tech treatment options as the Cerec system and laser dentistry has been highly rewarding both personally and financially. After 30 years of practicing dentistry I find that I am more excited by our

profession and new technology than I ever have been before. Not only am I able to perform procedures that I used to refer out, in many cases I'm able to offer my patients more comfortable, convenient, one appointment treatment options that save their valuable time.

About the Author



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Member American Dental Association

Member Academy of Laser Dentistry

Member American Assoc. for Functional Orthodontics

Member International Congress of Oral Implantologists

Member Academy of Computerized Dentistry

Member American Dental Society of Anesthesiology

Using Nd:Yag lasers since 1993

Using Lares PowerLase® AT since 2005



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The Successful Laser Dentist

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Advanced Technology & Treatment Opportunities: Fact or Fiction?

- By Keith W. Brewster, DDS

It's Monday morning and you get a call from a patient who says he broke a tooth off over the weekend and needs to get in right away. Your front desk squeezes him in for the afternoon and you determine that an upper right cuspid came off. Upon examination the radiograph shows a clean fracture and visual examination with magnification does not show any root fractures. The typical treatment plan would be root canal therapy with a post and core, a tissue flap with osseous recontouring, and suturing. After allowing the patient to heal you would then send an impression to the lab.

While most patients would find that treatment satisfactory, especially when you're able to make a same day appointment, new technologies give us other, more efficient options. Employing a PowerLase® AT laser and a Cerec system would drastically reduce the treatment time, making less of an impact on both you and your patient. When a vital pulp exists, the laser can be used for sterilization, then with rotary instruments and heated gutta percha the root canal can be finished and the post and core placed the first hour.

Next, the hard tissue crown lengthening procedure can be performed using the Er:YAG wavelength of the PowerLase® AT. The tissue can then be cleaned up and hemorrhaging controlled with the Nd:YAG, soft tissue laser. These procedures leave the tissue healthy and clean. The Cerec camera will have no problem detecting and recording the margins and then it designs and mills the crown. Next, the crown is placed in the patient's mouth to check occlusion with the excursive movements and to verify the shape and contours. Finally, the lab glazes and shades the crown and after a final check confirms the fit and appearance, the crown is cemented into place.

Now, I know what you're probably thinking—the case described above is probably science fiction. Not so! With the Erbium laser to contour the bone to within biological limits and the Nd:YAG laser to shape the tissue and control the fluids, we performed this very case in our office. That said, several factors fell into place to make it possible. The presence of vital pulp made this a good case for laser and Cerec treatment. Having the post and core available, as well as the Cerec materials with multi-color blocks and the glazing and staining oven facilitated this expedited treatment. Fortuitous biology combined with good technology and well-stocked supplies make this case sound like something out of the movies.

Happily for dentists, this scenario can be a reality. Before investing in a PowerLase® AT, though, I never could have dreamed it possible to have both Er:YAG and Nd:YAG wavelengths combined in one machine. What would take one month using traditional methods is reduced to one office visit using the laser and the Cerec system. While both technologies have a learning curve and require practice to achieve this type of treat-

ment, it proves most certainly possible. Both my staff and I found the learning experience fun and exciting, sentiments that are reinforced each time we get to tell a patient that their treatment will require one visit rather than one month and multiple visits!

About the Author



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The Successful Laser Dentist

Volume 1, Number 23 March 26, 2008

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Synergistic Dental Technologies

- By Dr. Lester

Advances in technology can offer doctors and their patients numerous advantages. Everyone benefits from increased efficiency, a longer list of services provided, and pain-free, or at least less painful, dentistry. What do you do, however, when the use of a new technology presents challenges of its own? All too often we find that the decision to move forward with one type of technology only increases frustration with the tools that haven't yet been upgraded to the "latest model." Even more confounding, given that it's rarely an option to purchase an entire complement of new equipment, how does a doctor decide which new technologies to invest in to get the most out of using them together?

In recent years much has been made of CAD-CAM technology systems, and rightfully so, in my opinion. One of the greatest advantages of Cerec is the ability to create finished restorations in a single appointment. Unfortunately, sometimes the need to bond in or near a wet area, typically when attempting to restore the interproximal of an old class 2 amalgam which is subgingivally deep, thwarts this advantage. This scenario presents a case where, on its own, exciting new technology falls short without the use of another new technology.

The classic solution would involve retraction cord and/or any number of hemostatic or astringent agents. These methods, though effective, remain laborious, time consuming and contraindicated in some situations. A doctor who has invested in an all-tissue laser, on the other hand, can opt to trough a space for impression material while simultaneously creating instant hemostasis. This treatment method is inexpensive, safe, and very fast.

Most laser frequencies prove effective for gingival troughing. For hemostasis, you will find that diode and Nd:YAG perform better than Erbium:YAG or Erbium:YSGG frequencies. Since the Lares PowerLase® AT has both Nd:YAG and Erbium:YAG frequencies, it is the ideal companion for single visit Cerec procedures.

In some cases the interproximal prep proves so deep that a biologic width infringement could occur without further intervention in the interproximal area. The traditional solution would be a surgical crown lengthening accomplished with scalpel and burs. Again, although effective, this technique is time consuming, expensive and often requires temporization for a few weeks to see exactly where the gingival margin will heal. Moreover, this technique also occasionally requires an additional tooth preparation session to adjust the prep margin.

With the dual wavelength PowerLase® AT Cerec users can still accomplish single visit prep and seating in these circumstances. The Er:YAG function of the PowerLase® AT will modify the bone interproximally to

create adequate biological width for the new restoration. Use the Er:YAG to trough the bone interproximally adjacent the interproximal prep margin enough to create adequate biologic width; next, ramp the bone from the depth of the bony trough up to the height of the interproximal bone of the adjacent tooth. Then use the Nd:YAG function for hemostasis prior to taking the Cerec digital image.

The Lares PowerLase® AT and Cerec make an awesome pairing for beautiful single visit restorations. The combined use of laser and CAD-CAM technologies multiplies the advantages that each system offers on its own. Using my PowerLase® AT and Cerec in tandem has convinced me that I made a good investment. My patients' appreciation for single visit restorations only serves to bolster that confidence every time I use them.

About the Author

Dr. Lester has practiced general dentistry for 34 years, and has always had an interest in leading edge dental technology. He has been a laser user for four years and has experience with diode, Nd:YAG, and Er:YAG frequencies.



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The Successful Laser Dentist

Volume 1, Number 24 April 9, 2008

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How to Beat the Recession with an All Tissue Laser

- By Dr. John Flucke

The recent economic woes are troubling enough on their own, but now that they're reaching into dental practices our community must consider strategies for combating the undesirable prospect of lower practice income for months to come. We've all seen more patients cautious about spending, reduced treatment acceptance, and waiting rooms emptier than ever before. Most dentists will endure by reducing practice and personal spending wherever possible until the economy improves. Neither strategy offers easy solutions and may be hard to face for the long term. There is, however, another way to maintain, even increase, income while positioning your practice to emerge from this recession as a financial powerhouse: implementation of an all tissue laser.

