



TEAMWORK

The Insiders' Guide to Quality Dentistry

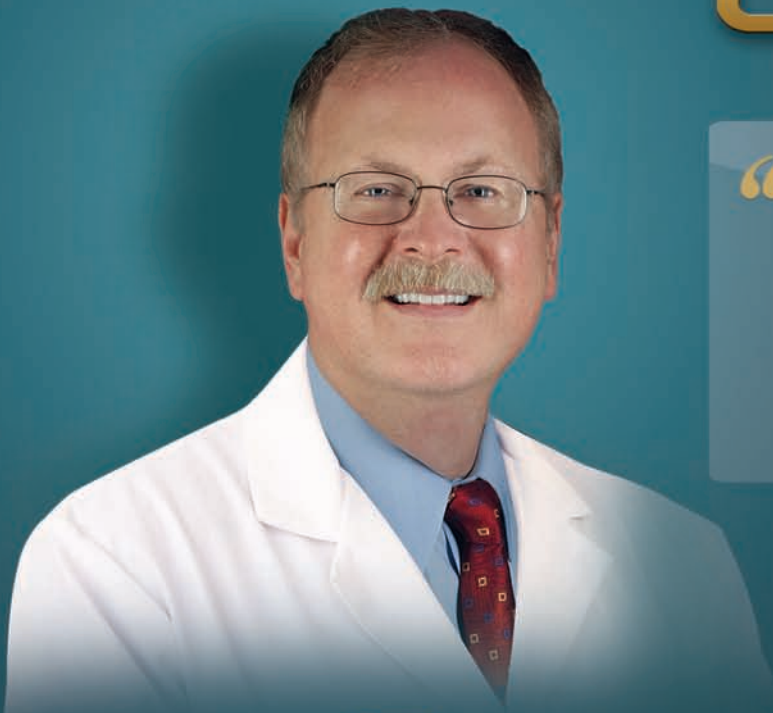
Vol. 5 No.5 - May/June 2012



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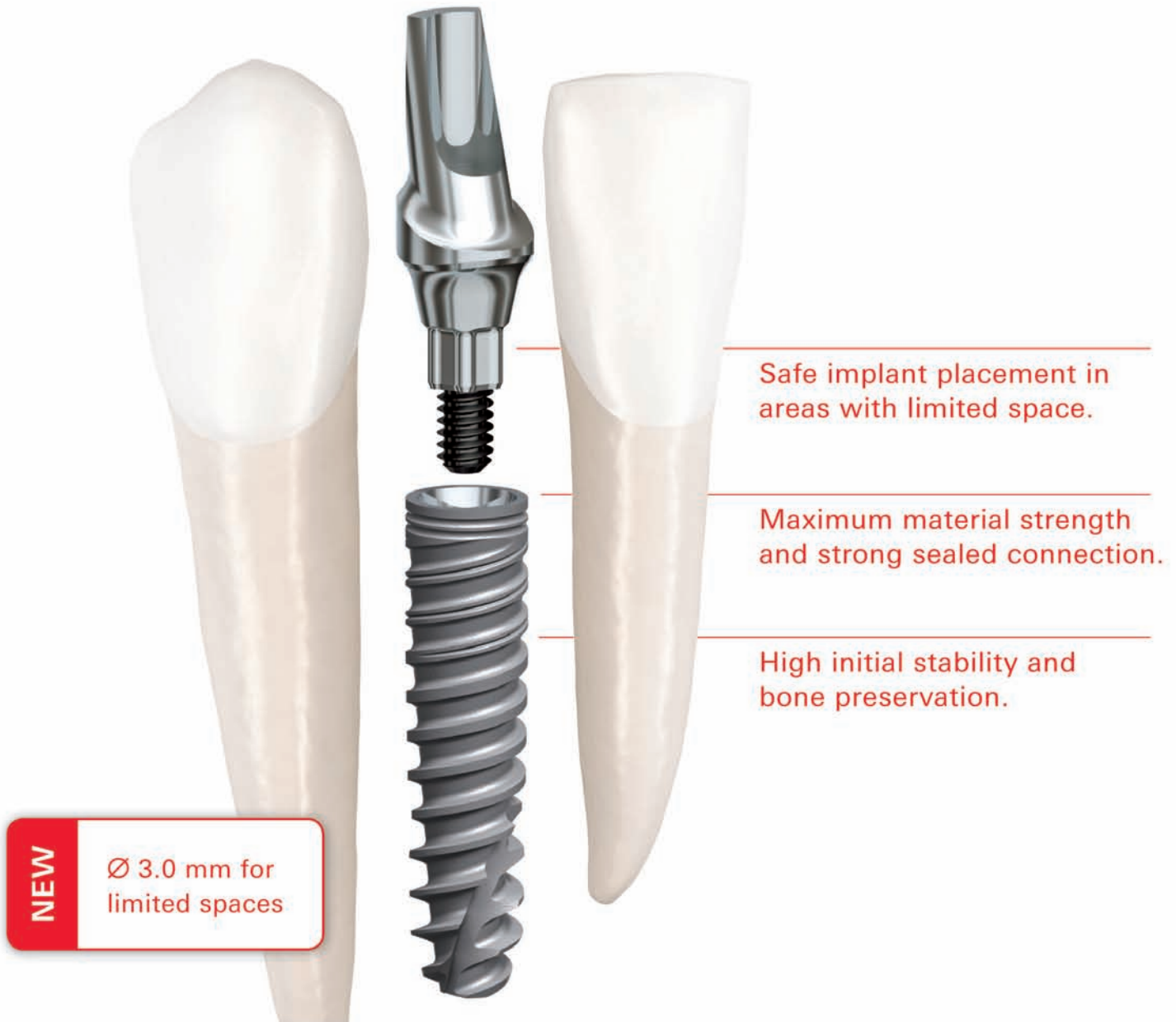
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CARDP & TEAM WORK

A New Alliance

Dr. Hubert Gaucher

When I was invited to present the Academy of Restorative Dentistry and Prosthodontics' history and structure to readers of TeamWork, I reflected on the nuts and bolts, the inner workings if you will, of CARDP as well as its many decades of contributions to our Profession. In so doing, I reached the conclusion that CARDP's strongest asset has always been just that: TeamWork.

CARDP, a non-profit national corporation, is the result of the fusion of its two founding entities in the early 90s: the Canadian Academy of Restorative Dentistry (CARD) and the Canadian Academy of Prosthodontics (CAP). Put together, this totals over 50 years of expertise in the dental field, whose mission statement is:

- To promote the improvement of the health of the Canadian public, through the advancement of the art and science of restorative and prosthetic dentistry.
- To promote the highest standard of professional ethics among its members and amongst the members of the dental profession.
- To encourage the quality and the quantity of teaching of restorative and prosthetic dentistry in Canadian university dental schools.
- To provide continuing education in restorative and prosthetic dentistry for its members.

Annual Scientific and Social Programs: The abiding Continuing Education schedule, that is

embedded in CARDP's tradition, calls for itinerant annual meetings in Canadian cities from sea to sea. These outstanding meetings are driven by dentists for dentists. Members volunteer their time and energy in the numerous Meeting Committees over a period of years, far ahead of our actual events, before presenting them to fellow Members and Guests. Guidelines are in place for choosing meeting topics, speakers, Industry sponsors/exhibitors and for providing ADACERP certification. Attending any annual meeting is very much like taking the pulse of Restorative and Prosthetic Dentistry. Colleagues and guests from across the country enrich each other both professionally and socially as each meeting seeks to surpass the previous ones in clinical content as well as hospitality, while rosters of national and international speakers and attendees make for engaging blends of ingenuity and skill. For your perusal, the upcoming 2012 Halifax Annual Scientific and Social Programs are detailed at www.cardp.ca for Registration and Hotel Reservations. Future CARDP Annual Meetings are also communicated on that site.

Periodically, CARDP will invite the Association of Prosthodontists of Canada (APC) for a joint annual meeting. And whenever Annual Meetings are held in the Province of Québec, CARDP graciously extends simultaneous translation services for the benefit of the majority of francophone dentists.

Membership: CARDP's membership can invite and propose (sponsor) individuals who have earned peer recognition for their aptitude in the

practice or teaching of restorative dentistry and/or prosthetic dentistry. Scholars, specialists and generalists alike confer to CARDP its unique voice. Such diversity inspires newcomers to join our Academy's distinctive perspective.

The various membership categories are: Active – Fellow – Life – Honorary – Inactive. The specific requirements for each category are shown at www.cardp.ca (Constitution).

