Dentistry and dental technology delivered with passion

By Ivoclar Vivadent AG

About a thousand dentists and dental technicians from 47 countries attended the 3rd International Expert Symposium hosted by Ivoclar Vivadent in Spain’s capital Madrid. Thirteen renowned opinion leaders from academic institutions, dental practices and laboratories provided insights into the latest advancements in the field of “Modern restorative dentistry: Technology and esthetics.”

Robert Ganley, CEO of Ivoclar Vivadent AG, underlined his desire to advance dentistry through intense dialogue. Sonia Gómara, Managing Director of the company’s subsidiary for the Iberian Peninsula, was delighted to provide the attendees with an opportunity to get to know the work of some of the world’s most renowned dental experts.

Trending high: minimally invasive procedures

Several speeches revolved around minimally invasive treatment options. Dentists talked about outcome-oriented approaches to preparation and impression-taking methods using trays and intraoral scanning devices. Dental technicians discussed the effects of limited oral space on their choice of materials and procedures. Adhesive cementation came to the fore.

Opening speech by Robert Ganley, CEO Ivoclar Vivadent AG
Most sugar-free chewing gums in Middle East lack clear labelling on xylitol

By DTI

KUWAIT CITY, KUWAIT: The majority of sugar-free chewing gums containing xylitol that are sold in the Co-op eration Council for the Arab States of the Gulf (GCC) countries do not have clear labelling regarding xylitol content, a new study has found.

According to the researchers, the product labels mention neither the recommended daily dose of xylitol for caries prevention nor the actual amount of xylitol the chewing gum contains. They also found that the majority of gums do not provide the necessary amount of xylitol for caries prevention.

The aim of the study, conducted by Dr. Abir al-Anzi, assistant professor at the Department of Developmental and Preventive Sciences of the Faculty of Dentistry at Kuwait University and her colleagues, was to identify sugar-free chewing gums available in the GCC region that provide the recommended daily dose of xylitol for the prevention of dental caries.

The daily dose recommended by various dental associations around the world ranges between 3 and 10 g of xylitol, available in the form of gums or lozenges, three to seven times a day. Taken regularly, xylitol can contribute to the prevention of dental caries.

The researchers examined the concentration of xylitol in 21 brands of chewing gums (from Kuwait, Bahrain, Qatar, Saudi Arabia, the UAE and Oman), using a special enzymatic kit. They found a xylitol content of less than 0.15 g per piece of gum in nine products, of 0.3–0.5 g in seven and of more than 0.5 g in five products. According to the scientists, the majority of gums analysed did not provide the necessary amount of xylitol for caries prevention.

Moreover, most of the products tested lacked accurate labelling regarding their xylitol content. Of the 21 brands, only one clearly mentioned the amount of xylitol in grams on its label. Twelve products stated the percentage of xylitol (3.5–35 per cent). The rest did not specify the amount.

“Looking at the percentage, it is not easy for the consumer to calculate the actual amount of xylitol in grams. A consumer should be informed of the contents and the amount used in the product so that he can make an informed decision,” al-Anzi told the Middle Eastern newspaper Muscat Daily.

The researchers have therefore recommended clear, accurate labelling of all xylitol-containing gums sold in the GCC countries and advised dental associations in the Middle Eastern region to adopt the general recommendations for labelling of current xylitol products.

The study, titled “Xylitol chewing gums on the market. Do they prevent caries?”, was published online in the Oral Health and Preventive Dentistry journal on 12 May.

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Esthetic replacement of anterior class IV restorations

By Dr. Paulo Monteiro, Portugal

Initial Situation
Female patient 30 years old. Patient was not satisfied with current anterior restorations (maxillary central incisors). Patient also expressed dissatisfaction with shade and surface texture.

Challenge
Creating smooth and natural-looking restorations for patients who demand the highest level of esthetics can be challenging. Using materials that mimic shade and opacity of dentin and enamel is critical.

Fig. 1: Initial situation: patient was not satisfied with current restorations.

Fig. 2: Teeth were etched after preparation using Single Bond Universal Etchant.

Fig. 4: A silicone matrix was used to create the palatal wall with Filtek™ Z350XT Universal Restorative, shade CT.

Fig. 5: The interproximal enamel layer was built with Filtek™ 350XT Universal Restorative, shade A3E and light cured with Elipar™ DeepCure-S LED Curing Light. For the incisal halo, Filtek™ Z350XT Flowable Restorative, shade W was used.

Fig. 6: Application of the dentin layer using Filtek™ Z350XT Universal Restorative, shade A1D. For volume control the Misura instrument (LM Arte by Style Italiano) was used to leave a 0.5mm space for the facial enamel.

Fig. 7: Creation of mamelons and application of a small portion of Filtek™ Z350XT Universal Restorative, shade CT between the dentin layer and incisal halo to enhance translucency at the incisal edge.

Fig. 8: The final enamel layer of Filtek™ Z350XT Universal Restorative, shade A3E was applied and light cured.

Fig. 9: Sof-Lex™ Discs are used to define the outline of the restoration and create secondary anatomy.

Fig. 10: Pre-polishing of restoration with Sof-Lex™ Pre-Polishing Spiral.

Fig. 11: Polishing with Sof-Lex™ Diamond Polishing Spiral to create a final smooth and high-gloss polish.

Fig. 12: Final restoration is very natural-looking.

Legacy of Innovation Continues for 3M Oral Care
The Anaheim Group acknowledges 3M’s contributions to the dental industry for an 11th consecutive year

By 3M ESPE

With 95 innovations launched in 2015, 3M’s designation as the Most Innovative Company in the Dental Industry was earned through a relentless commitment to science-based innovation. Honored with its 11th consecutive win, 3M’s rank on The Anaheim Group’s “Innovation Index” has once again placed the company in the top spot with 25 percent more innovations than any other dental company.

The Anaheim Group’s index combines the number of EC/WIPO patents, U.S. patents and U.S. 510(k) clearances, and is the dental industry’s best measure of overall technical strength and capability. With its commitment to improving lives through science, 3M continues to improve on its own innovations. The maker of countless award-winning products under such brands as Filtek™, RelyX™ and Scotchbond™, 3M’s breakthrough innovations are often sourced from within its own walls. Interdisciplinary collaborations have inspired many of 3M’s greatest innovations in the dental industry, including pioneering the use of zirconia restorative materials and introducing nanotechnology for enhanced esthetics and strength in universal restorative material.

“Receiving the Most Innovative honor for more than a decade is a testament to what 3M excels at — applying science to help keep people healthy,” said James D. Ingebrand, vice president & general manager, Oral Care Solutions Division of 3M. “Every day, we explore new ways to impact lives, as we consistently pursue new products and process innovations with a focus on promoting lifelong oral health for all.

To learn more about 3M, visit www.3MGulf.com/espe.
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Red & White Aesthetic Harmony

By Shofu

Beautifil II Enamel and GINGIVA from Shofu are developed as a complementary line extension of Beautifil II to create life-like direct resin restorations. A special one-push syringe ensures controlled dispensing of the smooth and creamy material that is easy to sculpt into fine details and recreate the surface textures seen in natural teeth & gum.

Inclusion specially modified multi-functional organic fillers and nano-fillers impart Beautifil II Enamel and Gingiva with exceptional handling characteristics, longer working time, high abrasion/wear resistance, stable shades, effortless and superior polish with sustained polish retention on the restoration surface.

Beautifil II Enamel is available in 4 naturally translucent and opalescent shades that facilitate life-like shade reproduction and value adjustment in the final restoration to meet individual clinical needs.

Beautifil II GINGIVA is available in 5 natural shade variations of pink to easily mimic patient’s individual gingiva while restoring areas with reeded or missing gums/papilla, cervical defects, root caries/erosion, exposed PFM margins and abutments to achieve red and white aesthetic harmony.

TRIOS scans most accurate and consistent

3Shape’s intra-oral scanner TRIOS delivered the most accurate results when compared with other leading scanning systems in a recent study. (Photograph: 3Shape)

By DTI

BALTIMORE, USA/FREIBURG, Germany: A new study evaluating the accuracy of six leading intra-oral scanners in the dental market has found 3Shape’s TRIOS to be both the most accurate and consistent performer of the scanners tested.

The study, which was conducted jointly by the University of Maryland in Baltimore and the University of Freiburg in Germany, aimed to compare the ability of intra-oral scanning systems of different brands to accurately scan a single molar abutment in vitro. The analyses included the following six scanners: iTero (Align Technology), 3M True Definition (3M ESPE), PlanScan (Planmeca), CS 3500 (Carestream Dental), TRIOS and CEREC AC Omnicam (Sirona Dental Systems).

In order to compare the accuracy of each system, the investigators used an industrial grade, highly accurate reference scanner to create a digital reference dataset for an acrylic dental model. A single trained, experienced dentist then scanned the acryl model on three separate occasions using each of the six intra-oral scanning systems.

Trueness (accuracy) was defined by superimposing the three digital datasets over the reference dataset, with 3D comparisons then performed. Precision (consistency) was defined by superimposing each dataset over the other two datasets obtained and then evaluating for 3D deviations.

Of the 18 datasets analysed, the smallest deviations for the trueness measurements (+ standard deviation) between the reference dataset and the various intra-oral scanner datasets were obtained from TRIOS (6.9 ± 0.9 µm), followed by CS 3500 (9.8 ± 1.8 µm), iTero (9.8 ± 4.5 µm), 3M True Definition (10.3 ± 0.9 µm), PlanScan (30.9 ± 10.8 µm) and CEREC AC Omnicam (45.2 ± 17.1 µm).

As for precision values, here too 3Shape’s TRIOS was identified as the most accurate (4.5 ± 0.9 µm), followed by 3M True Definition (6.1 ± 1.0 µm), iTero (7.0 ± 1.4 µm), CS 3500 (7.2 ± 1.7 µm), CEREC AC Omnicam (36.2 ± 4.0 µm), and PlanScan (38.4 ± 5.0 µm).

“The TRIOS scanning technology, in combination with the wand design, seems to be beneficial for capturing high quality datasets with excellent trueness and precision values,” the investigators said.

However, the results obtained do not provide any information about the quality of a fabricated restoration based on these digital datasets, the researchers stressed. Moreover, in an in vivo design, the outcomes might be different owing to the presence of blood, saliva, and patient movements, they concluded.

SIDEXIS 4 update gives users many new functions and technical improvements

By Dentsply Sirona

Improving performance, integrating SICAT Suite or connecting an external camera: the software update gives users many new functions. With a new SQL server, compatibility with Windows 10 and other operating systems, the technical functions have also been expanded.

At the end of last year, the SIDEXIS 4 imaging software received the internationally renowned Red Dot Award Best of the Best in the “Communication Design” category for its outstanding user friendliness. The new 4.1.3 software update from Dentsply Sirona Imaging now combines additional functions for users with technical modifications that further optimize the practice workflow. Especially in combination with the ORTHOPHOS SL, the SIDEXIS 4 software forms a highly functional and efficient unit. The update also offers advantages for networking with practice management systems and implantology planning or orthodontic analysis programs.

New functions make it easier to use

The software update now makes it possible to connect intraoral cameras from other manufacturers, as well as via Windows Driver Model. When imported images without an imaging date are provided, the user can enter the information manually to have the images displayed chronologically in the timeline. The update also provides additional image information: The anatomical region and external image type are displayed for every image. To facilitate work for users, it will now be possible to use copy and paste to insert images into another application, such as image processing or patient management. The program also allows images to be moved retroactively to allocate them to another patient.