An all tissue laser enables you to implement two immediate recession-beating strategies:

1. Perform procedures that you previously referred out to specialists. The all tissue laser combined with a thorough clinical training program will allow you to offer your patients exceptional treatment options for periodontal disease, osseous surgery, and a host of other soft tissue procedures (the list is extensive). Instead of staring at gaps in your schedule you'll keep your day filled with new, high revenue per hour procedures. Most of these new procedures will represent increases in your revenue per hour! Additionally, patients will be happy to stay in your office for treatment rather than go elsewhere.
2. Attract and retain new patients. Fewer than 6% of all dentists utilize hard tissue lasers, so the dentist that does is typically perceived by patients and prospective patients as progressive and sensitive to patient comfort. Patients really do hate needles and numbness despite their best efforts to appear stoic during treatment. Lares PowerLase® AT users report they are able to perform as high as 90% of their cavity preparations without anesthetic while maintaining patient comfort. A letter to your current patients informing them of your new "dental miracle" will immediately result in increased referrals as patients tell family and friends. The first patients who experience the laser will prove an even better source of referrals as they amaze others with tales of a pleasant trip to the dentist. Add some tasteful local public relations or advertising and new patient flow will accelerate even more.

What about the cost of the laser? It probably seems counterintuitive to make a large purchase in the face of economic instability. However, the above strategies can be effectively implemented by financing your laser to get the lowest monthly payment possible. The Federal Reserve has helped by dramatically reducing interest rates in recent months. Thanks to the alliance between Lares Research and National Technology Leasing, the hard and soft tissue Lares PowerLase® AT can currently be financed over 84 months for \$1,090 per month. Just a

few of the many new procedures you will perform each month will pay for the laser, leaving the rest to fall right to your bottom line.

Your Lares laser specialist can perform a detailed financial analysis for your practice, taking into account the new laser procedures you plan to perform. Once you've tried the laser for yourself and are armed with this financial information, you will have the confidence to move forward and implement these recession-beating strategies. While it may be tempting to simply wait out the storm, the Lares PowerLase® AT provides a practical solution for short term economic problems as well as offering long term practice success and profitability.

About the Author

Dr. John Flucke is Technology Editor for *Dental Practice Report* and Technology Editor for the Missouri Dental Association publication *Focus MDA*. He lectures internationally on all aspects of technology in dentistry including lasers. His article, "Laser Know-How," appeared in the July issue of *Dental Practice Report*. For more information, visit www.denticle.com.



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The Successful Laser Dentist

Volume 1, Number 25 May 9, 2008



Win-Win for You and Your Patient

- By Alan Rosen, DDS

All too often people chart their course of dental hygiene according to insurance benefits. Sadly, this short-term view of dental health frequently leads to bigger problems when the patient finally returns to the dentist. I used to approach these cases with great trepidation—it can be very difficult to tell a first time patient that they have a mouthful of dental decay that requires extensive work that's also expensive and very often painful. I've found that since I incorporated the Lares PowerLase® AT into my practice these situations are much easier to handle and I can offer treatment plans that my new patients find much more acceptable. The Nd:YAG wavelength of the laser proves particularly helpful in dealing with patients who have neglected their oral health. Consider the following scenario that all of us can relate to:

A new patient arrives for her appointment and explains that she hasn't seen a dentist in several years, but dental insurance at her new job prompted her to come in and have her teeth "cleaned." She adds that she brushes "frequently," but rarely flosses. She also reports that she hasn't experienced any teeth that hurt.

Upon examination you find that she has had a few fillings over the years, but no major restorations. You also find that she has periodontitis. With four and five mm pocketing, calculus buildup, generalized bleeding and moderate bone loss you classify her as having Type II periodontitis. Luckily, she agrees to proceed with the first step of the treatment plan-- full mouth scaling and root planing. After two visits and a follow-up prophylaxis exam the measurements reveal improvement. However, she still has several areas with pockets of 4 and even 5 mm pockets.

What step do you take next?

The chronic inflammation and bacteria in her mouth could be corrected by performing flap surgery, which involves a referral to the periodontist for many general dentists. This procedure frequently proves difficult for patients because it is expensive and the thought of having their "gums cut" is too unsettling for many people to overcome. Of course, such treatment rejection means that your patient's condition will not improve and will probably continue to deteriorate.

With the PowerLase® AT I can offer patients a better solution. The Nd:YAG wavelength can be used to remove the infection which reduces the inflammation and the pocket. Because I practice in the "Show Me State" of Missouri, I remained skeptical that the laser could actually reduce pockets in perio patients. My skepticism diminished when I saw the procedure demonstrated and vanished completely once I performed it myself.

To remove the inflammation, place the laser into the pocket at 20 hertz and 2 watts and use a crossweave motion. In most cases the inflammation decreases and you'll find the pocket subsequently reduced. There are

some cases when the procedure does not reduce the pockets entirely, but when I explain the options to patients they are happy to take that chance and jump at the opportunity to try something that requires little, if any, anesthetic; costs one fourth of the cost of traditional surgery; and will not render their gums sore and tender for several days.

Using the PowerLase® AT to correct periodontitis is a win-win situation for everyone. For the doctor the laser offers a relatively stress-free procedure. For the patient it offers the same thing with very few side effects, as well a price tag lower than that of traditional flap surgery. The PowerLase® AT's ability to treat patients who have neglected their oral health with less expensive and anxiety-inducing procedures is just one of the many advantages the laser offers. Every time I use my laser I am reminded that it's a win-win for everyone involved!

About the Author

Alan Michael Rosen, DDS, received his BA degree from Rice University in 1991. After a three-year career touring as a professional golfer, Dr. Rosen turned his efforts to dentistry graduating with honors in endodontics from the University of Missouri-Kansas City School of Dentistry in 2002. Dr. Rosen is a member of the American Dental Association, Missouri Dental Association, American Academy of Cosmetic Dentistry, and the Greater Springfield Dental Association where he currently serves as President.



He practices in Springfield, MO, where he lives with his wife, Darla. They have two daughters Alexandra (six) and Reagan (four).



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The Successful Laser Dentist

Volume 1, Number 26 May 21, 2008



My Laser Journey

- By Dr. Dana Rockey

Changes in dental technology present themselves like most changes in life—very exciting, but daunting at the same time. Its one thing to read about and admire “the latest thing” in dentistry, but it’s entirely another to come to the decision to make the investment and then begin the work of practice integration. Although lasers may seem complicated or difficult to introduce into a practice to some dentists, I am here to tell you otherwise.

I have been doing soft tissue laser dentistry since 2001. At that time I had started a new practice and wanted to incorporate the latest technology. Last year I took the next step on my journey by purchasing a combination soft and hard tissue laser, and since then I’ve had no regrets about my choice.

I graduated from dental school in 1984. From that point until 2001, I practiced dentistry like I had been taught in school-- doing lots of amalgam fillings and PFM crowns. It was then that I had finally reached the point where I felt I had to change the type of dentistry I practiced or be left behind as dentistry evolved without me. Creating a chartless office by way of integrating digital technology was my first step. I also began doing mostly bonded dentistry and bought my first laser. Lasers in dentistry were much less talked about back then, but I knew that if I wanted to call myself a “laser dentist” I had to buy one.