CARDP'S Official Publication: CJRDP/JCDRP

The Canadian Journal of Restorative Dentistry and Prosthodontics (CJRDP), founded in 2008, imparts Peer Reviewed scientific articles, whose topics cover a very broad range, including research studies, literature reviews, patient case reports, Academy and Industry news, position papers, product profile articles, CARDP Annual Meeting synopses and publicity. Its Editorial Board is comprised of volunteer Academy Members and Guests. The Journal's Archives, Instructions to Authors, Award Funds (Dental Students and Young Authors), Members' Journal Contribution Form, 2012 Journal Production Schedule, Media Kit and the CJRDP-EBD Survey are all accessible at www.cardp.ca The CJRDP supports the CONSORT STATEMENT (Consolidated Standards of Reporting Trials, www.consort-statement.org) and is listed as such on the Cochrane website www.cochrane.org/.

New CJRDP Publisher: Palmeri Publishing has further extended its collaboration with CARDP by creating our CARDP-TeamWork Alliance. Such a coalition opens new horizons for all concerned, allowing for an extended readership that is invited to submit articles and recommendations, and to participate in the Academy's affairs. A first step would be to attend a

CARDP Annual Meeting as a guest and take advantage of our stimulating scientific and social programs. Guests are invited to meet the Academy's Executive Committee members, mingle with the membership at large and browse the select Sponsors/Exhibitors, leaders in their field.

The Editorial Board Members of the CJRDP are keen on enhancing their partnership with TeamWork and its contributors, and welcome exchanges to further advance Evidence Based Dentistry principles and practices.



Dr. Hubert Gaucher
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Editor-in-Chief

CARDP & TEAM WORK

Nouvel Alliance

Dr. Hubert Gaucher

Lorsqu'on m'a invité à faire connaître l'Académie canadienne de dentisterie restauratrice et de prosthodontie aux lecteurs de TeamWork, j'ai réfléchi sur les mécanismes qui font tourner notre académie ainsi que sur ses décennies de contributions à notre profession. J'en ai conclu que le point fort de l'ACDRP réside justement dans son esprit collaborateur, son esprit de corps.

Corporation à but non lucratif depuis le début des années 1990, l'ACDRP est le résultat de la fusion de deux entités fondatrices, à savoir: l'Académie canadienne de dentisterie restauratrice et l'Académie canadienne de prosthodontie. Ensemble, ces académies représentent plus de cinquante ans d'expertise en dentisterie, dont la mission est:

- De promouvoir l'amélioration de la santé des Canadiens par le biais de l'art et de la science de la dentisterie restauratrice et prothétique.
- De promouvoir le plus haut niveau d'éthique professionnelle parmi ses membres et parmi les membres de la profession dentaire.
- D'encourager la qualité et la quantité de l'enseignement de la restauration et la prosthodontie dans les facultés dentaires canadiennes.
- D'offrir de l'éducation continue en dentisterie restauratrice et prothétique à ses membres.

Congrès annuel et programme social: Le maintien ponctuel d'une éducation continue est consacrée au tableau de l'ACDRP et fait appel à des rassemblements annuels dans les villes canadiennes d'un océan à l'autre. Ces rencontres

sont propulsées par des dentistes pour les dentistes. Nos membres offrent leur temps et leur énergie volontairement au sein de nombreuses assemblées et comités au fil des ans, afin d'organiser programmes scientifiques et sociaux aux consoeurs, confrères et invités. Le gabarit est en place pour choisir les thèmes, les conférenciers, les commanditaires provenant de l'Industrie dentaire, jusqu'à la certification ADACERP. Assister à un congrès annuel de l'ACDRP c'est prendre le pouls de la dentisterie restauratrice et prosthodontique. Collègues et invités s'enrichissent de leurs contacts professionnels et sociaux et chaque congrès successif tente de dépasser le précédent, tant du point de vue clinique que sociable. Les conférenciers et participants, venus de tous les coins, contribuent à un heureux mélange d'ingéniosité et d'adresse. Les renseignements sur notre prochain congrès annuel qui aura lieu à Halifax sont détaillés au www.cardp.ca avec des avis sur l'inscription et les réservations d'hôtel. Vous y trouverez aussi de l'information sur les congrès à venir.

L'ACDRP invite périodiquement l'Association des prosthodontistes du Canada (APC) à participer à un congrès conjoint. De plus, lorsque nos congrès ont lieu dans la province de Québec, l'ACDRP offre la traduction simultanée aux dentistes majoritairement francophones.

Adhésion: Un membre de l'ACDRP est en mesure d'inviter et/ou de proposer (commanditer) ces individus dignes d'une reconnaissance pour leurs aptitudes en pratique ou en enseignement de la dentisterie restauratrice ou prothétique.

Académiciens, spécialistes et omnipraticiens confèrent à l'ACDRP sa voix unique. Une telle variété attire les candidats avides de notre perspective distincte.

Les diverses catégories de membres sont: Actif – Fellow – À vie – Honorifique – Inactif. Les conditions spécifiques pour chaque catégorie sont énumérées à www.cardp.ca (constitution).

Publication officielle de l'ACDRP: CJRDP/JCDRP

Le Journal canadien de dentisterie restauratrice et de prosthodontie (JCDRP), fondé en 2008, publie des articles scientifiques examinés par des pairs, sur une vaste sélection de sujets, incluant des projets de recherche, les revues de littérature, les cas de patients, les nouvelles provenant des milieux éducatif et industriel, des présentations de produits, les sommaires et publicités relatifs aux congrès annuels. Son comité de rédaction est formé de membres bénévoles de l'Académie et d'invités. Les archives, instructions aux auteurs, bourses (pour étudiants en Médecine dentaire et jeunes auteurs), formulaires de contribution des membres, cédule 2012 de production du Journal, trousse des média et sondage sur la pratique basée sur les faits sont tous accessibles à www.cardp.ca. Le JCDRP supporte l'énoncé CONSORT (consolidated standards of reporting trials) tel qu'indiqué sur le site web de Cochrane.

Nouvelle maison d'édition:

Palmeri Publishing collabore avec l'ACDRP en créant l'entente A C D R P - TeamWork. Une telle association ouvre de

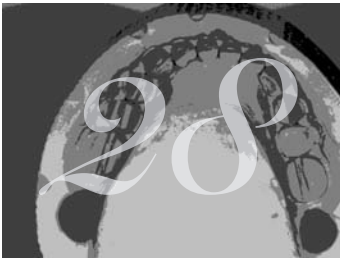
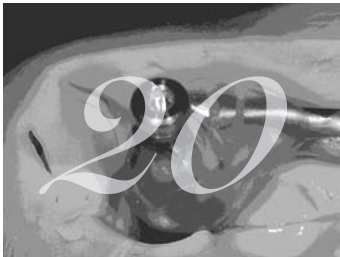
nouveaux horizons pour tous les partis concernés, permettant par la même occasion d'augmenter sa base de lecteurs et d'inviter ceux-ci à soumettre articles et recommandations et participer aux événements de notre Académie. Une première étape serait d'assister à un congrès annuel de l'ACDRP en tant qu'invité et profiter de nos programmes scientifiques et sociaux fort stimulants. Nos invités peuvent rencontrer les membres de notre conseil d'administration, s'intégrer aux autres membres et circuler parmi les exhibits des commanditaires.

L'équipe de rédaction de notre Journal accueille avec enthousiasme leur partenariat avec TeamWork et leurs collaborateurs, ainsi que toute occasion d'échanger dans le but d'avancer les principes et pratiques de la dentisterie basée sur les faits.



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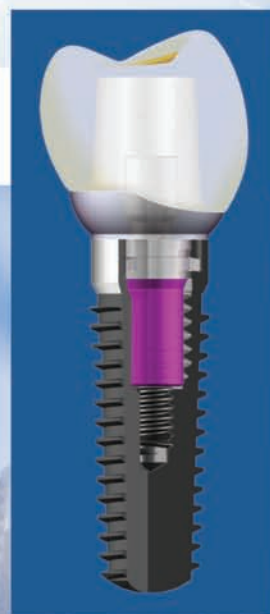


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Teeth are 'shaped by diet'

You are what you eat is a truism that has been given new impetus by research led by the University of Leicester that reveals teeth are literally shaped by food.

Evidence from teeth can be used to determine what has been eaten by an animal, providing a new way of working out the diets of wild animals that doesn't involve looking at the contents of their guts. Scientists say it is also possible to use these methods to investigate diets of extinct animals such as giant marine reptiles and dinosaurs. Research led by the Department of Geology at the University of Leicester, published in the Royal Society journal *Interface*, shows that the roughness of tooth surface can reveal what an animal has been eating. The study, by an international team of palaeontologists and biologists, reveals that there is a close match between roughness of teeth and diet, with teeth from animals that eat hard foods having rougher surfaces than those that eat soft foods.

Mark Purnell, professor of palaeobiology at the University of Leicester, said: "Run your tongue over your teeth. Some may feel rougher than others. The question we are trying to answer is can the roughness of the tips of teeth, worn by contact with food, be used to work out what an animal has been eating? But before we can start to answer the question, we need to ask "what is roughness?" This is tricky to measure. Smooth and rough surfaces are intuitively easy to distinguish, but is tree bark rougher than a road surface? Is the microscopic surface of chalk rougher than cheese? It's hard to make the comparison.