No more switching between SICAT Suite applications

The integration of the SICAT Suite software package with the SICAT Function and SICAT AIR applications into the SIDEXIS 4 interface represents a considerable added value for users. SICAT Function allows the three-dimensional visualization of jaw movements for the diagnosis and treatment of cranio-mandibular dysfunction (CMD). Users can use SICAT Air to order protrusion appliances to treat obstructive sleep apnea. Planning data created by the two software applications are displayed in the timeline and from there can be opened again directly in the SICAT Suite. The package is integrated into the phase bar of SIDEXIS 4 with its own “Plan&Treat Phase.” The applications can therefore be selected directly and treatment planning can be started. The loading times for the required 3D image data were reduced by 50 percent.

SIDEXIS 4 – state-of-the-art technology

The technical aspects of the SIDEXIS 4.1.3 software version were expanded to Windows 10 and other operating systems. Instead of the previously used SQL Server 2008 R2 database managing system, the SQL Server 2014 is now installed both during initial installation of SIDEXIS 4 and in the case of an update.

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Esthetic replacement of maxillary premolar with immediate implant placement and metal ceramic crown over CAD/CAM abutment

By Dr. Larry R. Holt, USA

This article describes treatment to solve a common dental complication (loss of tooth due to vertical root fracture). Contemporary implant therapy and subsequent CAD/CAM laboratory procedures provide an elegant solution to this patient’s dental emergency. Treatment was accomplished during a period of approximately six months, automatically six months.

The patient is a healthy, 32-year-old female with an unremarkable medical history. Her dental history and general dental health are excellent. Unfortunately, she suffered a vertical fracture of tooth #5, which necessitated its extraction (Fig. 1).

The treatment plan was for extraction and immediate implant placement with concurrent bone grafting as required. A temporary partial was planned to provide esthetic replacement and to support and shape tissue during the healing process. Final restoration was to be a cemented PFM crown supported by an Atlantis gold hue abutment.

Material selection was based on patient’s cross bite occlusion that transitions from normal to cross bite. The unilateral partial was not delivered because occlusion in the critical transmucosal regions. Titanium abutments provide strength but can telegraph a greying color in the transmucosal region. These abutments were chosen due to their long-term stability of the restorations.

The patient has a thin biotype, and the gold hue abutment provides both strength and the gold color that provides a more natural tissue color. The color gold provides “warmth” of color in the critical transmucosal region. Titanium abutments provide strength but can telegraph a greying affect on thin tissues.

Treatment began with a preoperative appointment to take necessary records (impressions of both arches, facebow transfer, shade taking, bite registration and clinical photography). Prescriptions to lab was provided for a partial denture fabricated from duracetyl resin and to develop a tooth born surgical guide. Lab was instructed to simulate the extraction site by removing the tooth from the study cast provided. This model was duplicated for fabrication of the two appliances.

Laboratory product was provided to surgeon. Atraumatic extraction was accomplished and immediate implant (Legacy) implant (di-rect) placed with facial bone grafting (Figs. 2-3).

There was a healing screw placed and site was closed with appropriate mouthwash and suture technique. The unilateral partial was not delivered at time of surgery. Patient was seen in restorative office, and the partial (Duratek, Drake Precision Laboratories) was modified to provide tissue support and begin development of a temporary tissue site. Partial was delivered uneventfully. These appliances are extremely retentive and not subject to disengagement or pressure on the soft tissues.

The patient was instructed to return to surgical clinic in approximately four months for final evaluation prior to restorative procedures.

Four months after surgery, the patient was seen by surgeon to uncover the implant, remove the healing screw and place a temporary abutment. The temporary partial was adjusted to accommodate the height and occlusal relationships. Patient was instructed to return to restorative office for definitive restoration of the implant in approximately three weeks.

Patient was appointed with restorative office for evaluation and to develop necessary records for laboratory fabrication of the final restoration. Implant site was evaluated and deemed adequately healed to proceed with restorative procedures.

Healing abutment was removed and a closed tray impression cop- ing was fitted onto the implant (Fig. 7). Radiograph was taken to confirm complete seating of the impression coping. A full arch impression was taken with heavy body PVS impression material (Panasil Tray Soft, Heavy Body Regular Set, Kettenbach GmbH). Healing abutment was replaced once impression was taken. A bite registration (Futar D Fast Set Kettenbach GmbH), new opposing impres-sion material (Panasil Tray Soft, Heavy Body Regular Set, Kettenbach GmbH) and shade map were taken. All clinical product was sent to laboratory along with shade photography and a complete written prescription. A PFM high noble crown and Atlantis gold hue custom abutment were pre-scribed.

The use of a custom abutment allows modification of transmucosal tissue profile and to ideally position margins. Tissues were previously shaped with the ovate pontic of the temporary partial. The final crown was planned on implanted abutment custom stained. Lab was cautioned that occlu-sion on this restoration was in the path of patient’s trouble transition from normal to cross bite.

The abutment was fully seated and within five minutes, tissue blanching had disappeared. (Fig. 11). Because of positive tissue pressure from tissue contiguity, the abutment was slowly placed with incremental turns of the retention screw. Tissue Blanching was carefully observed.

The abutment was torqued to manufacturer’s specifications (to Ncm). A radiograph was taken to confirm final seating of the abut-ment. The PFM crown was tried on and interproximal contacts adjusted to allow complete seating of the crown.

The lab (Drake Tray Soft, Heavy Body Regular Set, Kettenbach GmbH) was modified to provide additional height of the healing abutment. The PFM crown was torqued to manufacturer’s specifications (to Ncm). A radiograph was taken to confirm final seating of the abut-ment. The PFM crown was tried on and interproximal contacts adjusted to allow complete seating of the crown.

The final occlusion was checked with tooth borne providing a light oc-clusal contact that became normal in intensity upon biting force. All func-tional contact was adjusted to be in minimal contact during excursions.

Once all clinical appointments were done, a laboratory technician was crossed for final shade matching. The initial shade was very close to ideal. The technician accomplished minor modifications (minimal characterization staining and reduction in final surface gloss). Proximal contacts and occlusal table were pol-

mCME articles in Dental Tribune have been approved by: ADA CERP for having educational content for 2 CME Credit Hours. DHA awarded this program for 2 CPD Credit Points.
The crown was lined with silicone tape and then bite registration material was injected into the crown to fabricate a cementation jig (Fig. 12). This step is very important to avoid excess cement extrusion during final seating of the restoration.

All pre-cementation procedures were completed, including approval by patient of both esthetics and bite comfort. Abutment screw access hole was sealed with silicone tape, respecting the external contours of the abutment to allow complete seating of the restoration. This is a critical step to maintain patience for future access to retention screw.

The crown was steam cleaned and thoroughly dried. Intracorally, the abutment was thoroughly cleaned and dried in preparation for cementation procedures. Attending dental assistant maintained cheek retraction and dry field.

The walls of the crown were lined with implant cement (Dental Implant Cement, radiopaque, Premier). The crown was then seated on the previously fabricated cementation jig to extrude excess cement.

Cement adaptation to internal walls of crown was confirmed and the crown was seated over the custom abutment. Excess cement was removed by combination of hand instrumentation and dental floss after initial cement setting.

The crown was left under biting pressure with cotton roll over occlusal table for five more minutes to allow for cement to fully set. Metachromatic inspection of sialus was accomplished to remove any vestige of implant cement. Postoperative radiograph was taken to evaluate complete seating of crown and to confirm removal of any excess radiopaque cement. Occlusion was confirmed and patient was dismissed. One-week recall was accomplished to confirm occlusion and to reevaluate soft-tissue response to the restoration.

This case study reveals the potential for implant supported tooth replacement. Esthetic result was excellent, and final gingival contours were consistent with adjacent dentition. The tissue color was natural and did not reveal any hint of the underlying implant or abutment. Restoration margins were concealed within the gingival sulcus. This treatment provided an elegant solution for this all-too-common dental emergency. The patient was extremely pleased with the result (Figs. 13-15).

Note: The author would like to express gratitude to Drake Precision Dental Laboratories (Charlotte, N.C.) for all services provided for this treatment. In addition, Dr. Todd Fringe, DDS, (Charlotte, N.C.) provided extraordinary care during extraction and immediate placement of implant.

References

Larry R. Holt, DDS, FICD has graduated from the UNC School of Dentistry in 1978. He was in private practice from 1978-2008. Since 2008, he has been the director of clinical education and research at Drake Precision Dental Laboratories in Charlotte, N.C.
Fixed and Removable Implant Restorations: A Solution for Every Arch

By Dr. Paresh B. Patel, USA

When a patient presents with an edentulous arch or terminal dentition, implant treatment can be provided that improves not only form and function, but also quality of life. For patients desiring better chewing capability, stability, esthetics and comfort than a traditional denture can offer, both removable and fixed implant restorations are superior alternatives. While the appropriate implant solution can vary depending on the patient’s oral health, anatomy, quality and quantity of bone, and financial resources, full-arch prosthetics have progressed to the point where virtually every patient can be restored. Although fixed, implant-supported restorations offer the highest levels of stability, function and patient satisfaction, removable overdentures are a dramatic improvement over conventional complete dentures as well. Both treatment options effectively mitigate the bone resorption that occurs following the loss of teeth, helping to preserve the oral and facial structures and, by extension, the self-confidence of the fully edentulous patient. Determining which solution is appropriate requires a careful evaluation of the individual patient’s circumstances and desires. Even when an implant overdenture is delivered, the prosthesis can eventually be converted to a fixed restoration. As evidenced by the case that follows, in which one arch is restored with an implant overdenture and the other with a BruxZir® Full-Arch Implant Prosthesis, practitioners today have a great deal of clinical flexibility. Whatever prosthetic approach is adopted, immediate, life-changing relief can be provided to patients suffering from terminal dentition or an uncomfortable, poorly functioning traditional denture. Further, the dramatic overlap of this patient’s oral health demonstrates the life-changing capabilities of implant therapy, which helped him overcome severe functional and esthetic challenges that were impacting practically every facet of his life prior to treatment.

Case Presentation
A 47-year-old male presented with terminal dentition in both arches resulting from periodontal disease and severe curies (Figs. 1a–1c). The patient had already lost many of his teeth, and the dentition that remained had been rendered unstable by his periodontal condition (Fig. 2). He had saved up enough money for a fixed implant restoration for his upper arch, for which he desired the most functional, lifelike prosthesis possible. While he couldn’t afford such a restoration for both arches, he wanted a retentive appliance for his mandible, with the option of later upgrading to a fixed prosthesis. The patient accepted a treatment plan in which his maxilla would be restored with a BruxZir Full-Arch Implant Prosthesis and his mandible with an Inclusive Locator Implant Overdenture. Fabricating his mandibular prosthesis from monolithic zirconia would ensure maximum long-term durability. This was important provided the relatively young age of the patient, who would not have to worry about his upper prosthesis succumbing to fractures, chips or stains. His lower appliance would be held in place by connecting to the implants via Locator attachments (Zest Anchors, Escondido, Calif.), which are an economical means of improving prosthetic retention and stability. The overdenture caps that connect to the Locator attachments would be incorporated in the prosthesis chairside, though it should be noted that many clinicians elect to have the laboratory handle this step. The surgical phase of treatment called for the extraction of the patient’s remaining teeth followed by...
The immediate placement of eight dental implants. CBCT scans were taken to help determine the optimal placement of the implants within the available bone and away from the patient’s vital oral anatomy. Evaluation of the CBCT scan determined that there was sufficient height, width, and quality of bone to place the implants in the appropriate locations and angulations via four 4 mm Inclusive® tapered implants (GlideWell Direct, Irvine, Calif.) would be placed in each arch to support the fixed maxillary and mandibular restoration and the removable mandibular prosthesis.