I still remember the day I opened the box and saw my bright, shiny, and new diode laser! After an hour of training with the sales representative and another hour practicing on a steak, I was ready to use it on patients. I couldn’t help but wonder what I was doing to someone’s tissue as the operatory filled with that burned flesh smell. As I grew more confident with the laser I started performing gingivectomies for pocket reduction and laser assisted curettage after root planing. I also removed fibromas and treated aphthous ulcers without anesthesia. Nearly all of the patients reported minimal post operative sensitivity. I was amazed not only by how well it worked from my perspective, but also by patients’ positive responses and the effect that had on new patient marketing. I found that more and more of my new patients had been referred by existing patients who had received laser treatment.

Two years later I bought a little-used Nd:YAG laser at a fraction of its initial cost. As advertised, it proved a big improvement over the diode laser, especially for cosmetic procedures. Once again, I found my schedule filling up with new patients who had heard about the laser from their friends. By then, lasers had become more widely accepted and I had little problem with patient acceptance; in fact, most were eager to give it a try.

This point in my laser odyssey brings me to my recent purchase of a combination Nd:YAG and Er:YAG laser.

Since I had grown comfortable with lasers after years of use and felt confident that adding one to my practice could only be a positive experience, I was excited to start using the Er:YAG wavelength for hard tissue procedures. Once again, I find myself learning new techniques for osseous crown lengthening, caries removal, and enamel or dentin preparation. After seven months of operation, I can’t imagine not having it in our office.

I consider myself an average guy who happens to be a dentist. I have not written articles for dental journals, nor done any cutting-edge research, nor taught any seminars. I am simply a dentist who has successfully incorporated lasers into his dental practice. Lasers have given me the ability to provide new services for my patients and boost my marketing appeal. Both have contributed to my practice bottom line. However, I consider the renewed passion for dentistry that lasers have given me to be their most valuable contribution. Every time I purchased a new laser I found my practice reinvigorated for myself, my staff, and my patients.

About the Author

Dr. Dana Rockey graduated from Washington University School of Dental Medicine in 1984.



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The Successful Laser Dentist

Volume 1, Number 27 June 4, 2008



The Lares Tip-Less Er:YAG Handpiece is Unusual and Fun!

- By Dr. Stephen Lester

Much of the fun associated with the Lares PowerLase® AT comes from learning new techniques and procedures after mastering the basics. Having had the laser for more than a year, I still find myself happily surprised by what the laser can do and what I can do with it. The seemingly endless opportunity to try and learn something new makes using the PowerLase® AT interesting and exciting. In addition to providing more services to my patients, I've also been pleased to find ways of using the laser that allow me to reduce the already low operating costs.

One of the most unusual attributes of the Lares PowerLase® AT laser that I've discovered is its capability to function with an optional tip-less (non-contact) handpiece. The "window" (the tip substitute) has a much longer operating life than quartz tips and a considerably longer life than the more expensive sapphire tips. As laser users know, the cost of tips can add up quickly, so the ability to work without them is a big advantage! When I had a Waterlase an expensive sapphire tip lasted for only a few preps. This rate of destruction adds up over time to increase operating costs considerably, not to mention the value of time wasted diagnosing, inspecting, cleaning and changing tips. Not only did it waste money, this nuisance activity increases stress and frustration.

In my experience, the beam diameter produced by the tip-less handpiece "feels" narrower than with the standard quartz tips, allowing me to maneuver the beam down a narrower prep hole than with a tip. Although the actual laser beam is invisible, directing the beam proves easy using the clearly visible red diode aiming beam. It's just like a laser pointer—point and shoot. This feature proves particularly handy for minimally invasive preps such as the tunnel prep. Also, rather than trying to peer around a solid tip, it's easier to see into a tiny or narrow prep by visually following the beam.

Quartz and sapphire tips require that the tip be placed within a millimeter or so of the target to work efficiently. I've found that the tip-less beam has a little more tolerance for working distances. I'm able to cut tooth using a defocused mode by moving the handpiece either closer to or farther from the target than the exact focal distance would indicate. This method comes in handy in a crowded area where access is difficult because it is still possible to cut in a defocused mode if necessary. Sometimes it proves necessary to increase the power output slightly in such situations.

Since the beam focuses several millimeters from the target, unlike a contact tip, the window tends to accumulate less debris during prep because the handpiece window is held several millimeters back from the most intense splash zone. Less mess translates to greater operator efficiency because you spend more time prepping and less time cleaning and replacing tips. When debris does accumulate on the tip-less window, it is easily removed by a quick wipe with an alcohol sponge-- much easier than trying to polish encrusted

debris off of a sapphire tip. To ensure the best performance, I also usually give my tip-less window a quick wipe just before I fire the laser for the first time to remove any water spots picked up in the autoclave.

If you prefer to use a contact tip for certain procedures, another advantage of the Lares PowerLase® AT over many other brands is the selection of both the durable sapphire tips and the less expensive and somewhat repairable quartz tips. When a quartz tip is damaged, you can easily polish it smooth and resume using it. You can repeat this process until the tip becomes too short to be useful.

Using the tip-less (non-contact) PowerLase® AT handpiece offers several advantages and is just one of the many interesting aspects of working with this laser. Once you've reached a level of confidence with the laser, I encourage you to explore new procedures and techniques. You have nothing to lose except, as in this case, some frustration and expense!

About the Author

Dr. Stephen Lester has practiced general dentistry for 34 years, and has always had an interest in leading edge dental technology. He has been a laser user for four years and has experience with diode, Nd:YAG, and Er:YAG frequencies.



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The Successful Laser Dentist

Volume 2, Number 1 June 18, 2008



Excellent Results from the Lares PowerLase® AT

- By Ronald Matsuura, DDS

The use of lasers, especially the Lares PowerLase® AT, has opened up countless opportunities to address patients' dental problems and provide them with unexpectedly positive prognoses. Using both the Nd:YAG and Er:YAG wavelengths have allowed me to offer my patients treatment options that avoid the loss of teeth, result in less post-procedure pain, and, at times, offer results far better than they expected. In fact, one standout case demonstrates how the laser turned a seemingly hopeless case into one whose results amazed both me and my patient!

A woman in her late 30s from the country of Eritrea, my patient was presented with moderate to advanced horizontal, vertical, and angular bone loss. Additionally, the upper front central incisors had periodontal pocketing of 8 to 11 mm with severe angular bone loss on at least three surfaces with +3 out of +4 mobility existing. In almost any other situation, this condition would call for immediate extraction.

"What a shame it would be for this young woman to lose these teeth," was my first thought. As a new Lares laser user, I decided that neither of us had anything to lose by using the laser throughout her mouth. I reasoned that even if she still required extraction, at least the more moderate areas could be made healthier. To what extent the laser would aid treatment and lead to improvement would be another lesson for me in a profession that changes constantly.