For example, as hip replacements wear, do they get rougher or smoother? If an engine cylinder is too smooth it won't retain enough oil on its surface, leading to friction and seizing, but how smooth is too smooth? In order to answer questions like this, engineers have been working on ways to measure roughness for decades.

International standards are now being developed, based on new ways of measuring surfaces very precisely using special 3D microscopes, and it is this

approach that has been applied to the teeth in this study.

Team member Ole Seehausen added: "To our surprise, we found that in some cases, tooth roughness is a more reliable guide to diet than looking in a fish's stomach, because stomach contents tell you only what an animal was eating in the few hours before it was caught, not what it is usually eats."



Oral Surgery Protocol to Control Bleeding for Heart Patients

Cardiac patients who take anticoagulant medications and need a tooth extraction face an increased risk of bleeding that must be addressed by the treating clinician. Therefore, a protocol for

heart patients is needed that will avoid

significant bleeding after dental extractions without suspending anticoagulant therapy. A study reported in the *Journal of Oral Implantology* evaluated the use of leukocyte- and platelet-rich fibrin biomaterial. This material is commonly

used in dentistry to improve healing and tissue regeneration. It was tested as a safe filling and hemostatic material after dental extractions in 50 heart patients undergoing oral anticoagulant therapy. These heart patients had mechanical valve substitutions, and then were placed on anticoagulant oral therapy with warfarin. It is not recommended that the anticoagulant be suspended and replaced with heparin before a minor surgery, although this substitution may control the risk of postoperative bleeding. One method of controlling bleeding without suspending the anticoagulant is the use of platelet-rich plasma gel placed in postextraction tooth sockets. Although this protocol has been successful, there are barriers to its daily use. The platelet concentrates are expensive and take a long time to prepare. Platelet-rich fibrin



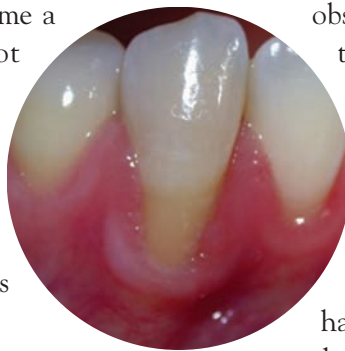
offers an alternative biomaterial that is simple and inexpensive to prepare. Blood is collected in tubes without anticoagulant and centrifuged. It divides into 3 layers, creating a strong platelet-rich fibrin clot in the middle layer. Platelet-rich fibrin has proven useful in daily dental practice as filling material for regeneration in order to place implants. In this study, 50 heart patients following an anticoagulant therapy were treated with leukocyte- and platelet-rich fibrin clots placed into postextraction sockets. Complications of bleeding were reported in only 2 of these patients, and 10 had mild bleeding. All complications were resolved within a few hours after the oral surgery. Additionally, the study reported no painful events, quick healing of soft tissue, and complete wound closure within one week after oral surgery. Leukocyte- and platelet-rich fibrin offers an excellent option for use in heart patients on an anticoagulant regimen.

- (Source: Sammartino Getal. "Prevention of Hemorrhagic Complications After Dental Extractions Into Open Heart Surgery Patients Under Anticoagulant Therapy: The Use of Leukocyte- and Platelet-Rich Fibrin," *Journal of Oral Im plantology*. 2011, Volume 37, Number 6, pages 681-690.)

Tissue Graft Prevents Gum Recession After Tooth Implant

When a tooth is replaced with an implant, gingival recession can become a concern. This leaves areas of root exposed and can be painful for the patient. While a single tooth replacement performed as an immediate, one-step process is an accepted treatment, gingival recession occurs more often with this method of implant.

The *Journal of Oral Implantology* reports on a case series of 10 patients who received a single immediate tooth replacement in conjunction with sub epithelial connective tissue graft. The tissue graft has proven successful in making gingival tissue more resistant to recession. In the immediate tooth replacement procedure, a failing tooth is removed and an implant is immediately placed into the socket. For the tissue graft, tissue is harvested from the palate using a single incision. The graft material is inserted into a prepared space between the labial bony plate and the gingiva of the extraction site.



The graft preserves soft-tissue levels, making the gingiva less likely to recede. Marginal bone level is another way to gauge the success of an implant. A more recent suggestion, which this study evaluates, is that this bone level can be influenced by the way the implant and abutment connect. "Platform switching"—which refers to the size discrepancy between these 2 components—can be beneficial in maintaining the marginal bone level. In this study, patients were evaluated before surgery, at the time of tooth replacement, and at 3, 6, and 12 months after surgery.

One implant failed early in the process, but at one year the remaining 9 patients showed good integration of tissue and tooth with minimal loss of marginal bone level or facial gingival level. The authors concluded that with proper implant position and the placement of graft material, a favorable success rate can be achieved.

- (Source: *Journal of Oral Implantology*. 2011, Volume 37, Number 5)

Sleeping Versus Loaded Implants

A study compared the outcome up to 12 years of "sleeping" versus loaded implants in the mandible, which involved 14 patients with overdentures, for a total of 28 loaded implants and 14 sleeping implants. During follow-up visits, intraoral radiographs were taken to observe changes in bone level. The study found that, at each observation visit, compared with abutment connection, the submerged nonloaded (sleeping) implants had less bone loss than their neighboring functional (loaded) implants. The difference was primarily due to more significant bone loss during the first year of loading; following the first year, changes in bone level remained similar for both types of implants. The study suggests that the first months of loading of implants have a significant impact on the bone level, resulting in the initial difference between sleeping versus loaded implants. This is followed by a more physiological bone level change. The study notes that this initial difference in bone level might be explained by the adaptation of the surrounding bone to the loaded implant.

- (Source: *Clin ical Oral Implants Research*, first published online November 25, 2011; DOI: 10.1111/j.1600-0501.2011.02263.x)

Canadian Dentist Elected President of the AACD

Dr. Ron Goodlin of Aurora, Ontario, took the helm as president of the American Academy of Cosmetic Dentistry (AACD) during the AACD's 28th Annual Scientific Session in Washington, DC, May 2-5.



Dr. Goodlin is an Accredited member of the AACD and has been involved in the organization since 1997.

Dr. Goodlin practices dentistry at Smiles Dental, located in Aurora, Ontario. In his free time, he is an amateur photographer and is working to open a dental clinic in Tanzania. His objective is to encourage dentists from Canada, the U.S., and Europe to spend a day or two at the clinic as they pass through Tanzania during safari vacations, as well as create an opportunity for dental students to visit and do some work there.

In addition to his work at AACD, he is currently the president of the Toronto Academy of Cosmetic Dentistry, is a co-founder of the Canadian Academy of Cosmetic Dentistry, and served as the Editor of the Canadian Journal of Cosmetic Dentistry from 2000-2008. He remains the Associate Editor and is on the editorial boards of both Spectrum and Teamwork dental journals. He graduated from the University of Toronto Faculty of Dentistry in 1980.

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Vident recently hosted a group of doctors from the Cerecdoctors.com Mentor Group at the Vident Training Center in Brea, CA. The Mentor Group was comprised of dentists from all over the country, with a strong presence in their respective communities. This exclusive group of doctors has completed, or is in the process of completing the

core CEREC curriculum at the Scottsdale Center for Dentistry. They have joined the group to mentor and test the latest in CAD/CAM products, provide basic training and run study clubs in their region.

The one day training included a combination of demonstrations and hands-on learning. The first demonstration focused on creating the illusion of natural esthetics with CEREC restorations, while also covering furnace overview and operations, surface contouring and finishing, application of VITA Akzent stains, polishing tips, shade taking protocol techniques and the comprehensive use of Easyshade shade selection. Attendees also participated in a hands-on demonstration of surface texturing and polishing, cutback for translucent VITA VM9 porcelain layering and optimizing adding on to blocs contact points.



Professor Tord Berglundh is the winner of the Astra Tech Scientific Award 2012

The prestigious Astra Tech Scientific Award 2012 was awarded to Professor Tord Berglundh, Sweden, for his significant contribution to research related to oral implants. Being the third winner of the Astra Tech Scientific Award, Professor Berglundh received SEK 100 ,000. The Scientific Award Committee presented Professor Berglundh with this year's award because, "Your body of work has been notable by both its prodigious volume and high quality. The committee felt that you have fulfilled

the highest standards in regard to every aspect of what is required to be the recipient of this prestigious award.”

“I’m very honored and happy to receive the Astra Tech Scientific Award and on behalf of myself and my team I would sincerely like to thank the Award committee – Clark Stanford, Michael Norton, and Lyndon Cooper for being selected,” says Professor Berglundh.

