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Dr Stefan GrümerVice-Chairman,
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Save the date

Dear colleagues, dear friends,

The preparations for the joint congress of DGL and WFLD in Aachen, Germany, are in full swing. To be celebrating the 30th anniversary of the International Society for Laser Dentistry (ISLD, founded in 1988) in Aachen, is a huge honour and motivation to make this event special.

Save the date
WFLD World Congress
1 to 3 October 2018 in Aachen, Germany

And that's the plan:

It is intended to be an international event of a high scientific level, with pronounced practical orientation. The possibilities of high-quality education of one of the most modern university clinics in Germany shall offer the appropriate setting.

An entirely new concept will be used to realise these intentions: In order to combine a maximum practical orientation medially with the corresponding background knowledge, high-quality scientific presentations of internationally renowned speakers on current developments of laser research—taking place in three auditoriums—will be linked with innovative live patient demonstrations accompanied by theoretical introductions and follow-ups of presentation teams.

In times of Ultra HD and multi-channel projection, the auditorium gets right up close to dentistry of the highest level being demonstrated with diverse wavelengths and devices—guaranteeing a maximum learning effect. Theory and practical experience will further be connected in the workshop events. Highly modern video-projection walls for poster presentations will last but not least promise interactive multi-media adventures, that have not existed in that manner before.

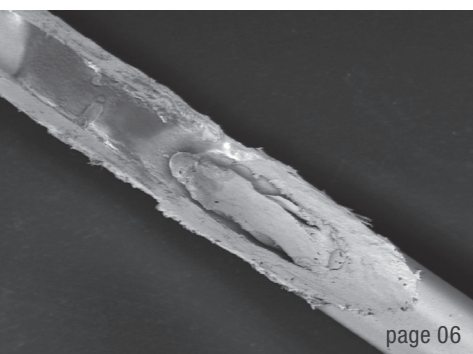
A large number of companies, not only of the field of laser dentistry, will be using the congress-accompanying exhibition to present their products and innovations. Well-known exhibitors have already agreed to participate.

For many laser-enthused colleagues from all over the world it will be “Coming back home to Aachen!” in October. For others the door to the world of laser is only just opening. I am looking forward to welcoming you all and, of course, the numerous friends from DGL, WALED and WFLD/ISLD here in Aachen—only your plentiful participation and active contribution will make this congress something special.

See you soon in Aachen,

A handwritten signature in black ink, appearing to read 'S. Grümer', with a long, sweeping flourish extending upwards and to the right.

Dr Stefan Grümer



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editorial

Save **the date**

Dr Stefan Grümer

03

research

Nd:YAG **laser-assisted removal** of instrument fragments

Dr Georgi Tomov

06

case report

Gingival depigmentation using diode laser

Dr Chayanee Prakongsantikul & Assoc. Prof. Dr Sajee Sattayut

08

industry

Creating **natural-looking** composite restorations

Dr Daniel H. Ward

12

Periodontal aesthetics with **soft-tissue lasers**

Dr David L. Hoexter

16

Periodontal tissue regeneration

Dr Alan Dalessandro, Dr Harvey Shiffman,
Dr Steven R. Pohlhaus & Dr Larry Lieberman

20

practice management

Return on investment of dental **laser** education and technology

Dr Imneet Madan

24

Successful **communication** in your **daily practice**

Dr Anna Maria Yiannikos

28

news

manufacturer **news**

30

news international

32

DGL

Save **the date**

Dr. Stefan Grümer

37

news germany

38

about the publisher

imprint

42



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Nd:YAG laser-assisted removal of instrument fragments

Dr Georgi Tomov, Bulgaria

The Nd:YAG lasers tested in laboratory studies have been claimed to be able to successfully manage the removal of instrument fragments within root canals¹⁻⁴. This is done in four ways, all correlated to temperature effects:

1. Laser melts the dentine around the fragment and then Hedstrom files are used to bypass and retrieve the fragment.
2. Laser melts the entire fragment.
3. Laser energy melts the solder, connecting the fractured instrument with a brass tube charged with solder and placed at the exposed coronal end of the fragment.
4. Laser welds the file fragment positioned within a metal hollow tube (e.g. Endo-Eze® Tip, Ultradent Products; Figs. 1a & b).

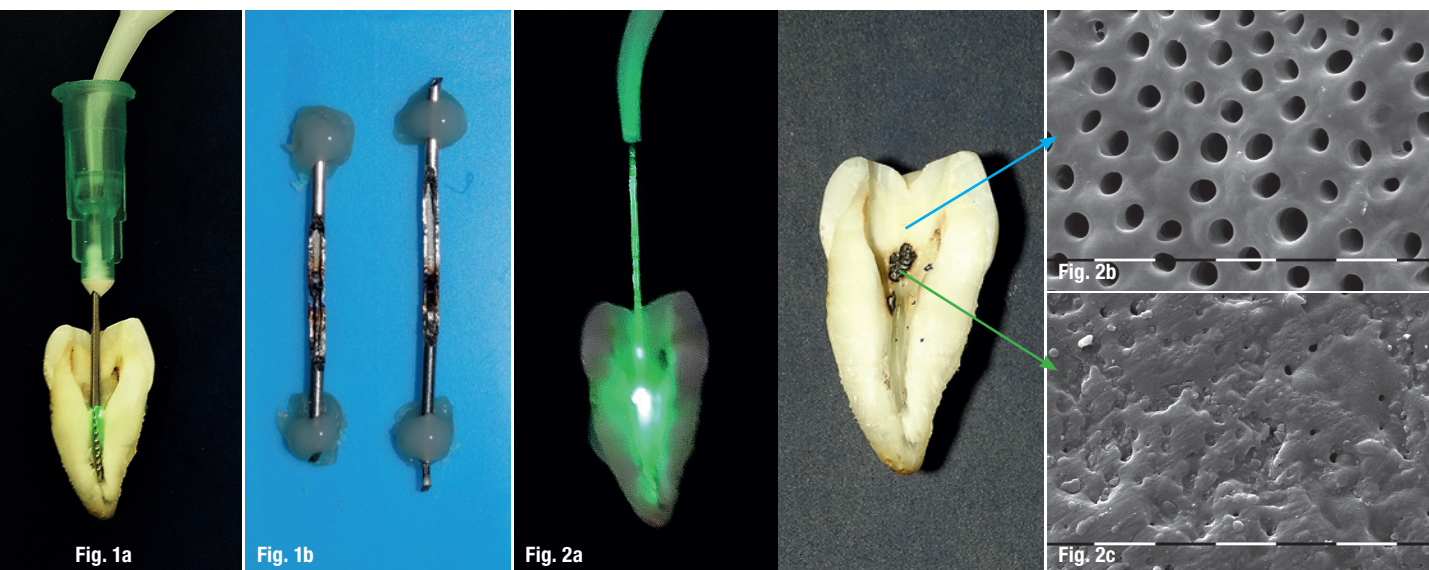
The removal of a claimed minimum amount of root dentine^{1,2,4} can be attributed to the potential given to the user of Nd:YAG laser to distinguish dentine¹ from obstructions by the difference in acoustics produced by the two materials. Ebihara et al. observed that some orifices of the dentinal tubules were blocked with melted dentine after

laser irradiation.¹ Yu et al. found that the temperature rose by 17 °C to 27 °C, but argued that, since the initial temperature was lower than human body temperature, these results were irrelevant.²

The findings demonstrated that a pulsed Nd:YAG laser irradiation has the capability of removing broken files. The success rate reported by Yu et al. was 55 per cent.² However, the thermal effects found after Nd:YAG irradiation in dry root canals were considerable (Figs. 2a–c). Thus, the focus now is on the outcomes of using a laser fibre inserted into a hollow tube (alone or in the presence of solder) both to avoid dentinal carbonisation and to achieve welding between the separated file and metal tube.

Intraoral laser welding

The intraoral laser welding phenomenon is well researched.¹⁻⁴ Even for metals that absorb well, such as steel, the laser light is initially reflected. A small percentage of the laser light is absorbed, heating the metal surface.



Figs. 1a & b: Welding of separated K-type file in Endo-Eze® Tip (18 gauge) using Nd:YAG laser irradiation at 400 mJ and 10 Hz **(a)**. Longitudinally cross-sectioned metal tubes with melted K-type files inside **(b)**. **Figs. 2a–c:** Undesirable thermal effects of Nd:YAG irradiation (3W, 300 mJ, 10 Hz) in a dry root canal **(a)**. When the optic fibre comes into contact with the dentinal wall it can cause carbonisation and melting. SEM image of a control dentinal surface **(b)** and dentine irradiated with an Nd:YAG laser, revealing areas of melting and dentinal tubule closure **(c)**.

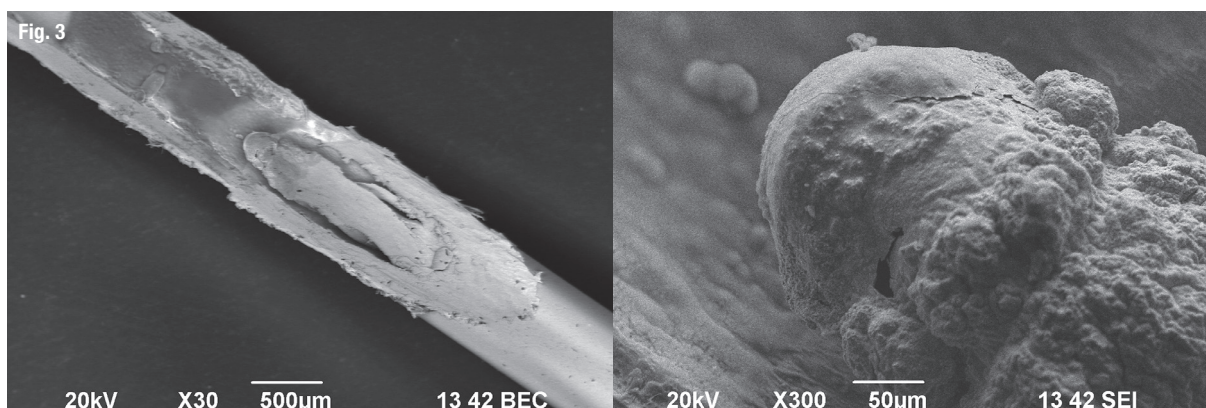


Fig. 3: SEM image of a K-type file after Nd:YAG laser irradiation at 400 mJ and 10 Hz revealing a melted metal surface with an irregular granular structure after solidification.

The increased surface temperature increases the absorption of the laser power. This creates a snowball effect, in which the material is rapidly heated by the laser, leading to melting and the consequent formation of a weld.

Hagiwara et al. performed laser welding on stainless steel or nickel-titanium files using an Nd:YAG laser in order to evaluate the retention force between the files and the metal extractor.³ Additionally, they evaluated the increase in temperature on the root surface during laser irradiation. They reported that the retention force on stainless steel was significantly greater than that on nickel-titanium. The maximum temperature increase was 4.1 °C. The temperature increase on the root surface was greater in the vicinity of the welded area than at the apical area. Scanning electron microscopy (SEM) revealed that the files and extractors were welded together. Similar results were found by Tomov (unpublished data; Fig. 3).