I decided to work exclusively on the upper teeth on the first visit and fully anesthetized the patient. I started with a very aggressive subgingival scaling and root planing on the upper arch. The latter included chlorhexidine irrigation throughout with special emphasis on the front centrals. Next, I used the laser set at a conservative gingival surgical setting of a power level of 1.75W. I considered the power setting and duration of laser use moderate to aggressive. Profuse bleeding occurred throughout the maxillary anterior areas during the procedure. Once completed, I gave the patient post-treatment instructions along with oral antibiotics and analgesics. I cautioned her to expect significant discomfort and explained that an extraction was still probable; she was then scheduled for a one week post-op appointment.

One week later the patient returned and much to my amazement reported little or no significant discomfort. After measuring pocket depth around the upper front incisors, I was shocked to find minimal gingival inflammation and no pocket depth greater than 4 mm! Moreover, mobility was improved to +1 and the rest of the uppers had become tremendously healthier. I happily revised her prognosis, removing plans for extractions and open-flap surgery. Instead I scheduled appointments for the lowers to receive the same treat-

ment and for several additional rounds of laser detoxification. I also made plans for debridement of the uppers with the expectation of some bone regeneration on the centrals. I am very excited by this patient's prospects and look forward to monitoring her progress in the coming months.

The problems presented by this case were certainly extreme and many patients will not require such extensive treatment. However, my enthusiasm of this case and for the capabilities of the PowerLase® AT has carried over to many other less severe cases. I have discovered many more laser techniques that solve similar problems that might otherwise have been considered to have a guarded to poor prognosis at best. While no technology offers dentists a magic wand, the PowerLase® AT comes closer than anything I've ever seen!

About the Author

Ronald Matsuura, DDS

~ Los Gatos/Sunnyvale offices

~1974 graduate UCLA BA

~1979 graduate USC school of dentistry

~ Private practice since 1979 to present



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The Successful Laser Dentist

Volume 2, Number 2 July 11, 2008

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The Learning Curve for Laser Dentistry: A Never Ending Journey

- By Lawrence Kotlow, DDS

Laser dentistry has given me the unique opportunity to speak to dentists all over the world about how lasers will change the way they practice. The question I hear most often is, "How long will it take me to learn to use this laser?" My answer is always the same: learning to use a laser is like trying to reach the horizon—you'll never get to an end point, but you'll enjoy the journey. I have used the Erbium:YAG laser since 2000 and remain constantly amazed by it. Even after eight years, I still find myself completely changing settings to achieve positive results and discovering new or better ways to treat patients. The PowerLase® AT's unique property of five pulse durations gives it a flexibility not found in any other laser. This variable pulse concentration (VPC) contains five settings of 50 μ sec (super short pulse), 100 μ sec (very short pulse), 300 μ sec (short pulse), 600 μ sec (long pulse), and 1000 μ sec (very long pulse) which create what I like to call the "universal" or "do everything" laser. The PowerLase® AT comes as close to being able to provide all the laser care I require in my practice as any laser. With the exception of specific photobiostimulating lasers, I use the PowerLase® AT for approximately 99 percent of all soft and hard tissue procedures I perform. During the ablation of dental hard tissues the use of a very short pulse in the range of 50 μ sec allows for a limited photothermal effect on the dental tissues and a rapid, minimally invasive ablation of the tissue due to the increased efficiency of the Er:YAG laser at the short pulse duration. This short pulse duration produces a short but very high peak power and reduces the penetration of heat into the deeper hard tissues thus reducing patient perception of discomfort. At high laser fluence (measured in joules/cm²) combined with short pulse duration such as 8-15 Hz and 400mj, ablation occurs quickly and with minimal depth of heat penetration into the target tissue. The thermal relaxation period between pulses prevents the tissue from overheating and allows it to cool between individual pulses. Short pulse durations are able to achieve high peak powers, however the average power the tissues receive when using free running erbium pulsed lasers remains the same. Using the Er:YAG laser at the long pulse duration (600 μ sec) combined with low energy levels (10-20 HZ and 65 mj) on tissue being incised or excised photothermally heats up the tissue. At the longer pulse duration and low energy levels the photothermal effect becomes more pronounced and hemostasis can be achieved quite similarly to soft tissue lasers. Due to the shallow depth of penetration of Er:YAG energy, photothermal collateral damage proves minimal, yet adequate heat penetration occurs to control bleeding. Reducing laser energy and increasing pulse durations results in increased photothermal energy and a prolonged duration of laser energy penetrating the tissue. When done without the use of water, this method allows the dental surgeon to maximize the Er:YAG laser's ability to control bleeding during soft tissue treatments.

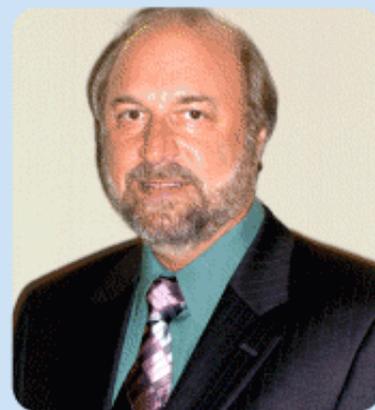
Due to the shallow depth of Er:YAG laser energy penetration compared to diodes and Nd:YAG lasers, patients heal quickly, without any significant post operative

discomfort or swelling after soft tissue procedures. Moreover, when compared with conventional forms of soft tissue healing, the laser does not leave the patient with a hard healing scar which often can take months to rejuvenate the normal soft tissue structure.

While my practice most often requires the use of the Er:YAG laser, the Nd:YAG wavelength also has many benefits. Both lasers offer endless opportunity for improvement in the way we practice dentistry. Deciding to jump on the laser learning curve has proven one of the best decisions I've made and I'm happy to report there's no end in sight!

About the Author

Dr. Lawrence Kotlow is a board-certified pediatric dentist who has practiced pediatric dentistry since 1974. He has received advanced proficiency certification from the Academy of Laser Dentistry and is a certified course provider for Standard Proficiency by the Academy of



Laser Dentistry. He has written more than 30 articles on pediatric dentistry and using lasers in the practice of pediatric dentistry and lectures both nationally and internationally on lasers and pediatric dentistry. He can be contacted at kiddsteeth@AOL.COM and has a website at KIDDSTEETH.COM.



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The Successful Laser Dentist

Volume 2, Number 3 July 23, 2008



Minimizing Potential Complications of BONJ - By Jon Dunn, DDS

Innovation in one area of medicine frequently reverberates in other fields, often with little anticipation or preparation. The growing use of bisphosphonate drugs to prevent osteoporosis and the metastasis of osteolytic tumors presents dental professionals with one such challenge. The potentially serious side effect of Bisphosphonate-associated Osteonecrosis of the Jaw (BONJ) has forced dentists to educate themselves about this class of drugs and to pursue alternative treatment plans for their patients. The PowerLase® AT offers an avenue for innovation, allowing doctors to provide many exciting new treatment options without compromising care.