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Atlantis crown abutment for single-tooth, screw-retained restorations, several new zirconia shades (including translucent), the Atlantis abutment core file, a high-precision digital file that replaces scan of the abutment and the cast for the laboratories, as well as a number of interfaces for newly added third-party system



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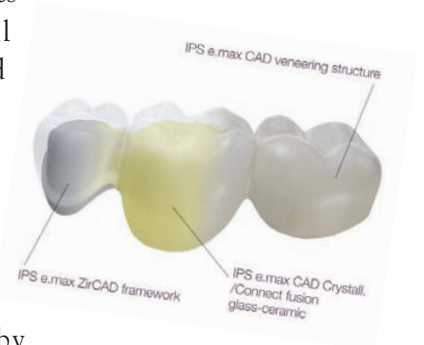
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The subject for our contest will be **“PEOPLE.”** Get those shots in of anyone, as long as they belong to the human race. Take a look at mine for some ideas. Deadline for submissions is July 13, 2012. Come on and submit your best shot. You could be the winner. Send everything to me at larrygaum@rogers.com





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Developments in Bone Regeneration

There remains a need to optimise methods of the regeneration of facial bones, says professor Stephen Porter

The replacement of bone loss of the mandible and/or maxilla due to infection, trauma, malignancy or congenital disease is a common therapeutic challenge for craniomaxillofacial and dental reconstructive surgery.

In order to promote bone regeneration, various techniques (including bone grafts and bone substitutes, guided tissue regeneration and distraction osteogenesis) and biomaterials have been utilised. Dental implants have revolutionised aspects of such care, but there remains a need to optimise methods of regeneration of bones of the face.

In collaboration with industry and other strategic partners within UCL Eastman Dental Institute, professor of periodontology Nikos Donos and Dr Nikos Mardas (senior lecturer in periodontology) have led a team focused upon translational research in the fields of bone regeneration and implant tissue integration, this ranging from basic in-vitro studies to preclinical and controlled clinical trials.

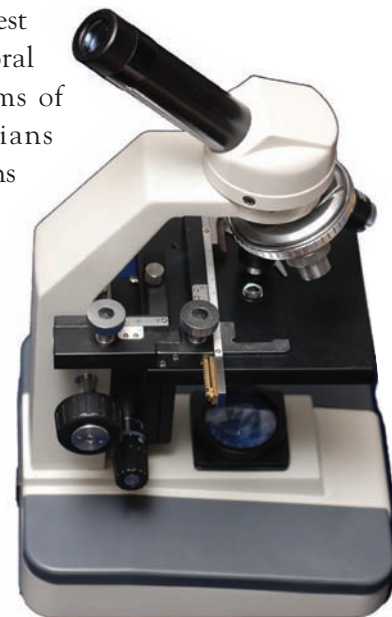
New developments

In collaboration with biomaterials colleagues within the Eastman, they have developed novel TCP-filled degradable polymer GBR membranes, able to secrete purmorphamine (an agonist of the hedgehog pathway) to promote bone formation.

Similar technologies could be applied in the future for local delivery of other growth factors.

They have demonstrated the beneficial effect of hydrophilic titanium surfaces upon peri-implant bone regeneration at molecular, histological and clinical levels. In collaboration with strategic industry partners, and by virtue of preclinical studies and randomised controlled trials, they have investigated the efficacy of novel bone substitutes, new implant designs and surfaces upon bone regeneration. Allied work has examined the implications of diabetes and osteoporosis upon implant-related bone regeneration. Of perhaps greatest interest, together with colleagues, professor Donos and Dr Mardas have discovered novel peptides stimulate osteogenic differentiation of adult human precursor/stem cells.

This work has immense application for many other fields of systemic health in which bone loss arises. It also clearly demonstrates that the best research outcomes in oral health come from teams of scientists and clinicians working towards solutions for clinically-relevant problems, utilising contemporary methods in several different fields of science and dentistry.



Author:



Professor Stephen Porter took up the directorship of the UCL Eastman Dental Institute in October 2008. He is also academic head of the Oral Medicine Unit and honorary consultant at UCLH NHS Foundation Hospital Trust (UCLHT). For more details about the UCL Eastman Dental Institute, please visit www.eastman.ucl.ac.uk or telephone 020 3456 1038.

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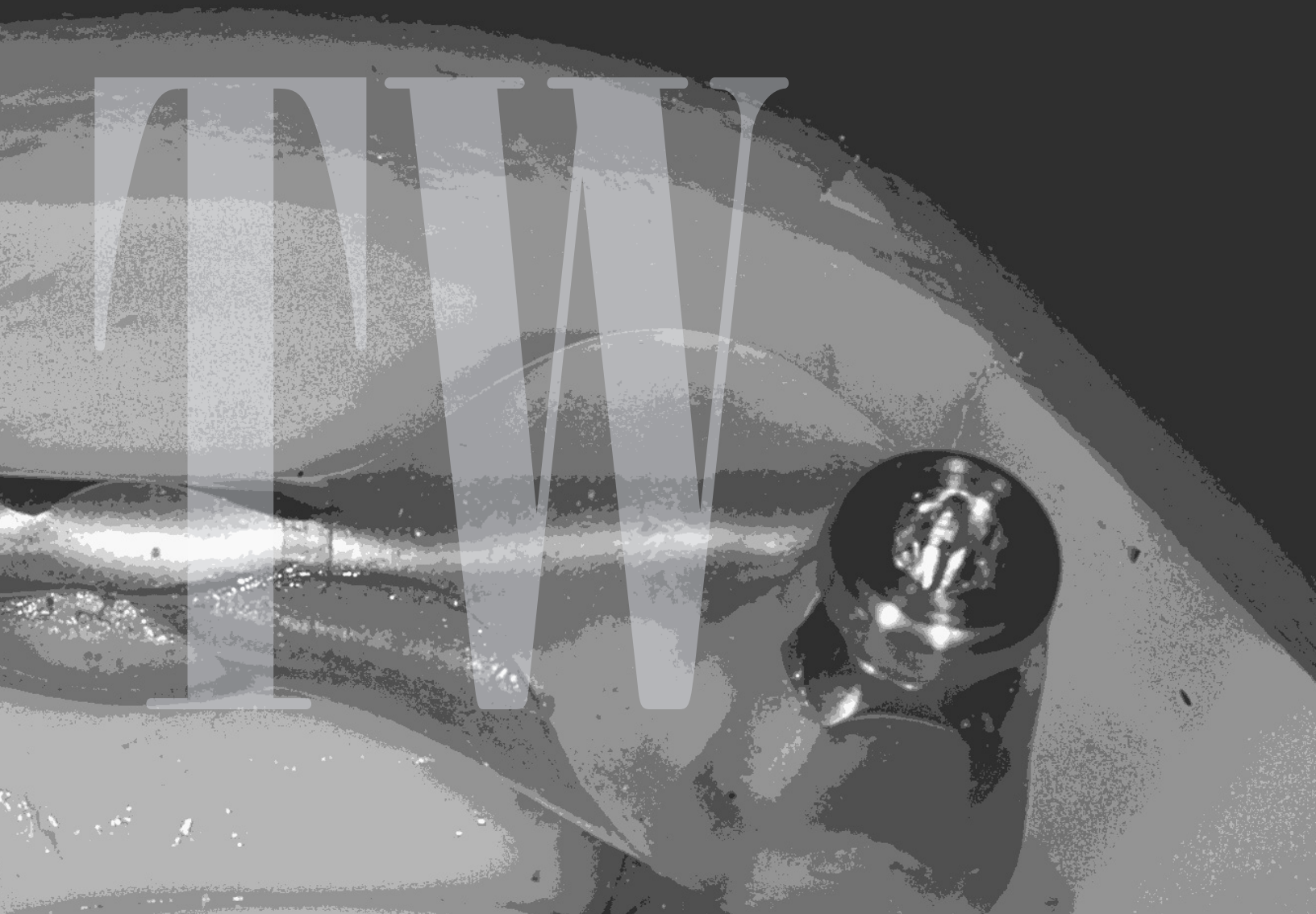
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IMPLANT PROSTHETICS

A Natural Fit

Author:



Tom Bereznicki graduated from Edinburgh Dental Hospital and School in 1976. He moved to London and, after various house surgeon appointments at Guy's Hospital and the Royal Dental Hospital, he entered general practice and started his own private practice in Queensgate, London, in 1982. His area of special interest is the creation and duplication of the created emergence profile in conventional and implant retained crown and bridgework.

For more information, email tom@tombereznicki.co.uk or visit www.tom-bereznicki-queensgate-london.com.

Introduction

When providing aesthetic fixed partial dentures for the patient with a low lip-line, the aesthetic result achieved is usually assessed with the lips in normal function. The emergence profile from the gingival tissues of the definitive restoration provided is not a priority. However, in high lip-line aesthetic cases, the emergence profile is paramount to the success of the restoration provided, particularly in short span bridges supported by implants.