At the surgical appointment, the patient’s remaining teeth were removed, and a flap was raised to visualize the socket sites and areas of implantation. Bone leveling was performed on the patient’s maxillary arch to elevate the patient’s smile transition line above the upper lip. The maxillary osteotomies were positioned to facilitate an All-on-4 configuration, with the posterior implants tilted to maximize the anterior-posterior spread, avoid the sinuses, and accommodate the patient’s bone limitations (Fig. 3). Osseotomes were created for the placement of four mandibular and five maxillary prostheses, as opposed to the minimum of two prostheses in the mandibular overdenture. This would enhance retention of the overdenture while avoiding the possibility of upgrading to a fixed restoration at a later time.

Following creation of the osteotomies, the implants were placed (Figs. 4a–4f). Inclusive® Multi-Unit Abutments (GlideWell Direct) were atached to the maxillary implants, allowing for divergent angulation of the implants. This would both position the restorative platform in a manner that would facilitate the screw access holes of the eventual prosthesis toward the lingual aspect and allow for a molar-to-molar restoration (Fig. 5).

Note that when patients present for treatment with terminal dentition, they are commonly anxious about losing their teeth and the effect this will have on their speech and chewing capabilities. For this reason, it is important to make every effort to ensure that the patient leaves with functional appliances in place. Thus, traditional dentures were fabricated from preliminary impressions in advance of the surgical appointment for modification and delivery following placement of the implants (Fig. 6).

Having achieved sufficient primary stability, the Inclusive® tapered implants placed in the patient’s maxilla could be immediately loaded. Thus, the upper denture was trimmed and modified to allow the surgeon to connect to the multi-unit abutments through temporary cylinders (Figs. 7a, 7b). This would satisfy the patient’s desire to leave the surgical appointment with a fixed, fully functional maxillary prosthesis in place. Note that the two distal-most molars were removed to minimize the cantilevers and the force transmitted to the implants during osseointegration. Healing abutments were placed in the mandibular implants to begin developing the transmucosal passages. The lower immediate denture was then fabricated and relined to seat over the implants during healing. This approach provided the patient with same-day temporary restorations, and he walked out of the office with properly functioning teeth for the first time in many years. The effect this had on the patient’s comfort, function, and appearance was immediate and profound (Figs. 8a, 8b). The final radiograph taken after seating the temporary appliances confirmed excellent positioning of the implants (Fig. 9).

Following creation of the osteotomies and angulations via freehand surgery. Four 3.7 mm Inclusive® tapered implants were atached in the mandible (Fig. 10a, 10b). The maxillary wax rim incorporated temporary cylinders through which screws could connect to the dental implants. The lower wax rim was designed to seat over Locator impression caps. The jaw relationship was recorded and a bite registration obtained (Fig. 11).

The approved wax setups were evaluated to determine the optimal locations and angulations of the final prostheses. The final wax setups were produced (Figs. 12a, 12b). The lower wax setups were tried in place during function to ensure that there was sufficient height, width, and quality of bone to place the implants and away from the soft tissue. Then the maxillary temporary appliances were connected to the implants (Fig. 13).

At the following appointment, the wax rims were removed, the jaw relationsh ship was recorded using convention al denture technique, and a bite registration was taken (Fig. 14a, 15b). A veneer waxing technique was used (Fig. 14b). The final impression cap would be cured chairside to allow for the temporary application of the final restoration while affording the possibility of upgrading to a fixed restoration and the removable mandibular prosthesis.

This would enhance retention of the overdenture while avoiding the possibility of upgrading to a fixed restoration at a later time. The patient returned after three and a half months of healing so the stability of the implants and health of the soft tissue could be evaluated.

The implant verification jig was attached to the implants so a precise verification jig would be cured chairside to allow for the temporary application of the final restoration while affording the possibility of upgrading to a fixed restoration and the removable mandibular prosthesis.

The approved wax setups were produced (Figs. 15a–15c). The lab produced wax setups for try-in. The upper included temporary cylinders so the setup could be attached to the implants during evaluation. The lab in this case was based on the final model after healing (Fig. 16a). The implant verification jig was attached to the implants so a precise verification jig would be cured chairside to allow for the temporary application of the final restoration while affording the possibility of upgrading to a fixed restoration and the removable mandibular prosthesis.

The implant verification jig was attached to the implants so a precise verification jig would be cured chairside to allow for the temporary application of the final restoration while affording the possibility of upgrading to a fixed restoration and the removable mandibular prosthesis. This approach provided the patient with same-day temporary restorations, and he walked out of the office with properly functioning teeth for the first time in many years. The effect this had on the patient’s comfort, function, and appearance was immediate and profound (Figs. 8a, 8b). The final radiograph taken after seating the temporary appliances confirmed excellent positioning of the implants (Fig. 9).

During the try-in appointment, the wax setups were evaluated to confirm the vertical dimension of occlusion, interocclusal relationship, phonetics, esthetics, midline, teeth arrangement, tooth color and shape, incisal edges, and function (Figs. 16b–16c).

After final approval of the wax setups, the restorative protocols for the two prostheses diverged, as the lab moved directly to the final implant overdenture from the approved wax setup, while the process for the BruxZir Full Arch Implant Prosthesis included an implant verification jig, custom final impression, and provisional implant prosthesis. These extra measures were taken to make absolutely certain that the definitive prosthetic design was accurate before milling the final restoration from monolithic zirconia.

The implant verification jig was attached to the implants so a precise final impression could be taken (Figs. 17a–17f). The custom tray provided by the lab was filled with VPS material and seated over the implant verification jig. As the VPS material set, the relative positions of the implants represented by the tray would be transferred to the patient’s maxilla. The final restoration was fabricated to sit over Locator attachments and keeping the ap-
relationship was checked (Figs. 22a, 22b). Minor occlusal adjustments were made directly to the maxillary provisional implant prosthesis, as PMMA is easily modified. Slight alterations were also made to the lower implant overdenture. Then, blockout shims and the reten-
tive overdenture caps were seated over the Locator attachments (Figs. 23a, 23b). Quick Up self-cure mate-
rial (VOCO America; Indian Land, SC) was added to the recess wells of the overdenture caps pro-
cessed by the lab. The implant overdenture was removed, picking up the overdenture caps pro-
cessed by the lab. After seating the final lower implant overdenture, the maxillary provisional implant pros-
thesis was seated over the Locator attachments.

With the final mandibular restoration in place, the patient wore the provisional full-arch implant pros-
thesis for a trial period of two weeks (Fig. 26). This opportunity to wear the appliance during actual day-to-
day function instilled a high degree of confidence in the prosthetic de-
sign for the patient and doctor alike. Following patient approval, the pro-
visional implant prosthesis was re-
turned to the lab so it could serve as the blueprint for the final restoration and the minor adjustments made to the appliance could be included in the definitive prosthetic design. The final BruxZir Full-Arch Implant Prosthesis was digitally fabricated with precision (Fig. 27). As an exact reproduction of the test-driven pro-
visional, the definitive prosthesis fit perfectly and offered the esthetics and function the patient had come to expect (Figs. 24a, 24b). The final restoration effectively addressed the unique circumstances of the case, providing the most durable, stable prosthetics possible for his upper, and a lower restoration that greatly improves prosthetic retention and can be upgraded to a fixed prosthesis should the patient’s situation change.

Conclusion

Practitioners now have the clinical flexibility to offer patients a wide range of treatment options, from entry-level, economical restorations like the Inclusive Locator Implant Overdenture, to the fixed, highly durable BruxZir Full-Arch Implant Prosthesis. There is a viable means of treating nearly all patients, whatever their oral health, needs and finances. Provided the life-changing benefits of implant therapy and the straight-
forward restorative protocols of to-
day, this service should be offered to all patients confronting the chal-
enges presented by complete edentulism.

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Hashedi AA, Teyyib Ali TR, Thomason JH. A survey of full-arch implant prostheses on the oral health-related quality of life in partially and com-

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Figures 17a–17h: The individual sections of the implant verification jig were seated and luted together before being picked up in the open-tray final impression, which was made using a custom try and Capture® VPS material (Caldwell Direct).

Figures 19a, 19b: Dental CAD software was used to design the definitive prosthesis for the patient’s mandible based on the final impression and approved wax setup. Screw access holes were created in the precise positions needed for a passive fit.

Figures 18a, 18b: The final lower implant overdenture was designed to seat over Locator attachment analogs situated in the mandibular cast. This would allow the overdenture caps that engage the Locator attachments to be picked up chairside.

Figures 20a, 20b: The provisional implant prosthesis was milled and seated on the master cast to verify a proper fit as well as the interocclusal relationship with the opposing implant overdenture.

Figures 21a, 21b: After seating the final lower implant overdenture, the maxillary provisional implant prosthesis was tried in to verify fit, form and function.

Figures 22a, 22b: The interocclusal relationship was verified with the final lower and provisional upper appliances in place.

Figures 23a, 23b: After seating the final lower implant overdenture, the maxillary provisional implant prosthesis was designed to seat over Locator attachment analogs, incorporating the slight adjustments that were made to the PMMA provisional appliance.

Figures 24: Quick Up cold-cure acrylic was used to pick up the metal housings in the over-
denture and fill in the minor voids between the denture caps and recess wells of the prosthesis. NOTE: In many cases, the doctor elects to have the overdenture caps pro-
cessed by the lab.

Figures 25: The black processing inserts were replaced with the appropriate retentive caps, which are color-coded according to strength.

Figures 26: Patient with the final Locator overdenture and the upper provisional implant prosthesis in place.

Figures 27: The definitive maxillary restoration was milled from BruxZir Solid Zirconia, incorporating the slight adjustments that were made to the PMMA provisional appliance.

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Designing real smiles with digital tools

By Drs Eduardo Mahn, Gustavo Mahn, Carlos Cáceres, Luis Bustos, Chile & Christian Coachman, Brazil

Dental materials and clinical procedures have changed dramatically in the last decades. Probably the major advances that have occurred during the last two decades have been in the fields of implantology and adhesive dentistry, but the main revolution is the development of digital dentistry. Although these changes have certainly made diagnostics and certain procedures easier, the basics, such as function and the biological aspects, remain essential. At the same time, we have experienced major improvements in ceramics and composites, helping us to fulfill our patients’ aesthetic demands.