Following their FDA approval and introduction into the marketplace in the mid-1990s bisphosphonate drugs have been increasingly prescribed for prevention of osteoporosis and the metastasis of osteolytic tumors. Oral forms of these drugs such as Fosamax®, Actonel® and Boniva®, as well as intravenous preparations such as Aredia® and Zometa® account for more than 45 million prescriptions per year in the U. S. alone. Although extremely effective in the treatment of osteoporosis and osteolytic tumors, they unfortunately present the potentially serious side effect of BONJ.

First described in 2003 by Dr. Robert E. Marx, Chief of Oral Surgery at the University of Miami, the effects of bisphosphonates can result in ulceration, sloughing of soft tissues, and unremitting bone necrosis in the mandible and maxilla following bony exposure during oral surgery procedures. This "rare but serious" complication affects about 2% of patients treated with IV bisphosphonates and approximately 1 in 20,000 receiving oral tablets for osteoporosis. Unfortunately, merely removing patients from their bisphosphonate regimen does not eliminate the risk of complications as several studies indicate the effects of the drugs last for a decade or more.

With the mandate to "first do no harm" it is incumbent upon dental professionals to avoid any unnecessary surgeries that might expose bone in bisphosphonate-treated patients. It is now recommended that patients at risk avoid extraction if possible even in teeth with a hopeless restorative prognosis. Root retention utilizing endodontic treatment and preservative restorative techniques is preferable in these patients rather than risking BONJ complications.

Our Lares laser has helped us meet this new standard of care and provide better treatment for this at-risk group of patients. We recently saw an elderly patient who had fractured off #30 to the level of the gingival. She had been treated with IV bisphosphonates and was a poor extraction candidate, making traditional restoration impossible. The Lares laser allowed us to perform conservative treatment to preserve the roots and eliminate the need for extraction.

Soft tissue contouring and coagulation with the laser provided proper isolation for endodontic treatment to preserve the mesial and distal roots. Hard tissue laser

application then allowed a conservative hemisection of the roots and beautifully etched surface for bonding two domed and readily cleansable composite restorations. The patient's potential of BONJ was eliminated and the medical-legal standard of care was maintained without oral surgical intervention. Healing time was minimized and gingival health returned to normal rapidly with the aid of chlorhexidine rinses.

This case was another in which the laser assisted us in providing optimal care with an enhanced outcome, even taking into account a condition that requires increased vigilance and care. As has frequently been noted in this newsletter, the PowerLase® AT offers general practitioners a greater range of options for treating patients, especially those with seemingly negative prognoses.

About the Author

Jon Dunn, DDS, is a member of the American Medical Writers Association and a registered continuing education provider for both the California Dental Board and the Academy of General Dentistry. He maintains an exclusive private practice in Santa Barbara, California devoted to adult restorative dentistry. Dr. Dunn is a pioneer in the delivery of online continuing education and may be contacted through his C.E. website at www.DentalDidactics.com



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The Successful Laser Dentist

Volume 2, Number 4 August 7, 2008

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Refer or Not to Refer... That is the Question - By Daniel Bird, DDS

Certain scenarios repeat themselves day after day in dental offices across the country. All of us know the frustration of seeing a patient with an emergency only to discover that their problem requires a referral to a specialist. While patients may appreciate the speed with which we schedule their emergency appointments, they don't appreciate being told that they need another appointment with another doctor. A recent case highlighted how frustrating these circumstances can be, but fortunately for me, the ability to perform laser treatment precluded the need for a referral. I think we can all relate to this scenario.

An existing patient calls in with an emergency problem and needs to be seen immediately. Your front desk rearranges your schedule and makes an appointment. The patient arrives promptly, fills out all the necessary paperwork, and waits eagerly for you to fix his problem. In order to get an understanding of the situation you take multiple x-rays, probing depths, and examine each and every tooth. After 20 minutes of consultation you determine that, lo and behold, the patient has a perio problem.

Before I had a Lares PowerLase® AT, this diagnosis would have brought the appointment to a screeching halt, causing frustration and disappointment for the patient. Because I could not ease his pain and anxiety the patient loses all faith in me and immediately assumes that there is someone better or more qualified to fix his problem. To top it all off, the patient feels that he wasted two hours of his day only to find out that I couldn't help him and he'll need to go to another doctor's office and spend several more hours there.

In this case, the patient complained of severe pain and swelling on the back side of his second molar. He thought he needed a root canal, but in reality he had a perio condition that had become infected. Before purchasing my laser, I would have medicated him and referred him to a periodontist for periodontal surgery. Happily for both of us, using the Er:YAG laser allowed me to remove a huge portion of tissue quickly and easily which allowed him access to clean the area properly. I then used the Nd:YAG wavelength to remove the infected epithelial tissue. The entire procedure took about five minutes and saved the patient the hassle of having to make an appointment with another doctor. It also saved my patient's faith in me.

I saw the patient at a one week post-op visit. He was happy to report feeling great and was thrilled not to have been as sore as he expected. This patient's appointment proved a success from his point of view and from mine. My patient received the best care possible with an excellent outcome and I created another laser enthusiast who will tell others about his amazing experience and refer patients to me again and again.

This type of scenario has repeated itself over and over since I purchased the Lares PowerLase® AT. Much of my satisfaction with the laser comes from being able to help my patients immediately, rather than referring them to a specialist. Patients appreciate immediate treatment and the opportunity to avoid multiple appointments that take up their time. I appreciate the time savings, too, as well as the enthusiasm and goodwill toward dentistry that the laser creates. I will certainly continue to make referrals when needed, but the PowerLase® AT has broadened the range of treatments that I can offer my patients.

About the Author

Daniel Bird, DDS graduated in 2003 from University of Tennessee. He maintains a practice in West Memphis, Arkansas. Dr. Bird is a member of the ADA, ASDA, and the Academy of Laser Dentistry. He has taken several courses on lasers and is standard proficient in Er:YAG and Nd:YAG wavelengths. Dr. Bird uses Dentaltown as a tool for laser research and personal education. In his spare time, Dr. Bird enjoys fishing and playing the guitar.



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The Successful Laser Dentist

Volume 2, Number 5 August 26, 2008



Using a Laser to Help Relieve Fear and Discomfort

- By Ronald Matsuura, DDS

Accustomed to dealing with dental phobia in children and adolescents, I was recently caught off guard when I encountered a full blown case in an adult. My healthy, eighty-five year-old patient expressed extreme fear of extraction. His anxiety and dread proved so severe that in his mind, keeping a severely damaged tooth would be preferable to any sort of treatment that involved removing it. Although stumped at first, I happily found a solution using my PowerLase® AT that both satisfied my desire to give the patient the best outcome possible and allayed the patient's fears.

This patient presented with an upper arch missing all posterior molars and premolars with exception of #2, the upper right second molar. He had a decades old partial with which he was very comfortable. The partial clasped teeth #2, 6 and 10. The latter had become very mobile, however, and a digital radiograph showed virtually no bone and only soft tissue attachment due to advanced local periodontitis, occlusal trauma, and excessive torquing from the partial.