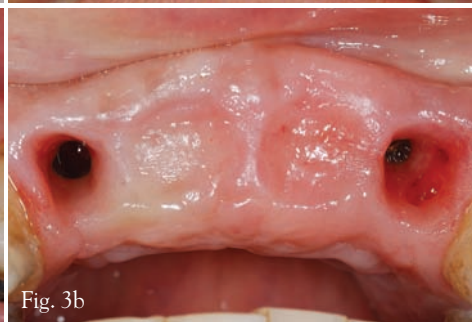
The aesthetic result achieved in the case shown in Figures 1a, 1b and 1c would not have been possible with the use of pink porcelain on the four unit definitive bridge replacing the anterior teeth. Figures 1c and 1d clearly show the difficulties associated with the addition of pink porcelain to the bridgework in the posterior quadrants – the challenges of colour matching and disguising the junction between the pink porcelain and the natural tissues.

The success of the case was dependant on the creation of a natural emergence profile of the abutment and pontic teeth from the gingival tissues using a screw retained composite

resin temporary bridge prior to the provision of the definitive bridgework. The temporary bridge is shown on initial fit (Figure 2a) and following adaptation and modification – Figure 2b.

The clinical problem encountered with the reproduction of the created emergence profile is clearly seen in another case – Figures 3a, 3b and 3c. The soft tissue profile is only maintained by the passive support provided by the ovate pontics and subgingival shape of the material around the screw retained titanium temporary abutments of the temporary bridge. On removal of the bridge, the soft tissues start to collapse almost immediately, in this case one hour later, and cease to resemble the desired shape and form. Any impression taken after removal of the temporary bridge will duplicate the collapsed tissues at the time. A permanent bridge made on a working model made from this impression will lack the necessary support to maintain the developed shape of the tissues.

The challenge was to develop a practical problem clinical technique which could be used to predictably reproduce this idealised soft tissue profile. This, in turn, would allow the





technician to fabricate a permanent bridge which faithfully reproduces the subgingival shape of the temporary bridge passively supporting the gingivae (Figures 4a, 4b and 4c).

Case presentation

A failing case is shown in Figures 5a, 5b and 5c. There is an endodontic problem associated with the right lateral incisor and a root fracture of the left lateral incisor. The bridge and associated abutment teeth were scheduled for extraction. The patient would not consent to the preparation of both caries-free canines to carry a conventional bridge, preferring the

option of a four-unit bridge retained by implants placed in both lateral incisor regions. The case is shown in Figure 6 following a month post extraction of healing. A removable acrylic partial denture was provided as an interim restoration.

After allowing for three months of bony infill and soft tissue healing following the extractions, two implants (NobelBiocare Replace Narrow Platform 13mm) were placed by Dr Andrew Dawood using a flapless technique. Following a further four-month period of osseointegration, the healing abutments were removed. An impression was made to allow the construction of a laboratory made composite resin temporary bridge (Figure 8).



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Fig. 9a



Fig. 9b



Fig. 9c



Fig. 9d



Fig. 9e



Fig. 9f



Fig. 9g



Fig. 10a

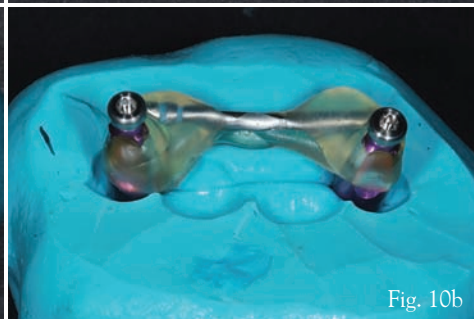


Fig. 10b



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It is not within the scope of this article to describe the technique for developing the emergence profile using the temporary bridge. The final appearance of the temporary bridge and the resultant emergence profile are shown in Figures 8a and 8b. The technique developed to duplicate the created emergence profile is based on fabricating a stent which accurately replicates the fit surface of the temporary bridge.

The steps involved are as follows:

- Two closed-tray impression copings (narrow) are fitted to the implants intra-orally and splinted together using an old bur and light-cured Triad Gel (Dentsply) – Figure 9a. Although an open-tray impression technique will ultimately be used to ensure that the created stent is removed from the mouth within the impression, the author has found that with the Replace system the design of the closed-tray impression coping gives both a better and taller shape to allow splinting of the copings in the mouth and subsequent addition of the stent to it (Figure 9b).
- The splinted copings are then carefully removed from the mouth ensuring that there is no movement of one coping in relation to the other (Figure 9c).
- Analogue replicas are then tightly screwed into the splinted impression copings (Figure 9d).
- The replicas are in turn splinted together with an old bur and Triad Gel.
- The replicas are again carefully unscrewed from the splinted impression copings (Figure 9e).
- The patient's temporary bridge is screwed tightly into the replicas (Figure 9f). As most temporary bridges in these cases are made with non-engaging screw retention, the sequence outlined so far must be adhered to in order to ensure that the orientation of the implants in the mouth is correctly reproduced in the stent. Failure to do so will result in an inability to seat the stent in the mouth.
- Impression putty (Provil Novo Fast Set) is then mixed and the temporary bridge/replica combination submerged into the putty until set. It is helpful to try to avoid creases and folds in the area of around the bridge as these will inadvertently be reproduced in the stent (Figure 9g).
- The temporary bridge is then unscrewed and removed. Excess putty is trimmed away with a scalpel blade (Figure 10a) – care should be taken to ensure that sufficient height is retained so that the stent, when fabricated, will protrude above the gingival tissues when fitted in the mouth. A useful tip is to have a line drawn on the temporary bridge at gingival level when still fully seated in the mouth and then to ensure that the putty is at least 1mm above this line.
- The previously splinted copings are then fitted back to the replicas in the putty (Figure 10b). A radiograph of the putty can be taken at this point to ensure that the copings are fully seated.
- Light-cured flowable composite (Venus Flow – Heraeus Kulzer) is incrementally injected around both copings and cured. It is advisable to build up the composite around the copings first, then to slowly extend into each pontic area before joining the two pontics together. This ensures that the polymerisation shrinkage associated with composite resin is kept to a minimum, reducing distortion during the process, which could lead to a degree of distortion. In turn, this could lead to difficulty in fitting the stent to the implants in the mouth or fracture of the stent on tightening the copings to the implants.

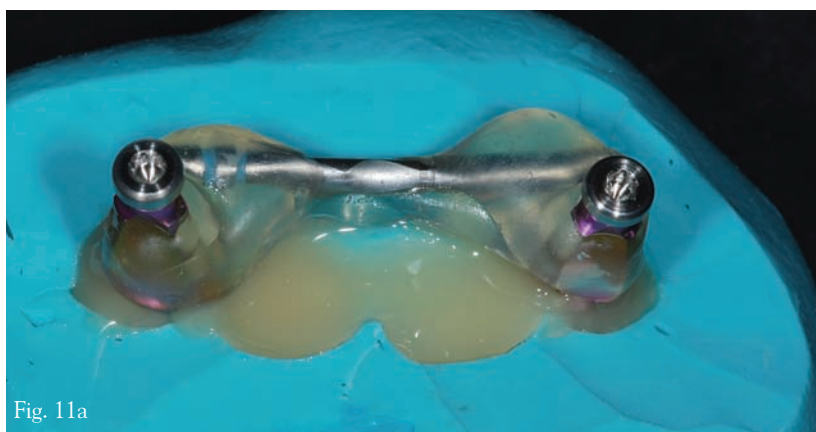


Fig. 11a



Fig. 11b



- The completed stent is shown before and after removal from the putty in Figures 11a and 11b.
- The stent is then fitted to the implants in the mouth and tightened (Figure 12a).
- A radiograph is taken at this point to ensure that the assembly is fully seated (Figure 12b).
- The final impression is made in this case with Impregum Penta – 6 Minute Hard (3M ESPE). The author prefers this material as it ensures that there is no unwanted movement of the stent within the impression at the time of removal. Once the material

has set, the coping screws are unscrewed and the impression along with the stent removed from the mouth (Figure 12c).

As can be seen from the photo of the temporary bridge (Figure 7) the access cavities to the screws are located in the incisal area of the bridge. This access could not reasonably be reproduced within the final porcelain bridge without compromising the aesthetics and integrity of the porcelain.

Although angled abutments could be fitted to allow a screw-retained design final bridge, the resultant collar of metal might become visible and compromise aesthetics. This

drove the decision to provide a cement retained Zirconium bridge cemented onto Milled Zirconium Procera Abutments (NobelBiocare). The author has found that it is easier for the technician to reproduce the emergence profile in porcelain if working on a solid model. The 'bounce' encountered when working on a soft tissue model can lead to discrepancies in the fit surface. This is less of a problem with a screw-retained design.

The degree of accurate reproduction of the soft tissues in both the soft and hard tissue models, is clearly seen in in Figures 13a, 13b and 13c. The screw retained Milled Zirconium Procera abutments and final bridge are shown in Figures 14a, 14b and 14c.