A basic prerequisite for these indications is an in-depth understanding of the facial and dental aesthetic parameters. The clinician needs to understand the challenges that each clinical case presents and has to be able to develop an appropriate treatment plan that approaches the case from a multidisciplinary perspective. Tooth proportions need to be considered in relation to gingival aesthetics and in relation to the facial appearance. It is pointless to make the most beautiful direct veneer if the contours or the texture do not match that of the adjacent teeth or the gingival zeniths are clearly not symmetric and visible. As an example, if we add a tilted occlusal plane or a maxillary tooth midline shift in relation to the facial midline, the results can be frustrating. Another important aspect is the proper analysis of the patient’s smile and display (Figs. 1 & 2). When photographs are taken, people tend to be shy, especially at the beginning, and even more so if the person taking the photographs is not a professional photographer and the setting is a dental practice. Figure 3 shows the intra-oral view, where besides the obvious diastema and the hypomineralised areas of both central incisors, the major discoloured areas of both mandibular lateral incisors, which were certainly in need of some sort of treatment, are apparent. It is important to try to make a video while conversing with the patient about normal daily issues to avoid overlooking aspects that need to be considered in the treatment plan. The conversation will relax the patient and evoke natural smiles and laughs in response to something humorous or silly that we might say. Figure 4 shows the difference between the social smile we achieved with our traditional photographs (Figs. 1 & 2) and the spontaneous smile, which was captured during dynamic recording.

In this particular clinical case, had we based our treatment plan on the social smile photograph, we would have failed to visualize the display of the mandibular incisors, which showed unpleasant stains.

The next step was to analyse the patient from the facial perspective based on the details of her teeth. The digital smile design (DSD) concept diagnoses aesthetic problems from a facial perspective and, based on a simplified digital analysis of a few photographs, proposes treatment options and assists with communication between the various specialists in the team.

The first step is to draw a horizontal and a vertical line. The photograph is centred, moved and rotated until the bi-pupillary line is horizontal. The facial midline is subsequently ascertained. Then the same lines are superimposed on to the photograph taken with lip retractors in place (Figs. 5 & 6). The same photographs are then magnified and analysed (Figs. 6 & 7). The upper lip line is recreated and then superimposed on to the photograph taken with lip retractors in place as reference of its position (Figs. 8 & 9). Then the tooth proportions are measured and their ideal contours are drawn.

A photograph taken from the 12 o’clock position is used for the analysis of the labio-palatal position of the teeth and superimposed on to the analysis done previously (Fig. 10). Once the clinician is clear about the treatment possibilities and limitations, a digitally designed mock-up can be created.

This procedure reduces chair time dramatically and increases patient acceptance. Owing to easily accessible software such as Microsoft PowerPoint and Keynote, these effects are easily and quickly created by anyone with minimal training. Recently, new software has been released that simplifies the procedure even more. DSD software for iPads (www.digital-smiledesign.com). The procedure is based on overlapping certain areas of the teeth in the manner previously described. The result can be seen in detail in Figure 13 and the display in Figure 11. A comparison from the facial perspective between the pre-operative situation, the traditional mock-up and the digital mock-up can be seen in Figure 11. Traditional indirect mock-ups are made from a previously created wax-up from the laboratory.

First, an impression is taken and a stone cast is then fabricated. Afterwards, the technician waxes the necessary teeth depending on the instructions given by the clinician. The next step is taking an impression from that wax-up. The excess is removed and a flowable self-curing composite material (usually bis-acryl based) is applied to the silicone guide and then placed in the patient’s mouth. After a few minutes, the excess is removed and the patient is able to see the changes and the clinician is able to evaluate the proposal directly in the mouth. Generally, photographs are taken of the new situation and analysed. The option of a digital mock-up is much simpler. Once the final forms have been created, a photograph is superimposed on to them, and the texture of the new teeth is created. As seen in Figure 14, the results of the traditional and the digital methods are similar.
and it is difficult to differentiate between them.

The protocol is based on photographs and videos that are taken during the first appointment. The analysis is performed, and eventually the case is discussed with the team if necessary. Once the presentation is ready, the treatment plan is presented in a visually attractive way to the patient (Fig. 15). Finally, whether to use ceramic or composite restorative materials is considered depending on different factors. Our philosophy is based on the minimally invasive concept. As long as we can provide the patient with the same aesthetics, durability and predictability of ceramics, we will select composites. In cases in which many teeth are involved, multiple diastemas are present or occlusal imbalances may jeopardise a successful outcome and major changes need to be made, our choice leans towards ceramics. Whatever approach is chosen, it is of paramount importance for the clinician to understand the ceramic and/or composite system he or she is using. In this particular clinical case, the ceramic system used was IPS e.max Press and the composite system was IPS Empress Direct (both Ivoclar Vivadent) because of its simple layering concept, its natural-looking shades and long-lasting gloss. The correspondences between the shades of both systems make them easier to combine.

Once the treatment plan has been accepted by the patient, the treatment begins with preparation and demarcation in order to be as conservative as possible (Fig. 16). Figure 17 shows the detail of the hypomineralised areas of the mandibular lateral incisors. The areas were excavated with a reddened bur (Komet Dental) and etched with phosphoric acid Excite F (Ivoclar Vivadent) was used as a bonding agent, and IPS Empress Direct Dentin A1 and Enamel A1 were placed using a novel instrument called OptraSculpt Pad (Ivoclar Vivadent).

The maxillary teeth were prepared and impressions taken. Figure 20 shows the six veneers fabricated by master dental technician Victor Romero (Santiago, Chile). Then they were tried-in with a specially designed glycerine-based paste components of the Variolink Esthetic cementation kit (Ivoclar Vivadent). Figure 21 shows how dramatic the change in value can be with this type of cement. This procedure is especially helpful when one or two veneers are seated, and the value needs to be slightly corrected in order to match them to the adjacent teeth. The veneers were then bonded and the final result can be seen in Figure 22, where the preoperative situation is shown against the similar results achieved with the digital mock-up compared with the final outcome. Figures 23 and 24 show the integration of the six maxillary ceramic veneers and the two direct composite restorations performed on the mandibular lateral incisors at the three-month follow-up. All this work was integrated from the facial perspective, as seen in Figure 25. The satisfied and spontaneous patient can be observed in Figure 26.

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Advanced Restorative Techniques and the Full / Partial Mouth Reconstruction. Articulator Selection and Clinical Stages. Part 4

By Prof. Paul Tipton, UK

A highly respected specialist in Prosthodontics, Paul has written many articles for the dental press and is an expert lecturer in his field with Tipton Training Academies in Manchester, Leeds, London and Dublin. After gaining his Masters Degree in Conservative Dentistry in 1999, he was awarded the Diploma in General Dental Practice by the Royal College of Surgeons four years later and received Specialist status in Prosthodontics in 1999 from the GDC. An ex-professional cricketer with Lancashire County Cricket Club, he is currently the President of the British Academy of Implant Dentistry. He is one of the UK’s most successful dental teachers in the field of Restorative, Cosmetic and Implant Dentistry over the last 20 years with more than 20,000 dentists completing a year long certificate courses from one of the Tipton Training Academies (www.tiptontraining.co.uk).

Introduction

The full mouth or partial reconstruction is one of the most challenging procedures in Restorative Dentistry. In order to successfully restore and maintain teeth, the dentist must first understand where the teeth in the mouth should be in relation to each other. This process is called occlusion and is one of the most challenging aspects of occlusion is the determination of the vertical dimension of occlusion and condylar position, space availability, the vertical dimension of occlusion (VDO), the choice of restorative material and the choice of articulator and ways of programming it.

Articulator Selection

There is a large choice when assessing which type of articulator is correct for the patient and restoration. In terms of classification, articulators range from hand held casts or simple hinge articulators to fixed condyle or average value articulators to semi-adjustable and to fully-adjustable. When dealing with the complexity of the full mouth or partial reconstruction the choice narrows to average value vs semi-adjustable vs fully-adjustable. The accuracy of the articulator also depends upon how it is used and programmed. All of these articulators require the use of face bow, arbitrary or kinematic (to record the true hinge axis) to mount the upper cast. Mounting the lower cast to upper cast is then done with an individual jaw registration taken at an open vertical if mounting around ICP and closed vertical if mounting around KJ.

Finally with the semi-adjustable and fully-adjustable programming of the posterior (condylar) determinants of occlusion can be done using facebow, arbitrary or kinematic (to record the true hinge axis) to mount the upper cast. Mounting the lower cast to upper cast is then done with a jaw registration taken at an open vertical if mounting around RAP and closed vertical if mounting around KJ.

Restorative Stages

Following on from the third article in this series which dealt mainly with the diagnostic stages of a full mouth reconstruction we now look at the clinical stages which will be illustrated by the first case study. This gentleman Fig. 1 was referred for treatment of his severe upper anterior wear. The patient was over closed and due to the wear now in a pseudo-class III edge to edge occlusion (Fig. 2). After initial diagnostic stages which included cosmetic imaging (Fig. 3), diagnostic waxing (Fig. 4) etc, the patient was ready for initial tooth preparation.

Tooth Preparation

This will be dependent upon the type of restorative material to be used eg, PFM, scanned and milled porcelain, adhesive porcelain. Whilst the shift in recent years has been to all ceramic restorations, the PFM is often the restoration of choice as it allows a more conservative preparation on both anterior and posterior teeth with only part of the gingival margin area prepared for porcelain (labial) and the rest a conservative 0.5mm light chamfer for metal (Fig. 5). There is also the added longevity in both of these areas of the mouth. The reader is referred to the work of Shillingburg for a full description of PFM crown preparation. In this instance the classic PFM crown was used to restore the upper anterior teeth.

Tooth preparation should be done in stages so as to maintain control of the condylar position and vertical dimension. Providing the patient has adequate posterior stability (from amalgams, cores, prototype crown etc) then the initial tooth preparation should be the upper and lower anterior canine to canine teeth.

When completing a full-mouth re-construction upper and lower preparations should be done together so as to be able to establish ideal anterior guidance in both protrusive and lateral movements. Once prepared the dentine is sealed and prototypes are relined, trimmed and fitted (Fig. 6). No impressions or jaw registrations are taken at this time.

The aim of the tooth preparation stage, is, over three long visits,
restorative to place prototypes on all the teeth and then to spend time reassessing occlusal planes, aesthetic concerns and of course occlusal scheme and comfort of the patient.

The long term success of the final restoration is directly proportional to the skill and time in preparing and planning prototypes and their adjustments. It is easy to lose vertical dimension, occlusal stability and ideal sealing of the condyle in the fossa if this stage is hurried.

If increasing vertical dimension then either the timing of the preparation and prototypes is changed to accommodate all initial procedures in one week or full occlusal contacts need to be re-established on posterior teeth during the interval between fitting of the anterior prototypes and the final segments of the posterior.

Impressions / Jaw Relationship

Once the patient has confirmed that they are happy with the aesthetic appearance, is symptom free, having an ideal occlusal scheme with multiple contacts on all teeth and the condyles in RAP with smooth shallow anterior guidance the next stage of treatment is to take impressions and jaw registrations. This can be done in several ways.

A similar sequencing of events can occur as anterior prototypes are removed, retraction cords placed, teeth re-prepared, sealed and impressions, jaw registrations and facebow recordings made with the posterior prototypes maintaining occlusal contacts, vertical dimension and a stable RAP position.

Alternatively there are times when the full arch needs to be delivered to the patient at one go. This may be the case when anterior and posterior teeth are linked together in bridgework, there are limited numbers of appointments, patients are travelling long distances or vertical dimension is being increased on the fully adjustable articulator. This then requires the use of duralay bonnets or copings on all teeth and the use of...
Once anterior impressions, jaw registrations and facebow recordings are again taken the prototypes are relined, trimmed, cemented and are adjusted once more.