When I discussed treatment options with him, the patient insisted on keeping his partial. He cited financial reasons and said that he did not want a new partial made. It quickly became clear that his real reason was fear—he did not want #10, the hopeless lateral, extracted. Because of that, a full denture was not an option in the patient's mind. With further discussion I discovered that the patient's fear of extraction was more intense than I initially thought. He expected it to include lots of bleeding and a painful recovery. With those concerns in mind, I presented the patient with a scenario that involved using the laser to reduce the periodontal infection in an attempt to lessen the discomfort and keep healing time to a minimum. Although he had some reservations, the patient consented to my proposal.

I started by applying a temporary splint made with resin composite to the front centrals. Next, I did ultrasonic scaling of the root followed by "pocket" laser treatment at a surgical setting. All of this was done with local anesthetic. The patient returned for two more similar laser treatments with no more than seven days between appointments. By the third week, the much anticipated moment had arrived and the patient returned for the extraction. After administering local anesthetic, I removed the bonded splint with a highspeed hand-piece. The tooth literally dropped out of the socket that had no inflammation and therefore no hemorrhaging at all. The root surface of the tooth showed excessive calculus build up to apex, but the tissue in the pocket was pink and healthy.

The relatively easy "extraction" thrilled my patient and the excellent results enabled his enthusiastic acceptance of upgraded treatment. His earlier objections fell

away as easily as his #10 and he consented to splinted crowns on the upperfront centrals with a new valplast/metal partial upper denture. Although the treatment cost thousands more than originally planned, the patient is very pleased with his new prosthesis.

I doubt that this patient and I could have reached an outcome acceptable to both of us had I not used the PowerLase® AT. Laser treatment meant minimal, if any, physical trauma, which translated into minimal, if any, anxiety and fear for the patient. In the case of extreme dental phobia, the ability to provide this type of treatment is invaluable. Not only was I able to offer treatment that the patient would accept, the laser allowed me to offer a better level of treatment.

About the Author

Ronald Matsuura, DDS

~ Los Gatos/Sunnyvale offices

~1974 graduate UCLA BA

~1979 graduate USC school of dentistry

~ Private practice since 1979 to present



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The Successful Laser Dentist

Volume 2, Number 6 September 10, 2008

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Lasers In Dentistry: A Great Challenge

- By Dimitri Vareldzis, DDS

The incorporation of new technology into a dental practice can prove challenging for both the dentist and support staff. No matter how much excitement exists, new equipment means new questions about day-to-day operations, the technology itself, and the role that support staff will play in the integration process. In my experience, the incorporation of a laser increases the excitement, but also the tension, so paying attention to a few key elements will smooth the transition.

Decisions about when and where to use the laser as well as how to make it flow within the confines of the operatory and the procedure at hand have to be made on a case by case basis. Education, both for the doctor and the staff, will make those determinations less daunting. Aside from assigning one specific staff member to act as the laser safety officer, it is important to make sure that the entire clinical team receives training about the incorporation of the laser in the operatory. Your staff needs to understand your expectations about when the laser will be used and which type of procedures may include laser treatment. Finally, you'll find it very beneficial to educate your entire team on the advantages of laser therapy. Everyone needs to be prepared to help answer questions and concerns that patients may have as they make decisions about their courses of treatment.

When we bring new technology into our dental practices there's always a certain amount of anxiety about whether the technology will prove right for the practice. In my opinion the treatment of dental disease has changed so much over the last two decades that we can no longer afford to sit back and be content with treating our patients with the tools and techniques we learned years ago. As technology and science change we also must be willing to explore better options for the dental wellbeing of our patients.

We incorporated the PowerLase AT® into our practice a little more than a year ago. I was attracted to the fact that the PowerLase AT® has both a soft and hard tissue laser in one unit. The laser has changed the way we treat periodontitis and the results are better than I expected, not to mention that patients have been very accepting of laser treatment. I had some serious concerns at first and was apprehensive about patients' perceptions of the laser, but that apprehension dissipated after the first few months. Most patients were relieved that their periodontal disease could be treated with a more conservative approach using the Nd:YAG laser, but at the same time with a technology that offers good results.

The use of the Er:YAG laser has been quite an experience for me, especially as I used it on primary dentition. Removing caries in class I, class II or class V resto-

rations without the use of anesthetic is, to say the least, exhilarating, especially when the child feels no discomfort. The icing on the cake is being able to walk the child to the reception room and tell the parent that not only did their child do well throughout the procedure, but that they are not even numb! Additionally, most patients of all ages seem to prefer the sound of the laser to that of the drill.

The PowerLase AT® has opened up a whole new way of treating dental disease. My patients, staff, and I remain excited about the advantages it offers us now and those we have yet to discover. Including my entire staff in the integration process has contributed enormously to the success of the laser in our office. The laser has great potential for any practice willing to take the time to incorporate it into all aspects of the practice.

About the Author

Dr. Vareldzis graduated from The University of Portland with a BS in 1983 and from Marquette University School of Dentistry in 1987. He has a private practice in Tigard, Oregon, and is a member of the ADA, AGD, AAID, ALD. He has incorporated CAD/CAM technology for a little over nine years as well as placing implants for the past 15 years. In April 2007 he incorporated the Laser into his practice.



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The Successful Laser Dentist

Volume 2, Number 7 September 24, 2008



Time is of the Essence

- By Daniel Bird, DDS

In today's busy world, people always seem to be in a hurry. They hurry to the bank, they run by the post office, and they scramble off to lunch only to return to work as soon as possible. Unfortunately for dentists, they rush their dental appointments as well. Even more unfortunate—providers are no different. We work according to tightly scheduled appointments, allotting a certain amount of time for each procedure. Whose day isn't structured by the desire to finish each procedure and move on to the next? Time is of the essence for doctors as well as patients.

Time, and our general lack of it, comes into sharp focus when dealing with anesthetic. Traditionally, we seat the patient and apply the topical, and then the patient sits and waits. A patient may wait for two minutes or twenty minutes—it all depends on what else the doctor has to do. After waiting for the topical to take effect, we administer the anesthetic and again leave the room to do something else while the patient gets numb. Sitting and waiting proves frustrating for both patients and staff. The former wonder how long it really takes for numbness to set in since wait times vary by appointment and the staff tries to choreograph a complicated ballet of moving the dentist between patients in the most effective manner.

Sitting and waiting in the absence of a dentist only serves to remind the patient of the need to get back to work. Even worse, if treatment is required in multiple areas of the mouth, concern about recovery time arises. When patients have to be bilaterally blocked, they have a hard time speaking normally. To avoid that problem working people may choose to fix only one side of their mouth per appointment. Multiple appointments allow patients to function at their jobs afterward, but they also require multiple vacation or sick days to allow time to leave work, get their teeth fixed, and return to work.