The passive yet supportive fit of the abutments and final bridge around the created emergence profile are shown in Figures 15a and 15b and the improved appearance when compared to the original bridge on presentation – Figure 15c. Only one trial fit of the final bridge was required to check the occlusion and allow small modifications to the shade. The aesthetic improvement achieved in the soft tissues around the lateral incisors is self-evident.

Conclusion

The technique presented is a simple method of accurately reproducing the emergence profile created by a carefully adapted temporary restoration made in composite. A simple bespoke stent is used for this purpose. Time spent at this stage eliminates the need for numerous time-consuming trial fits to create an aesthetic appearance with the final bridge in the porcelain phase of treatment. The stent can be undertaken by ancillary staff between patient visits further reducing surgery time. A natural fit against the matured tissues can be comfortably and predictably achieved and a highly aesthetic restoration delivered. TW

Acknowledgements

My thanks to Mick Kedge for all his help and support in developing this technique and for all the technical work.



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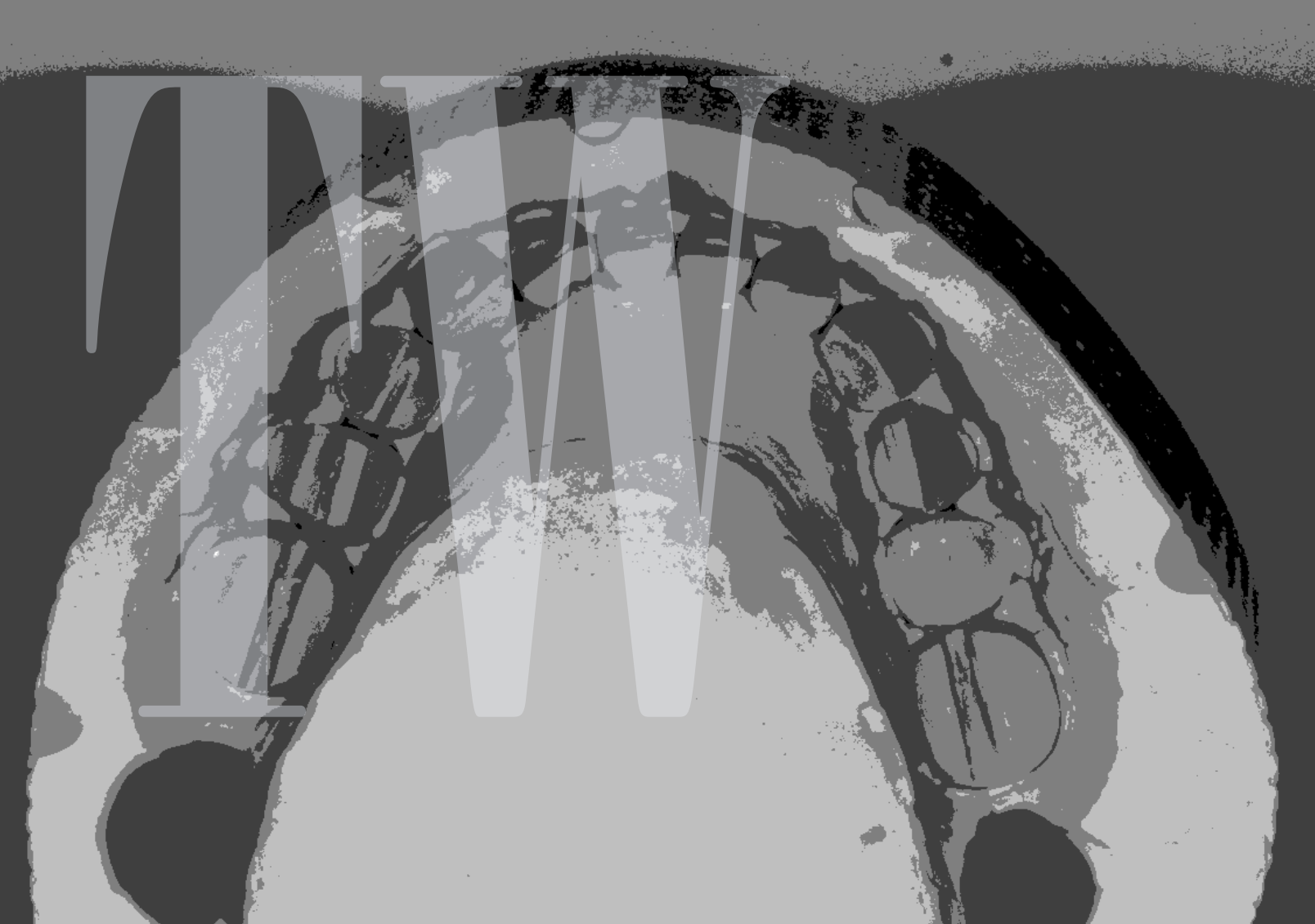
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The Locator

Author:



Axel Mühlhauser was born in 1957. From 1976 to 1979 he trained as a bank clerk. From 1979 to 1982, he trained as a dental technician in the dental laboratory Kienhöfer in Heiniger/Germany. From 1982 to 1999 he worked as a dental technician in several laboratories in Germany and from 1999 to 2004 in the laboratory Fehmer in Stuttgart. In 2002, he founded the agency “Consultancy for dental technician”. In 2004, he founded the laboratory Axel Mühlhauser Dental GmbH in Göppingen. His work focuses on anterior restorations, telescope crowns with aesthetics in composite, combination work and implant restorations. He is the author of several national and international publications. In 2011, he published his book “Removable Implant Restorations”.

Particularly in the removable implant region without residual dentition a variety of design options are available to us. The author demonstrates in the following article how with only a few implants a functional and aesthetically pleasing restoration can be achieved in addition to being financially manageable by the patient. Step-by-step instructions show the fabrication of a restoration secured by a locator. Simultaneously, we will address briefly the fabrication of full dentures in the counterbite.

Patient case

This 61 years old patient was diagnosed in 2008 with squamous cell carcinoma on the right side of his tongue. He received neoadjuvant chemotherapy as per the Essener Protocol (total radiation dosage of 40 gy and cisplatin), followed by the resecting of the tumor by means of a partial glossectomy right side (partial tongue removal) and a rad neck dissection (lymph node dissection in the neck) as well as a suprahyoidale and jugulo cranial dissection left side (also removal of the lymph nodes). The area was covered with a musculus pectoralis flap right side (pedicle skin-muscle flap, extracted from the breast).

After an irritation-free healing period in line with the implant consultation the patient presented himself to us in 2009. Because of the severe changes to the mucous membrane during the surgery (the flap covers the alveolar process) and the extremely limited stoma, we chose an implant fixed dental prosthesis. A restoration with telescope or bar design was rejected because of the limited stoma and it was not the cost efficient solution we were trying to achieve. We agreed on the Locator-design.

Status

Mandibula: 4 implants in the anterior region
Maxilla: edentulous

Procedure

Mandibula: 4 Locators on implants, set-up and finishing
Maxilla: full denture, set-up and finishing
Implant system: AstraTech

Models and bite-taking

As usual, we start with the fabrication of individual

impression cups in the maxilla and mandibula with respective openings for the impression posts for the open impression.

Excursus: Of course we can also work with the elements for the closed impression, which are part of the program. For this we use the Locator abutment impression cap to take the impression and for the model fabrication, the Locator abutment analog.

Simultaneously with the impression taking we take the first provisional bite for the following baseplates. After repositioning the laboratory analogs, the working models are created: in the mandibula with a gingiva mask, in the implant region and then articulated according to the provisional bite. To ensure a secure anchorage of the mandibula in the mouth we inserted temporary abutments. These are leveled according to the height specifications and integrated into the C-plast basis. Particularly in this case with a limited stoma and regio 44-47, suboptimal bearing options defects should be avoided during the bite-taking process. The completion with wax walls is done in the articulator (Figs. 1 and 2).

Via the facebow the maxilla is adjusted to the correct position (Fig. 3) followed by the articulating of the mandibula (Fig. 4). The wax wall in the maxilla was adjusted according to the lip line, which gives us the needed length specifications along with mid-line and smile line.

Try-in set-up

Once an adequate set has been chosen, it is customized in advance. The set-up is done according to the specifications on the base plate, in the present case individually with slight interlacing (Fig. 5), in the maxilla completely up to tooth number 6 (Fig. 6), in the mandibula up to tooth number 5 with a wax wall and light impressions (Fig. 7) and screwed in for anchorage. The idea behind this was that in case of small discrepancies it would be easier to correct the bite without having to grind the molars needlessly. A keen eye would probably notice that the anterior, or rather the fourth quadrant, is slightly hanging. According to the specifications on the bite plate and further inquiry it was confirmed by the dentist. Due to present paralytic symptoms in the right side of the face the lip line was partially sagging; therefore, the goal was to improve the overall look with an appropriate set-up.