In vitro study

Cvikl et al. used a brass tube charged with solder and placed at the coronal end of the fractured instrument in their *in vitro* experiment.⁴ Nd:YAG laser energy was used to melt the solder, connecting the fractured instrument with the brass tube. They reported that the fractured end-

odontic instruments were removed successfully in 17 out of 22 cases (77.3 per cent) in which more than 1.5 mm was tangible. When less than 1.5 mm was tangible, the removal success rate decreased to three out of 11 cases (27.3 per cent).

These results obtained from *in vitro* experiments indicate that the laser welding method is effective in removing broken instruments from root canals, but its efficacy has to be further verified in clinical trials.

All figures: © Georgi Tomov, 2016



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Kurz & bündig

Im Zuge von Laborstudien wurden Nd:YAG-Laser bereits erfolgreich, mit dem Ziel Instrumentenfragmente aus Wurzelkanälen zu entfernen, genutzt. Dies kann auf vier verschiedene Arten erfolgen, jeweils korrelierend mit temperaturinduzierten Effekten. Der Autor betont, dass in früheren Studien von geschmolzenem Dentin verschlossene Dentintubuli festzustellen waren, welche durch die Nd:YAG-Laserbestrahlung verursacht wurden. Die thermalen Effekte erwiesen sich besonders bei trockenen Wurzelkanälen als erheblich. Um diese Dentinkarbonisierung und -schmelze zu vermeiden, legt sich der Fokus nun verstärkt auf Laserschweißen, d.h. das Fragment wird (meist mithilfe von Lötmetall) innerhalb einer Messingröhre unter Verwendung von Lichtleitfasern gebunden und entfernt. Im Ergebnis von In-vitro-Experimenten erwies sich diese Methode des Laserschweißens als effektiv im Entfernen abgebrochener endodontischer Instrumente aus Wurzelkanälen. Ihre Effizienz gilt es, in klinischen Versuchen weiter zu belegen.

Gingival depigmentation using diode laser

A non-ablative technique with test patch

Dr Chayanee Prakongsantikul & Assoc. Prof. Dr Sajee Sattayut, Thailand

Gingival hyperpigmentation is a condition affecting aesthetic appearance. There are many techniques for treating gingival hyperpigmentation, but still no technique available for patients to select a satisfactory gingival colour. In this case report, we present a technique of gingival depigmentation using a diode laser that provides a test patch for the patient to decide on the gingival colour.

Introduction

Nowadays, people are increasingly concerned about aesthetics. The appearance of the smile is affected by not only the teeth but also the gingivae. Much of gingival hyperpigmentation is due to normal physiological variation rather than being pathological in nature. In this case report, although it did not present any medical problems,



Fig. 1



Fig. 2



Fig. 3



Fig. 4

Fig. 1: A melanotic macule of the lower lip. **Fig. 2:** Pre-op hyperpigmentation of the gingiva of the maxillary anterior teeth. **Fig. 3:** Test patches as indicated by A and B. The blue arrow is pointed to an incisional biopsy area. **Fig. 4:** Two weeks after laser dose testing and incisional biopsy, complete healing of the gingiva was observed. The patient was able to detect the difference in colour between the areas treated with Settings A and B.

it was an aesthetic concern for our patient and appeared as darkened gingiva.¹

There are many techniques for the treatment of gingival hyperpigmentation, such as gingivectomy using scalpel, rotary, electrosurgery, laser and chemical agents to resurface the gingiva and applying cryosurgery to eliminate melanotic cells.²⁻⁴ These abrasive techniques involve a non-favourable appearance during the healing process. Even though depigmentation using a carbon dioxide laser provides less discomfort, wound coverage using a gingival dressing is still needed.⁴ Non-abrasive techniques that use laser for gingival depigmentation are worth investigating, as well as the technique of using a tissue testing patch for fulfilling aesthetic concerns.

This case report presents a new non-abrasive technique using an 808 nm diode laser in the case of physiological hyperpigmentation of the gingiva. The laser test patches were used before treating the whole area in order to gain greater patient satisfaction regarding the gingival colour.

Case report

A 22-year-old Thai woman presented to the oral surgery clinic, faculty of dentistry at Khon Kaen University, complaining of brownish gingiva, particularly at the maxillary anterior teeth. The patient reported no underlying disease or any medicine allergy. Furthermore, she reported no history of smoking. Extraoral examination found an oral pigmented lesion at the lower lip (Fig. 1). Intraoral examination found pigmented lesions at the attached gingivae from the maxillary right canine to the maxillary left canine (Fig. 2). The patient was diagnosed with physiological pigmentation of the gingiva and a melanotic macule on the lower lip.

Incisional biopsy was conducted under local anaesthesia at the attached gingiva between the maxillary left central incisor and the lateral incision in order to determine the depth of the melanin pigment in the gingiva. Haemostasis was achieved using an 808 nm diode laser at 0.5 W for 5 seconds (Fig. 3).

Then the two test patches were undertaken at the attached gingiva (Fig. 3) between the maxillary right lateral



Fig. 5



Fig. 6



Fig. 7



Fig. 8

Fig. 5: The immediate post-laser depigmentation photograph showed no photo-ablative effect. **Fig. 6:** After seven days, the area treated showed partial recovery with mildly reddened gingiva at the central incisors. There was no ulcerated area clinically. **Fig. 7:** After two weeks, the area treated showed complete healing of the gingiva. **Fig. 8:** After three weeks, the area treated showed uniformly normal-coloured gingiva.

incisor and canine (Setting A) and between the maxillary left lateral incisor and canine (Setting B) using an 808 nm diode laser with two settings as follows:

- Setting A: 3 W; continuous wave
- Setting B: 5 W; repeated pulse; 28 burst mode pulse per: 10 m/s; pulse width: 1 m/s burst pause.

The laser was used in a defocused mode, 3–5 mm from the gingival surface, and in circular motion until the tissue turned pale. Immediately post-laser depigmentation, the tissue showed only a photocoagulative effect without photoablation (Fig. 3).

Two weeks later, the patient was followed up. The biopsy results showed numerous melanocytes at the basal cell layer. Both laser testing sites had completely healed, with differences to the normal gingival colour. The area treated with Setting A was more erythematous than the area treated with Setting B (Fig. 4). The patient was asked to select the test patch that was her preferred gingival colour. She chose the area treated with Setting B. Then the gingival depigmentation of the maxillary anterior teeth was done according to the selected setting (Fig. 5). After the treatment, the patient was prescribed a 0.12 % chlorhexidine mouthwash to rinse daily for two weeks and 400 mg of ibuprofen as necessary.

Results

The patient felt comfortable and did not take any analgesics after the treatment. The seven-day follow-up showed some mildly reddened areas at the maxillary incisors (Fig. 6). The area that had been prepared with laser had completely healed within two weeks (Fig. 7). The colour of the treated gingiva was the same as that of the surrounding gingiva and mucosa within three weeks (Fig. 8). The patient was satisfied with the results.

Discussion

As this laser wavelength is absorbed by melanin and less absorbed by water, an 800–900 nm diode laser was used in the treatment of gingival hyperpigmentation, providing less abrasion to tissue surfaces.³ This case report has demonstrated a non-abrasive technique using a diode laser for gingival depigmentation with complete healing in only two weeks. As far as the patient's satisfaction was concerned, we presented the technique of testing laser doses that provided more predictable gingival colour particularly from the patient's perspective. This could make the results more accurate and favourable.

Conclusion

Treatment of gingival hyperpigmentation using an 808 nm diode laser with non-ablative technique and laser dose test patches as proposed in this case report is a technique that offers clinical efficacy and patient satisfaction with predictable gingival colour in the case of physiological hyperpigmentation from melanocytes at the basal layer.



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Kurz & bündig

Gingivale Hyperpigmentierung stellt vor allem eine ästhetische Beeinträchtigung dar. Es gibt viele Techniken zur Behandlung dieser Erkrankung, aber keine davon ermöglicht es dem Patienten, eine zufriedenstellende Farbe der Gingiva auszuwählen. Im Fallbericht präsentieren die Autoren eine nicht abrasive Technik der Gingiva-Depigmentierung unter Zuhilfenahme eines 808 nm-Diodenlasers. Die 22-jährige Patientin wurde vorstellig wegen einer bräunlichen Färbung der Gingiva, die vor allem an den Oberkieferfrontzähnen sichtbar war. Zudem wurde eine orale Pigmentläsion an der Unterlippe festgestellt. Um die Tiefe der Pigmentierung zu bestimmen, wurde eine inzisionale Biopsie unter lokaler Anästhesie durchgeführt. Zur Bestimmung der vom Patienten gewünschten Farbe wurden zwei Test-Patches mit zwei unterschiedlichen Settings durchgeführt.

Beim Follow-up zwei Wochen später waren beide Laser-Testareale vollständig ausgeheilt; das Biopsieergebnis offenbarte eine Vielzahl von Melanozyten in der Basalzellschicht. Nachdem sich die Patientin für die Farbe eines der beiden Test-Patches entschieden hatte, wurde eine gingivale Depigmentierung an den Oberkieferfrontzähnen im gewünschten Setting durchgeführt. Nach der Behandlung waren keine Analgetika notwendig. Innerhalb von zwei bis drei Wochen war das mit dem Laser behandelte Areal komplett ausgeheilt und die Farbe der behandelten Gingiva glich der des umliegenden Zahnfleisches und der Schleimhaut.



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Creating **natural-looking** composite restorations

Dr Daniel H. Ward, USA

Improved materials and instruments help us to produce restorations that are natural looking. Composite systems have been developed that have optical qualities similar to the tooth structure they are replacing.¹ Composite materials with dark opacity and fluorescence are useful to recreate dentine.² Enamel replacing materials with added translucency and opalescence give the outer surface of the tooth a realistic appearance.³ Layering multiple shades with differing hue, chroma and value can give the tooth a more three-dimensional look.⁴

Composites have been developed with differing approaches using two, three, or more layers. Having multiple systems can be beneficial. Recently, a new laser (LiteTouch, AMD LASERS) has been introduced at a significantly lower cost allowing it to be incorporated into more dental offices. Being able to quickly prepare teeth often without anaesthesia has been a significant advantage of using hard tissue lasers.⁵ Small to medium sized restorations can often be prepared without the use of local anaesthetics. Let's examine how these new materials and technologies can be used.

Layered restorations

Layered restorations are helpful in the anterior area to emulate the appearance of natural teeth. Restorative materials should mimic the tooth structure they replace. The deepest part of the restoration should be dark, more opaque and very high in chroma. Unfortunately, there are few dentine shaded composites that truly match dentine. Very intense yellow/brown materials are needed.⁶ One system which is excellent for matching tooth structure is aura (SDI).

The system originally had two materials, a dentine and an enamel replacement material, but an optional middle layer has been added. This helps to block the intense chroma of the dentine and blend the restoration colour better. It also helps to make the exact thickness of the dentine and enamel shade layers less critical. The dentine shades do not coincide with any standard shading system but differ in the intensity of the chroma, ranging from Db, C1 to C7.