Time is one of many reasons why I love my Lares PowerLase AT®. It's a great thing to walk into the room, greet the patient, and start working without waiting for anesthesia! Using the Er:YAG wavelength with the proper settings and technique, I have consistently been able to do all classes of cavity preparations without any local anesthetic. This ability opens the door to allow me to work in any quadrant of the mouth, all in the same appointment. The benefits for the doctor include more work done in a single appointment, saving money on supplies by not using any needles or anesthetic, and being able to offer the patient a different method of treatment. The patient benefits from having more work done in a single appointment thus requiring less missed work and being able to return to work without the usual droopy lip. Everyone benefits from being able to adjust the occlusion immediately post op; unsure contacts due to the numbness are eliminated.

Just today I saw a patient who needed fillings on both his lower 2nd molars. Before the laser it would have taken at least two appointments to complete his work.

Using the Lares PowerLase AT® to prepare the teeth I worked on both sides of the mouth and even did one on the top, all without a single drop of anesthetic! I saved him from needing an entire day off work, he went back to work not numb, and he left confident that his bite was adjusted properly. The ability to perform that type of treatment and service for my patients makes the investment in time and money to own a laser completely worthwhile. The greatest part of it for me is that when he returns to work, this patient will tell someone about his "new" dental experience. Since I bought my laser, new patient referrals continue to grow everyday. Although the dentistry is not new, the enjoyment to be had from doing it a new way is a wonderful thing.

About the Author

Daniel Bird, DDS graduated in 2003 from University of Tennessee. He maintains a practice in West Memphis, Arkansas. Dr. Bird is a member of the ADA, ASDA, and the Academy of Laser Dentistry. He has taken several courses on lasers and is standard proficient in Er:YAG and Nd:YAG wavelengths. Dr. Bird uses Dentaltown as a tool for laser research and personal education. In his spare time, Dr. Bird enjoys fishing and playing the guitar.



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The Successful Laser Dentist

Volume 2, Number 8 October 3, 2008

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Engaging the Patient - By Jon Dunn, DDS

Educating patients and encouraging them to become more involved in their dental care constitutes a major portion of our professional day. While the printed and electronic visual aids that we typically employ certainly serve to increase patients' understanding, the most impactful moments occur in our office when the patient asks, "Do you mind if I watch?"

That can be a double edged sword—we aim for patient interest and participation, but there's some dental work better left unobserved. Few patients appreciate the sight of a highspeed drill whisking away their old restorations (as well as tooth structure) during a crown preparation no matter how conservative the procedure. And there are even fewer who really want to witness traditional periodontal surgery in their own mouths, no matter how elegant the procedure. Laser procedures, however, are ideal for involving patients in observing their own care.

We always encourage our patients to watch laser procedures using the appropriate protective eyewear, which in itself alerts them to the fact that their procedure will be something "special." Our patients never fail to express their amazement at the capabilities of the laser. This proves especially true of procedures in the anterior region where patients experience superb visibility.

A case of anterior cervical erosions and Class V caries represents the typical experience when patients observe their own laser treatment. We isolate the surgical site and give the patient a magnifying hand mirror or have them watch the procedure on the chair-side monitor. Observing the hard tissue laser aiming beam dance over the tooth structure truly seems to enthrall most patients and observing the laser gently and conservatively prepare the cervix of the tooth proves almost mesmerizing. After a few brief passes to prepare the tooth for bonding, patients are universally amazed at the quality of the etch we've achieved and the conservancy of the preparation. They truly appreciate the difference between the "scalpel" of a hard tissue laser and the "hatchet" of a handpiece. Phrases such as "I'm amazed," "That was incredible," and "How did you ever do this before lasers?" fill our operatory daily.

The "Can I watch?" question from concerned parents regarding restorative procedures on their young children also brings no anxiety for the parent or operator in our office. Parents greatly appreciate our investment in a technology that affords their children comfort and alleviates the dental traumas that they experienced in their own youth. It's a great day for everyone involved when a child removes his safety glasses after watching a laser-performed filling in their own mouth and exclaims, "That rocks, Mom; I want to be a dentist!"

About the Author

Jon Dunn, DDS, is a member of the American Medical Writers Association and a registered continuing education provider for both the California Dental Board and the Academy of General Dentistry. He maintains an exclusive private practice in Santa Barbara, California devoted to adult restorative dentistry. Dr. Dunn is a pioneer in the delivery of online continuing education and may be contacted through his C.E. website at www.DentalDidactics.com



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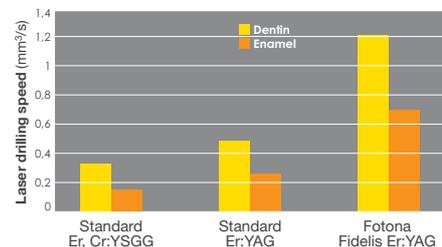
Study compares ablation performance between Er:YAG and Er,Cr:YSGG

J. LAHA, Vol. 2008; No. 2/1

A recent study, conducted by the Ljubljana University Faculty of Mechanical Engineering, put Fotona's Fidelis III range Er:YAG laser head to head with an Er,Cr:YSGG laser.

Measurements of ablation speed show that the Er:YAG laser ablates 3.7 times faster in dentine and 5 times faster in enamel compared to the Er,Cr:YSGG laser. The Er:YAG laser did not cause any thermal damage to tooth tissue, while thermal damage in the form of brownish discolored spots was observed in dentine with the Er,Cr:YSGG laser.

The author attributes the measured differences to (1) the difference in water absorption coefficients in hard dental tissue, (2) the current limitation of Er,Cr:YSGG lasers to pulse widths above 600µs, (3) pulse shape, where VSP-technology keeps the power within Er:YAG laser pulses constant and (4) the difference in performance capabilities (Fidelis Plus III 20W versus Waterlase MD 8W).



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The Successful Laser Dentist

Volume 2, Number 9 October 22, 2008



The primary and secondary benefits of investing in your laser

- By Lawrence Kotlow, DDS

As a longtime laser user, I have had the wonderful opportunity to speak to and train hundreds of dentists who invested in lasers. I have also had a great deal of experience with many other dentists who considered getting a laser, but then backed away from the investment. Notice, I use the word investment, not purchase, when talking about incorporating lasers into your dental practice. Lasers can do many things for a dental practice: they can infuse new excitement into practicing dentistry; they can reduce the stress of treating patients; they can reduce patient stress when receiving dental care; and in a significant number of dental practices, lasers provide the dentist with the opportunity to consider doing treatments that he or she may have referred out or preferred to observe rather than treat in the past. Some dentists view getting a laser as an enormous expense that will require a significant increase in the cost of running a dental practice. Frequently an inquiring dentist's first concern is the bottom line. All too often they ask me "what will the return on my investment (better known as ROI) be?" or "how much will a laser cost me?" before considering its many benefits.

