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Articles by and interviews with
Prof. Testori, Labanca, McLaren, Drs. Scutellà, Massironi, Dietschi, Lops, Maggiore, Steigmann, Vela Nebot, Rodríguez Ciurana, Maggiore, Plotino and al-Faraje
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EDITORIAL
— from Torsten R. Oemus

Dear reader,

It is my great pleasure to introduce the third issue of the Clinical Masters™ magazine. When we launched this magazine two years ago, it was intended to facilitate a deeper understanding of our world-class Clinical Masters™ Programs. This edition furthers that understanding, featuring educational opportunities and events at training centers, universities, and companies’ educational centers, programs they support.

Our base of locations for on-site training continues to grow, with the planning of upcoming sessions in China, Qatar and Norway added to our existing training centers in Athens, Milan, Geneva, Como, Heidelberg, Barcelona, Berlin, Dubai, Rome and Florence.

Given this diversity in geography and culture, the centers profiles, featuring the various locations and cities in which our courses take place, provide a well-rounded guide, with tips from our faculty members on hotels, restaurants and essential things to see and do. This section gives a personalized, local glimpse into our training centers and their spectacular surrounds.

As with the previous issues, the magazine features relevant clinical cases that demonstrate the particular skills and expertise of our instructors in their various specialties. Tribune CME™ programs are well known for their highly engaging and effective learning methods, employing some of the best dental professionals in state-of-the-art learning facilities to provide highly effective training.

Furthermore, I would like to invite Tribune CME™ graduates and other dental professionals to join the growing Clinical Masters™ Network, a platform for specialists across the globe to share their skills and expertise.

I hope that you enjoy reading this edition of the Clinical Masters™ magazine and I wish to extend an open invitation to attend one of our international Tribune CME™ programs.

My kind regards,

Torsten R. Oemus
President and CEO
Dental Tribune International
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The concept of the Tribune CME (continuing medical education) programs is based on a blended learning approach. Tribune CME’s mission is to deliver comprehensive, advanced hands-on training in leading-edge dentistry on a global scale through:

- Intensive face-to-face clinical educational sessions and practical training, conducted at specialized state-of-the-art training facilities of prominent faculty members, in locations across the world.

- Extensive self-study opportunities via a sophisticated e-learning platform, as well as ongoing support, live mentoring sessions with experts and peers via our webinars, premium online video training on demand and the opportunity to collaborate with peers and the Tribune CME faculty.

- Advanced clinical mentoring guided by our international faculty with evidence-based dental teaching methodologies. The result is an unmatched opportunity for dentists to achieve their most ambitious goals for professional development and their practice’s success.

Clinical Masters™ Programs are offered in:

- Esthetic and Restorative Dentistry
- Implantology
- Endodontics
- Periodontics
- Laser Dentistry

Upon successful completion, participants receive a Tribune CME certificate, which is also endorsed by the educational institutions associated with Tribune CME.

Personal branding opportunities: Tribune CME graduates may make use of the Clinical Masters™ Program logo to promote themselves and their practice both online and in print. Further learning and personal branding opportunities for Tribune CME graduates are available through the Clinical Masters™ Network.

Tribune CME programs are recognized by the American Dental Association (ADA) and provide ADA CERP credits. ADA CERP is a service offered by the ADA to assist dental professionals in identifying quality providers of continuing dental education.

“Practical training at specialized, state-of-the-art facilities of distinguished faculty members”

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This is to certify that Dr. John Smith has successfully passed the theoretical and practical examination of the Clinical Masters™ Program in Esthetic and Restorative Dentistry, pursuant to the quality criteria of the American Dental Association and Tribune CME.

Curriculum duration: 33 hours

Authenticity number: www.TribuneCME.com/id/30/768783

Instructors

Dr. Didier Dietschi

Dr. Ed MacLaren

Dr. Domenico Massironi

Dr. Stavros Pelekanos

Tribune CME

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Dr. Domenico Massironi graduated with honors in medicine and surgery from the University of Pavia in Italy and specialized in dentistry at the same university with honors too. He maintains a private practice in Melegnano, where he specializes in prosthodontics and implant dentistry. He has made use of the stereo microscope since 1988. In 2013, he founded MEG with Dr. Carlo Ghezzi.

He is a member of the editorial board of the International Journal of Esthetic Dentistry and International Journal of Micro Dentistry. He is an active member of the European Academy of Esthetic Dentistry, a member of the American Academy of Restorative Dentistry, a diplomate of the International Congress of Oral Implantologists, emeritus member of Amici di Brugg and founder of the CAD/CAM Academy.

Dr. Massironi has presented courses and lectured at congresses both nationally and internationally. He has published and lectured extensively on fixed prosthodontics and innovative treatment modalities in tooth preparation and esthetic dentistry in the field of dental implant therapy. He has addressed prominent university faculties, national and international dental academies, and professional institutions, and has gained widespread recognition internationally.

Dr. Massironi has written several articles and two books: Precision in Prosthetic Restoration, co-authored with Alberto Battistelli and Romeo Pascetta, and Precision in Dental Aesthetics, co-authored with Romeo Pascetta and Giuseppe Romeo, and translated into numerous languages.

Dr. Carlo Ghezzi graduated in dentistry from the University of Milan in 1999. He has since then tutored in periodontology at the university and was a visiting professor at the university from 2005 to 2010, teaching mucogingival surgery. In 2010, he opened Studio Ghezzi, a dental center specializing in periodontal and implant dentistry with a focus on minimally invasive treatments.

Dr. Ghezzi is an active member of the Italian Society of Periodontology and Implantology. He has lectured at national and international courses and conferences, and has authored and co-authored scientific publications in national and international journals.

The Master Educational Group (MEG) is an educational center dedicated to esthetic dentistry with a heart-head-hands approach to clinical teaching and education. It offers innovative continuous education and interaction with dedicated and talented dentists, who share their passion with participants in exploring theory, innovations and technologies in a supportive environment. The center, in addition to educational and technological areas, offers operating rooms for multiple live sessions.

How to get there
The center is located seven kilometers from Milano Linate Airport. From Milano Linate Airport, you can take a connecting bus to Milano Centrale train station to the center of Milan. Then to get from Milan to Melegnano:

A chauffeur service is available via www.mydriver.com. Prices vary based on the car class, with an average of €57 for economy class, €65 for business class, €80 for a business van and €90 for first class.

Once at Milano Centrale train station, Line 3 on the subway will take you to Melegnano in about 20 minutes.
What to see and do

In Melegnano
Melegnano is a town in the province of Milan, in the Lombardy region. The town lies 16 kilometers southeast of the city of Milan. For information on Melegnano and guided visits, inquire at Pro Loco (www.prolocomelegnano.it), located in the Medici Castle. It organizes cultural activities and local events, including exhibitions.

The Medici Castle is home to history, art and culture. It boasts two imposing medieval towers and evidence of Renaissance refinement, among them, sixteenth-century frescos.

The Church of San Rocco was built in the fourteenth century and has a rococo façade and an eighteenth-century interior.

The Church of San Giovanni Battista, located in Piazza Risorgimento, has medieval origins, but was renovated with a façade of the early 1900s. It is home to many artworks, among them a painting by Bergognone.

In Milan
Milan, the busy and fashionable Italian capital, is considered the international arbiter of taste in fashion and design. As one-time Imperial Roman capital, it combines a rich history with a strong sense of place.

Duomo Cathedral, a Gothic cathedral in the heart of Milan, took almost six centuries to complete and astounds with extravagant detail, including 135 spires and 3,400 statues.

La Scala is probably the world’s most famous opera house. It hosts classical concerts as well.

Museo del Novecento, located in the Palazzo dell’Arengario, accommodates Milan’s museum of twentieth-century art.

Castello Sforzesco houses several museums, among them, the Museum of Ancient Art, the Furniture Museum and the Picture Gallery.

Parco Sempione is a large park situated in the historic center of Milan.

Santa Maria delle Grazie, a church and Dominican convent, is the home of Da Vinci’s The Last Supper and a UNESCO World Heritage site.

Where to stay

In Melegnano
Ibis Styles Milano Melegnano is located 5.5 kilometers from the center and offers MEG special rates.

www.accorhotels.com | TripAdvisor Certificate of Excellence | 3-star

In Milan
Hotel Milano Navigli is in the trendy Navigli neighborhood of historic Milan offering many clubs, cafés and vintage shops.

www.hotelmilanonavigli.it | TripAdvisor Certificate of Excellence | 3-star

Mercure Milano Solari is located between the city center and the canals, in the fashion and design quarter, where the showrooms of the biggest names in fashion and most innovative designers can be found.

www.mercure.com | TripAdvisor Certificate of Excellence | 4-star

NH Milano Palazzo Moscova is set in a grand neoclassical building, which was formerly Milan’s first train station.

www.nh-hotels.com | TripAdvisor | 4-star

Magna Pars Suites is a former perfume factory transformed into a stylish luxury hotel.

www.magnapars-suitesmilano.it | TripAdvisor Certificate of Excellence | 5-star

Where to eat

In Melegnano
Melemangio, within walking distance of MEG, offers a fusion of the traditional cuisine of Parma and Milan, characterized by a modern interpretation and presentation, both satisfying and fun.

www.facebook.com/melemangioristorante | TripAdvisor Certificate of Excellence

Osteria del Portone, also within walking distance of MEG, serves typical regional dishes with a modern twist.

www.osteriadelportone.com

In Milan
Alice Ristorante is an elegant, warm and welcoming restaurant with its Mediterranean-influenced cuisine updated to suit current tastes.

www.aliceristorante.it | 1 Michelin star

Armani/Ristorante offers a combination of style, elegance and sophistication featuring contemporary cuisine.

milan.armanihotels.com | 1 Michelin star

Cracco serves traditional Milanese cuisine updated with a contemporary twist, enhanced by a superbly stocked wine cellar, boasting as many as 2,000 select vintages.

www.ristorantecracco.it | 2 Michelin stars

Joia provides vegetarian haute cuisine.

www.joia.it | 1 Michelin star

D’O, in Cornaredo, offers colorful, innovative cuisine based on authentic Italian ingredients. It is not located in the center of Milan, but well worth an out-of-town trip.

www.cucinapop.do | 1 Michelin star
During the course, Dr. Massironi demonstrated his vision of minimally invasive dentistry to maintain tissue integrity as far as possible for a predictable and harmonious result. Over the four days, the participants were taught the modified chamfer technique, which can be used with every type of material and restorative technique currently available.

This marginal finish design is part of a greater preparation system using rotating instruments driven by electronic devices, such as an induction micromotor, and pneumatic oscillating instruments, without rotation of the working instrument, that include sonic inserts and manual instruments, such as rounded chisels. This method is almost entirely independent of individual skill and thus suitable for every clinician, as it is not operator sensitive. It can easily be used by both a novice dentist and an expert clinician with immediate and reproducible results.

The fabrication of a prosthetic restoration consists of many different steps that
involve both clinicians and dental technicians with the aim of achieving a perfect anatomical, functional and esthetic integration of the prosthetic restoration into the patient’s mouth. In this regard, the preparation of the tooth has always represented one of the most important procedures for the patient’s rehabilitation by fixed prosthesis.

The modified chamfer described by Dr. Massironi consists of a preparation design with a more rounded chamfer curve compared with the traditional chamfer and longer than the rounded shoulder, in order to gain a profile that adapts well to different types of restorative material. This modification results in a shallow (and thus less aggressive) preparation that is less operator sensitive compared with the more traditional shapes, such as a rounded shoulder or 90° shoulder.

The choice of marginal finish for full-crown prosthetic preparation is usually according to the clinician’s skill. The latter depends on what the clinician learned during his or her undergraduate education or in postgraduate courses presented by more experienced colleagues, or his or her personal expertise. For these reasons, such choice is often motivated by ease and experience criteria, though sometimes it may depend on the type of restorative material or on the intrinsic characteristics of the tooth. Furthermore, abutment height, number of teeth to be splinted, adhesive cementation system and esthetic needs may affect the choice. The proposed modified chamfer design is innovative and universal, because it may be adapted to every kind of prosthetic restoration and marginal closure, including the complete marginal border, the microborder where the metal, opaque material and ceramic converge, metal-free methods and CAD/CAM technologies, and shoulder structures or full feldspathic ceramic. Its great versatility is also associated with its easy clinical use, because its particular shape makes it less sensitive to clinical ability; thus, it is less operator dependent compared with other common horizontal marginal finish designs.

The main challenge nowadays is finding the right balance between a minimally invasive approach and an excellent esthetic result. Esthetics is a direct consequence of maintaining the tooth’s health and function.
INTERVIEW
with — Prof. Edward A. McLaren

Nathalie Schüller for Dental Tribune International: Prof. McLaren, you began your career as a general practitioner. What sparked your interest in esthetic dentistry and dental design? What were your influences? Perhaps a mentor?
A: I was always interested in dentistry as a child. After I became a general dentist, I gravitated toward treating more complex cases very early on and I wished to specialize. In practicing, I really enjoyed most the artistic aspect of what I was doing and I became involved in esthetic dentistry naturally, because of the interest in that.

I had the opportunity to see the work of master ceramist Willi Geller when I was in dental school; it was something I had never seen or experienced in dental school—it had not even been talked about—and it really motivated me. If I had two mentors, one would be a dentist, Dr. John Sorensen, and the other a technician, Klaus Müterthies; they took me under their wings and motivated me to do what I do.