As you build up the restoration, the material should become lighter, more translucent, opalescent and have smaller filler particles. The aura system has an optional intermediate layer which is a multi-purpose composite MC2 to MC5. The final enamel layer is a microfill and it comes in three shades. It is translucent and polishes well.



Case presentation

A 15-year-old male presented to the office with peg lateral incisors and twisted maxillary canines (Fig. 1). His mother was interested in closing the spaces between his teeth. The sizes of the teeth were measured and it was determined that the central incisors were of normal size relative to the face. The widths available for the lateral incisors were deemed to be 70 % of the frontal view widths of the central incisors. The widths of the maxillary canine teeth were also deemed to be 70 % of the frontal view widths of the lateral incisors.

This follows the recommendations of proportional smile design using the RED proportion which states that the frontal view width proportions of the anterior teeth should remain constant as you move distally.⁷ The photograph with template demonstrates the ability to add to the lateral incisor and the canine and give a well-proportioned smile that matches the face (Fig. 2).

The surface of the maxillary right canine was lightly roughened using a very fine diamond to areas to be bonded (201.3VF, Premier Dental). The entire surface was etched with phosphoric acid for 20 seconds, washed and dried thoroughly. A universal dentine bonding agent was brushed onto the surface for 20 seconds, the solvent evaporated and the area light cured (All-Bond Universal, BISCO Dental). The first increment added was the dentine layer. This layer is darker than the desired restoration but more opaque in order to block light from shining through the entire restoration and prevent a grey appearance. Dentine shade 6 was used since it mimics the shade of the natural dentine (aura, SDI; Fig. 3).

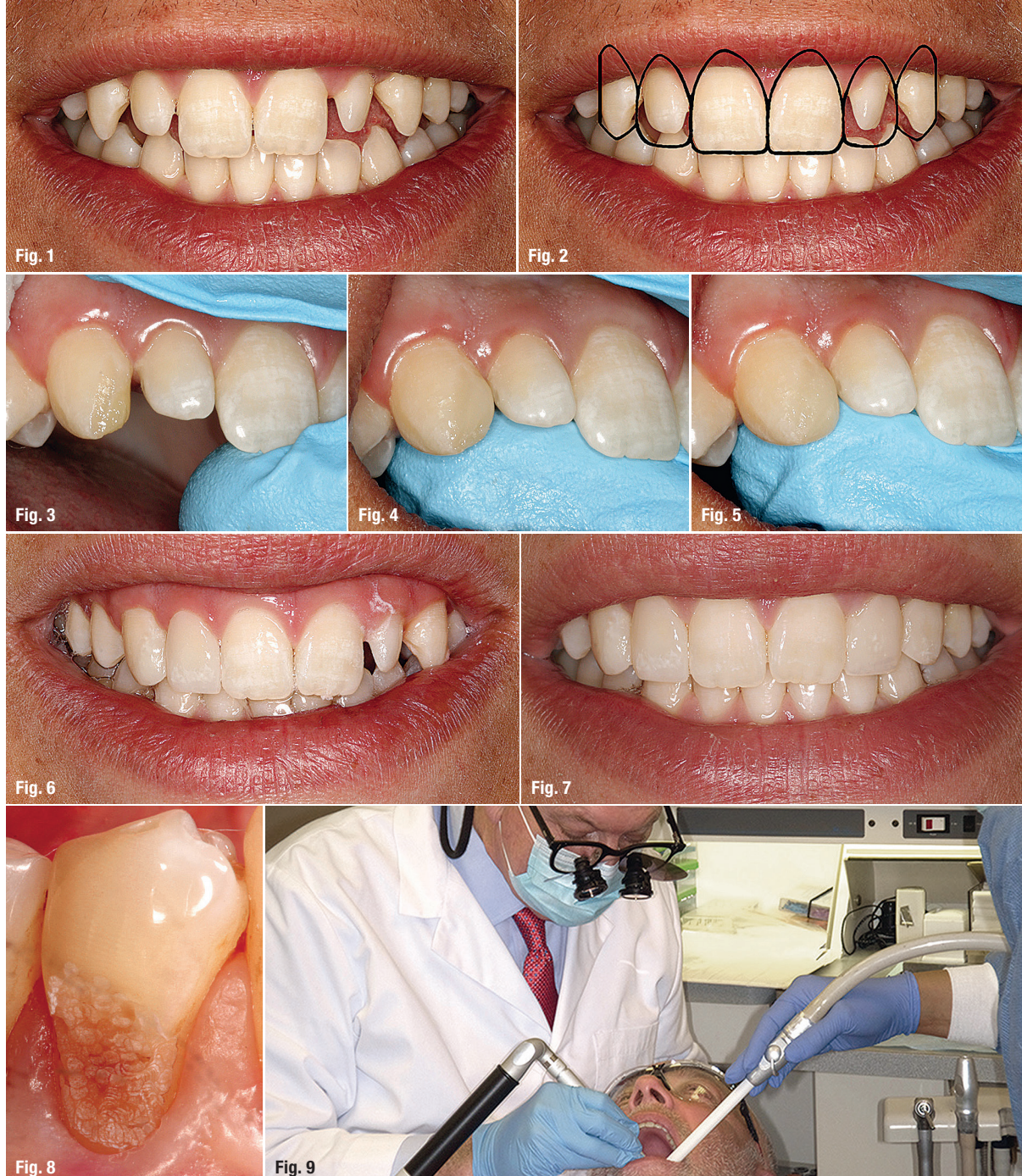


Fig. 1: A 15-year-old male presented with peg lateral incisors and twisted maxillary canines. **Fig. 2:** Photograph with template. **Fig. 3:** Dentine shade 6 was used to mimic the shade of the natural dentine. **Fig. 4:** Multi-purpose composite shade MC3 was added. **Fig. 5:** Enamel shade layer E1 was added. **Fig. 6:** Finished restoration for the right maxillary lateral incisor. **Fig. 7:** Finished restoration for the left canine and lateral incisor. **Fig. 8:** Preparation is accomplished by a series of pulsed energy emissions resulting in multiple small dot-shaped areas of tooth removed on the surface of the tooth. **Fig. 9:** The handpiece is constantly moved and the resulting tooth shaping is observed.

The second increment added was multi-purpose composite shade MC3 (aura, SDI; Fig. 4). White, orange and brown tints were painted over the second increment to characterise and mimic the shade patterns of the adjacent teeth (shade modification tints, SDI). Finally, an enamel shade layer E1 was added to cover the entire restoration and build to full contour (Fig. 5). The restoration was shaped using diamonds and finishing carbides. Finishing and polishing was completed for the canine. The process was completed for the right maxillary lateral incisor (Fig. 6). Then the left canine and lateral incisor were restored in a similar fashion (Fig. 7).

Er:YAG lasers

Erbium lasers deliver pulsed energy onto the water, containing surface of the tooth and the water is vapourised ablating the surrounding tooth structure. Preparation is accomplished by a series of pulsed energy emissions resulting in multiple small dot-shaped areas of tooth removed on the surface of the tooth (Fig. 8). The effect is very superficial with less vibration and heat.⁹ A primary advantage of tooth preparation with Er:YAG is often preparation can be achieved with little or no anaesthesia.

It is important to start with very low energy for the first minute to condition the pulp so that there is no discom-



Fig. 10: A 27-year-old male presented with pitted and stained incisors. **Fig. 11:** Composite from a new two-component general purpose and enamel system. **Fig. 12:** Preparation of the affected areas of the facial surfaces of both central incisors and the left lateral incisor. **Fig. 13:** The right central incisor was built up first using the general purpose shade A3 composite. **Fig. 14:** Enamel shade ET composite was used. **Fig. 15:** Restoration was shaped, finished and polished.

fort during preparation. The lowest energy to accomplish the preparation is best and is controlled by the pulsing frequency and the power setting. The laser handpiece does not touch the tooth during preparation. The optimal distance from the tooth is best determined by listening for the pulses to be the loudest. The handpiece is constantly moved and the resulting tooth shaping is observed (Fig. 9).

Preparation parallel to the tooth surface is best. Though actual preparation time may be longer than with a traditional high-speed handpiece, the time saved by not waiting for anaesthesia often allows small restorations to be placed at recare appointments rather than having to re-appoint. Lasers are suitable for use in most direct restorative preparations but are best suited in Class I, III, and V restorations.

Pitted incisors

Several companies produce composites designed to be used in a dual-layering technique. Some use a high chroma dark dentine and translucent enamel; others use an opaquer general purpose layer which is layered with a translucent enamel. One material which uses the later approach is Mosaic (Ultradent).

A 27-year-old male presented to our office with pitted and stained incisors (Fig. 10). He was getting married in a few months and was concerned about the appearance of his smile in the wedding photographs. Composite from a new two-component general purpose and enamel system was tried in and layered to determine the appropriate shades to be used (Fig. 11). The laser was used to pre-

pare the affected areas of the facial surfaces of both central incisors and the left lateral incisor (Fig. 12).

The left incisors were restored using two layers. The surface was shaped using a very fine flame shaped diamond (NeoDiamond 3512.10, Microcopy), a finishing carbide (NeoCarbide ET9, Microcopy), a finisher (Enhance, DENTSPLY Caulk) and two polishers (DiaComp Feather Lite Medium and Fine Composite Polishers, Brasseler). The right central incisor was built up first using the general purpose shade A3 composite (Mosaic, Ultradent; Fig. 13) and then the enamel shade ET composite (Mosaic, Ultradent; Fig. 14). The restoration was shaped, finished and polished in a similar manner (Fig. 15).

Class V abfraction lesions

Sometimes different composites from different manufacturers can be layered to best achieve a more natural appearance. A 52-year-old male presented to our office with severe abfraction lesions (Fig. 16). Several composite materials were tried in and three layers of different brand composites were selected. The molar was first prepared using the laser and restored. Then the two premolars were prepared using the laser (Fig. 17).

The first layer of dentine material was used (aura Dentine D7; Fig. 18). Then a layer of regular all-purpose shade A3 composite was used (TPH Spectra, Dentsply; Fig. 19). Finally, a spherical composite shade A2 was used for the enamel layer (Estelite Sigma Quick, Tokuyama; Fig. 20). The composites were shaped, finished and polished (Fig. 21).



Fig. 16: A 52-year-old male presented with severe abfraction lesions. **Fig. 17:** Two premolars were prepared using the laser. **Fig. 18:** The first layer of dentine material was used. **Fig. 19:** A layer of regular all-purpose shade A3 composite was used. **Fig. 20:** A spherical composite shade A2 was used for the enamel layer. **Fig. 21:** The composites were shaped, finished and polished.

Summary

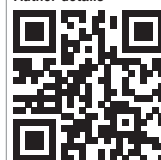
Teeth are comprised of different components. In order to match the original appearance, restorative materials should be used that exhibit similar optical qualities as natural teeth. Selecting composite materials for each individual situation, based on physical properties as well as their opacity/translucency, gives the best results. The hard tissue laser can be very useful and comfortable for the patient. Often not having to anaesthetise is a big advantage allowing more efficient use of time. Incorporating new technology and materials into the practice can enhance productivity, increase self-satisfaction and better please our patients.

Editorial note: This article was first published in oral health, April 2017, p. 28–34.

