SIROLaser Blue—Three wavelenghts with one single device

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Fig. 1

Fig. 1_All participants of the 2nd Sirona Laser Days.

_Dental diode lasers

The use of laser in dentistry has steadily grown over the past decades as lasers have repeatedly proven to be powerful surgical tools for both hard and soft tissue applications. There is no discipline in dentistry that does not benefit from the advantages of laser therapy. Among dental lasers currently available, diode lasers have become particularly popular due to their compact size, versatility and relatively affordable pricing. Diode lasers use a semiconductor stimulated by electricity to produce laser light and enable practitioners to perform less invasive procedures with greater patient comfort. Swelling, scaring and post-operative pain is considerably minimised and wounds and tissue heal faster. In addition, dental diode lasers effectively reduce the level of oral germs and bacteria. Compared to traditional procedures, diode lasers lessen stress and anxiety in patients uncomfortable with conventional instruments such as dental drills and therefore lead to a higher patient satisfaction. Ultimately, as the right instruments are crucial for the success of a treatment and hence of a practice, both dentists as well as patients profit greatly from the predicable outcome of dental laser applications.

_Three wavelengths—one device

At this year's IDS in Cologne, Sirona introduced SIROLaser Blue, the first dental diode laser with a blue, infrared and red diode. By providing three wavelengths (445 nm, 970 nm, 660 nm) with one single device, SIROLaser Blue enables a spectrum of 21 indications including frenectomy, fibroma, gingivoplasty, tissue management and haemostasis. The blue laser light at a wavelength of 445 nm is used in soft-tissue surgery because it is absorbed more effectively by tissue compared to infrared laser light. Due to its shorter wavelength, it does not penetrate deeply in surgery and has consequently less effect on surrounding tissue. The blue laser makes it possible to work in a non-contact mode, achieving substantially better cutting results at a lower power than infrared laser light at a higher power rating. Additionally, the blue laser light interacts better with haemoglobin, a complex protein found in the red blood cells of the body, and is therefore ideal for e.g. the treatment of vascularised tissue. The infrared light in wavelengths of 970 nm can be utilised for conventional, germ-reducing indications in endodontics and periodontics, e.g. for the treatment of connective


Fig. 2


Fig. 3

Fig. 2_During a tour of his practise, Prof. Guiseppe Iaria explained various laser applications he and his son, Dr. Matteo Iaria, offer at their laser clinic in Brescia.
Fig. 3_Two key members of the international laser community: Prof. Giovanni Olivi (Rom) and Prof. Andreas Braun (Marburg)

and very dense fibrous tissue. The additional third diode with wavelengths of 660 nm is used for "soft-laser" applications such as low level laser therapy (LLLT), also known as therapeutic laser treatment, and biostimulation/tissue regeneration. Laser biostimulation affects the cellular metabolic processes by providing the body with a better inflammatory response and helps to speed up the healing of post-operative wounds.

_2nd Sirona Laser Days in Brescia

To actively promote the advantages of SIROLaser Blue as one of a kind and to provide the laser community with the opportunity to meet peer-to-peer and to exchange and share their knowledge and experiences regarding the new laser device, Sirona invited 28 experienced laser users and leading laser scientists from 13 countries to Villa Fenaroli in Rezzato, Brescia/Italy, at the beginning of October. The exclusive 2-day programme of the Second Sirona Laser Days included presentations of various clinical cases using diode laser in everyday working routine, workshops and, as the highlight of the user meeting, a live laser treatment. The treatment comprised a frenectomy and fibrotic lesion on the tongue performed by Prof. Giuseppe Iaria, a pioneer and expert in the field of digital/laser dentistry, and was broadcast via livestream from his practice in Brescia. Prior to the live treatment, the participants of the event had the unique opportunity to tour Prof. Iaria's impressive, high-tech laser clinic in the heart of Brescia and to pose questions regarding his many and varied laser applications. In 1996, Dr Iaria was the first user in Europe and one of the first users worldwide of a hydrokinetic laser for dental care. In 2001, he introduced the first diode laser in his practice and now offers 15 medical and surgical lasers, microscopy-based and CEREC CAD/CAM treatments. When asked about the "magic" of lasers, Prof. Iaria highlighted three aspects that, in his opinion, must be carefully considered when utilising lasers as they play a vital role in achieving the best possible treatment results: the correct wavelength for the intended treatment, the components of the target tissue and the knowledge and capability of the practitioner.