But like anything, one has to have some level of passion. I have always enjoyed working with my hands and the aspect of esthetic dentistry relating to art is appealing to me. Things evolved and pathways opened for me and I just sort of ended up where I am, but it was always something that I was fascinated with.

Q: How important is it to stay up to date with technological advancements and developments in the field? What does the future hold for esthetic dentistry?
A: I read a fascinating book in the early nineties about technological changes and the need to stay current. In those days, technology was revolutionizing every three to five years, and I think that it is even happening at a faster pace now. The author emphasized that adult education was important to maintain one’s job and retain the ability to function as jobs evolved.

Regarding the future of esthetic dentistry, the major movement is toward a minimalistic approach. The materials are improving every day. Right now, I do not envision any fundamental changes in the short term other than incredible improvements in what we already have and possibly the ability to do 3-D printing of a very complex colored ceramic restoration, which will not necessarily affect dentists per se, but will affect esthetic dentistry.

Q: What initially prompted your involvement in the Clinical Masters™ Program, and what has encouraged you to continue your participation? What do you perceive to be the main benefits of the program for dental professionals?
A: The Clinical Masters™ Program has the ability to stay current. The team behind the program work with people who have state-of-the-art institutes around the world. They have the ability to move quickly if certain instructors are moving up the knowledge ladder and have the ability to give more current or applicable information to practitioners. These are really the benefits of these programs. Dental Tribune International as a publishing company has the ability to market well. This synergy makes it work: having the right faculty, facilities, current materials, company

“One has to have some level of passion. Things evolved and pathways opened for me and I just sort of ended up where I am, but it was always something that I was fascinated with.”

Chairside dentistry is growing, but we have to adapt to it, change what we do to make it work. As a doctor, our job is not to adapt to a technology; our job is to diagnose the patient and find out what is the best technology available to the patient and then adapt the technology to the patient. Unfortunately, I see it done the other way.
partners, as well as a publishing company that can adequately and exceptionally market these courses. In the end, all those things figure in to making a great Clinical Masters™ Program.

Q: Is that what appeals to you about the Clinical Masters™ Program? You are certainly busy and do enough traveling not to have a need to come all the way to Europe.
A: Yes, I love teaching, but the hopping in airplanes is getting really old. As one goes through one’s career, one spreads oneself and moves in every direction. After a while, one comes to a phase in which one falls in with a specific group, like working with Yannis Roussis in Greece and Dental Tribune, who consistently do a great job of sponsoring programs and putting on programs. As one human being one can only do so much, so one ends up gravitating to the people who have success, who have staying power. I want to be a teacher to do what I do and let other people who have the expertise and determination, like Dental Tribune, do what they do best. I think that is the best way to marry these things. I am a professor at a university and most universities generally do a poor job at postgraduate education; a private company like Dental Tribune has to stay current or it would not stay in business.

Q: When I see presentations on esthetic dentistry and the possibilities, I wonder how much more can be achieved; how can the industry go beyond what is already possible. Are you constantly surprised by the new techniques and possibilities that arise?
A: It seems that there has been incremental improvement of what we already had. Obviously, the major achievement that has most impressed people is implants and the improvements there. I would say IPS e.max is a revolutionary material, a really high-strength glass-ceramic, and it appears that we are also going in that direction with zirconia, gaining more translucent zirconia. Those are probably the two areas of materials that have developed pretty well. I would caution the reader though that we do not have any long-term clinical data for any of these materials, so while they do look better, we just do not know if something is going to work as reported until we have a few years of experience using them.

Q: You teach photography as well. It is an important tool when making a presentation at a congress or showing a patient the envisioned treatment outcome. Does it also help the dentist achieve what he or she needs to do or is it more for the patient, when the dentist needs to explain or present something?
A: Photography and cameras have evolved so much. Visuals have very high impact for people: a picture is worth a thousand words—I think it is worth 10 billion words if it is the right picture. Any dentist performing esthetic dentistry or anybody educating a patient does not need to become a master, but definitely needs to become a reasonable photographer. I am constantly surprised and it bothers me a little bit that, when it comes to esthetic dentistry, I see so many people teaching portrait classes, really cool classes in which they are painting lips and so on, taking interesting shots, great pictures, artistic to put on one’s wall, but relative to educating a patient, I would hope that how to take good dental images should be the focus.

Q: You mentioned to me that you are passionate about what you do. Tell me why. Is it because of what it brings to you, what it brings to others, or both?
A: Yes, I mentioned to you that I am one of the more unidimensional people you will ever meet. I think, dream, have nightmares, 24 hours a day about teeth; it is in my consciousness. One just finds something one is passionate about, like an artist who is passionate about his art. When he has free time, that is what he does. When I have free time, I make teeth. It is fun for me; it puts me in a special state of mind. Life is a long process and it would be horrible to hate what one does for one’s whole life.

Q: You do your own ceramics. Would you say that you are a perfectionist or an artist in your own way?
A: I would like to define myself as an artist. The more I do that, the more artistic I feel, the more passion I feel toward esthetic dentistry and designing smiles. First of all, one needs to define oneself in a certain way. A musician is someone who just plays music, even if she is not very good at it. It really does help one’s mindset, because we tend to be self-negative. If one truly wants to be something, one has to start seeing oneself doing it.

Q: Is creating your own ceramics also because the results you envision are difficult to relate to others or it is difficult to let someone else do it for you?
A: I would not recommend dentists learn to do ceramics themselves. Like anything else, it takes five to ten years to become pretty good at it. I do it just because—and this applies generally to the things that I do—it is the thing that gets me into the most peaceful state. When I am with patients, sometimes I am stressed, the phone is ringing, so even though I love doing that, when I sit down and create ceramics, it just puts me in such a state of bliss. That is what I enjoy most about it. Many dentists take my course thinking they want to save money by not paying a ceramist; well, that is the worse reason to do it. It has to be something that one is passionate about. What makes a good esthetic dentist? Someone who likes art, whether doing the teeth himself or herself, as composites, or having to evaluate what is good and bad dental art. That requires a certain personality. Some people have it, some do not and one just needs to be honest with oneself. It is about finding something that does not feel like work when one is doing it; one just enjoys it.
Location
The Geneva Smile Center is located on Lake Geneva, Europe’s largest Alpine lake, near its landmark fountain. The main shopping area in Geneva is just a few minutes away from the center. Geneva, a trendy paradise, is in the French-speaking part of Switzerland and home to the European headquarters of the United Nations, among over 200 international organizations. It is a city of culture and art and one of the greenest cities in Europe with 20 percent of it green areas, earning it the appellation “City of Parks.” It is close to some of the best ski areas in the Alps. www.edudentinternational.com

How to get there
The center is located seven kilometers from Geneva International Airport. It will take about 30 minutes to reach the center by taxi in good traffic conditions. An alternative is to take the No. 10 bus to the bus stop near Genève-Cornavin railway station (the stop is called “22-Cantons”), change to the No. 9 bus and get off at Place des Eaux-Vives.

What to see and do
Follow the story of the Genevan humanitarian movement by visiting the International Red Cross and Red Crescent Museum.
Visit the Globe of Science and Innovation at CERN, the world’s largest laboratory for particle physics.
Climb the 157 steps of the twelfth-century Cathédrale Saint-Pierre for a breathtaking view of the city.
See the over 6,500 flowers and plants of the Flower Clock, a fine example of Swiss precision, in the Jardin Anglais.
Take a guided tour of the Palais des Nations, which houses the United Nations Office at Geneva (www.unog.ch).
Go skiing in the Alps. Chamonix and Mont Blanc are located 80 kilometers away. Megève, 70 kilometers away, originally conceived in the 1920s as a destination for the aristocracy, has a famous and fancy ski resort.
A lake tour (www.keytours.ch) offers a wonderful way to discover Geneva.
Explore the shops and antique dealers of Carouge, close to the city centre, by day and its trendy bars by night.
Visit the luxury boutiques along the rue du Rhône to see timepieces of beauty and indulge at the master chocolatiers.
Go on an outing to the village of Dardagny to walk among the vineyards and sample the local wines.

Dr. Didier Dietschi
received his D.D.M. in 1984, his M.D. in 1989, his Ph.D. in 2003 and his habilitation qualification (postdoctoral) in 2004, all from the University of Geneva. He is currently a senior lecturer at the university and is an associate professor at Case Western Reserve University in Cleveland, Ohio, U.S. Dr. Dietschi is in charge of anterior adhesive restorations and periodontal and implant surgery at the Geneva Smile Center.
Where to stay
The following hotels are all located close to the Geneva Smile Center and the town center:

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A successful rehabilitation in the esthetic zone depends on criteria that are well-known today, and the use of a direct technique is not an exception to the rule. On the contrary, a general approach without preparation—or at least an ultraconservative approach (reshaping the enamel or preparing a cavosurface bevel if necessary)—might even add a hint of additional complexity. As a reminder, the most important parameters that must be considered are the following:

- the integration of the shape (teeth in relation to the smile and the face) and implicitly its impact on function;
- the shade in the broad sense (in relation to the tissue and the adjacent teeth), encompassing mainly the color, the luminosity/translucency, the chroma, the opalescence and the fluorescence;
- the surface micromorphology and the luster of the restorative material; and
- the biological, functional and esthetic continuity of the restorations.

When considering a rehabilitation in young patients, who often need professional dental care from their teenage years, the direct technique is most frequently required because of the anatomical and functional immaturity of the dental arches. The procedure should include the use of a material or technique that will make possible the necessary adjustments and modifications resulting from the ongoing bio-functional dental development of the patient. Among the criteria to be considered when selecting the composite system, the material strength and its ease of use should be prioritized in order to achieve an optimal esthetic result. The layering technique must therefore be effective and simple; in other words, it is futile to perform complicated multilayering methods in the daily practice and there is a definite advantage to using products that are based on the Natural Layering Concept (e.g., inspiro, Edelweiss DR; Miris, Coltène/Whaledent; Essentia, GC; Enamel HRi, Micerium). This article will highlight the advantages of this technique that, as its name suggests, makes use of the anatomical characteristics of the natural tooth (contour, volume and thickness of the dentin and enamel). This significantly simplifies the clinician’s work, provided it is associated with functional and esthetic planning tools, as described next.

Once the choice of therapeutic approach and restorative system has been confirmed, it is very important to develop a comprehensive esthetic and functional plan in order to improve the communication with the patient and to help the dentist to elaborate his or her restorative and layering techniques if needed. Nowadays, simplified approaches are available, compared with the conventional wax-up and hand-fabricated acrylic mock-ups; indeed, digital imaging and even programming tools of numerous CAD/CAM systems (e.g., CEREC, Dentsply Sirona) offer innovative solutions, also outlined in this article.²

A successful treatment, especially an esthetic treatment, relies on the implementation of a standardized therapeutic approach and clinical protocol, including ideally any development aiming to make them more reliable and simpler. The esthetic treatment plan using software tools (general software, dental software or a CAD/CAM system) has made a comeback and its use has become more prevalent, and is likely to remain so.² Besides a legitimate concern of simplification and cost-effectiveness, the thrust of this approach is to contextualize and allow the preview of the treatment during planning, before any procedure has been performed in the mouth. The advantage is twofold, both in terms of communication and prior acceptance of the result by the patient. Of course, sensitive situations with patients who had expected a result that is impossible to achieve with the therapeutic means at the clinician’s disposal should be avoided.

With regard to the choice of restorative material, while also attempting to meet the multiple requirements related to the dental biomechanics, function and the esthetic aspects, the decision criteria should be redefined in light of the latest developments in composites and their longevity properties. A comprehensive perspective encompassing the long-term outcome of the tooth and its restoration should be explained to the patient in order to assist him or her in determining the most appropriate choice. Very often, the best way is to sacrifice the weakest tissue. Today, a basic approach involving the use of direct composite resins in addition to whitening and microabrasion would therefore be a sensible approach for young patients in need of esthetic treatment, as highlighted in this article. In this area, a concept embracing both the shade and the layering has gradually established itself as the most effective solution.
Fig. 1
Pre-op view of a young patient (14 years old) with hypoplasia of all of her anterior teeth (canine to canine, both jaws).

Figs. 2 & 3
A mock-up was designed with the CEREC system, using the veneer program. The trial shows the improvement in terms of form and overall smile design.
Fig. 4
A specific and innovative bilaminar shade guide for the clinical application of the Natural Layering Concept (i.e., the inspiro system).

Fig. 5
The shade selection consists of two steps, namely the selection of the dentin and enamel shades with two separate samples, which are then to be combined with a drop of glycerin gel between them to favor good light transmission through the assemblage.

Fig. 6
The combined samples are then applied edge to edge to check color match. Here, dentin shade Body I1 and enamel shade Skin Bleach were selected (inspiro).
The silicone index made from the mock-up is used to place a very thin layer of flowable composite (Skin Bleach) to serve as a matrix for the layers to follow.

Dentin is built over the facial natural enamel surfaces, which were not prepared at all in this case, taking advantage of the overall increase in tooth volume and dimension. Dentin is shaped as the natural dentin core, with lobes.
Fig. 10
A single enamel shade covers the dentin and finalizes teeth volume and form.