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Zähne bestehen aus verschiedenen Komponenten. Um dem ursprünglichen Aussehen zu entsprechen, sollten Restaurationsmaterialien verwendet werden, die ähnliche optische Eigenschaften wie natürliche Zähne aufweisen. Für die Vorbereitung der betroffenen Areale eignet sich der Hartgewebslaser. Er ermöglicht eine effiziente Bearbeitung der Zähne unter weitgehendem Verzicht auf eine lokale Anästhesie. Im Artikel beschreibt der Autor die Verwendung unterschiedlicher Schichttechniken und Materialien sowie den Einsatz des Er:YAG-Lasers zur Zahnrestauration anhand von drei Patientenfällen. Ein 15-jähriger Patient wurde vorstellig mit kleinen seitlichen Schneidezähnen und verdrehten Eckzähnen im Oberkiefer. Unter Einsatz des Restaurationssystems aura wurden die Lücken zwischen den Zähnen geschlossen und ein wohlproportioniertes Lächeln passend zum Gesicht hergestellt. Im zweiten Fall wurden die löchrigen und fleckigen Schneidezähne eines 27-jährigen Patienten mit einem Verbund aus einem Zwei-Komponenten-Allzweck- und Lacksystem restauriert. Der Laser wurde verwendet, um die betroffenen Bereiche der facialen Oberfläche vorzubereiten. Der dritte Fall beschreibt die Behandlung eines 52-jährigen Mannes, der mit schweren Abfrakturen vorstellig wurde. Zur Restauration wurden drei verschiedene Kompositschichten aufgetragen. Vor der Präparierung wurden die betroffenen Zähne mit dem Laser behandelt und restauriert. In allen drei Fällen konnte mittels unterschiedlicher Schichttechniken und Laseranwendung ein ästhetisch zufriedenstellendes Ergebnis erzielt werden.

Periodontal aesthetics with soft-tissue lasers

Dr David L. Hoexter, USA

The use of lasers in dentistry—and in medical procedures in general—has made great strides in recent years, not only in effectiveness but also in acceptance by patients. Our colleagues in medicine, such as dermatologists and ophthalmologists, have used lasers for years for myriad reasons. Visiting a dermatologist's office recently, I observed a variety of large, bulky and costly lasers. The different types have been needed because the doctor's choice of laser power source will vary based on the desired outcome goals for the procedure. Dermatological procedures are chiefly concerned with soft tissue—its responses and reactions defensively as well as offensively.

As has been true with general medical uses of lasers, the laser systems recommended for dentistry have been relegated primarily to soft-tissue procedures. The reason for this is that with the exception of relatively recently introduced technology, using lasers on hard tissue in dentistry would typically cause desiccation of the tooth or bone being treated, leaving the affected hard tissue dried out and brittle. Early laser technology that was promoted as appropriate for hard-tissue procedures made lots of noise, cost lots of money and at best achieved minimal and limited results. Recently, however, new laser technology for use on hard-tissue dental structures has proved to be more capable of meeting goals of both practicality and effectiveness.

This article, though, will limit its focus to the soft-tissue side: specifically, achieving desired aesthetic results by using soft-tissue laser technology to treat gingival hyperplasia. My personal experience with lasers dates back more than 25 years to when I bought a CO₂ laser for my private practice. It was an adventurous and costly (about \$60,000 in early '90s dollars) commitment. There were no laser dental societies back then—just a few of us dentists trying to find newer techniques to more effectively and comfortably achieve the results our patients desired.

Hyperplasia of epithelial tissue of the gingival area breaks the smooth appearance of the periodontal tissue, compromising aesthetic goals. It also makes it difficult for patients to maintain good oral hygiene, leading to inflammation of tissue and increasing risk of progression to periodontitis.

Case 1

As illustrated in Figure 1, a patient presented in my office with a singular localised dense hyperplastic area,



Fig. 1



Fig. 2

Fig. 1: Dense hyperplastic tissue interproximally between the tooth #11 and tooth #12. Because the hyperplastic overgrowth inhibits accessibility, the patient is unable to reach the desired area to maintain good oral hygiene.

Fig. 2: In case 1, diode laser removes dense, undesired hyperplastic tissue in minutes with no bleeding.

Fig. 3: Periodontal probe in the treated area. There is no tissue depth at all, and the patient is able to maintain her oral health. **Fig. 4:** Area healed, aesthetically blended.

confirmed through oral examination. The 31-year-old female had neat clothes and clean, well-maintained hands and nails. She related how difficult the local area was to clean, describing that cleaning efforts hurt and caused bleeding, especially when she flossed. The local area also didn't look clean visually, creating an unaesthetic appearance. There was a break in the continuity of the smooth appearance of the gingiva, causing the tooth to appear uneven.

As mentioned, there are and have been several laser devices available for years for use in a variety of soft-tissue dental procedures. All have the ability to achieve desired results when the practitioner is experienced with the technology and procedure. Some laser devices have the adaptability for different strengths, but, when used correctly, all can treat soft-tissue disease with desired results.

To correct this particular defect, we had the choice of using a sharp, cold-steel instrument or a laser. We opted to use a diode laser, which is easy to use and causes no bleeding in the wound, thus avoiding the need for a periodontal dressing that would be necessary to cover the resulting wound if cold steel was used.

The results documented in Figures 1 to 4 were achieved using the Picasso (AMD LASERS) diode laser exclusively. Instead of being heavy or bulky, it is portable and lightweight. It can be moved easily into each operatory as needed, removing the need to purchase separate units for each operatory. Also, the fibre tips are disposable, ensuring sterility.

A key factor for me in choosing the AMD Picasso laser was cost. Traditionally, costs for soft-tissue lasers seemed relatively high, ranging from \$12,000 to \$120,000. This light, portable system ranges from \$2,000 to \$2,500. In my experience, the system not only achieves results comparable to the more expensive systems, but it does so with ease.

In this particular case, a diode laser was used. The result was an aesthetic, smooth, homogeneous colour background that blends unnoticed with its environment and enables oral hygiene techniques that keep the area healthy, aesthetically pleasing and easily maintainable.

Fig. 5: In case 2, initial labial view of teenage patient with inflamed hyperplastic gingiva of maxillary anteriors.



Fig. 3



Fig. 4

Case 2

This second case demonstrates use of the diode laser in an acutely inflamed hyperplastic situation in the maxillary anterior of a male teenager who desired a more pleasing smile (Fig. 5). Initially, the patient visited an orthodontist to seek treatment of his rotated, overlapping dentition and red, acutely oedematous, easily bleeding tissue. The orthodontist advised the patient that he could



Fig. 5



Fig. 6



Fig. 7



Fig. 8

Fig. 6: Removal of undesired hyperplastic tissue using AMD diode laser with disposable laser tip. **Fig. 7:** Tissue removed from maxillary anterior area, progressing toward desired results. **Fig. 8:** Healed, healthy gingival tissue, homogeneous in colour. Patient ready for orthodontics.

not treat him predictably (and thus would not treat him), until the acute periodontitis had been eliminated and overall oral health restored.

With the parents' permission secured and the patient showing newly minted enthusiasm, we proceeded with the case, as illustrated in Figures 5 to 8. The figures and captions document the treatment of a simple local hyperplastic tissue area, as well as a complex acutely inflamed hyperplastic area.

Conclusion

In both of these cases, the patients were treated by using a soft-tissue laser to achieve correct, desired results. While any soft-tissue laser system might have achieved similar results, in these cases, a diode AMD Picasso laser was used. I chose this particular laser primarily because of what I consider to be its reasonable cost when compared with others, its ease of use and the disposable tips that make it easy to maintain sterility.

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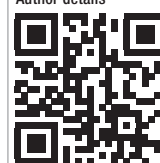
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Anders als in medizinischen Disziplinen wie der Dermatologie werden Lasersysteme für die Zahnheilkunde hauptsächlich für WeichgewebeprozEDUREN verwendet. Mit ihnen lassen sich vor allem auch im zahnmedizinischen Bereich ästhetische Behandlungen durchführen. Im Artikel beschreibt der Autor zwei Fälle mit gingivaler Hyperplasie. Eine Hyperplasie des Epithelgewebes am Zahnfleisch unterbricht das glatte Erscheinungsbild des Parodontalgewebes und beeinträchtigt damit die Ästhetik. Zudem wird es für Patienten schwierig, eine gute Mundhygiene aufrechtzuerhalten, was zu einer Entzündung des Gewebes und einem zunehmenden Parodontitisrisiko führen kann.

Die Patientin aus Fall 1 wurde mit einem einzelnen lokalisierten hyperplastischen Bereich vorstellig. Im zweiten Fall wurde eine akut entzündete Hyperplasie festgestellt. Um das gewünschte ästhetische Ergebnis zu erzielen, wurden beide Patienten mit einem Weichteillaser behandelt. Für die Behandlung wurde der Diodenlaser Picasso von AMD LASERS verwendet. Dieser verfügt nach Meinung des Autors über eine hohe Benutzerfreundlichkeit, eine einfache Möglichkeit zur Erhaltung der Sterilität sowie ein vernünftiges Preis-Leistungs-Verhältnis. In beiden Fällen konnte die Hyperplasie erfolgreich behandelt werden, mit einem ästhetisch zufriedenstellenden Ergebnis für Behandler und Patient.



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Periodontal tissue regeneration

Dr Alan Dalessandro, Dr Harvey Shiffman, Dr Steven R. Pohlhaus & Dr Larry Lieberman, USA

Introduction

Periodontitis is a chronic inflammatory disease characterised by a progressive destruction of the supporting tissues of the tooth. This results in pathological lesions and may eventually lead to the loss of the tooth. Periodontitis is also associated with age-related chronic inflammatory diseases, affects general health and may increase the risk of stroke.

The primary goal of non-surgical periodontal treatment is to eliminate bacterial infection and slow down or preferably stop the progression of the inflammatory process. Because of their better access to deep pockets, furcations, and grooves, dental lasers have been considered for irradiation of periodontal pockets as an efficient alternative for non-surgical treatment. Various studies have also demonstrated the benefits of laser therapy, including biomodulatory, anti-infective, and ablation effects. Consequently, lasers today are used in the clinical nonsurgical treatment of periodontal disease, either as an adjunct or as an alternative to conventional mechanical instruments.

There are at least two nonsurgical laser periodontal procedures which have been extensively researched and have as a result gained relatively broad clinical acceptance. The first technique involves sulcular debridement with Nd:YAG laser, which helps achieve new connective tissue attachment and regeneration of the root surface. The second technique involves the use of Er:YAG

laser, both as an alternative and an adjunct to mechanical therapy for subgingival calculus removal in nonsurgical pocket therapy SRP. Surgical debridement with an Er:YAG laser not only facilitates the debridement procedure in flap surgery but also may be advantageous for tissue repair and regeneration.

Based on the published favourable clinical outcomes of each of the laser treatments, i.e. Er:YAG and Nd:YAG, a combined dual-wavelength procedure called TwinLight® (also known as WPT™) has been introduced, which utilises the complementary beneficial effects of both laser wavelengths to further improve the clinical outcome of laser-assisted nonsurgical periodontal treatments. Periodontal tissue regeneration, which is considered to be the ultimate form of periodontal healing, has been demonstrated to be promoted individually with either Nd:YAG laser or Er:YAG laser being used as an adjunct to mechanical therapy. It is therefore to be expected that the TwinLight® procedure with the best of both periodontal laser treatment effects should result in at least as much, if not significantly greater promotion of periodontal tissue regeneration.