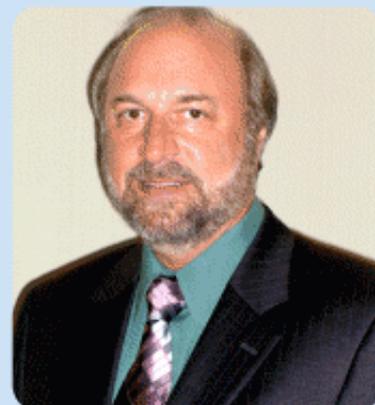
I consider the primary benefit of investing in a laser to be the ability to complete restorative procedures you normally do without the need for a local anesthetic, eliminating the "fear factor" of needles and numbing and in young children and mentally challenged individuals, as well as the potential for post-anesthetic lip or tongue traumatic injuries. In addition, lasers give you the ability to complete many soft tissue treatments without serious concerns for post-surgical pain, swelling, or infections. The combination of both hard and soft tissue treatment such as crown lengthening, apicoectomies, and surgical tooth removal also can be completed with improved healing and reduced post-surgical problems. These factors should be the reasons you invest in a laser.

Secondary benefits come with the decision to invest in lasers, but they are not the primary reasons for getting a laser. Your ROI constitutes a secondary benefit. What exactly should the term ROI (return on investment) mean? Not simply the ability to pay off your investment, the ROI should be defined as the increase in new patients who learn you use lasers and appreciate your skills and commitment to better patient care and quality of care. An increase in new patients can be achieved either through a good internal marketing plan and patient word of mouth or externally marketing yourself and practice as employing lasers. Making the most of your investment is also achieved by being able to complete more treatment in a shorter period of time, without compromising care. Very importantly, your investment will be returned by recognizing that with a laser you can now perform many of the procedures that in the past you referred out to other specialties.

Once you understand the mechanism of laser action and how to safely and effectively control your laser, you will find that not only will you enjoy dentistry more than you ever thought you could, but you will see a significant increase in office productivity and income. These benefits come to those who invested in a laser, not those who simply bought a laser!

About the Author

Dr. Lawrence Kotlow is a board-certified pediatric dentist who has practiced pediatric dentistry since 1974. He has received advanced proficiency certification from the Academy of Laser Dentistry and is a certified course provider for Standard Proficiency by the Academy of



Laser Dentistry. He has written more than 30 articles on pediatric dentistry and using lasers in the practice of pediatric dentistry and lectures both nationally and internationally on lasers and pediatric dentistry. He can be contacted at kiddsteeth@AOL.COM and has a website at KIDDSTEETH.COM.



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The Successful Laser Dentist

Volume 2, Number 10 November 5, 2008

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Section 179 Benefits Can Dramatically Ease Laser Ownership

You've read for months in this newsletter about the absolutely extraordinary things actual wet fingered dentists have been doing for their patients and their practices with the PowerLase® AT all-tissue laser.

Most dentists face a significant income tax bill for 2008. Section 179 accelerated depreciation benefits- intended to stimulate spending on new equipment- will typically reduce the after tax cost of purchasing a PowerLase® AT by about \$30,000, or a hefty 38% of the purchase price.

Considering most dentists finance the purchase of a laser, a purchase before December 31st may reduce their income tax bill by \$30,000, while the laser would be paid for over 5 or more years of monthly payments.

At current low interest rates, the \$30,000 in tax savings almost covers the first two years of payments.

The newly elected administration and congress may or may not maintain Section 179 accelerated depreciation for 2009 and beyond. However, one thing is for sure- 2008 savings are lost forever if not used in 2008, making this opportunity a "use it or lose it" proposition.

If you have not spent \$250,000 on qualifying equipment in 2008, check with your accountant to find out just how affordable a PowerLase® AT can be after tax as the end of 2008 approaches.

Happy Holidays!
-Craig Lares, President



Dr. Mark Colonna demonstrates a restorative technique during advanced laser training at the Montana Center For Laser Dentistry.



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- Complete Range of Hard Tissue Treatments
- Full Spectrum of Soft Tissue Treatments
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The Successful Laser Dentist

Volume 2, Number 11 December 2, 2008

Basic Level Training

Masters of Laser Dentistry



Dr. Ron Kaminer

He maintains a thriving general practice in Hewlett, New York, also the location of his state-of-the-art laser training facility. He lectures nationwide on laser and minimally invasive dentistry and is one of the most experienced laser trainers in dentistry. Dr. Kaminer holds many awards, including Mastership status from the World Clinical Laser Institute.



Dr. James Jesse

One of the most sought-after laser lecturers in the world, Dr. James Jesse is a pioneer in the development of hard and soft tissue laser protocols. Dr. Jesse maintains a busy private practice in Southern California, and speaks in front of thousands of dentists each year. Dr. Jesse has earned Mastership status from the World Clinical Laser Institute.



Dr. Dan McEwen

Has become one of the most in-demand laser instructors in dentistry. He has lectured at every World Clinical Laser Institute event since 2002. He maintains a private practice in Maryland. Dr. McEwen has earned Mastership status from the World Clinical Laser Institute.

Lares Research is proud to announce that the Masters of Laser Dentistry and the Montana Center for Laser Dentistry, two prestigious laser training organizations, are the exclusive providers of PowerLase® AT Basic Level and Advanced Level clinical training. These training organizations include the world's most experienced and sought after laser clinicians, responsible for many of the advances and innovations in all-tissue clinical laser dentistry now practiced by dentists worldwide.



Montana Center for Laser Dentistry

Advanced Level Training

Dr. Mark Colonna



He founded and operates the Montana Center for Laser Dentistry, his private practice and advanced laser training center. He is a pioneer in the development of techniques and instruments for dentistry without the use of drills. He lectures, teaches and writes nationally and internationally about laser dentistry. Dr. Colonna holds many awards, including the Clinician of the Year Award from the World Congress of Minimally Invasive Dentistry. He has achieved Mastership status from the World Clinical Laser Institute.

Dr. Robert Barr



Dr. Barr maintains a private practice in San Jose, California, is a laser trainer with the Montana Center for Laser Dentistry, and lectures nationally and internationally. He is a founding member of the Academy of Laser Dentistry, one of the first to achieve Mastership and Educator status, and received the Leon Goldman Award for Clinical Excellence in 1999. He is also a founder and board member of The World Congress of Minimally Invasive Dentistry and was named their clinician of the year in 2004.

Dr. Enrico DiVito



Dr. DiVito is founder of the Arizona Center for Laser Dentistry and maintains both a general and cosmetic private practice in Scottsdale, Arizona. He is a clinical instructor at the Arizona School of Dentistry and Oral Health where he helped develop and establish the first curriculum based laser dental program. He is a pioneer in research and development for minimally invasive laser endodontic procedures and a member of the World Clinical Laser Institute with Mastership status.

International Workshops in Laser Dentistry

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The Laser and Health Academy offers various international workshop platforms throughout the year, ranging from basic training to advanced individual training. All programs aim to develop a deeper understanding of laser physics and laser/tissue interaction and will help laser users understand the different clinical effects of various laser sources on different tissues. Participants will learn how various parameter settings influence treatment outcome and how to develop a laser treatment strategy that suits each patient's needs.



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Ljubljana is the perfect destination for a relaxing and energizing weekend city break. Wander through the cobble streets of its quaint Old Town and pass time on the numerous riverside café terraces. Or hire a bike for the afternoon and soon this tiny city feels like the back of your hand. It is also the perfect starting point for more active holidays with many recreational options - such as golf, hiking and fishing - very close by.





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