Figs. 11 & 12
Intra-oral views of the no-preparation restorations placed with the Natural Layering Concept, showing the significant potential of direct techniques to enhance natural or post-orthodontic smiles in young patients or anyone seeking optimal tissue conservation.
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MANAGING THE PERIIMPLANT MUCOSA:
— A clinically reliable method for optimizing soft-tissue contours and the emergence profile

Drs. Andrea Parpailola, Luca Sbricoli, Riccardo Guazzo, Eriiberto Bressan & Diego Lops, Italy

Introduction

Distinctive characteristics of the periimplant mucosa differentiate it from periodontal tissue. The difference lies in the absence of cementum. In fact, the collagen bands lie differently at the site of the implant. The fibers are set in the perios- teum at bone crest level and spread parallel to the implant surface, or they align in broad bands that, in more distant areas, expand almost perpendicular to the implant surface. These horizontal fibers seem to bend vertically and appear to run parallel to the implant’s surface in the areas nearest to the implant. The connective tissue at the implant interface contains a larger amount of collagen, but fewer fibroblasts and vascular structures, than the tissue adjacent to natural tooth structure. The connective tissue at the implant interface contains a larger amount of collagen, but fewer fibroblasts and vascular structures, than the tissue adjacent to natural tooth structure. The successful restoration of lost teeth in the anterior region of the mouth has to meet both esthetic and functional parameters. In addition to the correct placement of the implant fixture, it is essential to achieve a soft-tissue morphology that is as physiologically realistic as possible. An impression obtained with standard copings enables the 3-D position of the implant fixture to be reproduced on a laboratory model. However, the reproducibility of the periimplant soft tissue is often difficult to control, and this can compromise esthetics in the final implant restoration. Most healing abutments have a cylindrical shape, which is not suitable to reproduce correctly the emerging profile of the natural teeth. The dental technician can model an implant-supported prosthesis with a cylindrical profile or with a more appropriate esthetic profile based only on an assumption of the shape suited to the clinical situation. In fact, final tissue heights of the papillae and buccal gingival margins, relative to their pre-implant position, are ultimately dictated by the post-healing levels and position of the interproximal and facial bone.

Because of its characteristics, the periimplant mucosa can be modified by a sculpting process based on the principle that soft tissue becomes modifiable after controlled, constant compression. Especially in patients with a thick gingival biotype, this tissue can be manipulated to reproduce the normal scalloped, parabolic gingival contours. Different approaches have been suggested by the current literature on soft-tissue profiling. All of these focus on establishing a contour of the provisional prosthesis that is as accurate and stable as possible so that it can be faithfully reproduced in the definitive prosthesis.

The present paper describes a method that has been consolidated over several years of clinical practice for the periimplant soft-tissue profiling in the anterior areas. By following the procedure described in the next section, it is possible to recreate, in cooperation with the dental technician, the correct emergence profile for both single and multiunit prostheses.
Clinical procedures

This prosthetic procedure is to be used after the healing of the periimplant soft-tissue by means of standard healing abutments so that a round shape of the periimplant mucosa can be achieved. An impression can then be obtained by screwing the standard pickup coping to the fixture. A polyether (Impregum, 3M ESPE) material can be used for the impression in order to provide a provisional screw-retained prosthesis (Fig. 1).

This provisional restoration is provided to create and condition the periimplant soft-tissue contours, thus reproducing the physiological scalloped, parabolic appearance and the tropism of the adjacent gingiva. The resin provisional prosthesis is kept in the oral cavity for a period of three to six months to ensure a stable outcome of the periimplant soft-tissue conditioning process. During this period, the patient should be followed monthly and the clinician should adapt the provisional prosthesis by adding or removing small amounts of resin as necessary in order to obtain the required shape for the gingival contours and the appropriate emergence profile. This conditioning process has to be carried out gradually to avoid excessive compression, which would cause unacceptable discomfort for the patient.

Once the required gingival morphology has been achieved (Fig. 2), the procedures for providing the definitive restoration can be carried out. The implant analogue is embedded into laboratory stone (or plaster) in a mixing cup and allowed to set. This
procedure can be done prior to the clinical appointment to save chair time. At the time of the clinical appointment, the provisional restoration is removed from the oral cavity and screwed to the implant analogue. A polyether material is then placed into the mixing cup (Fig. 3a) so that the provisional restoration is put into the impression material at the level of the prosthetic emergence profile (Fig. 3b).

This generates a static reproduction of the soft tissue and in particular of the subgingival portion of the provisional prosthesis. After polymerization of the polyether, the provisional prosthesis is unscrewed (Fig. 3c) from the implant analogue and replaced, in the same supporting cup, with the stock hexed transfer coping for the final impression. A space is thus created between the polyether material and the impression transfer coping (Fig. 3d); this space reproduces the morphology of the periimplant soft tissue. Such procedures are more suitable for screw-retained provisional restorations because of the simple removal of the provisional prosthesis from the implant analogue in the mixing cup.

Next, cold self-curing resin (TEMP RED, Micerium) is poured into this gap and left to set (Fig. 4a). A custom transfer coping for this single implant site is thus obtained (Fig. 4b). This modified transfer coping is then removed and screwed on to the implant in the oral cavity (Fig. 4c). The resulting device is an exact periimplant soft-tissue replica and fits perfectly to the shape of the marginal mucosa after the soft-tissue conditioning. No compressive effect on the mucosa or impression material gaps are generated by the rigid resin around the transfer coping as sometimes occurs with the silicone or polyether materials commonly used for precision impressions. A conventional impression can then be taken. By means of a custom impression device, a definitive impression is obtained, so the customized transfer coping with the resin remains embedded in the impression material on the device (Fig. 4d). Finally, a CAD/CAM abutment can be provided to reproduce the emergence profile obtained with the provisional prosthesis. The definitive restoration will be put into position and naturally follow the scalloped periimplant marginal mucosa (Fig. 5a). A stable outcome can be achieved because of the absence of any soft-tissue compresion (Fig. 5b). This method may be used for the restoration of both single and multiple gaps (Fig. 6).

**Discussion**

An emergence profile that mimics the natural tooth should be obtained for successful esthetic implant restoration. Moreover, it allows proper hygiene, which is fundamental for implant maintenance.5 The best way to achieve the correct emergence profile is to sculpt the periimplant mucosa by means of a provisional prosthesis. Only the thick gingival biotype can be manipulated, as postulated by Berglundh et al.7 and Simeone et al.4 In fact, the thin gingival biotype is not
suitable for sculpting because its compression does not lead to a controlled scalloping, but to a high risk of soft-tissue collapse and gingival recession.\(^7\)

Standard healing abutments and transfer copings do not simulate the cross-section of natural teeth\(^8\) because they are round. Many authors agree that the final prosthetic rehabilitation must match the intraorally obtained soft-tissue modifications.\(^5\),\(^9\)–\(^11\) Prefabricated provisional crowns cannot mimic the complexity and the variations of human soft tissue. Therefore, only a chairside modification of the provisional restoration can accomplish the optimal result. Moreover, the same authors agree that provisional restoration has to be screw-retained to prevent the irritating side effects of provisional cement on the periimplant soft tissue, especially in situations in which frequent removals of the provisional restoration are required. In addition, crucial for achieving a successful esthetic outcome is the transfer of the impression information to the dental laboratory.\(^2\) The operator should choose an easy and reproducible technique to transfer the emergence profile to the impression and therefore the model cast in order to allow the dental technician to create a suitable contour for the best esthetic outcome of the final restoration.

The self-curing resin used for contouring the impression coping is common in the dental practice; moreover, it is easy to manipulate and inexpensive. It can be easily poured into the gap between the coping and impression material as long as it is fluid. Because of its low shrinkage, the modified impression coping accurately reproduces the soft-tissue contour obtained with the provisional restoration. Consequently, the exact shape of the resin-generated emergence profile will be transferred to the definitive restoration. Another important advantage of this technique is that the patient is not left without the prosthesis for a long period during the definitive impression procedures; in fact, the customized transfer coping can support the periimplant mucosa. Tissue collapse and volumetric changes will be avoided and the soft-tissue sculpting will remain stable. Furthermore, the technique presented is easily reproducible and does not require particular operator skills.

**Conclusion**

In highly demanding areas, where a good esthetic outcome is as essential as the function of the implant-supported restoration, soft tissue can be modified to obtain an optimal emergence profile and gingival contours with a physiological appearance as realistic as possible. The method described allows for faithful reproduction of the conditioned soft tissue when the final impression is taken; thus, its reproduction on the definitive restoration is possible. The main advantage of this approach is the easy and reproducible use of an inexpensive material that is easily available to clinicians.

**Editorial note:** A list of references is available from the publisher. This article was first published in the *Journal of Esthetic and Restorative Dentistry* (Vol. 25, No. 5, 2013, 317–23).
Brenna & Levrini and Associates provides dental care and education in Lake Como, Italy. The project of creating a facility entirely devoted to dental care originated long ago on the shores of one of the most beautiful lakes in the world and the center opened its doors in late 2015. The dream was combining excellent professional treatment for patients along with the possibility of educating students and colleagues in the same context.

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“The course is not aimed at any particular group based on their experience or age; we provide a map of anatomical surgery.”

Q: Prof. Labanca, how did you become involved in the Clinical Masters™ Program?  
A: I started offering this course in Brescia, Italy, in 2001, once a year, to Italian-speaking dentists. From 2005, I also offered the course in Vienna, Austria, still for Italian dentists, until 2015. Starting in 2016, I brought it back to Brescia, where I teach anatomy at a medical school. It has been a great success; so much so that last year we had to offer two courses in Italy and had many new participants who learned about it from their colleagues. This means that we have to do very little to promote it.

I wanted to bring this course to an international audience as well and started to offer the course again in Vienna in 2016, but in English. I had known about and been interested in the Clinical Masters™ Program as a mean of making the course international. I feel our course is so important and unique that dentists all over the world could benefit from it. Becoming part of the Clinical Masters™ faculty gave me a great opportunity to do so.

Q: For what reason did you decide to offer your course in Vienna rather than Italy, since you were already offering it there?  
A: This is an essential course and it can only be given in an anatomical institute, not in a dental school or in any private venue. Mainly, the location in Italy did not allow us to offer the course to as many participants as we could (12 in Italy, 20 in Vienna). Also, Vienna is more central and thus more accessible from other countries, so it is better suited as an international location.

Q: Why do you think there is a need for this course? Do dentists not receive this kind of training during their studies?  
A: There is usually a huge lack of information about anatomy. The participants in this course may be students or practicing dentists. Perhaps they do not have enough experience of surgical treatments or they might have done their surgical training without sufficient anatomical guidance. Learning more about anatomy is the right way to start. In a way, it is like getting a map of a city. One might need a map of Vienna because one is new to the city and needs to find one’s way about or because
“There is usually a huge lack of information about anatomy. The participants in this course may be students or practicing dentists. Perhaps they do not have enough experience of surgical treatments or they might have done their surgical training without sufficient anatomical guidance. Learning more about anatomy is the right way to start.”

one has been living there for years, but did not know enough of the city. A map will allow one to understand why it is better to go this way, move in this or that direction. The course is not aimed at any particular group based on their experience or age; we provide a map of anatomical surgery. Through this course, participants will gain more skills and confidence in moving inside the “city”, guided by the anatomical landmarks of their patients.

Q: What would you say are the most important aspects of anatomy? A: There is a major difference between this and other courses in which cadavers are dissected. In anatomy, dissection is useful and important, but not for learning how to perform surgical procedures.

Our course is an anatomical and surgical course. We demonstrate the most important surgical procedures, for example a sinus lift augmentation, guided by the anatomy. We do not tell the participants how to perform a sinus lift, since the course is not about surgical techniques or which procedure should be used. Technique and surgical procedure are mainly a matter of personal preference or background. Our goal is to give participants, no matter the technique they use, information to avoid anatomical risks. For example, in placing an implant, we focus on the relevant anatomical structures to be considered. That is the main issue. Surgical techniques may be different, but anatomy is the same all over the world.

Furthermore, this is the only current noncommercial course. Companies provide us with materials of course, but they are partners and supporters only. My colleagues, professors of anatomy whom I teach with, and I are totally independent. We do not receive payments from any of the companies that provide materials and instruments, allowing us to maintain our independence. We seek to share anatomical information, and this is not linked to products or materials as surgical procedures are. We have an association with 15 companies, the most significant in their field. The participants have access to all the materials and instruments they need, as well as the latest versions available on the market. The advantage for companies is that they can assist the participants who use their products and share the information about the course.

Lastly, we work with fresh specimens, not fixed ones. If one uses a fixed specimen in performing anatomical procedures, some structures are lost. A fixed specimen is perfect for dissection where one only needs to see the anatomical structure that is the focus, but one needs to see the most important structures, the nerves and arteries, in performing any surgical procedure. The fresh specimens are frozen and kept at –80 °C and then thawed so that they are perfectly preserved and their anatomical structures clearly recognizable. With our specimens, all the arteries have been injected with a special rubber (red resin) to retain the same dimensions and consistency of those of a living patient.

Q: How is the course organized? How many people attend the course? A: We have ten workstations at which the twenty participants work in pairs. Every workstation has two tutors, one for anatomical questions and one for dental and surgical questions. Questions arise in both disciplines and I can answer the ones related to surgery, but an anatomical specialist answers questions on the anatomy. Anatomy is a very wide field and our tutors are full professors specialized in orofacial anatomy.