The aim of this four-center retrospective study was to provide clinical evidence of periodontal tissue regeneration when following the TwinLight® procedure, by conducting a retrospective case series analysis of available before and after radiographic images of patients receiving TwinLight® periodontal treatment, as collected during the past approximately six years.



Figs. 1a & b: Patient #1 before (a) and six months following TwinLight® treatment (b). **Figs. 2a & b:** Patient #2 before (a) and six months following TwinLight® treatment (b). **Figs. 3a & b:** Patient #3 before (a) and nine months following TwinLight® treatment (b). **Figs. 4a & b:** Patient #4 before (a) and 12 months following TwinLight® treatment (b). (Source: Dalessandro Implants and Periodontics)

Materials and methods

Patients were given the TwinLight® dual Nd:YAG/Er:YAG laser periodontal treatment using a LightWalker/Powerlase laser (manufactured by Fotona).

The TwinLight® procedure consists of the following three steps:

1st step: De-epithelialization and decontamination

Perform Nd:YAG laser sulcular debridement. Initiate Nd:YAG laser treatment of the inner pocket wall to remove the pocket epithelium around the entire tooth (2–4 Watts to the tissue, SP or MSP mode, 10–20Hz). Nd:YAG handpiece strokes from side to side. Denature the inner pocket epithelium to the depth of the probe readings. Remove the denatured tissue as it collects on the fiber ending.

2nd step: Calculus removal (debriding refinishing)

Perform Er:YAG laser root debridement (removal of the subgingival calculi) with a 600µm VARIAN tip, 100–200mJ, 10–20Hz, QSP, SSP or MSP pulse duration. Handpiece strokes are up and down. Perform mechanical scaling and root planning with a piezoelectric or ultrasonic scaler. Biofilm removal with Er:YAG laser using an XPulse, PIPS or VARIAN 400–600µm fiber tip, 20–50mJ, 20–40Hz, SSP or MSP pulse duration. Handpiece surface movement.

3rd step: Clot formation

Lase the pocket contents of the teeth (3–4 Watts to the tissue, VLP mode, 20Hz) to help coagulate any blood present and to form a pocket seal. Activate the Nd:YAG laser on the out-stroke only. Approximate the wound edges. Compress the tissue with wet gauze against the tooth from both a facial and lingual direc-

tion. Eliminate all occlusal interference. Prescribe medications for home use.

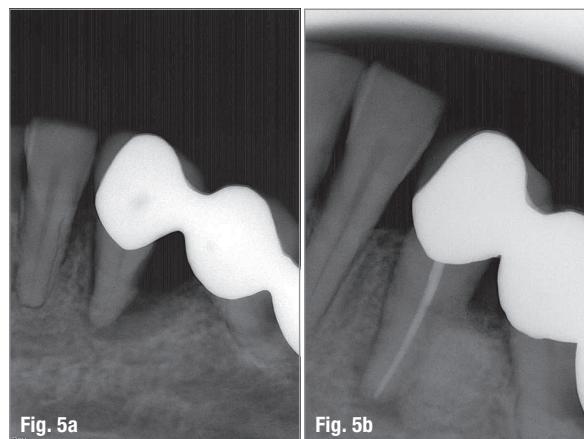
Results

Four private dental practices were involved in the retrospective collection and analysis of before and after radiographic images of their patients receiving the TwinLight® periodontal treatments, as collected during the period of approximately the past six years.

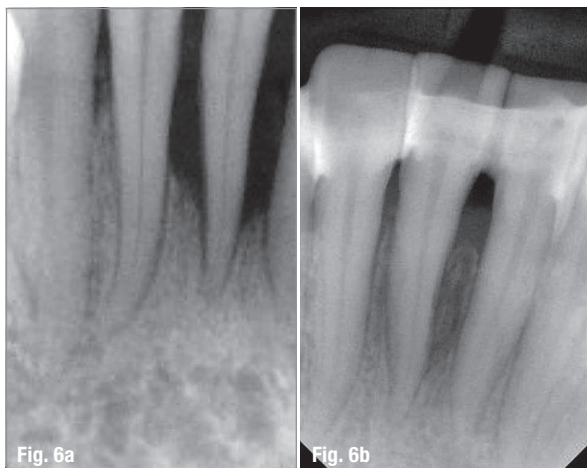
The figures below show the case series' radiograph images demonstrating periodontal tissue regeneration following TwinLight® Nd:YAG/Er:YAG treatment (Figs. 1–6).

Discussion

Due to the complementary effects of the near-infrared (Nd:YAG: 1,064nm) and medium-infrared (Er:YAG:



Figs. 5a & b: Patient #5 before (a) and 22 months following TwinLight® treatment (b). (Source: Boynton Laser Dental Center)



Figs. 6a & b: Patient #6 before (a) and following TwinLight® treatment (b).
(Source: Baltimore Center for Laser Dentistry)

2,940nm) laser wavelengths, the TwinLight® dual-wavelength procedure synergistically combines the individual effects of both wavelengths for a better resolution or control of some aspect of the periodontal disease, such as bacterial load, inflamed tissue or tartar, and thus promises to result in a more effective adjunct to conventional periodontal therapy (SRP).

Conclusions

Data presented in this study reveals the ability of the combined TwinLight® Nd:YAG and Er:YAG laser treatment of chronic periodontitis to promote bone regeneration. In conjunction with published microbiological results, the nonsurgical TwinLight® periodontal treatment with Nd:YAG and Er:YAG laser thus promises to become a preferred alternative treatment for moderate to severe chronic periodontitis.

Further long-term, randomized, controlled clinical trials are needed to quantify the contribution of each of the TwinLight® laser wavelengths and of their combined, potentially synergistic effect on the clinically observed regeneration of periodontal tissues.

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Die Behandlung von chronischer Parodontitis mithilfe des Nd:YAG- oder des Er:YAG-Lasers wurde bereits umfassend erforscht. Auf Basis der veröffentlichten klinischen Ergebnisse der einzelnen Laserbehandlungen wurde eine kombinierte Dual-Wellenlängen-Methode initiiert, genannt TwinLight®, welche die komplementären positiven Effekte beider Laserwellenlängen nutzt. Parodontale Geweberegeneration, als optimale Heilungsform von Parodontitis, wurde sowohl durch den Einsatz des Nd:YAG-Lasers als auch des Er:YAG-Lasers gefördert. Es wird daher angenommen, dass die TwinLight®-Methode, welche beide gezielt kombiniert, mindestens genauso effektiv, wenn nicht bedeutend erfolgreicher in der Förderung der parodontalen Geweberegeneration sei.

Um diese Optionen genauer zu untersuchen, wurden retrospektiv Daten von vier privaten Zahnarztpraxen der letzten circa sechs Jahre analysiert und ausgewertet. Am Beispiel von sechs ausgewählten Patientenfällen der beteiligten Praxen sind anhand von Röntgenaufnahmen einerseits der Ausgangszustand sowie jeweils im Vergleich der erreichte Geweberegenerationseffekt nach der Behandlung mit der TwinLight®-Methode dargestellt. Diese erfolgt jeweils in drei Stufen. Die ausgewerteten Daten bestätigen die Möglichkeit der gesteigerten Knochenregeneration durch die kombinierte TwinLight® Nd:YAG- und Er:YAG-Laserbehandlung in Fällen von chronischer Parodontitis. Die individuellen Effekte beider Wellenlängen verbinden sich synergetisch. Somit werden bestimmte Aspekte der Parodontitis kontrollierbarer und es sind folglich vielversprechendere Resultate zu erwarten als bei der konventionellen Parodontaltherapie.

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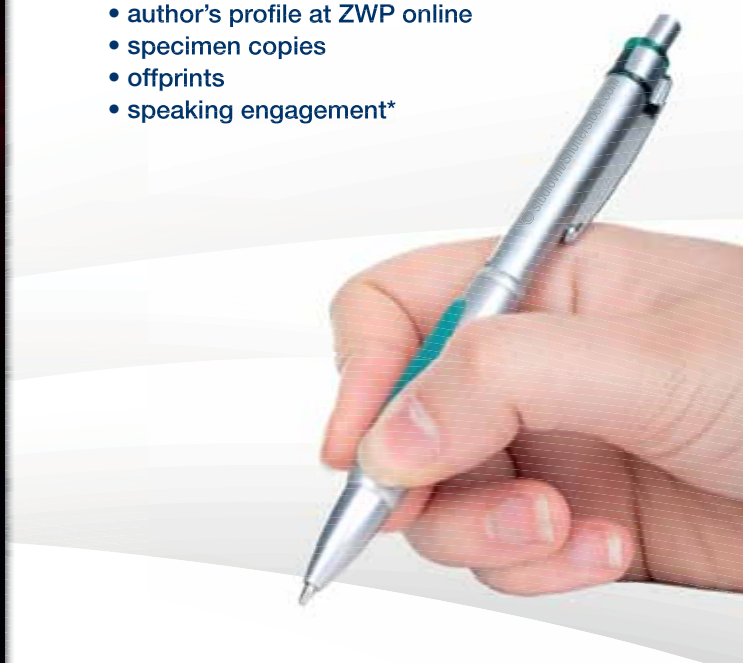
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Return on investment of dental laser education and technology

Dr Imneet Madan, UAE

Innovation is key to beating the competition and staying ahead of it. The current trend of Blue Ocean Strategy (creating uncontested market space) becomes applicable to dentistry as innovative practices are adopted. Lasers have become a tool of choice in dentistry in the last few years. Many dental professionals have incorporated lasers into their daily practice in order to provide high-end technology-based treatments to their patients.

Education on using dental lasers is certainly important in order to offer treatment within ethical considerations. An in-depth education makes a difference in performing the procedures with care and skill.

As with the technology, laser education requires a reasonable amount of financial resources. There is always an initial phase of doubt when such huge investments are involved, as, at first, the returns are not clear, promising and lined up.

Is in-depth knowledge of lasers an absolute necessity?

According to the American Academy of Pediatric Dentistry's "Oral Health Policies & Recommendations", 2017 revised edition, the dental professional must receive didactic and experiential education and training on lasers before clinical use of the technology.

There is a great deal of information that can be obtained through online portals, manufacturers' pamphlets and brochures, and continuing dental education all over the globe, but the foundation of good dental laser practice is in-depth knowledge of the subject.

The dentist can certainly manage with knowledge of the laser as a tool combined with dental knowledge, but what makes the difference and sets a benchmark are the following key factors: (a) the level at which we want to educate our patients; and (b) the level at which we want to perform the procedures with legality in our respective countries. When true knowledge and information are combined, the likelihood of patients accepting laser as a treatment approach seems to increase. These are, indeed, the criteria that make a significant difference in our

practice. Knowing what we are doing and knowing it the best is the way forward.

Value proposition of lasers

The main question that comes to mind is whether we really want or need the laser in our practice. The answer is not always clear-cut. Some dentists prefer their practice to remain without lasers. They believe in their knowledge of their respective specialties and continue to apply this knowledge for the best care of their patients.