Superstructure

Already during the try-in we noticed a perfect aesthetic look. We decided to leave the maxilla anterior and the posterior teeth areas as are. Because the patient did not, or rather could not wear a prosthesis for many years, a definite bite determination was very difficult and needed another adjustment (Fig. 8). The readjustment was done only in the mandibula at the same time the two molars were completed. Given the surgical procedures and

limited motor function we refrained from the set-up of tooth number 7.

We decided to add an intermediary step, which enables us to have more control while working on the design of the superstructure and the immediately following finishing process. We used Platinum 85 for a mask over the mandibula. After the boiling process the appropriate Locator abutments are selected according to their height. The height of the abutments selected should be based on the highest level of tissue measured. This will allow the

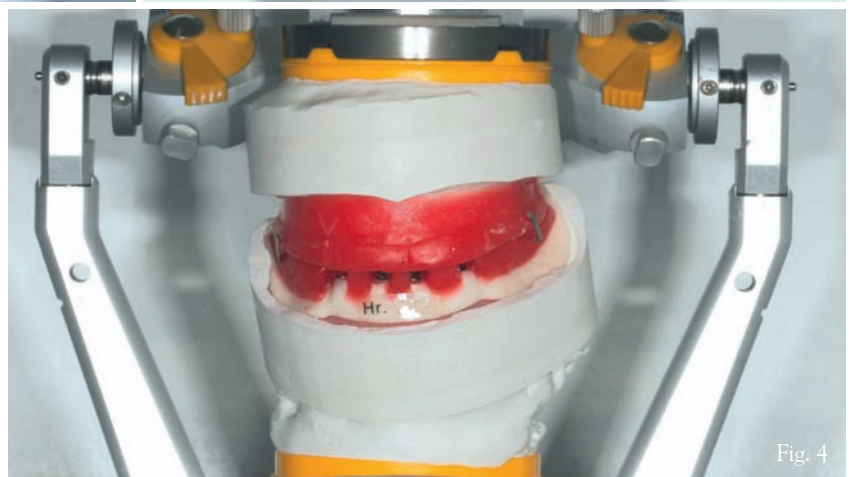
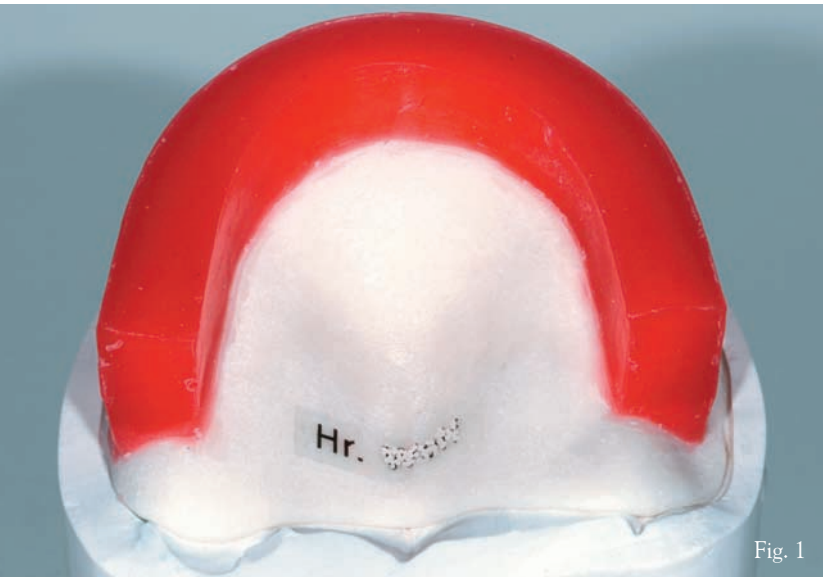


Fig.1 : Classical base plate made of C-Plast with wax walls

Fig. 2: Screwed in the mandibula with temporary abutments

Fig. 3: The obligatory face bow

Fig. 4: Construction of the counter bite, guidelines of the oral settings on the wax wall are required

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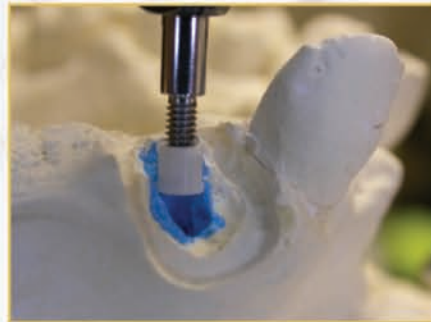
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Fig. 5



Fig. 6



Fig. 7



Fig. 8

Fig. 5: Set-up for the first cosmetic try-in

Fig. 6: Anterior teeth set-up in the mandibula slightly interlaced

Fig. 7: In the molar area first with a wax wall

Fig. 8: The aesthetic in the maxilla is perfect but the bite needs to be corrected

retention groove to be at the appropriate supragingival height. We tried to achieve an even height for all abutments (Fig. 9). With the Locator Core Tool (Fig. 10) the abutments are easily screwed in and the retention inserts are placed or removed. The golden driver tool is for the tightening and loosening of abutments, the short silver insert removal tool for catching and pulling the insert out of the permanent metal housing and the long corrugated insert seating tool for seating an insert into the titanium processing cap. The factory installed black Locator inserts have to stay during the entire working process until finishing. The teeth are aligned with the Platinum 85 mask. It is important that the abutments and Locator stay wax-free and visible. At this point the exact spacing for the superstructure is verified and improved, if necessary. If precise and accurate work was

done up to now, the annoying and imprecise fitting of the mask can be omitted for the finishing.

Once the areas around the abutments have been completed with pink wax we follow with the delicate modelling process (Fig. 13). We fabricated the counter bite using cast material and Platinum 85 (Fig. 14). It enables us during the finishing process to lift the teeth off the counter bite for the adhesive bonding application yet lets us preserve a very stable and accurate counterbite for the following working steps. At the same time the model is ready for doubling. With fitted locator housings in place, the abutment is waxed-out according to the largest Locator perimeter and in addition all surfaces are parallelized by the parallelometer. Next, the retention grooves of the Locator housings have to be waxed-out, the saddle elements put under (Fig. 15) followed by the



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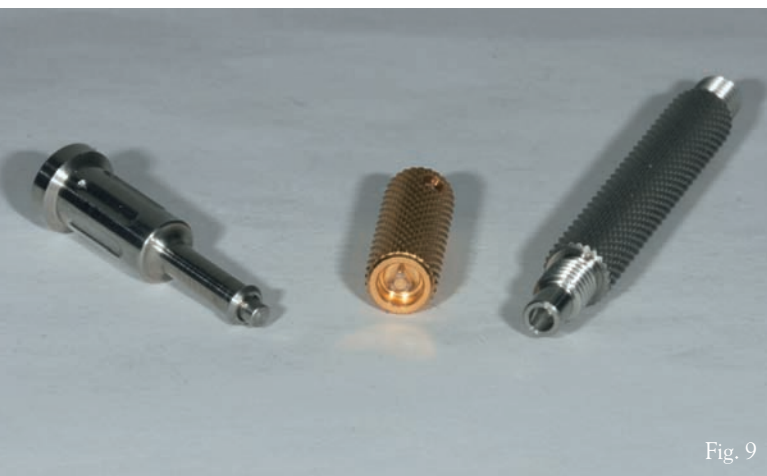


Fig. 9



Fig. 10



Fig. 11



Fig. 12



Fig. 13



Fig. 14

Fig. 9: The locator instrument

Fig. 10: Locator abutments and locator housing are inserted

Fig. 11: Repositioning of the set-up with Platinum 85

Fig. 12: At the beginning, the abutments stay uncovered for space verification purposes

Fig. 13: The modelling of the prostheses is finished

Fig. 14: The counter bite made of plaster and Platinum 85

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Fig. 15



Fig. 16



Fig. 17



Fig. 18



Fig. 20

Fig. 15: Precise waxing-out is of paramount importance

Fig. 16: Speed silicone saves time!

Fig. 17: A perfect basis for the investment compound model

Fig. 18: Investment compound model with wax modelling before embedding

Fig. 19: Fitting without too much refinishing work

Fig. 20: Basal supports and inner surface of funnels polished to a mirror finish up to the cementing area

doubling with silicone. Despite the use of speed silicone we get a perfect, accurate surface after demolding (Figs. 16 and 17). According to the model casting guidelines, we now produce an embedding material model and shape the superstructure (Fig. 18). For the embedding we recommend a larger expansion to eliminate fitting work and to preserve the space for adhesive bonding. After casting and deflasking the fitting should be easy (Fig. 19). All bearing areas and channel areas that are below the Locator housing, need to be put under a stereo microscope and polished meticulously (Fig. 20). Now we verify the fit of the counterbite with the superstructure. Premature contacts are

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unacceptable because the following opaquer process slightly reduces the spacing.