Such topics as diagnosis, developing a treatment plan, biological assessment, guided surgery and using the materials available are covered during the teaching section. In the practical part, we perform surgical techniques to demonstrate the areas of risk, prevention and management of failures, and pain management in dentistry.
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Dr. Castellucci offers his theoretical and practical courses throughout the year, ensuring flexibility for anyone not able to participate during certain periods of the year. www.endocastellucci.com

Florence, the capital of Tuscany is a cultural, artistic and architectural gem. One of its most influential families, the Medicis, not only sponsored the arts, but were of great importance owing to their thriving commercial activity and subsequent political influence. Florence is considered to be the birthplace of the Italian Renaissance, home to creative geniuses and scientific masterminds, who left their legacies in the city’s many museums and art galleries. Florence’s economic strength fostered the growth of mercantile guilds and attracted an influx of immigrants. Today, the city is known for its dedication to its artistic and historic patrimony and is regarded as one of the top destinations in the world. www.lonelyplanet.com/italy/florence

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What to see and do
The Uffizi Gallery, one of the most famous museums in the world, houses unique artworks and masterpieces by artists such as Botticelli, Michelangelo, Da Vinci and Raffaello.

The Accademia Gallery is, with the Uffizi, one of the most visited museums in Florence. Here you will be able to appreciate the beauty of Michelangelo’s David.

The Ponte Vecchio, or old bridge, was for a time, the only bridge in Florence across the Arno River. There have been shops on the bridge since the thirteenth century—originally, all types of shops, but at the end of the sixteenth century limited to only goldsmiths and jewelers.

The Medici Chapels form part of the complex of San Lorenzo. The church of San Lorenzo was the official church of the Medici family and became their final burial ground.

Medici Villa at Castello, just a few kilometers from Florence’s historical center, is an elegant villa with a splendid Italian garden. Botticelli’s Birth of Venus and Allegory of Spring (now at the Uffizi Gallery) were commissioned by Lorenzo de’ Medici for this villa. The villa is not open to the public, but its gardens can be visited free of charge.

Palatine and Modern Art galleries at the Palazzo Pitti. The Palatine Gallery includes wonderful works by Renaissance artists. The Modern Art Gallery mostly houses works by Italian artists from the end of the eighteenth century to the beginning of the twentieth century.

Palazzo Vecchio, located next to the Uffizi Gallery, is one of the most famous symbols of Florence. From its tower, you can enjoy a wonderful view of the city.

The Cappella Brancacci is a chapel in the Basilica di Santa Maria del Carmine with magnificent frescoes painted by Masolino da Panicale, Masaccio and Filippino Lippi. Corridoio Vasariano, built to allow the
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Dr. Francesco Maggiore, Italy

Introduction

The ultimate goal of endodontics is to treat or to prevent endodontic pathology by properly cleaning, disinfecting and filling the complete root canal system. This is generally achieved by one of the three major endodontic therapies:

1. Orthograde or conventional endodontic treatment is delivered when the tooth presents with pulpal or periapical pathology and has not received any previous endodontic therapy.

2. Nonsurgical endodontic retreatment is delivered when the tooth has been treated previously, but the periapical pathology persisted or reoccurred after a period and the tooth is accessible using a coronal approach.

3. Surgical endodontic retreatment is generally performed when the endodontically treated tooth still presents with a periapical pathology, but a coronal approach is not feasible because of prosthetic restorations or if it is not able to resolve the periapical problem. In these cases, the incision of a surgical flap and retrograde management of the apical third of the root is required.

Even though the majority of endodontic cases are treated using one of the above-mentioned modalities, clinical situations arise in which the orthograde approach or the surgical approach alone is not able to clean and disinfect the complete root canal system and to provide a hermetic apical seal. In these cases, a combined orthograde and surgical approach is required. Very often, these are cases in which the tooth received previous endodontic treatment that did not resolve the endodontic pathology and caused morphological alteration of the apical third of the root, requiring surgical intervention to be properly managed. The present article reports on an unusual clinical case treated by nonsurgical endodontic retreatment followed by surgical endodontic retreatment in order to remove a foreign metallic object from the periapical tissue and to properly treat the apical third of the root. The object was afterward identified as a wrongly positioned endosseous implant that was responsible for the symptomatology.

Case report

A 57-year-old female patient was referred to our clinic in order to evaluate a symptomatic tooth #23. The patient had spontaneous pain in the left upper jaw, in the vestibule of the tooth #23. At the clinical examination, the tooth presented with a composite restoration, was negative to the vitality test, and was sensitive to percussion and palpation. The clinical examination revealed the presence of a scar in the vestibule of the left upper jaw due to a previous surgery (Fig. 1). The radiographic examination showed previous endodontic treatment of tooth #23, a shortening of the root and an apical radiolucency associated with a suspected gutta-percha cone or a radiopaque post beyond the apical third of the root (Fig. 2).

The anamnestic data were noncontributory. On the basis of the clinical and radiographic examination, a diagnosis of previous endodontic treatment with a symptomatic periapical lesion was made. Since the material in the apical third was thought to be a gutta-percha cone of larger size, and assuming it would be possible to remove it with an orthograde approach,
nonsurgical endodontic retreatment was suggested to the patient.

The tooth was anesthetized, a rubber dam was placed and an access cavity was created in order to reach the root canal. After removal of the old gutta-percha filling material up to the apical third of the root, the endodontic file was unable to progress farther and a solid stop was felt. Exploration of the apical third under an operating microscope was performed. Under high magnification, the presence of a metal ring tightly wedged in the apical part of the canal was seen (Fig. 3). The metal ring was filled with old gutta-percha. The intraoperative radiograph with the file in place revealed the full length of the metal post extruding into the periapical tissue (Fig. 4). The multiple attempts to remove the metal object via an orthograde approach were unsuccessful. The tooth was medicated with calcium hydroxide and the patient rescheduled for surgery at the next appointment.

At the next visit, the patient was anesthetized, and under rubber dam isolation, the
tooth was opened and the canal filled with a pulp canal sealer and warm gutta-percha released from the Obtura II syringe (Obtura Spartan Endodontics). After completion of the root canal filling, the surgical treatment followed. A paramarginal flap was incised (Fig. 5), and after elevation of the soft tissue, an endosseous implant became visible under the mucosa (Fig. 6). The implant was wrongly positioned in the submucosa rather than in the bone and was actually responsible for the painful symptomatology.

In order to eliminate the metallic object, the bone around the post was gently curedtted (Fig. 7) and the implant was vibrated with ultrasonic tips. The implant was very tightly wedged in the root, and it was thus decided to cut the apical part of the root containing the metallic post. Once the apical part of the root, together with the metal post, had been removed (Fig. 8), inspection of the resected root surface was performed under the operating microscope under high magnification. The resected root presented with a metal ring that corresponded to the cave part of the implant (Fig. 9). Since the metal ring contained old gutta-percha that was potentially infected, attempts to loosen the metal ring with ultrasonic tips were made (Fig. 10). Using ultrasonic tips, the metal

Fig. 5
A paramarginal rectangular flap was raised to reach the apical third of the maxillary canine.

Fig. 6
Once the flap had been raised, an endosseous implant became visible under the mucosa.

Fig. 7
The implant was released on the sides.

Fig. 8
The implant was removed.

Fig. 9
Exploration of the resected root surface at high magnification. Note that the metallic post was filled with gutta-percha at the bottom and strongly engaged in the root canal.
The metallic ring was removed (Fig. 11). The apical part of the root was further cleaned with ultrasonic tips and filled with grey mineral trioxide aggregate (MTA; Figs. 12 & 13). The surgical flap was closed using 7-0 monofilament sutures (Fig. 14). The immediate postoperative radiograph showed good adaptation of the MTA in the apical part of the root (Fig. 15). The sutures were removed 48 hours after the surgery (Fig. 16).

At the following control appointment, the patient was asymptomatic and the soft tissue showed good healing. The patient was recalled one and three years after the surgery. At the recall appointments, the tooth was asymptomatic and showed good stability. The three-year follow-up radiograph showed bone regeneration and reformations of the lamina dura around the amputated root (Figs. 17 & 18).

The patient was referred to our clinic for endodontic treatment on a different tooth ten years after the surgery. A control of tooth #23 was done. It had remained symptom-free, and the ten-year follow-up radiograph showed a stable bone condition and the absence of any apical radiolucency (Fig. 19). Inspection of the soft tissue showed barely visible evidence of the incision (Fig. 20).
Discussion

The present case report has demonstrated that sometimes an approach combining both orthograde and surgical treatment is required in order to treat previously endodontically treated teeth and to provide a long-term favorable outcome. The decision to proceed surgically or nonsurgically is sometimes determined by the intraoperative conditions. It should be noted that CBCT was not available to the clinicians at the time of the surgery. Nowadays, preoperative examination using CBCT provides valuable information for the diagnosis and treatment of endodontically compromised teeth. Furthermore, the case report has shown that the microsurgical approach under the high magnification of the operating microscope, together with the use of dedicated ultrasonic tips and biocompatible material, was crucial for the long-term success of the treated tooth.

Fig. 15
Post-op radiograph.

Fig. 16
The condition of the soft tissue immediately before suture removal.

Fig. 17
Radiographic control three years after surgery. Note the good reapposition of the bone and the reformation of the lamina dura around the amputated root.

Fig. 18
Soft-tissue control three years after surgery. Note the esthetic healing of the soft tissue. Teeth #22 and #23 presented with new cervical fillings.

Fig. 19
Radiographic control ten years after surgery. The tooth had maintained a stable bone condition and no apical radiolucency was visible.

Fig. 20
Soft-tissue control ten years after surgery.
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Q: Dr. Maggiore, you are considered a prominent expert in the field of endodontics, what is the state of endodontics today?
A: Endodontics is a very solid discipline and represents one of the most fascinating specialties in modern dentistry. The technological and scientific achievements of the past decades have been enormous. For years, the goal of the specialty has been to raise the bar of endodontics, that is the standard of the routine root canal therapy performed by both general dentists and endodontic specialists. Probably now we are confident in saying that the bar has been raised and many endodontic treatments once considered challenging are actually properly managed by specialists and by well-trained general dentists.

Q: What have the major advancements in endodontics been? You mentioned technological and scientific achievements.
A: Yes, not only has technology advanced, but science has too. Electronic apex locators, operating microscopes, nickel-titanium rotary instruments, warm gutta-percha filling techniques, CBCT and bioceramic materials are only some of the technological innovations that have drastically changed the way endodontics is practiced today compared with a few years ago. In the past, practitioners had to rely on their tactile sense when exploring the pulp chamber of a tooth or when trying to detect the apical constriction. It was the era of what I call “tactile endodontics”—everything relied on fingers. Nowadays, under proper magnification provided by the operating microscope, we can clearly see the exact number and location of root canals, and using an apex locator, we can precisely detect the apical constriction. With the right skills and training, the use of the operating microscope allows the operator to have each step of the procedure under visual control. This can be accomplished by microscope users, both endodontic specialists and general dentists alike. This is what I term “visual endodontics.”

The scientific advancements are many, including the knowledge of the anatomical variation of each tooth and the histological response of the human body to different materials or biomaterials used in endodontics. Scientific advancement is the understanding of why, when and how an endodontic file breaks and eventually how to prevent separation. Scientific advancement is also the awareness that we are dealing with a sophisticated biofilm complex rather than with single bacterial species. This has given rise to the prominent role of irrigation protocols and modalities in everyday practice.

Q: What are the differences between general dentists and endodontic specialists in performing endodontic treatment?
The scientific advancements are many and include knowledge of the anatomical variation of each tooth, the histological response of the human body to different materials, and the biomaterials used in endodontics.

**A:** There are many differences and probably different commitments. A general dentist has to provide the full range of treatments for his or her patients, including endodontic treatment. This is a considerable task. In the U.S., the majority of root canal therapies are actually performed by general dentists and this is probably true everywhere around the globe.

General dentists should be confident in providing primary endodontic therapy, that is, conventional endodontics. They should take advantage of the technological innovations in endodontics and use them to their best ability. They should also be aware of what can be achieved in the hands of a specialist, that certain treatments are feasible, that many endodontically compromised teeth can still be saved and have a good long-term prognosis.

Endodontic specialists complete advanced education in endodontics through a postgraduate program. Generally, they limit their practice to endodontics. They provide conventional endodontic treatment, but mainly treat challenging cases of complex anatomy, multirooted teeth, traumatized teeth, endodontic retreatments and endodontic microsurgery.

Many patients would like to retain their natural dentition for as long as possible. Endodontic specialists can provide a wide range of treatments in many cases. Communication between general dentists and endodontists is very important for successful patient management. In this regard, case selection is a key factor for a general dentist. In fact, many general dentists know that, in certain clinical situations, the best service they can provide to their patients is to refer them to the specialist. A cautious general dentist knows also when the case has to be referred, before it is too late, that is, before a perforation occurs or before an instrument separation ruins his day. Even in these challenging situations, however, very often, a specialist can still save the tooth. This is probably one of the commitments of an endodontic specialist, to shift the prognosis of an endodontically compromised tooth.

**Q:** What is the aim of your course in the Clinical Masters™ Program in Endodontics?

**A:** The purpose of the course is to share with participants our clinical experience and knowledge. Most of my everyday clinical work focuses on retreatments, nonsurgical and surgical. Over the years, we have identified which instrument or approach works best in the particular clinical situation. Participants will be guided through treating complex clinical cases and learning new technologies, materials and techniques step by step, keeping in mind the philosophy of a safe and efficient approach.

Thank you very much for the interview.
ENDO INN TO JOIN
THE CLINICAL MASTERS™ PROGRAM
IN ENDODONTICS

About Endo Inn
Endo Inn, located in Oslo, Norway, was established to provide training in endodontics. The aim is to introduce to both general dental practitioners and specialists the latest technology in the specialty of endodontics in order to achieve the essential biological requirements for predictable successful outcomes.