_The all-rounder: SIROLaser Blue

Prof. Giovanni Olivi from Rome, one of the two patrons of this year's user meeting and a long-standing expert in the field of laser dentistry, considers the blue laser's outstanding cutting performance in soft-tissue surgery as one of its unrivalled advantages. Due to its coagulation effects, the SIROLaser Blue is an excellent instrument to cut fast, precisely and in an atraumatic way; that makes it particularly suitable for laser procedures such as gingivectomies and frenectomies as well as low-bleeding implant exposure in minimally invasive surgery. According to Prof. Olivi, the infrared laser light at 970 nm particularly supports the conventional root canal treatment by reducing germs and bacteria in areas rinsing solutions cannot reach. In addition, infrared laser light proves to be very effective in treating aphthae and recurrent herpes infections. Summing up the two "Laser days" in Brescia, Prof. Olivi was highly impressed by the promising results his colleagues presented. Among the participants in Brescia was also, Prof. Dr Andreas Braun, Chief Consultant, Department of Operative Dentistry and Endodontology, Philipps-University Marburg. He presented the highly engaged audience with his latest scientific research on diode laser applications. His research shows in particular that, compared to conventional semiconductor lasers in infrared regions, blue laser technology marks a genuinely new and highly promising advancement in laser dentistry. The scientific data originating from studies carried out at Marburg's Philipps University demonstrate the fast and reliable elimination of germs and bacteria during periodontic and endodontic treatments. Furthermore, results from additional studies regarding its

Fig. 4_SIROLaser BLUE.



Fig. 4


Fig. 5

Fig. 5_An impressive congress venue dating back to the XVIII century: Villa Fenaroli in Rezzato, Brescia.

potential use in orthodontic treatments strongly imply future indications of SIROLaser Blue, e.g. the removal of ceramic brackets. Possible side effects of diode laser in infrared ranges, such as carbonisation at wound edges, can largely be avoided. Instead, as various cases have shown, wounds heal with no any scar formation. Due to the blue laser's low penetration depth, unintentional injuries of deeper tissue layers are effectively minimised while the laser beam can be accurately focused to create a precise coagulation. Ultimately, the use of blue laser helps not only to reduce local anaesthesia, but may dispense it altogether.

_Summary

All participants of the user meeting in Brescia agreed on the many benefits of SIROLaser Blue: its cutting performance providing patients with a fast and atraumatic treatment experience, its effective reduction of bacteria and germs which makes it an excellent instrument for endodontic and periodontic applications as well as its coagulating effect which enables the user to cut with as little loss of blood as possible._

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Kurz & bündig

Auf der diesjährigen IDS in Köln stellte das Unternehmen Sirona eine richtungsweisende Produktneuheit vor: Der kompakte SIROLaser Blue ist der erste dentale Diodenlaser mit einer blauen, infraroten und roten Diode. Dadurch ermöglicht er eine Bandbreite von 21 Indikationen und eine Vielzahl von Einsatzmöglichkeiten im Praxisalltag. Im Vergleich zu konventionellen Behandlungsmethoden überzeugen Diodenlaser in der Zahnheilkunde durch eine meist narbenfreie Wundheilung und eine deutlich verbesserte Keimreduktion, vor allem in schwer erreichbaren Bereichen. Darüber hinaus reduziert die Laseranwendung postoperative Schmerzen und verringert so die Notwendigkeit von schmerzmindernden Medikamenten.

Vom 8. bis 10. Oktober dieses Jahres lud Sirona 28 ausgewählte Laseranwender und führende Wissenschaftler der Laserzahnheilkunde zu den zweiten Sirona Laser Days ins oberitalienische Brescia ein. Das Zwei-Tage-Programm ermöglichte es der internationalen Laser-Community, sich (weiter) kennenzulernen und sich über ihre bisherigen Erfahrungen mit dem SIROLaser Blue rege auszutauschen. Ein besonderes Highlight der Veranstaltung war die Live-Behandlung von oralen Fibronen sowie einer Durchtrennung des Lippenbändchens, welche aus der Klinik von Prof. Giuseppe Iaria, einer der Schirmherren des diesjährigen Anwendertreffens, übertragen und als Livestream über das Internet weltweit ausgestrahlt wurde. Die Live-Behandlung bestätigte die in Brescia wiederholt erörterten Vorteile des SIROLaser Blue: seine koagulierende Wirkung, seine vorzügliche, präzise Schneidleistung, die ungewollte Auswirkungen auf umliegendes Gewebe deutlich begrenzen, und seinen keimreduzierenden Effekt. Das Fazit der Veranstaltung ist damit ausgesprochen positiv: mit dem Einsatz des SIROLaser Blue entscheiden sich Zahnärzte für eine nachweislich sichere wie innovative, den Patientenkomfort deutlich steigernde Behandlungsmethode, die ihr Indikationsspektrum noch lange nicht ausgeschöpft hat.

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