Try In Stage
The anterior restorations are now produced by the technician to the biscuit bake or “try in” stage and are tried in the mouth and the occlusion is adjusted using the mouth as the ultimate articulator.

Cementation
As described earlier all articulators have limitations as do the materials and techniques we use. Once upper and lower have been checked and adjusted they are sent back to the technician for glazing and then to the dentist for cementation (Fig. 7). This same sequence is then performed on one side of the mouth with upper and lower anterior and then finally the other side of the mouth.

Conclusions
Patients requiring full mouth or partial reconstruction are or have usually been bruxists. As such they may often brux again which is one of the limiting factors to the longevity of our restorations. Careful post restoration occlusal adjustment and refinement are essential, followed by the post restorative occlusal splint for night time wear (Fig. 8). The final smile is shown in Fig. 9.30.

Case Study 2
This lady was referred with a failing dentition, periodontal disease and TMD dysfunction (Fig. 18). Her examination revealed several hopeless teeth and an almost edge to edge occlusion with limited anterior guidance on her anterior teeth.

In view of the limited guidance available the fully-adjustable articulator was chosen as the posterior determinants of occlusion and posterior guidance (condyles) have a greater bearing on mandibular movements and occlusal anatomy.

Following our standard diagnostic procedures, teeth prepared several teeth were removed (Fig. 12), prototypes fitted (Fig. 13), implants placed and the occlusion was adjusted so that RCP=ICP around RAP. A reorganized approach was used so as to reduce TMD dysfunction and provide the patient with the ideal 5 principles of gnathology (occlusion) as discussed in earlier articles.

The fully-adjustable was programmed by using a facebow (Fig. 14) the cadiax (Denar) (Fig. 15,16) to record intercondylar distance, immediate and progressive side shifts and the shape of the superior and posterior walls of the fossa (Fig. 17,18).

The goal of the restoration was to move the mandibular teeth posteriorly by occlusal adjustment, thereby establishing a deeper overbite and overjet and better anterior guidance (Fig. 19)

The final restoration and smile can be seen in Figs 20, 21.

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References:
². LaTorre G, Greenspan DC. J Clin Dent 2010; 21(3): 72-76.
Dentine hypersensitivity protection, now in a daily mouthwash

The first Sensodyne mouthwash containing 3% potassium nitrate and fluoride, proven to provide ongoing protection from dentine hypersensitivity with twice-daily rinsing1-5

"Rinse twice daily after brushing with a fluoride toothpaste."

User case study on the new composite bloc BRILLIANT Crios by COLTENE in the fabrication process of a CAD/CAM CEREC crown

By Dr. Med. Dent. Christoph G. Hüskens, Switzerland

The application fields of the new composite bloc include crowns, inlays, onlays and veneers as well as implant-supported crowns. BRILLIANT Crios is a reinforced microfilled composite bloc for the fabrication of permanent restorations using a CAD/CAM milling process. This is available in Low Translucent (LT) and High Translucent (HT) shades in sizes 12 and 14. The material properties allow extended pre-prep and temporary protection, tapered margins and polishing. In addition, the BRILLIANT Crios bloc can be used for indirect fabrication of composite materials. As part of material sampling, a 43-year old patient in this case reported a newly fabricated restoration after losing a full ceramic crown due to fracture.

The patient presented with a missing restoration on tooth 37. The X-ray of the un triturated stump (Fig. 1) shows the tooth with a root filling and a composite abutment post (this restoration was performed by a different dentist).

Due to the loss of the full ceramic crown, the patient was willing to have a new restoration fabricated using a CEREC crown made of the new composite-based BRILLIANT Crios (COLTENE) CAD/CAM material. The existing direct CEREC crown was prepared and showed good marginal adaptation.

In our case we chose the programme GC Ceramart 4. Presently, the Crios bloc can be milled with this Sirona software. A further possible programme is the 3M ESPE Lava Ultimate. The bloc available to us was size 14 in future a bloc size 12 will also be available.

Construction and milling of the crown leads to the following result (Fig. 4). Compared with ceramic materials, for example IPS Empress (Ivoclar Vivadent), the surface structure of the ground crown appears very smooth and the residual lug is smaller after milling. This facilitates its removal with a diamond and nothing remains visible after brief polishing. Polishing can be performed after milling using a conventional rotary polisher or milling paste. The crown in question also passed the check for cracks or material chipping.

Prior etching of the enamel areas with phosphoric acid is recommend ed and was carried out by us. For bonding of the restoration, a dualcuring resin cement, i.e. Duocem® (COLTENE), or a light-curing composite can be used. The BRILLIANT Crios crown is now ready for insertion. After bonding our full crown with Duocem® (COLTENE), the edges were cleaned, excess was removed, and then every surface of the restoration was light-cured for 30 seconds (light output > 800m W/cm²) and then worked on with a rubber polisher. Milling of the occlusion proved simple and quick. The gloss of the entire composite crown already appeared after a short time. Furthermore, when mask ing the occlusal contact points, we were able to polish immediately, which is much more difficult to do with ceramic, and in particular, with fired crowns.

Conclusion

Handling is conveniently simple and the clinical result after placement and a few weeks later is very good (Figs. 8 & 9). The patient has no complaints at all. The long-term results are necessary to compare the clinical results with ceramic materials. In terms of application, this material proved excellent. The patient was very satisfied with the result and praised the pleasant wear comfort of the composite restoration versus his previous ceramic crown immediately after treatment.

Next we would like to attempt res toration of an implant with a single crown.

**Fig. 1: Initial situation, single X-ray of tooth 37 with existing root filling and abutment post**

**Fig. 2: Plaster model with prepared tooth stump 37**

**Fig. 3: Milling bloc BRILLIANT Crios, shade A2 HT**

**Fig. 4: Milled crown with residual lug (separation point from bloc)**

**Fig. 5: Crios crown on plaster model**

**Fig. 6: ONE COAT 7 UNIVERSAL is applied to the bonding surface of the crown and rubbed in with a dental brush for 20 s.**

**Fig. 7: The finished BRILLIANT Crios crown on the plaster model in occlusion**

**Fig. 8: Clinical situation after placement and polishing**

**Fig. 9: Follow-up after 4 weeks**

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**Fig. 10: Comparison of filler morphology, mechanical strength and milling characteristics of different CAD/CAM blocs for Sirona inLab MC XL milling system**

- Camarena G, Prats C, Arroyo RM. Dental Tribune Middle East & Africa Edition 2016 4.2

- Material properties allow extended pre-prep and temporary protection, tapered margins and polishing. In addition, the BRILLIANT Crios bloc can be used for indirect fabrication of composite materials. As part of material sampling, a 43-year old patient in this case reported a newly fabricated restoration after losing a full ceramic crown due to fracture.

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- The BRILLIANT Crios bloc used for milling the full crown is shown on the photo (Fig. 5, shade A2 HT).

- At the time of preparing this report, there were only two milling programmes available from other manufacturers for processing composite blocs in the CEREC system. In future, there will be an own COLTENE BRILLIANT Crios milling programme by the Sirona company available for use in the CAD software.

- In conclusion, handling is conveniently simple and the clinical result after placement and a few weeks later is very good. The patient has no complaints at all. The long-term results are necessary to compare the clinical results with ceramic materials. In terms of application, this material proved excellent. The patient was very satisfied with the result and praised the pleasant wear comfort of the composite restoration versus his previous ceramic crown immediately after treatment. Next we would like to attempt restoration of an implant with a single crown.

- Source: www.scientific笑意me.com / 27.08.2015

- Comparison of filler morphology, mechanical strength and milling characteristics of different CAD/CAM blocs for Sirona inLab MC XL milling system - Camarena G, Prats C, Arroyo RM.
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Treatment of the worn and restored dentition – An ultracconservative, multidisciplinary approach

By Dr. Andrew Wakefield, UK

Tooth surface loss (TSL) can present in various clinical forms and has a wide range of aetiological factors. Dental erosion, attrition and abrasion are commonly observed by general practitioners, the first two often being seen in younger patients. The superimposition of TSL and malocclusion and/or tooth size and position discrepancies can compound the problem because of the coincident loss of form, function and aesthetics. It can also create difficulties in planning treatment options, with treatment strategies having to be drawn from multiple disciplines and integrated harmoniously to achieve long-term success. There are also other important issues to consider, treatment of worn teeth involves altering the vertical dimension of occlusion (VDO) and orthodontic treatment alters the position of the teeth, both complex, lengthy and high cost procedures in their own right and never mind in combination. If the patient is young the cost of ideal treatment can be prohibitive and they will expect longevity from the treatment provided and materials used. These are conflicts which probably will require some form of compromised treatment being embarked upon. It also needs to be borne in mind that the protection of valuable remaining natural tooth tissue is important and this puts pressure on the ethical practitioner to be as conservative as possible. It is therefore in these cases to ensure that the patient is fully aware of any compromises chosen, the reasons behind the decisions made and to involve them in the decision making process itself. Fortunately with the advent of modern hybrid nano-composite materials and innovative orthodontic techniques, treatment can be designed to be progressive in nature, with progressive decentralisation of success can be achieved at the straight forward or direct treatment end of the spectrum yet can evolve to encompass more complex restorative work involving a degree of tooth reduction if required. All of these factors had to be considered in the case presented here.

Case Study

The case study illustrates a simple multidisciplinary approach through the use of occlusal therapy combining centric relation direct composite build-up of worn occlusal surfaces of upper and lower molars and premolars to re-establish an acceptable and comfortable VDO. The resulting increase in anterior space was utilized by retracting the spaced, severely worn upper incisors with removable aligners by a sufficient amount to enable their subsequent restoration to aesthetically acceptable mesio-distal dimensions and to create interproximal contact, but not so much as to encounter a traumatic occlusion. This would take approximately three-four months during which the patient would be accommodating to the new VDO established in centric relation and direct composite build-up of worn occlusal surfaces of all the teeth and to cover all exposed cut surfaces. At this stage the VDO would be covered and restored to original composite on the posterior teeth and an absence of anterior guidance. There were no dietary abnormalities yet neither was he aware of any bruxist activity, although he admitted a severe nail biting habit. A diagnosis of premature anterior attrition in the presence of unfavourable canine geometry coupled with non-tooth contact parafunctional function was made. The patient vanished for two years, then returned eager to commence treatment study cast comparison was able to demonstrate that there had been no appreciable change in the clinical situation during that time, possibly attributable to a decrease in the rate of wear over time as the surface area of the teeth in contact increase.

Aims of treatment

1. To create a mutually protected occlusion where the anterior teeth incline the posterior teeth in all excursive movements of the mandible.
2. To avoid any preparation to the teeth whilst providing treatment according to sound biomechanical principles.
3. To prevent further pathologic wear of all teeth and to cover all exposed extreme dentine.
4. To secure retain for life the position of the upper incisors after orthodontic movement.
5. To improve the aesthetics and re-establish the patient’s confidence in the appearance of his smile.
6. To perform the treatment in a sensate time frame and as cost effectively as possible.

Treatment plan

Four Phases

1. To establish a stable posterior occlusion at an increased VDO using centric relation and simple direct composites bonded onto the occlusal surfaces as an occlusal deprogramming to discourage the anterior slide and allow the mandible to go back.