Post-treatment endodontic disease:
Theory and hands-on course | 4 days
In this nonsurgical endodontic retreatment and endodontic microsurgery workshop, the participants will be working on dental models with 3-D printed teeth under an operating microscope. All of the models will be studied preoperatively by CBCT and the treatment will be planned accordingly.

During the course, the participants will be working on custom-made workstations, with operating microscopes connected to high-definition monitors. Micro-CT 3-D printed transparent and opaque teeth will be provided during the workshops so that the participants gain knowledge of and skills in working within the complex internal root canal anatomy. CBCT technology will be used to control the endodontic treatment performed by each participant.

Endodontic retreatment component:
Retreatment of the MB1 canal will be performed by first removing intra-canal obturation materials with ultrasonic tips and new dedicated NiTi retreatment files.

- Management of problems caused by previous treatment (by-passing ledges, elbows and separated instruments)
- Dislodging and removal of fractured instruments
- Repair of apical and furcation perforations with bioceramic materials.

Endodontic microsurgery component:
Several microscopic instruments will be demonstrated and used during the surgical exercises, such as micro-scalpels, micro-mirrors, micro-spatulas, micro-condensers and micro-suture holders.

- CBCT planning for apicectomy of a maxillary and mandibular molar
- Flap design and microscopic bone and root resection with lesion curettage
- Exercise on root canals and isthmus retrograde preparation with ultrasonic tips, followed by retrograde cavity sealing with a bioceramic material.
About Dr. Gilberto Debelian

Dr. Gilberto Debelian received his DMD from the University of São Paulo, Brazil, in 1987. He completed his specialization in endodontics at the University of Pennsylvania, U.S., in 1991 and received the Louis I. Grossman Postdoctoral Student Award in Endodontics.

He taught as a clinical instructor and associate professor in the postdoctoral endodontic program at the Section of Endodontics at the University of Oslo, Norway, from 1991 to 2001 and from 2006 to 2010.

He concluded his Ph.D. studies at the University of Oslo in 1997 in endodontic microbiology and received two scientific awards from the European Society of Endodontology and the Norwegian Dental Association, both in 1997.

Currently, Dr. Debelian is an adjunct associate professor in the postgraduate program in endodontics at the University of Pennsylvania. He maintains a private practice limited to endodontics, as well as an advanced endodontic microscopy center. Furthermore, he is the author of four books and has written more than 60 scientific and clinical papers.
**INTERVIEW**

with — Dr. Gianluca Plotino

Q: Dr. Plotino, you are a much-respected lecturer and researcher in the field of endodontics. How would you characterize your approach to teaching, and how has this changed over time?

A: When I was a student at the Università Cattolica del Sacro Cuore in Rome, Italy, I had an endodontics professor who sparked my passion for this specialty and I later started teaching and supervising students in their graduation thesis. I work only part time at university—now at the Sapienza University of Rome—but I still really enjoy lecturing and supervising students in their research programs. It is always a pleasure to guide young dentists in their first steps to becoming endodontists. Finally, I am most fortunate to have the opportunity to give lectures worldwide, because it entails a mutual exchange of ideas with colleagues and this makes for great intellectual stimulation.

Q: How can a conservative approach to endodontics benefit a field that has undergone incredible advancements in materials and digital technologies?

A: Incredibly! New technologies and devices are drastically changing our profession each day. Consider the improvements in diagnosis owing to CBCT or improvements in the quality and safety of the instruments that we use for root canal preparation owing to the newest manufacturing processes and thermal treatments, for example. Furthermore, research in the field of disinfection and on the development of new filling materials has given us the ability to treat even the most desperate endodontic cases, enhancing the outcome of the treatment.

Q: You are scheduled to speak at the upcoming ROOTS SUMMIT 2016 in Dubai. What are you looking forward to the most about the conference?

A: In my presentation, I will seek to convey an in-depth understanding of the mechanics of reciprocating motion in relation to endodontic instruments and why it represents a great advancement in the safety and quality of dental practice. I will share my research on this topic and above all demonstrate how it can be applied in the daily clinical practice of both general dentists and endodontic specialists.

Q: What do you hope a dental professional will gain from participating in the Clinical Masters™ Program in Endodontics?

A: Dentists have to approach dental practice intensely, seeking to achieve clinical expertise. While dental schools do a great job of providing a solid foundation for a career, it is not enough, so it is up to dentists to build on that foundation by pursuing postgraduate advanced clinical training that exemplifies today’s top dentists. They should have interest in what they do and seek to perform to their best to achieve the highest clinical results through continuing to advance their education and training and keeping up to date.

Q: What is the aim of the course, and how does this differ from other courses?

A: The aim is to train the participants to become the best endodontists practitioners. We seek to inspire in them our passion for this discipline of dentistry and share our skills to equip them to perform top-level treatments and deal with the most difficult of situations.

Q: What are some of your current research areas of interest?

A: I like to conduct research to confirm my clinical experiences and this is the reason I have published so many articles in some of the most prestigious scientific journals of our field on several topics regarding both endodontics and restorative dentistry. The main current research areas of interest are how new treatments may improve the quality and performance of mechanical endodontic instruments, and this is being investigated through the most advanced technologies.

Q: In your opinion, what are some of the main challenges that face endodontists today?

A: They must help patients see the value of their clinical work and need to understand the importance of an effective case presentation, since it ultimately determines what kind of dentistry they are able to perform. Today, it is also important to master the business of dentistry to build a successful practice.
INTERVIEW
with — Dr. Louie al-Faraje

Q: How have technological advancements changed oral implantology since you first started practicing in this field?
A: Implant dentistry is changing at a rapid rate, primarily driven by the results of current research and the advancement in technology and products. Only by updating our knowledge and skills constantly will we be able to keep pace with current trends.

When I started, there were no tapered implants, implants with internal hex, advanced surface technologies, computer-guided surgical stents, drill stoppers or other such useful tools. I would say the most useful tool in our armamentarium these days is CT imaging. Today’s oral implantology clinicians have the advantage of cone beam volumetric imaging. CT technology allows us to visualize the patient’s anatomy and pathology like never before. With these images, we can measure the exact distance available for implant placement below or above certain anatomic landmarks, measure the exact bone density, measure precisely the width of the available alveolar ridge and select the most suitable locations for the planned implants. This leads to improved planning and reduced morbidity and reduces our liability.

Q: What sets the California Implant Institute apart from its competitors?
A: Oral implantology is a complex discipline. Many factors must be taken in consideration when developing a treatment plan involving dental implants. These factors include the patient’s anatomy; the patient’s general health; the patient’s bone density; horizontal and vertical spaces of occlusion; the soft-tissue biotype; parafuncions (if any); the smile line; the patient’s age, sex and size; opposing dentition and the location of the implants in the mouth (posterior vs. anterior placement).

The California Implant Institute offers the most comprehensive dental implant training program in the world, covering all areas that are pertinent to oral implantology. The extensive live-patient surgical component of the master’s program is unique. Our curriculum and world-famous faculty make ours the most sought after program in the world.
Q: How can dentists benefit from enrolling in the Master of Oral Implantology program?

A: The Advanced Surgical and Prosthetic Master of Oral Implantology Training Program at the California Implant Institute is the only one of its kind. It consists of seven highly structured modules that ensure dentists will receive the most comprehensive dental implant training available.

Module 1 consists of the institute’s signature Fellowship Program, in which dentists gain fundamental knowledge and skills through in-class lectures, hands-on laboratory sessions, online webinars and live surgical demonstrations.

Module 2 is the hands-on cadaver module, in which participants improve their clinical skills by performing advanced and complex procedures on human specimens.

Module 3 consists of the live-patient surgical training programs held at the institute’s Baja office in Rosarito, Mexico. All dentists and patients are shuttled from San Diego to the Mexico site. The participants take a total of four live-patient externships of six days each. Each externship includes 3–4 hours of treatment planning each morning. Course material and surgical DVDs are provided before each program to enhance the learning experience.

Module 4 offers the unique opportunity for participants to shadow and assist one of the institute’s prosthodontists on-site. During this module, the participants are exposed to complex cases, treatment planning for those cases, occlusion design and proper hygiene protocols for implant patients. Other topics include documentation of implant cases, the informed patient consent process, capturing the necessary extraoral and intraoral photographs for precise implant treatment planning, digital smile design for aesthetic and complex cases, and dental laboratory training for immediate implant provisionalization.

Module 5 provides live-patient oral sedation training.

Module 6 is a five-day module covering a wide range of topics related to CAD/CAM and computer-guided surgical training, with a hands-on workshop.

Module 7 is the academic and research component of the program. Dentists are encouraged to make use of the institute’s resource center throughout in order to complete the following academic assignments:

- Watch 50 surgical videos on the institute’s private YouTube channel
- Complete the research/literature review assignment
- Provide documentation for five clinical cases:
  - Two single-implant fixed cases
  - Two multiunit implant cases (bar overdenture and locator overdenture will fall under this category)
  - One full-arch fixed implant case.

Q: What have previous participants said about the program?

A: “The surgical externship courses were an incredible learning experience for me. There is no better way, in my opinion, to learn the necessary skills required for implant placement than to actually participate in a well-supervised program like this. There is so much to learn and gain knowledge in while doing the surgery and while assisting and observing over the six days, during which hundreds of implants are placed.”

Dr. Wayne Young—general dental practitioner, Calgary, Alberta, Canada

“Your fellowship program has opened a new chapter in my dental career. Your great personality, encouragement, professional staff, handouts, binders, articles, hands-on sessions, outstanding lectures and live-surgery presentations have given me the lifelong confidence to diagnose and treat patients with implants. I proudly apply your knowledge and techniques at my dental practice. Thank you for your outstanding performance, incredible service and hospitality.”

Dr. Peter Zahedi—general dental practitioner, San Rafael, California, U.S.

“I have been placing implants for over seven years and found the course to be invaluable. You provided information that could be implemented after each session. The course is well structured for both the novice and the more experienced. I believe this course to be a must for anyone interested in or continuing their education in implant dentistry. You will be hard pressed to find a more well-prepared and organized teacher. The live surgeries and hands-on portions of the course pay for themselves.”

Dr. Robert Matiasevich Jr.
The California Implant Institute and its world-renowned faculty have developed the most comprehensive curriculum focusing on essential information that is immediately useful to doctors, their staff, and their patients. Through in-class interactive lectures, online webinars, hands-on laboratory sessions, live-patient surgical experiences, and much more, participants will gain the highest level of knowledge and technical skills necessary to provide safe, appropriate, and efficient treatments.

Understanding the value of the time invested to complete the Master of Oral Implantology Program, CII offers a unique opportunity for doctors to fully customize their program track to best fit their availability while having the least impact on their practice.

Visit the CII website for detailed curriculum and schedules.

Faculty Members

Louie Al-Faraje, DDS
Diplomate, American Board of Oral Implantology
Academic Chairman, California Implant Institute

Mamaly Reshad, DDS, MSc
Former Section Chair for Fixed Prosthodontics and Operative Dentistry, University of Southern California

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Past President, American Board of Oral Implantology

Patrick Palacci, DDS
Head of Brånemark Osseointegration Center in Marseille, France

Domenico Cascione, CDT, B.S.
President of OPERAOM LLC, a dental laboratory in Santa Monica, California

Training Overview

The Program consists of 7 modules for a total of 1,000 CE units:

• Didactic / In-Class Lecture Module
  Over 60 days of interactive academic learning

• Live-Patient Surgical Module
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• CAD/CAM Computer Guided Module
  Hands-on workshop focused on implant surgery

• Implant Prosthodontics Module
  Hands-on implant-oriented occlusion workshop and on-site shadowing of a Prosthodontist

• Hands-On Cadaver Module

• Oral Sedation Certification Module

• Academic and Research Module

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LAKE COMO INSTITUTE
— Como, Italy

Location
The Lake Como Institute is located in the town of Como, famous for its silk manufacturers. Within what remains of its twelfth-century walls is a charming historical center. The town is set on the shores of Lake Como, situated in a basin surrounded by wooded mountains and said to be the most beautiful of the Italian lakes. There is plenty to see while strolling around, including stunning villas, gardens, and sites of historical and cultural significance.


How to get there
From Milano Malpensa Airport, located about 1 hour away by car, you can take the Malpensa Express train to Como.

www.malpensaexpress.it

From Lugano Airport in Switzerland, located about 20 minutes away by car, you can take a shuttle bus to Lugano, and then a train from Lugano station to Como S. Giovanni station.

www.trenitalia.it or www.sbb.ch

From Milano Linate Airport, you can take a connecting bus to Milano Centrale station and catch a train to Como S. Giovanni station (trains depart hourly).

The following transport options are available via the institute:
- A private mini-van for up to seven passengers, from Milano Malpensa Airport to Como.
- A private car (up to three passengers), one way from Milano Malpensa Airport to Como.
- Transportation from Il Caravaggio International Airport (Orio al Serio International Airport).
- Transportation from Milano Linate Airport.

Further information can be requested in this regard via the institute.

What to see and do
Como is a very small old town and the best way to get to know it is by exploring its narrow passages, old streets, quaint markets and piazzas, stopping to enjoy a cappuccino on the terrace of one of its many cafés.

The remarkable eleventh-century Romanesque Basilica di Sant’Abbondio has a beautiful fresco series inside the apse and a university occupies what was once the cloister.