Sometimes it is also difficult to figure out whether the practice can accommodate all the procedures that laser technology has to offer. Another factor for consideration is the time-based financial situation of the practice. If the practice is not on the higher plateau of performance, the ability to afford a dental laser may be questionable.

Value proposition indicates the reasons why a dentist would introduce lasers into his or her practice. Michael Treacy, co-author of "The Discipline of Market Leaders", suggests four different types of basic value propositions:

1. *Being reasonable and affordable:* In order to accommodate this proposition, the cost variation between laser and normal treatments should not be high. In our private practice in Dubai in the United Arab Emirates, we have a 35 per cent difference between the two costs. Since the overall pricing difference in the treatment plans is not very high, more than 80 per cent of patients agree to the laser approach.
2. *Improving the overall treatment experience for the patient:* Use of lasers reduces the need for local anaesthesia in the practice. This factor raises the standard of comfort of laser treatments to the highest end. In paediatric practice, children are most likely to sustain traumatic lip bites even after the most successful clinical procedures. This can then lead to the child having an unpleasant post-procedure experience. With lasers, however, the need for and use of anaesthesia are minimised. The use of anaesthesia in the practice is then limited to minor infiltrations and root canal therapy. The greatest fear of a child coming to the dentist is that

of needles. Lasers with their magic popping-light effect overrule this fear.

3. Having a better product than others: Not many practices invest time and effort in lasers. Those who do definitely raise their service standards and can proclaim a better and more technologically advanced service than their competitors.

4. Taking ownership of customer results: This proposition relates to establishing lasers as a standard protocol of treatment. Having explained the benefits of lasers to the concerned patient, the dentist can help him or her decide and consent to laser treatment. Once lasers are projected as strategic function with all their benefits, the specialised dental care provider can become a fully integrated part of the enterprise and not just a vendor of laser treatment.

Clinical assessment-based return on investment propositions

A practice that can achieve the best treatments in fewer appointments is certainly the practice of choice. Lasers allow multi-quadrant dentistry in one appointment. This leads to indirect savings in terms of fewer subsequent appointments or to a rapid complete treatment time for certain procedures. The increased efficiencies include taking impressions in bleeding tissue and being able to prepare multiple cavities and restorations without having to wait for anaesthesia to take effect.

From the parents' perspective, laser treatment is a blessing as it reduces the number of visits and saves children the stress of multiple appointments. For clinicians, the time saved on many back and forth appointments can easily be allocated to more practice-building protocols.

Presence of laser as self-marketing

Nothing screams high technology more than the presence of laser in the surgery. It certainly increases internal

marketing and referral possibilities. Patients today, especially young ones prefer anything high-tech. Initial resistance and reluctance towards dental treatments seem to decrease when paediatric patients are informed about no-needles dentistry. In addition, laser manufacturer web pages provide videos and images that can help patients to understand the concept of lasers.

Once the patient has received a comfortable laser treatment, he or she not only is happy to finish the rest of the treatment (if any), but also feels comfortable in referring others to our practice.

Selecting the proper laser

The same innovative steps that advanced computers from desktop versions to laptops and tablets is the one that has encouraged lasers to be reinvented since they first began to be used in dental practice. New dental lasers are certainly more reliable, efficient, clinically friendly and capable. This could be among the possible reasons that laser costs have not declined. To date, there has been no mass production of lasers.

Several companies manufacture hard- and soft-tissue lasers (hard tissue lasers: DELight, 2.97 μ , Continuum; Waterlase, 2.8 μ , BIOLASE; Opus Duo, 2.97 μ , OpusDent; soft tissue lasers: Ceralas, biolitec; DioDent, Continuum; Epic 10, BIOLASE). The costs certainly vary from one producer to another. The decision to invest in any particular laser brand is always at the buyer's discretion. The bottom-line idea is to invest in the right wavelength that can accommodate multiple varieties of procedures. There is no standard protocol for buying

laser. It depends on the buyer's field of work, areas of interest and budget.

Basic calculation of laser investment

According to the principle calculation in laser practice, the increase in the treatment cost is calculated at about 35 per cent. This augmented amount helps to even out the equipment and educational investment.

The average time recorded in our practice for laser break-even is 12 months, after which treatment becomes profitable. Direct and indirect profits attained with word of mouth and increased publicity of the practice also add to the long-term gains.

Conclusion

There is without a doubt a good rate of return on investment in lasers. The time frame recorded for this return is not too long either. Our practice statistics have shown that lasers can lead to long- and short-term gains for the

practice, and from experience we have concluded that the return on investment in lasers is certainly motivation enough for anyone to incorporate this modality into his or her practice.

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Kurz & bündig

Innovative Technologien und Behandlungsmethoden sind Schlüssel zum Erfolg, vor allem im Bestehen gegenüber Mitbewerbern. Der Einsatz von Lasern bietet der Autorin zufolge daher nicht nur finanzielle Investitionserfolge, sondern lohnt sich auch im Sinne des Eigenmarketings sowie zur Steigerung der Patientenzufriedenheit. Besonders junge Patienten sind für moderne Methoden und Technologien empfänglich. Laser erhöhen zudem die Behandlungseffizienz, bspw. können durch die verminderte Notwendigkeit von Anästhetika Sitzungsdauer und -anzahl sowie Stress für Patienten und ggf. Eltern konsequent reduziert werden.

Im Zuge einer Investition gilt es, nicht nur die Anschaffungs-, sondern auch die nötigen Weiterbildungskosten zu bedenken. Bei der Kalkulation der Behandlungskosten werden in der Regel etwa 35 Prozent aufgeschlagen, um beide Kostenpunkte langfristig zu decken. Die Gewinnschwelle ist nach Erfahrung der Autorin etwa nach zwölf Monaten erreicht. Vor der Investition sollte entsprechend der geplanten Einsatzarten, Arbeitsfelder sowie Interessengebiete abgewogen werden, welches Lasersmodell am besten geeignet ist. Die Wahl der passendsten Wellenlänge, um diverse Behandlungsmethoden abdecken zu können, wird besonders betont.

Der Einsatz von Lasern bietet somit diverse Vorteile für die eigene Praxis und resultiert sowohl in langfristigen als auch kurzfristigen Erfolgen. Es ergeben sich ein überschaubarer Investitionszeitraum sowie vielfältige Motivationsimpulse für die Realisierung einer derartigen Kapitalanlage.

Successful communication in your daily practice

Part V: Bad online reviews

Dr Anna Maria Yiannikos, Germany & Cyprus

Hi! I am Dr Anna Maria Yiannikos and I am in the happy position to present you the 5th part of this new loved series filled with communication protocols. This series includes the most popular and challenging scenarios that might occur in your dental practice. I will show you how to deal with them so that your patients always leave your practice feeling: "My dentist is THE BEST!"

Each individual article of this series will teach you a new specialised protocol that you can easily use, customise and adapt from the same day to your own dental clinic's requirements and needs.

Let's start with today's challenging topic which is... how to deal with a bad online review from a stranger. Imagine receiving a negative review at your Facebook page from someone who is not even a patient—maybe, because he just wants to be mean, or maybe he just wants to hurt you.

5 fantastic tips

Let's not focus on that though! Our goal is to change the negative incidence into a positive one. Isn't that correct? You might ask: "Dr Anna, how can I do that? This guy, who gave me the bad review, is not even a patient."

Let's discover 5 fantastic tips that I have for you today. You will just love them!

1. Do not take it personally

Take a deep breath. The first rule of dealing with negative reviews is to not take them personally! That's because as your business grows, you will have to face more and more of them. Do not get into the bad reviewer's trap responding to what he says.

For example, you should not get defensive and list all of the reasons why the potential patient is wrong. He is, quite frankly, a jerk that loves making a personal attack. Avoid joining the conversation—it is absolutely wrong!

2. Don't try to remove it

Even if you try to remove the negative review from that online site, you might not be able to! Most important, remember that most people who frequent review sites and look for your business on social media, know that not all of your reviews are perfect. Don't sweat if you have received one bad review.

3. Ask for positive reviews

What would be wise to do is to focus on getting more positive reviews from friends and loyal patients!



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After all, every positive review takes the sting out of a negative one. Ten positive reviews and one negative might give pause for thought; but 100 positive reviews and one negative review isn't for sure a big deal.

Send the request immediately to your friends to rate your clinic asap! What will be the result? You will receive so many positive reviews that the bad review will be at the bottom of the list, and now who will see it? Most probably no one!

4. Move on

Enjoy all the great things that your friends say about your practice! The reality is that you have to deal with bad reviews, you can't ignore them!

5. Don't allow posts on your Facebook page

If you cannot handle the bad feeling of someone being mean to you, turn off the feature that allows anybody to post on your page. Remember that you're only turning off original posts—not comments. If they're negative, you can respond in the comment section or let other visitors comment on your posts.

Make the best of it!

I know that you feel bad about this unfair situation but you can transform it easily and quickly in to a positive one. I have done that myself! Things like that can happen. Grab the opportunity to make it positive by using the above troubleshooting guide that I offer you!

In the next issue of laser magazine, I will present to you the sixth part of this unique new series of communication concepts that will teach you... how to deal with economic crisis! I will help you to discover 5 effective ideas that will increase your income immediately!

Until then, remember that you are not only the dentist of your clinic, but also the manager and the leader. You can always send me your questions and request for more information and guidance at dba@yiannikosdental.com or via our website www.dbamastership.com. Looking forward to our next trip of business growth and educational development!

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www.dbamastership.com

Kurz & bündig

Im fünften Teil der Serie „Erfolgreiche Kommunikation im Praxisalltag“ gibt Dr. Anna Maria Yiannikos Tipps, wie Zahnärzte mit schlechten Online-Bewertungen umgehen können. Was tun, wenn Sie eine negative Bewertung auf Ihrer Facebook-Seite entdecken, von einer Person, mit der Sie noch nie zu tun hatten? Der erste und wichtigste Tipp der Autorin in so einem Fall lautet: Nicht persönlich nehmen! Begeben Sie sich nicht auf das Niveau des Kritikers, indem Sie eine verteidigende Antwort verfassen. Auch der Versuch, eine solche negative Bewertung zu löschen, misslingt meistens. Deshalb Tipp zwei: Kommen Sie nicht ins Schwitzen! Die meisten Besucher Ihrer Seite wissen, dass es im World Wide Web nicht perfekt zugeht. Um auf einen negativen Beitrag zu reagieren, empfiehlt die Autorin in Tipp drei, Freunde und loyale Patienten zu positiven Bewertungen zu animieren. Denn: Jeder positive Beitrag nimmt dem negativen den Stachel. Was ist schon eine Kritik gegenüber 100 lobender Beurteilungen? Tipp vier ist daher: Einfach weitermachen! Erfreuen Sie sich an positivem Feedback und akzeptieren Sie negatives. Wenn das alles nicht hilft, lautet der fünfte und letzte Tipp: Keine Posts auf der Facebook-Seite erlauben. Machen Sie das Beste draus!