2. Aims of treatment

   a. To recreate the incisal anatomical form using direct nano-hybrid composite labial veneers. Precision in form will be assured by using a full clear silicone stent made over a diag-no-tite wax-up with the use of a pre-evaluative temporary to assess patient comfort and satisfaction.

   b. To retain the teeth in their new positions for life using a palatal wire bonded retainer locked into the composite veneers for added flexural strength.

   c. To improve the aesthetics and re-establish the patient’s confidence in the appearance of his smile.

   d. To perform the treatment in a sensitive time frame and as cost effectively as possible.

3. Treatment progression

   a. The worn dentine and enamel on the occlusal surfaces of the upper and lower molars and premolars was covered and restored to original morphology with acid etch bonding and direct placement of nano-hybrid composite (Venus Pearl – Heraeus Kulzer). Even contacts were established in centric relation (not done definitively as the final adjustment of the occlusal scheme was performed after later the establishment of the anterior guidance). The incisal in the VDO anteriority was approximately zmm. A standard IAS Clear Aligner was fitted to the upper arch with the aim of retracting the incisors. This occurred over a four-month period with IAS Clear Aligners used for repositioning of position at the end. During this time the patient accommodated very well to the new VDO. The 3D printed model of the predicted outcome of the orthodontic phase proved doubly useful, first for consent, but also because a wax-up of the composite veneers could be performed on it in order to see if the extraction prediction would allow the subsequent placement of appropriate sized composite veneers which would have interproximal contact. Once the incisors had been retreated into the pre-planned position, an accurate wax-up was made on a study cast and a full coverage clear silicone matrix, strengthened by immm Emax.

Discussion

The treatment proved to be a successful cost effective choice for the patient, primarily due to accurate planning, realistic expectations, good compliance and avoidance of excessive laboratory fees. At six month recall there is no evidence of marginal breakdown of the composite and the wire is still bonded and preventing relapse. The anterior crowns are now established and can be copied later if a move to ceramics is ever considered. In this type of additive
Andrew Wakefield BDS LDS RCS is a general dental practitioner working at Apolline House Dental Practice in Northeast London.

Andrew Wakefield took “The New Concept of Alignment Bleaching and Bonding course” with IAS Academy in London 2014 and since then has completed over 40 Inman Aligner cases.

The psychological impact of the treatment has been substantial. There was a total transformation of his appearance and smile, with a noticeable effect upon the patient’s self-confidence. The patient’s identical twin has followed his brother’s treatment closely and it is looking like I might need to repeat the process all over again! If not, we have a good control subject for the future in order to observe what might have happened had my patient not had this treatment.

References

The full list of references available from the publisher.
The impact of CAD/CAM on dental practices

Interview with Dr Jonathan L. Ferencz who shares his experiences with CAD/CAM technology in dental practice

By 3Shape

In what way has CAD/CAM made a major difference to your dental practice and patients?

The first time I really experienced the difference CAD/CAM has made for my patients was with one patient, a very successful partner at a well-known architectural firm. He came in on a Friday afternoon around 2 p.m. and said, “John, I'm very sorry to bother you but the crown on my front tooth just cracked. I've got a really important dinner tonight with clients and I'm going away on a 14 day ski trip with my family. If I don't make the trip, I'm in trouble. If you made me a temporary, I would be most appreciative.”

His crown was in two pieces. I told him that I believed that we could do more than just make him a temporary. I thought we could make him a new crown using a TRIOS digital impression and our laboratory. For patients like the one in this example, digital is a lifesaver.

Now, whenever I see an emergency in our schedule that involves something broken, I think that we can turn it into a definitive solution and not just a stopgap of placing a temporary and the patient returning the next week. I know that now we can fit a crown using a TRIOS digital impression and our laboratory. For patients like the one in this example, digital is a lifesaver.

Is there not a financial loss by not having the follow-up visit?

No, not at all. One charges the same fee regardless of the number of visits because the patient is charged for the procedure and not per visit. So for us, we actually save time and money. In addition, not having to wear a temporary crown is of great benefit for patients. They do not have to come back to our office.

Are there more advantages of this technology?

Another important advantage of digital technology is its potential for patient education. For example, I had a patient with a lateral incisor that was perfect from the facial aspect but from the lingual, there was an amalgam restoration, a composite restoration and a vertical crack from the incisal edge to the gingiva. But how can you show that to the patient when it is on the lingual side?

In the old days, I would have tried with a mirror or taken a photograph and loaded it on the computer or an iPad. This would have taken 20 minutes. The patient would have been looking at his or her watch, thinking about getting out of the office. The key in situations like this is speed. So, now what I have started doing is taking a scan and obtaining a color digital impression in 3D.

If I scan the patient, I can take the image of the lateral incisor, flip it and point out to the patient what I see that he or she cannot. The scan shows the crack. The patient would ask me to suggest treatment and I would recommend scheduling a crown. The patient would agree because it is such a convincing demonstration. We are helping patients to code-nurse.

Do you envision scanning being a routine part of a patient visit?

There is so much information that I can now see from looking at the enlarged scan. It is like looking through my loupes that give four and a half times the magnification. With a scan, I can expand the image on my screen to be as large as I like. Basically I can imagine us using a scanner for not just some patients, but EVERY patient. I definitely see a day when we scan each patient as part of our routine. Do you think that one day decisions on treatment could be made by just reviewing digital scans?

Dr Jonathan L. Ferencz is a diplomate of the American Board of Prosthodontics and Clinical Professor of Postgraduate and Oclusal Department of Postgraduate at the New York University College of Dentistry, where he has taught since 1972. He is also Adjunct Professor of Restorative Dentistry at the University of Pennsylvania School of Dental Medicine.
The right system for the demands and needs of dentists and patients

"Since the zirconia blocks are presintered, the material is circa 25 percent larger than in the final, full sintered state."

How does full contour zirconia behave in terms of accuracy of fit?

Very positively. Since the zirconia blocks are presintered, the material is circa 25 percent larger than in the final, full sintered state. Because the Finisher 10 milling instrument is relatively smaller than normal grinding burs, the margins, lumen and occlusal are all milled with the greatest detail. And, since there is no facing on a metal framework there are no overcontoured margins. Overall we see superb fit coming from full contour zirconia restorations and we’re excited to bring these benefits chairside.

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2. Envisia GmbH, German dental patient survey, November 2013

Dental Tribune Middle East & Africa Edition | 4/2016
British Academy of Restorative Dentistry (BARD) Conference 2016 Review

By Dr Nisha Siosdia (BARD), UK

The British Academy of Restorative Dentistry (BARD) is an organisation whose core purpose is the education of dental clinicians, aiding in the improvement of Oral Health by offering them a flexible learning pathway.

These pathways can lead to MRD via PG certificate, Diploma, MSc and MCIndent. Members are encouraged and given the opportunity to improve their skills in all aspects of dentistry from the very basic principles to advanced treatments and concepts. Our members are not limited to just dentists, dental technicians are also part of the BARD Family.

The BARD Conference 2016 was held at the Forest of Arden Marriott Hotel & Country Club on 3rd and 4th June. The weekend catered for a broad spectrum and the feedback was positive. Preparations and talks have already started and after the hugely successful conference this year’s feedback was fantastic contribution, the response and support exceeded expectations.

There were an array of exhibitors offering the latest in materials, products and innovative technology designed to improve the clinical practice in a more economical, effective and efficient manner. The exhibitors tied in with the lecture topics making their presence felt, with demonstrations of a new non-metal performance polymers in the MALO Clinical approach. Whereas, Bernd Siewert from the Equipoise denture system gave a speech about the concepts and design of these dentures. Linda Greenwell came straight to the point on periodontal litigation. The patient was delighted about his treatment outcome and gave a brief statement which gave a touching view on the experience.

The Saturday evening started with a drinks reception, where everyone was amased and baffled by an illusionist, there was a few “how did he guess that, just by looking at me?” comments. This reception was followed by a Charity dinner supporting The Vine Trust. Denture lectures with a focus on prosthetics, which included information on how to approach treatment in clinical cases, this was followed by an entertaining talk by James Pritchard giving useful tips and tricks on 3D cleaning of roots canals, making you wonder at endodontics in a different way. The Equipoise denture system is a concept that has been around for some time and Kevin Lockhead gave a speech about the concepts and design of these dentures. Linda Greenwell came straight to the point on periodontal litigation planning. Over the two days all the speakers directed their talks to dentists in everyday practice pointing on one or more to one level during the extended breaks which was appreciated.

The BARD conference is intended to be more than just an educational experience. It is also designed to be unforgettable and enjoyable, especially when it comes to social evenings. The Saturday evening started with a drinks reception, where everyone was amazed and baffled by an illusionist, there was a few “how did he guess that, just by looking at me?” comments. This reception was followed by a Charity dinner supporting The Vine Trust. Denture lectures with a focus on prosthetics, which included information on how to approach treatment in clinical cases, this was followed by an entertaining talk by James Pritchard giving useful tips and tricks on 3D cleaning of roots canals, making you wonder at endodontics in a different way. The Equipoise denture system is a concept that has been around for some time and Kevin Lockhead gave a speech about the concepts and design of these dentures. Linda Greenwell came straight to the point on periodontal litigation planning. Over the two days all the speakers directed their talks to dentists in everyday practice pointing on one or more to one level during the extended breaks which was appreciated.

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Thirty-three users from 18 countries: International summit for Dentsply Sirona treatment center experts

By Dentsply Sirona

Dentsply Sirona treatment centers must meet the needs of different users all around the world. In order to achieve an in-depth understanding of these needs and use them as the basis for further development, the company invited 33 selected users from 18 countries to an exclusive event in Bensheim. It provided the experts, for the first time, with a special platform to exchange experiences and opinions, both with Dentsply Sirona and each other.

Bensheim/Salzburg: At Dentsply Sirona, the definition of quality comprises the designing of products according to users’ wishes and needs, which may differ from country to country. This is why international dentists are becoming increasingly involved in product development processes. "Listening" was therefore the motto of the first global Key User Summit, a three-day symposium for selected users of Dentsply Sirona treatment centers. From May 30 to June 1, the 33 dentists met at the German production site in Bensheim for an attractive program that included exchanging experiences, further development and training.

Ergonomic treatments
An important aspect of the symposium was working in ergonomic treatment positions. Thomas Stengg, a dentist from Hamburg, clearly demonstrated how the new generation of treatment centers can support dentists while they work. "Up to now, I was not aware of these ergonomic training courses, so this was very valuable input for me," said Dr. Michael Panterowski from Calgary (Canada). The range of topics also included brief seminars on integration, infection control as well as an entertaining coaching presentation on communication with colleagues and patients given by prominent keynote speaker Georg Wawschinek from Vienna.

"It is important for us to understand the details of the clinical challenges dentists face," summarized Mari-angela Dr Nata, product manager for Treatment Centers and organizer of the first summit. "This is why talking to dentists from different countries is so important because this is the only way we can develop products that make dental treatments better, faster and safer."

Important exchange of experiences among users
The participants were equally enthusiastic. Dr Sun Rui Hong from China said, "The dental world was so small for us and now it has become much bigger. It is vital to exchange experiences with colleagues as this results in a far better understanding of how we can make the best use of our Dentsply Sirona equipment." All of the participants praised the sense of community. Rui Hong called it "a new family."