Lake Como’s shores feature a varied landscape of fields, forests, imposing rocks, charming villages facing the lake and magnificent mansions with beautiful gardens, particularly from Cernobbio to Gravedona and Bellagio. The following include only some of the innumerable sights:

- The middle of Lake Como, where its three branches come together, offers a spectacular view of the whole promontory of Bellagio, of the northern Grigna mountains overlooking Valsassina, and of the upper basin against the backdrop of the Alps if the skies are clear. It has the mildest climate and can be reached by boat.

www.taxiboat.it

Besides the glorious views of the Lecco branch of the lake, which turns southwards, there are natural springs, like Fiumelatte, described by Leonardo da Vinci, and the impressive Orrido di Bellano (gorge), situated not far from the Renaissance Villa Monastero at Varenna.

— Lake Como Institute

The Lake Como Institute is a center dedicated to higher education in implantology. Our teaching is based on scientific and clinical research, and we adopt an interdisciplinary teamwork approach to our work. Our clinic of excellence is based on established protocols and attention to detail, two factors that we regard as important for achieving a long-lasting result. With our work philosophy of seeking to achieve the best results, combined with our 30 years of clinical experience, we offer an innovative course that will allow you to provide better treatment to patients, who rely on your professionalism for their oral health.

www.lakecomoinstitute.com

— Prof. Tiziano Testori

Received his M.D. in 1981, his D.D.S. in 1984, and his specialty qualification in orthodontics in 1986, all from the University of Milan in Italy. He is currently head of the section of implantology and oral rehabilitation at the University of Milan’s dental clinic at I.R.C.C.S. Istituto Ortopedico Galeazzi. He is also a visiting professor at the College of Dentistry at New York University in the U.S., and an assistant clinical professor in the Department of Biomedical, Surgical and Dental Science at the University of Milan. Prof. Testori is a fellow at the Division of Oral and Maxillofacial Surgery and Advanced General Dentistry at the Miller School of Medicine, University of Miami, U.S. He is President elect (2017–2018) of the Italian Academy of Osseointegration and a past President (2007–2008) of the Italian Society of Oral Surgery and Implantology. He serves on the editorial board of the International Journal of Oral and Maxillofacial Implants, European Journal of Oral Implantology, and International Journal of Periodontics and Restorative Dentistry. He is the author of 104 peer-reviewed publications and four books on implantology.
Where to stay

All of the following hotels are located within a reasonable distance to the institute. If you would like to stay right on the lakefront, you might want to consider one of the following hotels:

**Albergo Terminus** dates back to the nineteenth century and has an enchanting view across Lake Como.
www.albergoterminus.it | 4-star

**Palace Hotel** is an historical art nouveau palace overlooking the lakefront.
w w w . p a l a c e h o t e l . i t | TripAdvisor Certificate of Excellence | 4-star

**Hotel Metropole Suisse** is located along the harbor with views of Lake Como and the Alps.
www.hotelmetropolesuisse.com
TripAdvisor | 4-star

Not on the lakefront, but also centrally located are the following hotels:

**Albergo Del Duca**, with an attractive setting on a pedestrian square, offers the hospitality of a family-run business.
www.albergodelduca.it | TripAdvisor Certificate of Excellence | 3-star

**Avenue Hotel** is located in a historical building and offers rooms with a colorful and sophisticated design.
www.avenuehotel.it | TripAdvisor Certificate of Excellence | 4-star

**Where to eat**

**I Tigli in Theoria**, situated in the old palazzo and adjunct to Theoria art gallery, provides a combination of gourmet cuisine, art and history.
www.theoriagallery.it | 1 Michelin star

**La Colombetta** is a cozy restaurant offering regional cuisine, with fish dishes as its specialty.
www.colombetta.it

**The Market Place** offers innovative and hip Italian cuisine.
www.themarketplace.it

**L’Antica Trattoria** serves seasonal, traditional Italian cuisine with specialty meat dishes cooked on the fire in view of guests.
www.lanticatrattoria.co.it

**Tira, molo e meseda** provides Italian cuisine, especially dishes from Lombardy (risotto, ossobuco).
www.tiramolameseda.it

**Capitan Drake Enoteca** is a small bar offering, New Zealand, Italian and Mediterranean cuisine.
www.facebook.com/Capitan-Drake-Enoteca

For more information visit:
www.lakecomo.it
BUCCOLINGUAL IMPLANT POSITION AS A CONSEQUENCE OF THE ABUTMENT SHAPE
— A paradigm shift

Dr. Fabio Scutellà & Prof. Tiziano Testori, Italy

Introduction

Implant rehabilitation in the esthetic zone, especially in the upper arch, has always posed a number of challenges. Although high survival rates for implants in this region are well established, the new concept of success that involves soft-tissue integration depends on several factors. The pink esthetic score, white esthetic score and implant esthetic score\(^1\)\(^\text{a}\) are indexes usually used to evaluate the esthetic success of an implant rehabilitation. Many factors play an important role in the esthetic outcome of any implant-supported restoration. Among some of the major keys to success are an awareness of the possibility of sudden resorption of the buccal plate (bundle bone), along with accurate 3-D implant planning and positioning.

Many publications have addressed the problem of buccal plate resorption\(^4\)\(^\text{–}^6\) and a recent literature review\(^6\) investigated the magnitude of dimensional changes in alveolar hard and soft tissue occurring for up to 12 months after tooth extraction in humans. The review found that, six months after tooth extraction, horizontal bone loss ranged from 29 to 63%, and vertical bone loss ranged from 11 to 22%.

If not promptly and correctly addressed, this phenomenon may compromise the final esthetic restorative result and even affect implant survival. Stability of the alveolar bone is paramount for maintaining the stability of the surrounding soft-tissue and guaranteeing a high level of esthetics over time.

Regarding implant positioning, several papers have offered guidelines regarding optimal 3-D positioning. However, since the most commonly used finishing line for restorative abutments is the horizontal type, guidelines for implant positioning have been conceived exclusively for that kind of geometry, but what if the abutment has a vertical rather than a horizontal finishing line?

The close relationship between the implant position, the abutment finishing line geometry, and the crown angles and contours is evident. The aim of this paper is, thus, to provide recommendations based on clinical evidence regarding the buccolingual implant position in the esthetic zone whenever a feather-edge (shoulderless) abutment is chosen. In such cases, new guidelines should be taken into consideration to ensure a better soft-tissue response.
Figs. 1a–c
(a) In the mesiodistal direction, the implant should be placed 1.5–2.0 mm from adjacent teeth and 3.0 mm from other implants.
(b) In the apicocoronal direction, the implant position should be 2–4 mm below the midfacial aspect of the free gingival margin.
(c) In the buccolingual direction, the implant should be placed palatal to the incisal edge.

Implant position in the esthetic zone

The optimal implant position and diameter for the esthetic zone have been investigated extensively, with many authors proposing different approaches. Buser et al., attempting to identify the ideal implant position, stated that, in the mesiodistal dimension, the implant should be positioned no closer than 1.0–1.5 mm to the adjacent root surface(s); between two adjacent implants, the mesiodistal distance should be within 3.0 mm. However, when applying platform-switching, placement of implants closer than 1.5 mm to the adjacent tooth has been deemed acceptable and capable of maintaining the bone peak.

In the apicocoronal direction, Tarnow’s assumption that “a maximum of 5 mm distance from the alveolar crest to the contact point is necessary to obtain correct soft tissue esthetics in natural teeth” has been verified also for implants. Choquet stressed the importance of the apicocoronal position for preserving papillae and found in a retrospective study that, when the distance between the contact point and the bone was 5 mm, the papilla was present in 100% of the cases. More properly, the platform of the implant should be located 2–4 mm below the midfacial aspect of the free gingival margin. Bashutski and Grunder agree that, in the buccopalatal dimension, the implant should be inserted to preserve at least 2 mm of buccal bone.

Factors affecting mucosal recession around single-tooth immediate implants have also been evaluated in a systematic review. The authors suggested that, in highly esthetic cases, undersized implants should be selected and placed at the cingulum to enhance soft- and hard-tissue growth (Figs. 1a–c).

Importance of the biotype

One prerequisite for managing implant restorations in the esthetic zone is the presence of thick soft tissue surrounding the implant. Gingival biotype is used to describe the thickness of the gingival tissue in the faciopalatal dimension and it is classified into two main categories: thin and thick. The difference between the two biotypes is defined by the visibility of a periodontal probe through the gingival tissue: If it is visible, the biotype will be regarded as thin; if it is not visible, it will be classified as thick.

A study performed by Kan et al. analyzed the dimension of the periimplant mucosa around two-stage maxillary anterior single-tooth implants in humans after one year of function. The study showed a greater
periimplant mucosal dimension in the presence of a thick periimplant biotype compared with a thin biotype.\textsuperscript{24}

It has also been suggested that a direct correlation exists between gingival biotype and susceptibility to gingival recession after surgical and restorative procedures. There is agreement in the literature regarding the influence of soft-tissue thickness on implant survival and long-term success. Fu et al. have proposed an approach to increasing soft-tissue thickness through the esthetic triad and PDP management, in which “P” is the implant position, “D” is the implant design and “P” is the prosthetic design.\textsuperscript{15} They indicate as key factors the use of platform-switched or parallel-walled implants, more palatal and apical implant placement, and concave prosthetic designs to reduce periimplant bone and soft-tissue loss.

Abutment shape and contour

Working on the abutment shape and contour has been one of the present authors’ main tasks in recent years, with a specific focus on the portion of the abutment located below the gingival level. The implant–abutment contours can be divided into two separate portions: the critical contour (the area of the implant abutment and crown located immediately apical to the gingival margin) and the subcritical contour (located apical to the critical contour). These two entities will exist provided that sufficient running room (defined as the distance from the implant neck to the free gingival margin) is present. Both the critical and the subcritical contours, if properly modulated and shaped, may be used to modify the esthetic outcome of the restoration.\textsuperscript{16}

As already summarized, to prevent buccal bone resorption, the literature suggests placing the implant at the cingulum of the future restoration\textsuperscript{14} or 1.5–2.0 mm palatal to the incisal margin of the central maxillary incisor.\textsuperscript{13} However, this approach can lead to problems that may jeopardize the esthetic outcome and the survival of the implant. For one thing, the crown contour created by such placement is substantially different from what exists in nature. In natural dentition, the tooth contour is basically formed by two separate entities: the emergence profile and the cervical contour.

Crown contour and emergence profile

The emergence profile is straight and corresponds to the part of the tooth emerging from the gingiva. The cervical contour is convex and located at the bottom of the gingival sulcus, corresponding to the area where the enamel overlaps the cementum at the cementoenamel junction (Figs. 2a & b). This convexity has been identified by Wheeler,\textsuperscript{17} who referred to it as the cervical ridge or cervical contour, and it has the function of holding the gingiva under definite tension.
The amount of this convexity is given by the value of the emergence angle (EA), which is defined as “the angle formed by the junction of a line through the long axis of the tooth, and a tangent drawn to the coronal of the tooth as it emerges from the sulcus”\textsuperscript{18,19} (Fig. 3). The EA was recently measured on natural maxillary extracted teeth\textsuperscript{19} and it was found to have a mean value of 15°.

In implant rehabilitation, the value of the EA and the convexity of the cervical contour are influenced by the buccopalatal position of the implant. The more palatal the implant placement, the greater the EA and cervical contour. Since the main task of the restorative dentist is always to make artificial crowns appear to be and function like a natural tooth, the artificially recreated angles and contours should be reproduced as closely as possible to nature.

Changing the implant position according to the abutment shape

For the past decade, the present authors have been working mainly with shoulderless abutments (both for implants and natural teeth). In doing so, it has become apparent that implant placement following the conventional guidelines often results in the fabrication of crowns with subcritical contours that differ greatly from those of a natural tooth. Figures 4a–g show an implant placed according to the conventional guidelines (i.e., at the cingulum of the future restoration) and restored using a shoulderless abutment. This resulted in a final restoration with an excessively convex EA that in the short term (one year) was already causing the surrounding soft tissue to react adversely.
Conventional guidelines for implant placement have been conceived and widely adopted for restorative abutments made with a horizontal preparation (shoulder or chamfer). However, as can be seen in Figure 5, placing an implant with a shoulderless abutment with a cingular (Fig. 5b) or palatal (Fig. 5c) position would lead to a crown with an EA and cervical contour far from the anatomical ones described by Wheeler and Du.17,20 However, when the implant is slightly more buccally positioned, as in Figure 5a, the EA and cervical contour look much more natural and physiological.

Currently, there is no evidence that an excessive artificial cervical contour is either beneficial or detrimental to soft-tissue stability, even though, according to the authors’ clinical experience, some adverse soft-tissue behavior has been noted when such crown contours are designed (Fig. 4f). However, increasing the convexity of the subcritical contour will create an undercut which will ultimately make cement removal, for a cemented crown restoration, much more difficult. Leaving residual cement inside the gingival sulcus is more likely to occur with restorations such as those illustrated in Figures 5b and c, thus placing the implant at great risk of periimplantitis and possible loss21 (Figs. 6a–c).

Whenever a shoulderless preparation is the geometry of choice, it is therefore advisable to change the position of the implant in a more vestibular direction, with the long axis corresponding to the incisal edge of the future restoration or of the adjacent teeth. This position will allow the creation of physiological crown profiles and angles closely resembling those of a natural tooth22 (Figs. 7–9).
Figs. 7a & b
(a) Failing tooth-supported PFM crown on tooth # 21.
(b) Pre-op radiographic control.