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LightWalker offers a high standard of dental treatment, and at the same time simplicity of use. The innovative system combines the power of the industry's highest performance Er:YAG and Nd:YAG dental lasers for extensive dual-wavelength treatment options, including the Fotona TwinLight® Endodontic and Periodontal Treatment methods.

The top-of-the-line LightWalker AT model guarantees convenience and ergonomic comfort, and is the only dental laser system on the market that contains built-in scanner-ready technology.

The lasers are designed for ultimate versatility, with one of the most comprehensive lists of clinical applications available in any dental laser. These options include the removal of soft-granulation tissue, the ablation of infected bone and the removal of bacterial biofilm on implant surfaces with the Er:YAG, while bacterial reduction and biostimulation of bone tissue can be achieved with the Nd:YAG laser.

Henry Schein Dental Deutschland GmbH
Monzastraße 2a
63225 Langen, Germany
www.henryschein-dental.de



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Master's Programme in Laser Dentistry

At the start of 2018 a new generation of dentists has begun the Laser and Health Academy's (LA&HA) Master's Programme in Laser Dentistry, consisting of five modules over the course of one year. This educational curriculum for laser dentistry has quickly gained global recognition from dental specialists due to its active training by high-level industry experts and skilled professionals in multiple fields of dentistry. The module-based training takes place in a supportive and highly functional educational setting with the most up-to-date laser technologies. Additionally, the programme includes hands-on clinical training sessions with close supervision at innovative and highly experienced dental laser centres.

After successful completion, participants receive the title "LA&HA Master in Laser Dentistry" along with the advanced knowledge, skills and confidence needed to use a dental laser system safely and successfully in their practice. For further information and application forms, please contact the LA&HA office: info@laserand-health.com. The next "Module 1" will start in April 2018.

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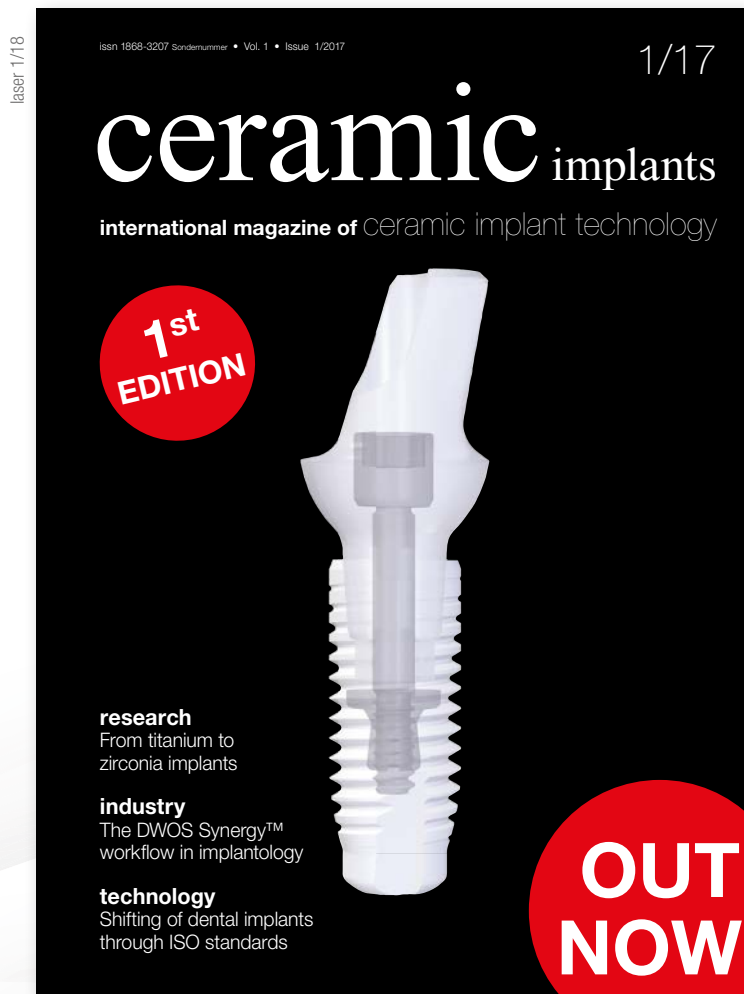
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Fighting obesity and caries with

Healthier snack choices for kids

Making the right food choices in a busy life can be challenging but especially for children a healthy, balanced diet is important. A new campaign has thus been started in the UK aiming at helping parents in taking control of their children's snacking and reducing their sugar intake, which is currently at around seven sugar cubes a day. The majority coming from unhealthy snacks and drinks, often leading to obesity and dental caries.

Initiated by Public Health England (PHE), the Change4Life campaign encourages parents to provide a maximum of two 100-calorie snacks per day. According to PHE, children on average are consuming at least three unhealthy snacks and sugary drinks a day, one third consuming four or more, resulting in an intake of three times more sugar than the recommended limit. Several British supermarkets are supporting the initiative and have committed to providing tasty and healthy snack products. Parents can also obtain discount vouchers from Change4Life for healthier snack options, including malt loaf, lower-sugar cream cheese and drinks with no added sugar. The Change4Life Food Scanner app shows parents the number of calories and the amount of sugar, salt and saturated fat in foods to make healthier choices easier. PHE is further working with the food industry aiming at cutting 20 per cent of sugar from the products children consume most by 2020.



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Dog-assisted therapy also holds

Potential for dentistry

The positive effect of dogs on humans has prompted their introduction in several medical fields including dentistry. In the first study of its kind in Scandinavia, Dr Anne Margrete Gussgard, associate professor at the University of Tromsø, Norway, has begun looking into the impacts of animal-assisted therapy. "We know what effect dogs have on people. Their heart rate becomes calmer and the blood pressure decreases. There is more oxytocin in the blood and less cortisol. Nevertheless, there are no studies specifically related to therapy dogs during dental treatment," stated Gussgard. The research team consists of paediatric dentists, a psychologist and a pharmacologist.

Gussgard completed her periodontal studies at the University of Toronto in Canada and also has ten years of experience in working as a dentist for animals. She and her research partner labradoodle Barley prepared for the study through an intensive one-year dog therapy training. The research, currently focused entirely on paediatric patients, aims at determining the impact of a dog's presence by comparing the outcomes of two scenarios—either performing treatments with or without the therapy dog. In the next step the research shall be conducted with adult patients.

Source: DTI



The environmental impact of microplastics used in personal care products, such as toothpaste, has long been subject to discussion. Owing to the small particle size of less than 5 mm, microplastic entering the wastewater through the disposal of cosmetics cannot be sufficiently removed at sewerage treatment plants. It thus gets into the water system and pollutes the environment.

Researchers at the Fraunhofer Institute for Microstructure of Materials and Systems (IMWS) in Halle (Saale), Germany, who have recently completed the KosLigCel research project conducted within the framework of the leading-edge BioEconomy cluster, hope to contribute to replacing microplastics in cosmetic products. In cooperation with industry partners they have successfully developed and tested alternatives made of biodegradable materials. The goal was a cost-effective production of cellulose

particles from beech wood, oats, wheat and maize that meet the requirements for abrasiveness and cleaning performance in dental and skincare products. Alternatives for body scrubs and toothpastes were specifically tested. The particular challenge was to design the cellulose particles in such a way that their size, shape, hardness and surface structure meet the desired product properties. The research team was able to scientifically confirm that cellulose particles, as a substitute for polyethylene, have comparable effects in cosmetic products. They are biodegradable in water, can be produced at low cost and could further be applied to other fields such as medical products.

Source: DTI

laser now also available in

Newly improved e-paper player

laser—international magazine of laser dentistry can now also easily and comfortably be read online in a freshly improved e-paper design. The new version was launched at the beginning of 2018—the e-paper player having been completely refurbished—and is now offering readers an even more user-friendly experience with new features and an even clearer navigation structure. The entire print portfolio of the OEMUS MEDIA publishing house is available online through the improved player.

The interactive content menu assures an easy orientation within the entire issue proving a comfortable navigation already at the first click. Additional multimedia information—like videos, photo

galleries, literature references and product information—is now accessible through a slim flyout menu located above the e-paper, thus the reader is not redirected to a new tab, but at a glance gets a clear overview. Author and company profiles on ZWP online have been optically improved and are highlighted through the new design. The innovative e-paper player is, hence, corresponding to the extended communicative and technical possibilities of the dynamic developments in dental online media.

Source: OEMUS MEDIA AG



Revision of human migration triggered by

Discovery of fossilized jawbone

An international team of researchers from Israel and America has discovered a fossilized jawbone said to be the earliest modern human fossil ever found outside of Africa. The maxilla with several teeth was discovered at the Misliya Cave site in Israel. Based on several dating techniques, the researchers have suggested that the jawbone is between 175,000 and 194,000 years old. Paleo-anthropologist Dr Rolf Quam, one of the head researchers in the study titled "The earliest modern humans outside Africa," and associate professor at Binghamton University, USA, stated "It provides the clearest evidence yet that our ancestors first migrated out of Africa much earlier than we previously believed. It also means that modern humans were potentially meeting and interacting [...] with other archaic human groups, providing more opportunity for cultural and biological exchanges." While older fossils of modern humans have been found in Africa, the timing and routes of modern



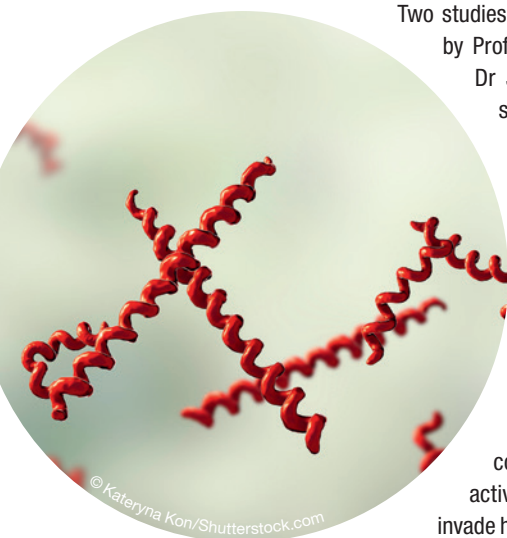
human migration out of Africa are key issues for understanding the evolution of our own species.

Owing to several recent archaeological and fossil discoveries in Asia also indicating an earlier first appearance of modern humans in the region, the discussion regarding the migration out of Africa remains wide open.

Source: DTI

Treponema denticola might be

Triggering cancer



Two studies of the University of Helsinki, led by Prof. Timo Sorsa, Prof. Caj Haglund, Dr Jari Haukka and Dr Jaana Hagström investigated the role of *Treponema denticola* in the formation of oral and certain other cancer types and discovered a link between periodontitis and cancer mortality. The research has proven the existence of a mechanism at molecular level through which *T. denticola*, a bacterium associated with periodontitis, may contribute to carcinogenesis by activating enzymes cancer cells use to invade healthy tissue and at the same time reducing the body's immune system. It was

found that the primary virulence factor of *T. denticola* also occurs in malignant tumours of the gastrointestinal tract, e.g. in pancreatic cancer.