Dentsply Sirona provided the high-quality and extensive transfer of knowledge. The participants gained practical insights into the treatment center creation process during a tour of the Dentsply Sirona production halls. The guests from around the world also enjoyed a tour of the historical city of Heidelberg, including a visit to the castle.

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Interview: A precise sharpening solution for curettes and scalers

By DTI

As a world premium, Swiss-based company, BADECO presented two devices for sharper dental instruments at DENTAL BERN, the Swiss dental trade fair, in Bern last week. With decades of experience in the jewellery and dental industries, BADECO showcased appliances that sharpen instruments with outstanding accuracy and speed. Dental Tribune Online spoke to BADECO CEO Amir Hoveyda and Arnold R. Deppeler, designer and former Managing Director of the dental instrument manufacturer Deppeler, about the devices and the need for sharp scalers and curettes.

Dental Tribune Online: Mr Hoveyda, BADECO may not be well known to our international readers. Could you tell us more about the company and its history?

Amir Hoveyda: BADECO was founded in 1945 in Switzerland and has been manufacturing dental instruments ever since then. In the 1960s, we expanded our product portfolio to jewellery and watches using micro-motors. When one works with these products, one develops a clear understanding of precision, accuracy, robustness and performance. This is also the reason for the high quality of our dental instruments and sharpening machines. No matter the industry, the company has always looked to produce the most reliable, accurate and lightweight instruments.

Today, we are the leading manufacturer of super-premium jewellery and watches in the world. In recent years, we have achieved ongoing innovation in the development, quality and reliability of BADECO dental tools. In 2009, I started to lead the research and development department. Since then, we have developed new tools and accessories at competitive prices. Our production plant is located in Geneva and all of our electronic components are Swiss made.

Mr Deppeler, you designed the two devices for the sharpening of dental instruments. How did you come up with the idea?

Arnold R. Deppeler: First of all, I have been in this industry for decades. Deppeler is an established manufacturer of premium dental instruments. Currently, the Swiss-based company offers more than 500 models of hand instruments. For example, the M23 universal scaler can be found in many dental practices across the world. While I have always been eager to provide dentists with the best instruments, I also saw the need for a superior sharpening device. After all, every dentist wants to work with sharp instruments to remove deposits completely and minimize patient discomfort. Sharpening of periodontal scalers and curettes requires knowledge about the degree of angulation and the sharpening stone. With too great an angle or too small an angle, blades become either weak or bulky. It is also necessary to understand how to determine when the blade is actually sharp. We would recommend sharpening on a regular basis rather than occasionally.

What makes your sharpening devices so unique?

Arnold R. Deppeler: Micromotors are very precise and easy to use for polishing, drilling, engraving and, most importantly, sharpening of dental instruments. We offer two powerful micromotor-based devices with a manual speed of up to 5,000 rpm. Our Opti Sharp allows for quick and accurate sharpening of universal dental curettes, scalers and Gracey curettes. The new machine is our solution for soft and rotary sharpening for optimum stability, comfort and precision. The guide plates display the three angles to be observed during sharpening: an angle of 10 degrees for universal curettes, 20 degrees for scalers and 30 degrees for Gracey curettes. The practitioner has to place the last shaft before the blade of the curette parallel to the line on the plate and gently rotate the grip on its axis, the blade always resting on the sharpening disk. We also offer the Speedy Sharp, our soft-touch sharpener for dental curettes. It only takes seconds to sharpen the instrument. The grinding wheel plate is made out of ceramic or diamond and is self-adhesive. This allows for a beautiful form of the blade. There are also a magnifying glass and a test stick. Our Opti Sharp and Speedy Sharp machines offer a precise and fast solution.

Thank you very much for the interview.
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Birth cohort study confirms link between overweight and periodontitis

By DTI

ADELAIDE, Australia/PELOTAS, BRAZIL: Investigating the link between overweight and periodontitis, a team of researchers has found that being overweight may increase the risk of developing periodontitis, new findings of a unique long-term study have suggested.

Owing to lifestyle changes, dietary habits, stress and lack of exercise, the prevalence of overweight and obesity has shown a gradual increase in many countries. Various studies have linked overweight and obesity with various systemic conditions, including a higher risk of periodontal disease. However, uncertainty persists regarding the causal relationship of such conditions.

In the study, researchers followed a birth cohort of 539 Brazilians for a period of 31 years. Over the course of the study, participants underwent regular periodontal examinations comprising full-mouth probing at six sites per tooth using a PCP2 dental probe. In addition, anthropometric measures and habits of each individual were assessed during the life-course.

Overall, periodontitis risk under no intervention was 33.3 per cent, 14.3 per cent and 14.7 per cent for any periodontitis, moderate or severe periodontitis, and combined bleeding on probing (BOP) and clinical attachment loss (CAL), respectively. Regarding the impact of weight, the results showed that overweight and obesity increased the risk of all outcomes. Specifically, the overall risk of periodontitis was 11 per cent higher in overweight individuals and 22 per cent higher in obese patients. As for moderate and severe periodontitis, the risk was 12 per cent and 27 per cent higher, respectively. Overweight increased the risk of CAL and BOP by 21 per cent and obesity by 57 per cent.

According to the researchers, the impact of overweight and obesity was even greater when combined with unhealthy habits. Based on the findings, it is worth emphasising that a common risk factor approach would be the most effective means of prevention and treatment of periodontal disease, lead researcher Dr Gustavo Nascimento from the Federal University of Pelotas told Dental Tribune Online.

Prof. Marco Peres from the University of Adelaide said that the study’s design in investigating the link between overweight and periodontitis is unique in the literature. “First it has a longitudinal design using a population-based cohort study; and secondly, it has a longitudinal data analysis by using a statistical technique—g-formula—which allows us to take into account time-varying confounders and to simulate different scenarios under hypothetical simultaneous conditions, such as obesity plus smoking, alcohol, inadequate diet, etc.,” he said.

Peres, who is also a councillor of the International Association for Dental Research’s Global Oral Health Inequalities Research Network for the Asia-Pacific region, presented the results of the study, titled “Overweight and obesity impact on periodontitis: A Brazilian birth cohort”, on 23 June in Seoul in South Korea at the 94th General Session and Exhibition of the IADR.
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“TRENDY GOOD”
Study to investigate effects of electronic cigarettes on oral health

By DTI

NEW YORK, USA: Although electronic cigarettes, that is, battery-powered devices that typically deliver nicotine in the form of an aerosol, have gained breakthrough market share in recent years, the safety of aerosol mixtures emitted by these devices remains largely unknown. Now, New York researchers have received a grant to determine the adverse health effects of e-cigarette use on oral health for the first time.

“Based on compelling data from our preliminary research, we hypothesize that e-cig aerosol mixtures disrupt the oral cavity’s microenvironment, increasing vulnerability to periodontal disease,” said Dr. Deepak Saxena from the New York University College of Dentistry, which was awarded a four-year $1.6 million grant by the National Institute of Dental and Craniofacial Research (NIDCR).

“Smoking is a major risk factor for periodontal diseases, immunosuppression, and impairment of soft tissue and bone cell function,” added co-researcher Dr. Xin Li. “The prospective study we proposed to the NIDCR entails the enrollment of 120 individuals, including 40 non-smokers, 40 individuals who regularly smoke cigarettes but do not use e-cigs, and 40 individuals who exclusively use e-cigs and study the effect of e-cig aerosol on periodontal health.”

The researchers will recruit and stratify members of the e-cigarette group by the type of disposable e-cigarette and number of cartridges they consume per week. Saliva and subgingival plaque samples will be collected from all participants at baseline and after six months. After the second collection, a comparison to the baseline samples will be done to determine whether any dysbiosis in the oral microbiome has occurred. Oral examinations will be performed at both visits.

“To determine the mechanism by which e-cig aerosol affects oral health we will design a novel 3-D epigingival tissue model to mimic the oral microenvironment,” Li explained.

The grant received by Saxena and Li was one of seven awarded by NIDCR to promote and improve understanding of how aerosol mixtures emitted by e-cigarettes affect the oral cavity.

According to statistics from 2014 published by the Centers for Disease Control and Prevention, 12.6 percent of U.S. adults have tried an e-cigarette and about 3.7 percent currently use e-cigarettes.
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An individualized risk assessment of an infant for developing caries serves as the foundation for health care providers to identify and understand a child’s risk of early childhood caries. (Photograph: jammluk/paodag)

By DTI

SAN FRANCISCO, USA: New research has shown that assessment of individual risk of developing dental caries can help dentists effectively tailor prevention and treatment efforts. The study focused on how providers implemented a protocol that combines risk assessment with personalized preventive care and regular monitoring. The researchers also investigated how risk assessments affected patients’ course of treatment and oral health.

The Caries Management by Risk Assessment (CAMBRA) protocol was developed at the University of California, San Francisco School of Dentistry. In the current study, a baseline sample of 3,810 pediatric patients at UCSF were assessed using a 17-item protocol developed at the University of California, San Francisco School of Dentistry. In the current study, a baseline sample of 3,810 pediatric patients at UCSF were assessed using a 17-item protocol developed at the University of California, San Francisco School of Dentistry. In the current study, a baseline sample of 3,810 pediatric patients at UCSF were assessed using a 17-item protocol developed at the University of California, San Francisco School of Dentistry.

The researchers found that dental care providers’ risk assignments were correlated with the risk of future decay, said study author Dr. Benjamin Chaffee, assistant professor and Director of the Global Oral Health Program at the dental school. At the follow-up visits, only about 20 percent of the low-risk patients presented with tooth decay, however, nearly 70 percent of those in the high risk group had decay.

“Risk assessment is predictive—it tells you what kinds of outcomes are going to occur in a patient population,” Chaffee said. “Together with other studies, our work has shown that providers are willing and able to use CAMBRA accurately, that it doesn’t take a lot of time to do it, and that it is effective.”

Caries risk assessments like CAMBRA help providers account for factors known to influence oral health and to then tailor their approaches to care according to the designated risk level. For example, a patient considered as being at a high risk of developing dental caries may require more frequent radiographs and dental checkups than a patient designated low risk.

“Dental caries, like so many chronic diseases, follow a social gradient,” Chaffee further explained. “We want providers to recognize that our patients who come to us from a lower socioeconomic position are more likely to face a heavier burden of disease. It’s important to consider that what is going on beyond the dental chair is contributing to the health status of our patients.”

CAMBRA has the potential to fundamentally change dentistry, but this will be gradual, Chaffee said. “The traditional approach to dental caries for the last 500 years has been when a dentist sees a cavity to fill it and restore the tooth’s function, and that’s a critical aspect of what dentists should be doing. But in and of itself, this approach doesn’t do anything to prevent the disease from occurring again. It treats the symptoms—but it doesn’t get after the causes of the disease,” he concluded.

“More than half of the schools and colleges of dentistry in the US have adopted CAMBRA in one form or another as part of their standard curriculum,” said Dean of the School of Dentistry Prof. John Featherstone, who led the research teams that devised the protocol. “There are also increasing numbers of face-to-face and online courses that teach the CAMBRA methods. I am encouraged by the accelerated adoption of CAMBRA in the field.”

According to the Centers for Disease Control and Prevention, approximately 23 percent of children aged 2-5 had dental caries in their primary dentition in 2015. Untreated tooth decay in primary teeth among children aged 2-4 was twice as high for Hispanic and non-Hispanic black children compared with non-Hispanic white children. In addition, about three in five adolescents aged 12–19 had experienced dental caries in their permanent dentition and 15 percent had untreated tooth decay.