Figs. 8a–c
(a) Digital planning of the implant surgery.
(b) The surgical guide made accordingly to the 3-D planning.
(c) Guided implant positioning through the surgical guide.
Conclusion

Whenever a vertical (shoulderless) preparation has been chosen for the definitive implant abutment rather than a horizontal (shoulder or chamfer) preparation, changing the buccolingual position of the implant is recommended, especially in the esthetic zone. The long axis of the implant should correspond to the incisal edge of the future restoration or of the adjacent teeth, assuming that 1.5–2.0 mm of the buccal bone can be maintained. This is the only position that enables fabrication of a restorative crown with a cervical contour resembling, as close as possible, what nature originally provided. It also eliminates problems with cement removal, greatly reducing the incidence of iatrogenic periimplantitis and making hygienic procedures much easier. Scientific data substantiating these observations are lacking. Therefore, randomized and prospective clinical trials are necessary.

Editorial note: A list of references is available from the publisher.
www.dds.world

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Instruments

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Labanca Periosteal, for reflecting and retracting the mucoperiosteum.

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Location
The Steigmann Institute is located in the popular vacation town of Neckargemünd along the Neckar River. The town has more than a thousand years of history and many of the seventeenth-century buildings have retained their original charm. There is a lively cultural scene with a wide range of activities, and its proximity to Germany’s famous university town of Heidelberg is a great attraction.

www.lonelyplanet.com/germany/baden-wurttemberg/heidelberg

How to get there
Heidelberg is located one hour south of Frankfurt am Main. You can book a train ticket to Heidelberg on the national railway website: www.bahn.de. Alternatively, you could take a Lufthansa airport shuttle from Frankfurt Airport to Heidelberg. The bus route terminates at the Crowne Plaza Heidelberg City Centre hotel. Buses run every hour between 7:00 a.m. and 10:30 p.m. The meeting point for the shuttle is at Terminal 1, “THE SQUAIRE WEST”; next to the Deutsche Bahn long-distance trains (exit next to the REWE supermarket). Seats are guaranteed if they are reserved three days prior to your arrival. The exact bus schedule and information on reservation procedures are available at www.transcontinental-group.com.

What to see and do
The ruins of the once-grand Heidelberg Castle rise up on a rocky hilltop over the city. The castle holds the largest wine barrel in the world, standing seven meters high and eight and a half meters wide, and holding 220,000 liters of wine. In the castle grounds is the Deutsches Apotheken-Museum, which recounts the history of Western pharmacology.

Heidelberg Old Town is filled with architectural gems. Visit the town hall, the Old University and historic buildings like the 1592 Renaissance townhouse called “Knight St. George,” and enjoy the open-air cafés dotted along the market squares. The Old Town is also home to a third of all the shops in Heidelberg.

Untere Straße, a narrow cobblestone street that runs parallel to the river and the main pedestrian street in the Old Town, is filled with great bars, coffee shops and inexpensive eateries.

The Gothic Heiliggeistkirche, Heidelberg’s famous church, was at one time used by both Catholics and Protestants. The top of its spire offers a bird’s-eye view of the town.

According to tradition, Heidelberg’s philosophers and university professors would walk and talk along the Philosophers’ Way, which runs along the side of the Heiligenberg. It passes through the forest and commands panoramic views of the castle.

The university library, built in Wilhelminian style, holds superb collections, including rare books and prints in its exhibition room.

A boat trip down the Neckar offers a different view of the townscape.

www.weisse-flotte-heidelberg.de

— Steigmann Institute
The Steigmann Institute is a private teaching institution founded in 2006. Its mission is to teach dentists all aspects of dental implantology, with the focus on soft-tissue management and bone regeneration.

www.steigmann-institute.com

— Dr. Marius Steigmann
received his degree in dental medicine in 1987 and his Ph.D. in 2005, both from the University of Medicine and Pharmacy of Tîrgu Mureş in Romania. He is the founder and director of the Steigmann Institute.

www.steigmann-institute.com

STEIGMANN INSTITUTE
Neckargemünd
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**Europäische Hof Heidelberg**, overlooking the city gardens, is a luxury hotel dating back to 1865 in the heart of Heidelberg’s historic centre.

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**Heidelberg Marriott Hotel** looks out over the beautiful Neckar River and is close to the university and a short distance from the Old Town.

[www.marriott.com](http://www.marriott.com)

**Leonardo Hotel Heidelberg City Center**, set along a cobblestone square, is a relaxed hotel with a modern façade and a 15-minute walk from the Heidelberg train station.


**Hotel NH Heidelberg** is a 12-minute walk from Heidelberg train station, two kilometers from the Church of the Holy Spirit and less than three kilometers from Heidelberg Castle.


**Where to eat**

**Weisser Bock** offers regional specialties with a twist.

[www.weisserbock.de](http://www.weisserbock.de)

**Heidelberger Kulturbrauerei** offers homebrewed beer and regional specialties in an Old Town hotel.

[www.heidelberger-kulturbrauerei.de](http://www.heidelberger-kulturbrauerei.de)

**zum Roten Ochsen**, built in 1703, has been owned by the Spengel family for more than 170 years. Enjoy good German-style food in this historical building, with music from the piano man.

[www.roterochsen.de](http://www.roterochsen.de)

**Weisses Rössel Cavallino Bianco** is a small Italian restaurant located in the center of Heidelberg.

[www.weissesroessel.de](http://www.weissesroessel.de)

For more information visit:

[www.tourism-heidelberg.com](http://www.tourism-heidelberg.com)

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**Where to stay**

Both in the heart of the city and within walking distance of the Old Town, Heidelberg University and Heidelberg Castle are the following:

**Crowne Plaza Heidelberg City Centre** is a hotel providing centrally located stylish accommodation.

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Profile | Advanced Implant Esthetics | issue 2017—67
Clinically, it is a tremendous challenge to create natural gingival esthetics after immediate or delayed implant placement. Stability of the soft tissue during implant surgery is of major importance for the implant site and adjacent teeth. For cases in which only the tooth is compromised and not the soft-tissue or osseous form, a flapless surgery can be performed. In cases of localized horizontal or vertical deficiency, dehiscence or fenestration, another approach is necessary. From a prosthetic prospective, the soft-tissue architecture around implants has to be similar or close to that of the natural tooth. While the dental laboratory can deliver the best functional and esthetic work, it will be harmonious only if the soft-tissue dimensions are maintained or developed surgically or with the help of the prosthetic reconstruction. Single-implant placement has proved to be more predictable than multiple-implant placement. In the case of multiple implants and delayed loading, it is possible to form a soft-tissue profile with provisionals or proceed directly to the final reconstruction. This is done with the help of a wax-up on the final metal frame to control the pressure of the soft-tissue intraorally.
Soft-tissue management for bone augmentation

Different tissue biotypes react differently to surgical trauma. For this reason, we have adapted the surgical approach to the biotype (tissue thickness) specific to each patient and the location in the oral cavity. The tissue thickness dictates the way it is manipulated for high-volume augmentation. Thick biotypes can be managed in a conventional manner. However, thin biotypes require new surgical approaches with specific instruments. This course will describe step by step the gain of soft-tissue for tension-free closure even in cases of reduced soft-tissue thickness.

The course will define predictable soft-tissue manipulation around implants according to soft-tissue biotype. Learning from our clinical experience in soft-tissue manipulation, we can adapt soft-tissue surgery. We need to graft more, to manipulate the soft tissue, to treat each particular case.

There is little data in the literature on adapting surgery according to soft-tissue thickness. Most articles describe the same kind of surgery for all cases, with no distinction between biotypes. With this in mind, we have to adjust surgery to the tissue conditions for better soft-tissue closure in cases of grafting and for better esthetics. This means individualized flap design for every tissue type. The next step will be the development of instruments, but more than that, of implant surfaces and biomaterials that address not only the bone but also the soft tissue. Adapting therapy to soft-tissue biotype is changing the way we approach implant dentistry.

Soft-tissue management for the esthetic zone

Function and esthetics with implant treatment depend on case selection, surgical planning and prosthetic reconstruction. Each of these has evolved dramatically over the years. The latest implant designs increasingly help the clinician in achieving these goals in the esthetic zone. Incorrect flap design leads to dramatic failure in this sensitive soft-tissue zone. The course will address the requirements for modern flap design according to the necessary amount of bone and soft-tissue regeneration.

Prosthetic soft-tissue development in implant dentistry

The main purpose of this course is to explain, demonstrate and teach soft-tissue development around implants with the help of prosthetic components in fixed, single- and multiple-implant placement.

The course will cover abutment design for ideal soft-tissue support, pontic design for esthetic soft-tissue development, emergence profile design for the crown and abutment, different wax-up modalities, esthetic try-ins for different therapeutic phases, crown margin definition, gingival management with temporaries, and mock-ups.

Soft-tissue complications and full-arch restoration

With the increasing number of implants being placed in the esthetic zone according to immediate or delayed protocols, we face soft-tissue complications like recession of the soft-tissue and papillary loss. There are no predictable methods documented in the literature regarding how to increase the soft-tissue height for the papillae or correct recessions around implants.

The course will demonstrate individualized approaches to correct papillary loss in the esthetic zone using modern flap design techniques. Furthermore, increasing soft-tissue thickness and moving the soft tissue coronally after recession around implants through surgery and prosthetic methods will be described.

Soft-tissue management: Vertical augmentation

Vertical bone loss represents a major surgical challenge in the implant treatment of the posterior mandible, owing to anatomical factors and technical difficulties. Proper management of the soft-tissue is crucial for success of any regenerative procedure: A complete and stable closure of the flaps during healing is essential to prevent contamination and infection and allow for undisturbed graft healing and incorporation. This prerequisite can be accomplished only if buccal and lingual flaps are sufficiently released, in order to obtain a passive coverage of the augmented area, stabilizing it with tension-free sutures. In the posterior mandible in particular, the use of conventional periosteal incisions is not always sufficient for a proper buccal flap passivation, often being limited by anatomical factors.

Over time, bone augmentation has moved from highly specialized clinics into the dental office. With the help of modern grafting material, the augmentation volume in the dental office has increased year by year. However, the main issue remains soft-tissue closure for high-volume augmentation, especially in the posterior mandible and posterior maxilla. We have developed special flap designs and suturing techniques specific to location to address this ongoing problem of soft-tissue management. The participants will learn about and practice soft-tissue closure according to location.
CLINICAL MASTERS™ — TESTIMONIALS

For this new edition of the Clinical Masters™ magazine, this is what the participants had to say about their experience of the programs and presenters this year.

ENDODONTICS
—June 2016, Athens, Greece

The course was really impressive and informative.
Dr. Mohammad Mortzavi (Iran)

Heidelberg was a very nice experience. Dr. Marius Steigmann was an inspiration, and I learned a lot of new techniques in flap design, suturing and implant placement. For me, this was a revelation and I’m thrilled to have benefitted from this experience.

Today, two days after the completion of the course, I placed two implants in two different patients, and I used Steigmann’s technique when performing guided bone regeneration in the esthetic zone. I’m very excited and inspired.
Dr. Karleif Taksdal (Norway)

ADVANCED IMPLANT ESTHETICS
—October 2016, Heidelberg, Germany

I was completely satisfied and gained a lot of knowledge. The theoretical part was quite understandable and perfectly fitted with the hands-on practice afterwards.
Dr. Dimitra Tsangaratou (Greece)

Dr. Didier Dietschi’s presentations were amazing and I would recommend the course to my colleagues.
Dr. Andrea Ferrazzi (Italy)

Good proportional combination of theory and practical exercises. Very good organization overall.
Dr. Curd Bohlen (Netherlands)

ESTHETIC AND RESTORATIVE DENTISTRY
—February 2016, Geneva, Switzerland

Very organized course in a really welcoming environment, perfect for learning. Dr. Didier Dietschi’s presentations were amazing and offered great content.
Dr. Zahira Mendoza (U.S.)

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It was more than I expected! Dr. Stavros Pelekanos is probably the best lecturer that I've met. He shared everything with us and was totally available to help with the hands-on practice when we needed his help.

Dr. Francisca Micola (Romania)

Dr. Stavros Pelekanos was a wealth of knowledge. His approachable personality and eagerness to answer questions made his session really enjoyable and informative. I am looking forward to learning with him again.

Dr. Ibrahim al-Salti (Australia)

Very satisfied. Exceeded my expectations. Would definitely recommend to others.

Dr. Dominic Gordon (Poland/Jamaica)

The program was much better than I expected. Well done!

Dr. Nektarios Tsoromokos (Great Britain)

It was a really helpful experience which taught me a lot; a really good course. The hands-on practice with the microscope and videos Dr. Domenico Massironi showed us was my favorite part.

Dr. Francisca Micola (Romania)

As a new practicing dentist, this course was a great opportunity to learn more and improve my learning and practice skills with great teachers who were greatly supportive. It also helped me to have more self-confidence. I am very much looking forward to the next session.

Dr. Nazanin Sharifsamani (Hungary)

The way the course material was delivered was excellent. Dr. Stavros Pelekanos and his team were really efficient in delivering the course content and made sure everyone got the help they needed.

Dr. Mehmet Kalcay (Turkey)

The way the microscope training was delivered was the highlight of the course for me. Dr. Domenico Massironi’s presentation was done with utmost effectiveness and knowledge, addressing problems which can arise in the daily practice.