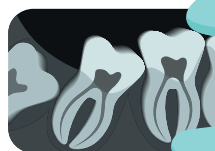
Approx. 70,000 Finns took part in the follow-up study which showed a strong link to mortality due to pancreatic cancer. The scientists concluded that low-grade systemic inflammation related to periodontitis facilitates the dispersal of oral bacteria and their virulence factors to other parts of the body. Prevention and early diagnosis of periodontitis thus prove to be very important, both for patients' oral health and general well-being. The studies are continued at the University of Helsinki and Karolinska Institute.

Study indicates financial incentives impact

Frequency of taken radiographs

Radiographs are useful in diagnostics, but they expose patients to potentially harmful radiation. Thus, with every radiograph, dentists are advised to carefully calculate the benefits versus the risks for the patient. Research conducted by the University of York has now indicated that dentists are more likely to request or take radiographs when they are paid for each radiograph taken. The study titled "First do no harm—The impact of financial incentives on dental X-rays" further found, that when patients were exempt from charges, the number of radiographs also went up significantly, whereas fewer radiographs were taken, when dentists were on a fixed salary. The extensive analysis at the University of York's Centre for Health Economics investigated data from Scotland on National Health Service dentists who were either salaried or received fee-for-service payment. More than one million treatments over a ten-year period were included in the study. Earlier but more limited research on the effects that different reimbursement schemes for dentists can have on the intensity of treatment and prevalence of check-ups were confirmed. Although further research is recommended, the findings could already have significant impact on public health policy, particularly in regard to protecting patients from overexposure to radiation from radiographs.

Source: DTI



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Membership application form



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Save the date

Liebe Kolleginnen und Kollegen, liebe Freunde,

die Vorbereitungen zum Gemeinschaftskongress der DGL und WFLD in Aachen laufen auf Hochtouren. 30 Jahre Weltorganisation der Laserzahnheilkunde (ISLD, gegründet 1988) in Aachen zu feiern, ist eine große Ehre und Ansporn, dieses Event zu einem besonderen zu machen!

Save the date WFLD World Congress 1. bis 3. Oktober 2018 in Aachen

Und das ist der Plan:

Es soll ein internationales Treffen auf hohem wissenschaftlichem Niveau, mit viel Praxisbezug werden. Die Möglichkeiten hochwertiger Aus- und Fortbildung einer der modernsten Universitätskliniken Deutschlands sollen den entsprechenden Rahmen dazu bieten.

Um diesen Vorgaben gerecht zu werden, wird ein völlig neues Kongresskonzept zum Einsatz kommen. Neben wissenschaftlich hochwertigen Vorträgen international anerkannter Referenten zur aktuellen Entwicklung der Laserforschung in drei Vortragssälen sind als Innovation Live-Patienten-Demonstrationen mit begleitender theoretischer Einführung sowie Nachbereitung durch Präsentationsteams vorgesehen, um einen maximalen Praxisbezug mit dazugehörigem Hintergrundwissen medial zu verbinden.

In Zeiten von Ultra HD und Multichannel-Projektion ist das Auditorium „hautnah dabei“, wenn mithilfe verschiedenster Wellenlängen und Geräte Zahnmedizin auf höchstem Niveau demonstriert wird – bei maximalem Lerneffekt. Darüber hinaus kommt auch im Bereich von Workshop-Veranstaltungen die Verknüpfung von Theorie und Praxis zum Tragen. Modernste Video-Projektionswände sorgen last, but not least in der Posterpräsentation für interaktive, multimediale Erlebnisse, welche es so noch nicht gab.

Die kongressbegleitende Ausstellung wird von einer Vielzahl von Firmen, nicht nur aus dem Feld der Laserzahnmedizin, genutzt werden, um ihre Produkte und Innovationen zu präsentieren. Namhafte Aussteller haben bereits ihre Zusage gegeben.

Für viele laserbegeisterte Kollegen auf der ganzen Welt heißt es im Oktober: „Coming back home to Aachen!“, für viele andere öffnet sich gerade erst das Fenster zur „Laser-Welt“. Ich freue mich, Sie alle und natürlich die vielen Freunde aus DGL, WALED und WFLD/ISLD hier in Aachen begrüßen zu dürfen. Erst durch Ihre zahlreiche Teilnahme und aktive Mitwirkung am Programm wird dieser Kongress zu etwas Besonderem werden!

Bis bald in Aachen,

Dr. med. dent. Stefan Grümer



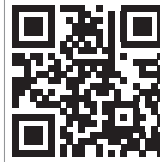
Laserzahnmedizin kompakt

Das Jahrbuch Laserzahnmedizin 2017

Das umfassend überarbeitete und erweiterte *Jahrbuch Laserzahnmedizin* in seiner 18. Auflage ist die einzige rein deutschsprachige Publikation zur Laserzahnmedizin am Markt. In seiner Fülle an Fachartikeln, Grundlagenbeiträgen sowie den aktuellsten Lasermarktübersichten ermöglicht es einen fundierten Einblick sowohl für Einsteiger als auch erfahrene Anwender der Laserzahnmedizin. Neben bewährten Verfahren greift das *Jahrbuch Laserzahnmedizin 2017* in mehreren Artikeln auch die UltrakurzpulsLasertechnologie auf, welche entscheidende Verbesserungen auf dem Gebiet der Laserzahnheilkunde ermöglichen könnte. Zusätzlich stellen sich erfahrene Industriepartner der Laserzahnmedizin vor und führen in ihre Produkte und Services auf diesem Gebiet ein. Einen besseren und aktuelleren Überblick, als es das *Jahrbuch Laserzahnmedizin 2017* bietet, gibt es nicht. Das *Jahrbuch Laserzahnmedizin 2017* ist zum Preis von 49 Euro (zzgl. MwSt. + Versand) im Onlineshop der OEMUS MEDIA AG erhältlich oder kann über grasse@oemus-media.de angefordert werden.

Quelle: OEMUS MEDIA AG

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DESIGNPREIS 2018

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Nach dem Teilnehmerrekord im vergangenen Jahr und einer Gewinnerpraxis mit Piazza und Olivenbaum wird nun 2018 wieder „Deutschlands schönste Zahnarztpraxis“ gesucht. Die Gewinnerpraxis erhält eine exklusive 360grad-Praxistour der OEMUS MEDIA AG für den modernen Webauftritt. Der virtuelle Rundgang bietet per Mausklick die einzigartige Chance, Räumlichkeiten, Praxisteam und -kompetenzen informativ, kompakt und unterhaltsam vorzustellen, aus jeder Perspektive. Einsendeschluss für den diesjährigen ZWP Designpreis ist am 1. Juli 2018. Alle Details sowie alle Bewerber der vergangenen Jahre finden Interessenten auf www.designpreis.org.

Designpreis 2018



Quelle: OEMUS MEDIA AG



16th WORLD CONGRESS WFLD 2018

1. – 3. Oktober 2018,
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The 16th Congress of the
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- Vorträge in Kombination mit klinisch relevanten Fähigkeiten
- Kurzpräsentationen aktueller wissenschaftlicher Ergebnisse
- Klinische Fallpräsentationen
- Rotierende, firmenunterstützte Workshops zum Erwerb von Weiterbildungszertifikaten

Kontakt

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DGL und WFLD erwarten

Laserenthusiasten aus aller Welt in Aachen

Unter dem Motto „Drei Jahrzehnte Laserinnovation“ richtet die DGL ihren Jahreskongress 2018 gemeinsam mit der WFLD aus. Der Gemeinschaftskongress wird in diesem Jahr vom 1. bis 3. Oktober in Aachen am Universitätsklinikum der RWTH Aachen stattfinden. Geplant ist ein internationales Treffen auf hohem wissenschaftlichem Niveau, welches Theorie und Praxis auf vielfältige Weisen verbindet. Wissenschaftliche Vorträge werden die aktuellen Entwicklungen der Laserforschung darstellen. Referenten von internationalem Renommee präsentieren diese in drei Vortragssälen. Live-Demonstrationen am Patienten mit begleitender Einführung

sowie Nachbereitung stellen den entsprechenden Praxisbezug her. Multimediale Posterpräsentationen, diverse Workshop-Veranstaltungen, eine kongressbegleitende Firmenausstellung und ein gesellschaftliches Rahmenprogramm werden das Kongressangebot weiter abrunden. Nach dem positiven Feedback der letzten Veranstaltungen erwarten die Organisatoren im Oktober Laserspezialisten und -einsteiger aus aller Welt in Aachen.

Weitere Informationen und regelmäßige Updates zum Programm sowie den geplanten Referenten finden Interessenten unter: www.wfld-aachen2018.com.

An alle DGL-Mitglieder:

Wir sind gern immer auf dem neusten Stand!

Umgezogen? Neues Konto? Neue Praxisadresse?

Sind Ihre Daten bei uns noch aktuell? Gern möchten wir Sie bitten, uns eventuelle Änderungen mitzuteilen. Nutzen Sie dafür bitte das hier abrufbare Formular (QR-Code scannen).

Adressänderung



Früherkennung von Karies durch

Strahlungsfreie Infrarotlichtaufnahmen

Aktuelle Forschungsergebnisse der Universität Ankara beweisen, dass Zwischenraumkaries auch ohne Röntgenstrahlung unter Einsatz eines speziellen Infrarotverfahrens zuverlässig erkannt werden kann. Erste Untersuchungen dieser Art gab es bereits in künstlicher Umgebung. Unter der Leitung von Ismail Hakki Baltacioglu widmeten sich die Forscher aus Ankara nun einer In-vivo-Analyse. Hierzu stellten sie die gebräuchliche Methode der Bissflügelröntgenaufnahme der Near-Infrared Light Transillumination (NILT) gegenüber. 52 Fälle mit und ohne Kariesläsionen unterschiedlichen Ausmaßes wurden für den Vergleich herangezogen. Die Forscher erstellten für jeden der Fälle sowohl Röntgen- als auch strahlungsfreie NILT-Aufnahmen, die von Zahnheilkundigen und Kieferchirurgen beurteilt wurden.

Im Anschluss erfolgte zusätzlich eine klinische Untersuchung. Im Ergebnis waren keine signifikanten Unterschiede bei den Beurteilungen festzustellen – beide Methoden führten zu den gleichen Diagnosen. Die diagnostische Leistungsfähigkeit von Nahinfrarotlichtstrahlen zeigt folglich eine vergleichbare Genauigkeit und steht der Bissflügelröntgenaufnahme in nichts nach. Zudem bietet der

NILT-Ansatz verschiedene Vorteile: Im Vergleich zu Röntgenaufnahmen sind Dentalmediziner und Patienten keiner ionisierenden Strahlung ausgesetzt. Darüber hinaus verwendet diese Methode unsichtbares langwelliges Licht, welches aufgrund seiner geringeren Streuung Objekte tiefer durchdringen kann und eine sehr präzise Visualisierung erlaubt.



Quelle: ZWP online

Antwort:

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Published by

OEMUS MEDIA AG
Holbeinstraße 29, 04229 Leipzig, Germany
Tel.: +49 341 48474-0
Fax: +49 341 48474-290
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Printed by

Silber Druck oHG
Am Waldstrauch 1, 34266 Niestetal, Germany

laser international magazine of laser dentistry
is published in cooperation with the World
Federation for Laser Dentistry (WFLD).

WFLD Headquarters

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