The study, titled “Caries risk assessment item importance: Risk designation and care status in children under age 6,” was published online and in the July print issue of the JDR Clinical and Translational Research, a new offshoot of the Journal of Dental Research.

Researchers examine how providers implement caries risk assessment protocol

Dentist first Thai woman to climb Mount Everest

By DTI

BANGKOK, Thailand: As the first woman from Thailand to do so, a dentist from Prachuap Khiri Khan has successfully summited Mount Everest. Napassaporn Chumnarnsit, who works at the provincial hospital in the southern town, reached the peak of the world’s highest mountain on the morning of 21 May as part of the Thai Everest 2016 expedition.

The 32-year-old’s achievement follows that in May 2008 of her fellow countryman Vithitman Bojanapanich, who was the first person from the South East Asian country ever to reach the summit. Chumnarnsit successfully climbed Everest through the popular southern route starting in Nepal. The mountain can also be accessed from a northern route in China, as well as sixteen other routes to the peak. Chumnarnsit is one of the latest of almost 7,000 climbers to have ascended Everest since the first successful attempt by New Zealand mountaineer Edmund Hillary and the Nepalese Sherpa Tensing Nor- gay in 1953. In 2016, over 600 people successfully reached the summit, according to figures from the Nepalese Ministry of Culture, Tourism and Civil Aviation. This year’s climbing season was overshadowed by the death of six people, most notably Australian climber Matty Strydom, who began suffering severe symptoms of altitude sickness 15 minutes away from the peak and died soon thereafter.

In total, the mountain has claimed 265 lives over the last 70 years. Only two years ago, 16 Nepalese climbers died in an avalanche in the Khumbu icefall, which resulted in the mountain being closed for most of the 2015 climbing season. Also notorious was the 1996 disaster, which took eight lives and was documented in a book and feature film.

Part of the Mahalangur Himal section of the Himalayas stretching from Nepal to Tibet, Mount Everest is the world’s highest mountain with a height of 8,848 m. It overtops K2, which is approximately 290 m lower, and the nearby Kangchenjunga at the India-Nepal border. Every year, hundreds of climbers from all over the world attempt to scale the giant peak.
Clinic Values

By Dr. Ehab Heikal, Egypt

Values are a difficult quantifiable business topic to write about because they can be hard-as a business technique-to develop, and use to make better decisions and build high-powered teams.

What Are Values?

Values are what you believe in. Most people have a sense of what they believe. Even if they don't realize it, they have a set of values that they live by. These can be referred to as personal values. What most chief executive officers (and dentists are CEOs as discussed before) also have a separate set of business values, which is what they believe will bring to their clinic. By not identifying values, they often make decisions concerning the clinic in general, and hiring in particular that eventually conflict with the dentist's values.

Certain people may be good employees but not right for a particular clinic if their values conflict with those of the dentist's. That conflict can lead to tension and discontent-a problem for any business.

For example, suppose a dentist's key values are integrity, excellence, quality, innovation, profit and recognition. This is not a dental clinic in which the dentist is happy to have a below-average production and profit and little change in services offered. This is a dentist who wants to provide outstanding care, but who also wants to be well-compensated and respected for the excellence in quality his clinic provides. Another dentist may find the quest for profit and recognition less important. He or she may be more than satisfied to have the same income every year, live moderately and enjoy a reputation as an everyday dentist in the community. Clearly, values take these two clinics in very different directions.

Identifying values helps in the hiring process as well. Many dentists find it challenging to work with team members who have conflicting values. For example, a dentist who places value on hard work and believes in a strong work ethic hires a person who does not value punctuality and who wants a 9-to-5 job with as much free time and vacation as possible. If the dentist has not identified his or her hard-work values, this team member’s behavior will be the source of tremendous conflict. Each will view the other as inflexible, rigid and unreasonable.

Identifying Clinic Values

To identify clinic values, make a list of what you feel are the core of your clinic values or beliefs. This list might include such terms as integrity, balance, profit, growth, challenge, caring, excellence, quality, trust, appreciation, self motivation, and enthusiasm. After you have created a list, the key is to spend the next few days pairing it down to no more than six to ten words. The rule is that you can add a word to the list, but only if you take one off. You can combine words that have similar meaning, such as integrity and honesty or excellence and quality. You ultimately will have to eliminate less important words.

At the end of this exercise, you will finalize your business values list. Do not judge your values against someone else’s. A dentist seeking recognition from peers and community is no better or worse than a dentist who has no desire to be in the spotlight.

What To Do With The Values

Now comes the practical part. A staff meeting in which you identify and discuss the values and explain to your team how they will guide the practice is a powerful meeting. This helps your team understand you. It helps your team understand the values that you bring to the clinic and how the clinic will use them to achieve success. Values are also helpful in decision making. If your team members understand the core values of the clinic, they will be able to make better decisions in all situations. More often than not, a decision taking into account business values will be a good one. This holds true even in management of worst-case scenarios. If a clinic value is integrity, a staff member holding true to clinic values may tell a patient that a patient’s crown were not done according to clinic standards. If the dentist has not identified his or her hard-work values, this team member’s behavior will be the source of tremendous conflict. Each will view the other as inflexible, rigid and unreasonable.

Values are a difficult quantifiable business topic to write about because they can be hard-as a business technique-to develop, and use to make better decisions and build high-powered teams.

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"Once you know your main business values, you can strengthen your clinic and build a high-powered team."
The importance of brand and own reputation from real daily life to the web

By Prof. Antonio Pelliccia, Italy

We usually associate the term ‘brand’ with a product that has a unique, consistent and well-recognized character bearing the company’s name. These brands conjure up images in the minds of consumers. Large organisations work hard to raise the power and status of their brands by engaging against unlicensed use or unfair imitations.

As the American Marketing Association (AMA) defines a brand as a ‘name, term, sign, symbol or design, or any combination of them intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of other sellers.’

In advertising, it makes sense to understand that brand is not about getting your target market to choose your products over those of competitors. It is about getting your prospects to see you as the only one that provides a solution to their problem. Looking out into the world today, it is easy to see that our lives have changed more now than at any time in the past too many years. Brands are psychology and science. It is a combination of a lifestyle as opposed to a trademark. Products have life cycles. Brands outlive products. Brands convey a unique uniformity, credibility and experience. Companies design emotional brands, which puts the value of their brand on their balance sheet.

Today, you do not have to look very far. In today’s world, brand religiosity is more important than ever. But you cannot simply build a brand like they did in the old days. You need a cultural movement strategy to achieve kinetic growth for your brand. With that, only the sky’s the limit. The world produces a chocolate or a feeling? What does the Pernod Ricard or its products say about the ‘Bacio’? A chocolate or a feeling? What does Ferrari when it produces their cars say about the ‘Baci’? People sell chocolates when it operates its store. The world says about the ‘Bacio’? You can often use the word ‘Bacio’ to describe something you like. The world has changed. We are now living in the age of movements and perceptions. It is time to think about how to build a brand in this new age and in my new book Uprising. These days, buildings have become a lot less expensive and smart brands are now able to take advantage. What does the world say about your new rocket up the world, very fast. A common interpretation is that a brand is the promise that is made to customers. Or, the brand is not what you say it is, but what your customers say it is. While these views are legitimate ways of helping to understand a brand, an actively-managed approach makes a brand more tangible and provides it with structure. Company branding is the most efficient way to show potential customers what your business is about. It is reflected visually very logos and company design elements, as well as through verbalization in marketing materials, slogans and information copy. According to Fast Company and the team of front office and back office generate word of mouth and referrals or viral traffic.

Branding is essential. Building brands builds incredible value for companies and corporations. If you are still not convinced, let me give you another example. The dollar is a world brand. In essence its simply a piece of paper. But branding gives it life. All the tools of marketing and brand building have been used to create its value. On the front you will find the name of the brand: the Federal Reserve. There is a testimonial from the first President of the United States, George Washington. There is a simple user’s guide: ‘This note is legal tender for debts public and private. And if you are still not convinced, the owner has added the words ‘In God We Trust.’ The dollar is a world brand. It is a tendency that is formed to the satisfaction of people of all parts of the world.

Dentistry and brand development

In the face of the current economic challenges, it is not surprising that brands do better in tough times compared to unbranded products. Products outlive cycles. And in these challenging times, there are still great brands. In these cycles, smart owners still recognize opportunity and their brands will thrive in the new growth. Brand owners still recognize opportunity and their brands will thrive in the new growth. The ‘Bacio’? A chocolate or a feeling? What does the world say about your new rocket up the world, very fast.

Branding is essential. Building brands builds incredible value for companies and corporations.

Your brand helps you apart from the competition. In today’s world, you are no longer competing on a local stage, but your organisation now competes in the global economy. How do you stand out from the thousands or millions of similar organisations around the world?

Your brand tells people about the business or organisation. Your full brand experience, from the visual elements like the logo to the way that you are phones, are you, tell your customers about the kind of person you are, and what other needs. This is a great opportunity to connect you to your target audience, engage them and motivate them.

Emotional Connections: according to a 2010 study conducted by a passionate group of people to do business, people like to buy brands, not products. People eat brands, listen to brands, and they love brands. People wear brands, buy brands, listen to brands, and they love brands. People wear brands, listen to brands, and they love brands.

Brands outlive products. And what do they say about you, and what do they say about what you are doing? ‘Promote to the customer at ease, because they know exactly what to expect each day, they experience the brand.

Your brand represents you and your promise to your customer. It is important to remember that your brand represents you: the brand, your staff, your strategy, your marketing materials are the brand. The best branding is not about you, and what do they say about what you are doing (promise) to the customer?

Your brand helps you create clarity and stay focused. It is very easy to wander around from idea to idea with nothing to guide you — it does not take long to be a long way from your original goals or plans. A clear brand strategy helps you stay focused on your mission and vision as an organisation. Your brand can help you be strategic and will guide your marketing efforts saving time and money.

Your brand helps you connect with the customer at ease, because they know exactly what to expect each day, they experience the brand.

Your brand helps you connect with your customers on a deeper level of meaningful conversations with people that are important to you at an emotional level, they feel good when they buy the brand. Purchasing is an emotional experience and having a strong brand helps people feel good at an emotional level when they engage with a company.

A strong brand provides your business with a unique USP (unique selling proposition) and a competitive advantage over those who use your products.

Brands are a world brand. It confers a unique identity. They are more important today than in the past 100 years. Companies put the value of their brands ahead of their products. Brands convey a unique identity. They are more important today than in the past 100 years. Companies put the value of their brands ahead of their products.

But what does a dentist actually sell? Therapies or care? The role of the management of the dental office by increasing the management control, the Perceived Quality and Value Added, optimising costs, acquiring new patients and increasing the strategic positioning of professional success. Particular attention was dedicated to finding value in being able to offer new therapeutic solutions, especially in this economic, social and cultural time of crisis.

There are opportunities for growth in the dental business through increased perception of quality in presenting and managing the range of services in the sphere of performance, even aesthetic, not to mention the more traditional therapies. The perceptions of the team of front office and back office generate word of mouth and optimise all investments in communication. To transfer the Perceived Quality, needs new tools of communication personal and professional.

Climate Analysis, Applied neurosciences, Web-Marketing and customer relationship communication, are just some of the methods.
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