Dr. Mehmet Kalcay (Turkey)

ESTHETIC AND RESTORATIVE DENTISTRY
—October 2016, Milan, Italy
BORG CENTER
— Barcelona, Spain

Location
The BORG Center is located in Viladecans, near Barcelona, a city with a rich cultural heritage and known for its Catalan culture and distinctive architecture, including several UNESCO World Heritage Sites. It is a popular tourist destination and boasts one of the best beaches in the world.

www.lonelyplanet.com/spain/barcelona

— The BORG Center, or Barcelona Osseointegration Research Group, is focused on research in oral implantology and its various clinical applications. The group was established in early 2005 when four specialists in oral implantology developed a common protocol with good results to demonstrate that in cases in which the diameter of the abutment is smaller than the diameter of the implant bone loss is ostensibly lower. This research, titled “Benefits of an implant platform modification technique to reduce crestal bone resorption,” was published in Implant Dentistry in 2006. Since then, they have lectured worldwide and have produced and collaborated on a huge number of publications. We enjoy our work and are eager to share it with you at the BORG Center, where we have been meeting, discussing, teaching and learning since 2012. We hope to see you soon.

www.borgbcn.com

How to get there
From Barcelona Airport: The center is an 11-to 16-minute drive from the airport by taxi.

From Viladecans: Two buses depart from the train station every 20 minutes approximately, the VB1 and the VB2. Ask the bus driver to stop at the Ángel Arañó/Dos de Mayo bus stop. The center is located two streets down from the bus stop.

What to see and do
Take a stroll down La Rambla, the world-famous boulevard stretching about 1.2 kilometers all the way to the Mediterranean Sea.

Wander through the Barri Gòtic (Gothic quarter), the center of the old city.

Visit the Museu Nacional d’Art de Catalunya (Catalonia national art museum). See Antoni Gaudí’s many masterpieces, seven of which are on the UNESCO World Heritage List, the most famous probably being the Sagrada Familia basilica and the beautiful Park Güell, demonstrating perfect harmony of nature and architecture.

A UNESCO World Heritage Site, Palau de la Música Catalana is a concert hall exemplary of art nouveau architecture. Some of the most important craftsmen and artists of the time were involved in its creation.

Housed in five Catalan-Gothic palazzos dating from the thirteenth and fourteenth centuries, the Museu Picasso is a museum of the artist’s formative years.

El Paral·lel, a vibrant theater district, is your destination for all entertainment and music.

A walk up Montjuïc mountain offers spectacular views.

For a day trip, take an exhilarating hot-air balloon flight over Catalonia with panoramic views of the Pyrénées, Montserrat, Montseny and the Mediterranean Sea.

Previous participants have enjoyed a visit to the FC Barcelona Museum and attending a game as well.

www.fcbarcelona.com

Where to stay
AC Hotel Gavà Mar has a seafront location in a quiet area close to the BORG Center, but a little far from the center of Barcelona.

www.marriott.com | TripAdvisor Certificate of Excellence | 4-star

— Dr. Xavier Vela Nebot obtained his degree in dentistry and medicine from the University of Barcelona. He has a private practice in Barcelona dedicated to implantology and prosthetics. He is a co-founder of the BORG Center, conducts research and regularly publishes articles in leading international journals. He has lectured at prominent national and international symposiums.

— Dr. Xavier Rodríguez Ciurana obtained his degree in medicine and surgery from the University of Barcelona. He has a private practice in Barcelona. He is an associate professor at the European University of Madrid in Spain and is co-founder of the BORG Center.

Location
The BORG Center is located in Viladecans, near Barcelona, a city with a rich cultural heritage and known for its Catalan culture and distinctive architecture, including several UNESCO World Heritage Sites. It is a popular tourist destination and boasts one of the best beaches in the world.

www.lonelyplanet.com/spain/barcelona

— The BORG Center, or Barcelona Osseointegration Research Group, is focused on research in oral implantology and its various clinical applications. The group was established in early 2005 when four specialists in oral implantology developed a common protocol with good results to demonstrate that in cases in which the diameter of the abutment is smaller than the diameter of the implant bone loss is ostensibly lower. This research, titled “Benefits of an implant platform modification technique to reduce crestal bone resorption,” was published in Implant Dentistry in 2006. Since then, they have lectured worldwide and have produced and collaborated on a huge number of publications. We enjoy our work and are eager to share it with you at the BORG Center, where we have been meeting, discussing, teaching and learning since 2012. We hope to see you soon.

www.borgbcn.com

How to get there
From Barcelona Airport: The center is an 11-to 16-minute drive from the airport by taxi.

From Viladecans: Two buses depart from the train station every 20 minutes approximately, the VB1 and the VB2. Ask the bus driver to stop at the Ángel Arañó/Dos de Mayo bus stop. The center is located two streets down from the bus stop.

What to see and do
Take a stroll down La Rambla, the world-famous boulevard stretching about 1.2 kilometers all the way to the Mediterranean Sea.

Wander through the Barri Gòtic (Gothic quarter), the center of the old city.

Visit the Museu Nacional d’Art de Catalunya (Catalonia national art museum). See Antoni Gaudí’s many masterpieces, seven of which are on the UNESCO World Heritage List, the most famous probably being the Sagrada Familia basilica and the beautiful Park Güell, demonstrating perfect harmony of nature and architecture.

A UNESCO World Heritage Site, Palau de la Música Catalana is a concert hall exemplary of art nouveau architecture. Some of the most important craftsmen and artists of the time were involved in its creation.

Housed in five Catalan-Gothic palazzos dating from the thirteenth and fourteenth centuries, the Museu Picasso is a museum of the artist’s formative years.

El Paral·lel, a vibrant theater district, is your destination for all entertainment and music.

A walk up Montjuïc mountain offers spectacular views.

For a day trip, take an exhilarating hot-air balloon flight over Catalonia with panoramic views of the Pyrénées, Montserrat, Montseny and the Mediterranean Sea.

Previous participants have enjoyed a visit to the FC Barcelona Museum and attending a game as well.

www.fcbarcelona.com

Where to stay
AC Hotel Gavà Mar has a seafront location in a quiet area close to the BORG Center, but a little far from the center of Barcelona.

www.marriott.com | TripAdvisor Certificate of Excellence | 4-star

— Dr. Xavier Vela Nebot obtained his degree in dentistry and medicine from the University of Barcelona. He has a private practice in Barcelona dedicated to implantology and prosthetics. He is a co-founder of the BORG Center, conducts research and regularly publishes articles in leading international journals. He has lectured at prominent national and international symposiums.

— Dr. Xavier Rodríguez Ciurana obtained his degree in medicine and surgery from the University of Barcelona. He has a private practice in Barcelona. He is an associate professor at the European University of Madrid in Spain and is co-founder of the BORG Center.
Majestic Hotel & Spa offers luxurious accommodation in a neoclassical building on Passeig de Gràcia, near shopping areas in the center of Barcelona.
www.hotelmajestic.es | TripAdvisor Certificate of Excellence | 5-star

W Barcelona, right on the beach and 30 minutes from the BORG Center, commands fantastic views over Barcelona and has a magnificent design.
www.w-barcelona.com | TripAdvisor Certificate of Excellence | 5-star

Hotel 1898, on La Rambla, is housed in a restored colonial-style nineteenth-century building.
www.hotel1898.com | TripAdvisor Certificate of Excellence | 4-star

Sidorme Viladecans is quite new and a 5-minute taxi ride to the BORG Center.
www.sidorme.com

Where to eat
ABaC Restaurant serves Mediterranean/Spanish fusion cuisine.
www.abacbarcelona.com | 2 Michelin stars

Freixa Tradició is a very small and old restaurant offering traditional Catalan food.
www.freixatradicio.com

Ziryab Fusion Tapas Bar serves Spanish cuisine with a Middle Eastern twist.
www.ziryab.es

La Taula is a cozy restaurant providing international cuisine, as well as home favorites.
www.lataula.com

Silvestre is an elegant restaurant that serves international and traditional cuisine with the option of half-portions for every dish.
www.restaurantesilvestre.com

Tast-Ller is a small, exclusive Mediterranean restaurant located down a side alley.
www.tast-ller.com

For more information visit:
www.barcelonaturisme.com
INTERVIEW

with — Drs. Rodríguez Ciurana & Vela Nebot

Q: Drs. Vela and Rodríguez, you refer to your newest XA abutments, developed with Sweden & Martina, as paradigm shifting. Could you please explain what has led you to this point?

A: The main concern of the clinician is to minimize the inexorable bone resorption and apical migration of the soft tissue that involves multiple problems, including esthetics and the survival of the restoration in the medium and long term owing to periimplantitis. We consider that our approach is a paradigm shift because using XA abutments and a suitable rehabilitation protocol not only avoids apical migration, but also promotes coronal migration of bone and soft tissue over time. This means esthetic improvements, as well as protection against periimplantitis.

Q: And how is that possible?

A: Basically, the protocol we apply has been improved and updated to achieve the final objective of the stabilization of the peri-implant tissue. The evolution of the concept reflects different phases of our work over the years. The BORG Center was established in 2012, and the BORG members began their clinical research in 2004, at which time we followed the standard protocol: an implant without platform switching (PS), an abutment with an anatomical profile imitating the shape of the tooth (divergent shape) and a protocol entailing multiple disconnections. However, with this approach, the tissue tended to apical migration.

Q: Apical migration means gingival recession. Did this not compromise the esthetics?

A: Of course. In fact, gingival recessions gave rise not only to esthetic risk but also to the risk of periimplantitis. We therefore evolved our protocol to an implant with PS, an abutment with an anatomical profile (divergent) and multiple disconnections. The introduction of the PS concept allowed us to reduce periimplant bone resorption...
by improving tissue stability. This concept allowed us to understand the relationship between the shape of the abutment and the stabilization of the tissue by the circular fibers of the connective tissue.

Q: You have published high-impact literature on platform switching since 2006.
A: Yes. We have preferred platform-switched restorations since we began to understand the clinical results due to the biology of the tissue. The same understanding led us to the use of straight abutments instead of divergent ones because straight abutments allowed us to increase the thickness of the tissue and improve the results in a predictable manner. We thus improved our protocol to an implant with PS, an abutment with a straight profile and multiple disconnections.

Q: But, of course, the multiple disconnections are also a concern.
A: That is true. As we have proved in many articles, every disconnection and reconnection of the tissue compromises the tissue stability, and the body response is further apical migration. To avoid this issue, we advanced to our latest rehabilitation protocol: an XA abutment with a conical profile and microthreads at the base and zero disconnections or reconnections on a platform-switched implant. The use of XA abutments for threaded and cemented prostheses allows us not only to stabilize the tissue, but also to promote its coronal migration over time.

Q: So, from divergent to straight and finally to convergent abutments?
A: The conicity of these convergent abutments promotes the coronal migration of the tissue in the short and long term. The absence of margin on our marginless abutments allows us to avoid the disconnections and reconnections associated with the classical protocol of rehabilitation. No disconnections or reconnections of the abutments means no tissue destabilization. For the first time, the abutments are a guide for the connective tissue and periosteum, which in turn promotes bone growth. That is why we call it a paradigm shift.

Q: And what is the function of the microthreads?
A: Ok, here are some things that biology has taught us over the last few years. Fibroblasts and myofibroblasts are paramount to the production of the collagen fibers that surround the restoration, and science has proved that the presence of microthreads at the base of the abutment promotes the alignment of both fibroblasts and myofibroblasts. This alignment encourages the acceleration and increase of the production of collagen, resulting in collagen fibers surrounding the restoration with more predictability through the microthreads. We are talking about contact guidance, a crucial factor in biological sealing.

Q: And what about compatibility with other clinical protocols?
A: Absolutely. That is something we had been working on for a long time until we finally designed both screw-retained and cemented abutments compatible with various working protocols (screw-retained prosthesis or cemented prosthesis) for all clinical situations (anterior or posterior region, immediate or delayed loading). The apparent extreme simplicity is due to multiple biological criteria in seeking the best possible response of tissue. Its use is simple and facilitates the work of the clinician and laboratory technician. We believe it is a genuine game-changer.

**XA abutments and a suitable rehabilitation protocol not only avoids apical migration, but also promotes coronal migration of bone and soft tissue over time.**
March will mark the start of a series of workshops organized by MIS Implants Technologies that will focus on various topics and be led by world-famous practitioners in different parts of the world. The offering includes courses on basic implantology in Germany and China, a workshop on the MULTIFIX solution in Portugal and a course taught in Turkey on the fundamentals of aesthetic smile design.

Dr. Eric Van Dooren, a key opinion leader in implant dentistry and the co-developer of MIS’s V3 implant, will be teaching a course on the VCONCEPT in his training center in Antwerp in Belgium, where he has been conducting courses and workshops for the past 12 years. He explained that the purpose of the center is to offer courses with a focus on periodontology, prosthetics and implantology that give participants the opportunity to witness live surgeries. Participants enjoy high-tech audio-visual and are able to take advantage of live streaming.

The latest series of courses will focus on the integration between prosthetic and surgical implant treatment concepts and will highlight soft-tissue management in the aesthetic zone, both through theoretical material and a live surgery demonstration.

Van Dooren added: “Since we are focusing on new concepts and trends, the VCONCEPT really helps us in explaining that modern implant dentistry is changing compared to a few years ago.” Van Dooren also incorporates the MIS MGUIDE guided surgery solution in the curriculum to show students that guided surgery today is really a very predictable tool to obtain excellent functional and aesthetic results. Furthermore, course participants will plan a case using the MIS MSOFT guided surgery planning software.

Participants who have taken Van Dooren’s courses in previous years have provided positive and enthusiastic feedback. The hands-on experience with the MGUIDE system has led to a great response from dentists, who have begun using these methods in their practices since attending the course.

Van Dooren plans to continue lecturing on these topics and incorporating the V3 implant and MIS digital dentistry tools and methods in future courses at the training center.

More information on MIS global educational events can be found at www.mis-implants.com/education/MTC.aspx.
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