Cementing of the Locator housings

We protect the polished surfaces with silicone protective lacquer (Fig. 21) during the blasting of the connection areas. It can easily be stripped off afterwards (Fig. 22). The Locator housings even with retentions are blasted before the bonding agent application. We protect the basal part, also known as the black insert with the Platinum 85-Block material (Fig. 23). After the repositioning on the abutments (do not touch with your fingers, use disposable gloves) the Locator abutments are waxed out (Fig. 24) and the fit of the model cast is verified once more (Fig. 25). The horizontal grooves in the cementing area support the additional mechanical retention and allow for controlled drainage of excess cement. While cementing, we ensure

that the polished surfaces do not apply pressure on the mucosa and we allow for the necessary spacing by using underlay wax for the structure in the saddle areas. A clearance of 0.6 to 0.7 mm is ideal. It ensures that during repositioning of the prosthesis with the original retention inserts later on denture sores and irritations are eliminated, particularly as the black retention inserts are pure working inserts and resilience placeholders.

All bonding surfaces receive an application of metal primer, in addition the Locator housing and the model cast receive a thin layer of cementing material in the cementing area. The work is then joined together. Excess cementing material escapes through the horizontal grooves and the occlusal openings (Fig. 26).

With dual hardening materials, the initial reaction is triggered with the use of a polymerisation light. After the removal, it displays a perfect result from the basal side. Very little cement is left in the interior areas and is easy to

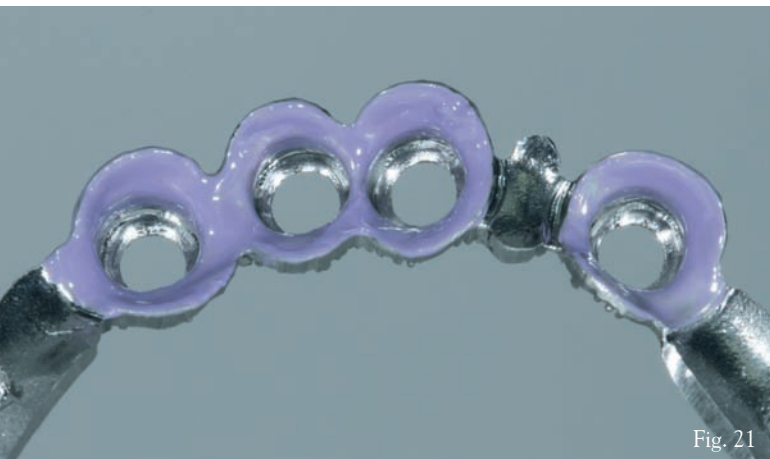


Fig. 21



Fig. 22



Fig. 23



Fig. 24

Fig. 21: A silicone film protects the high gloss areas during blasting...

Fig. 22: ...for a perfect result after detachment

Fig. 23: Modelling silicone protects the locator housings from basal side during blasting

Fig. 24: Locator housing aligned, waxed-out and denture saddle parts underlaid



Fig. 25



Fig. 26



Fig. 27



Fig. 28

Fig. 25: Final verification prior to cementing

Fig. 26: A neat, accurate adhesive bond

Fig. 27: Excess cement residue is easily removed off the high gloss surfaces with an instrument

Fig. 28: The framework: conditioned and pink opaquered, secured with acrylic from distal

peel off the polished surfaces (Fig. 27) with an instrument. Excess cement residue buccal/lingual and occlusal is removed with a milling tool thus perfecting the shape.

Finishing

For the finishing the mg-areas need to be conditioned and pink opaquer has to be applied. Here as well the application of silicone protective lacquer to protect the polished surfaces is advisable. To achieve a stable anchorage, especially in the distal retention area, we secured it with underlay wax and afterwards we added a small "acrylic island" in the retro molar area respectively (Fig. 28). If the counter bite fits properly, the underlay wax is removed, the model submerged in water and insulated. The basal polished surfaces receive a layer of vaseline on the inside to protect them from immersive

acrylic and the superstructure is repositioned on the model. Because implant designs create increased pressure on the artificial teeth and their bonding to pink acrylic, we always condition them beforehand. We remove the teeth from the counter bite, grind adequate mechanical retentions and apply a bonding agent system after the blasting process. Before repositioning the teeth they are submerged in water and insulated and then the teeth are aligned. Once the counter bite is placed on the model, we pour pink acrylic that has a creamy consistency slowly and evenly in the larger funnel so that potential air bubbles can escape. As soon as the second funnel is filled we polymerise according to the manufacturer's instructions. For the full denture in the maxilla the process is analog.

Because of the Platinum 85 inner core material the deflasking is easy and damages are eliminated (Fig. 29). After deflasking, very little residue remains and it is

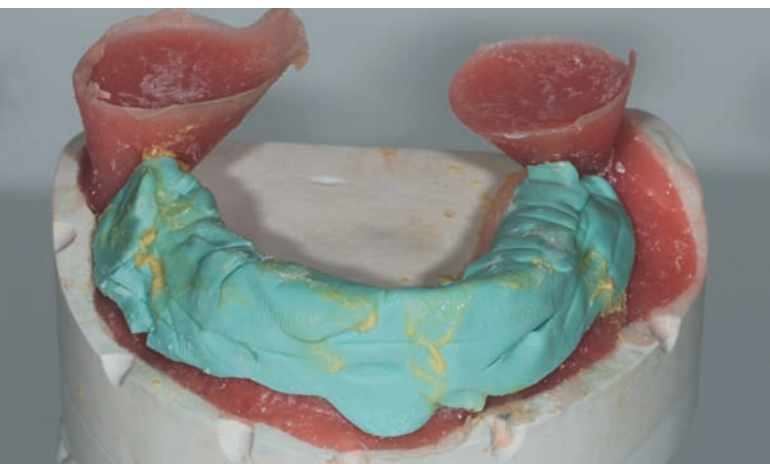


Fig. 30



Fig. 32

Fig. 29: Deflasking the easy way

Fig. 30: Small residue can easily be removed later on in the maxilla...

Fig. 31: ...and the mandibula in the ultrasonic unit

Fig. 32: Precise basis with perfect transitions to the MG...

removed effortlessly in the ultrasound device afterwards (Figs. 30 and 31). Prior to lifting the prosthesis off, we grind-in the centric, protrusion and laterotrusion.

Once the mandibula prosthesis is removed we are more than pleased with the result from the basal side (Fig. 32). With the non high-noble implant skirts, the transition to the pink acrylis is clearly defined and simply perfect. The finishing of the prosthesis is easy and efficient with the H 251 EQ by Komet (Gebr. Brassler, Lemgo) (Fig. 33). Before the final polishing the inside of the cement bonding is checked for possible cement residue with the stereo microscope. The residue is removed if necessary and the edge to the Locator housing refinished if it is required. Under no circumstances should any grinding be done on the polished surface or the housing itself. In the final step, we

polish the adherent surface transition to the Locator housing with a small brush. Afterwards, we remove the black Locator insert with the Locator tool. This kind of procedure guarantees a perfect result (Fig. 34).

Once the maxilla and mandibula prostheses are finished and polished, the definite retention inserts are placed with the Locator tool. We have a choice of different adhesion strengths determined by the divergent alignment of the implants:

blue:	adhesive force 680 g
pink:	adhesive force 1361 g
white:	adhesive force 2268 g
red:	adhesive force 680 g (with larger divergencies)
green:	adhesive force 1361 g to 1814 g (with larger divergencies)



Fig. 33: ...with the H 251 EQ fast and efficient

Fig. 34: An immaculate cement bond

Fig. 35: The red retention inserts are placed

Fig. 36: An unusual saddle design in the fourth quadrant

Fig. 37: Despite slight interlacing harmonious...

Fig. 38: ... yet distinctive in detail

Fig. 39: Also with open bite a harmonious result



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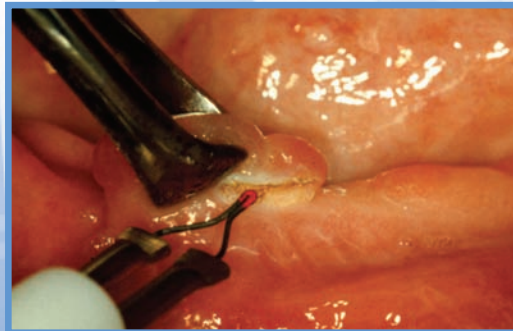
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For the present case we used the red inserts (Figs. 35) and added the green inserts as an alternative. We wanted to facilitate the handling during integration and removal in the start-up phase. Alternatively in this case, we have the option to fit the two Locators regio 43 and 34 because of their angle with the pink or white inserts.

Conclusion

The basal view in the mirror shows the successful shape, which is not that common in the the fourth quadrant from distal (Fig. 36). In the frontal hinge position the vibrant incisal edge and the colour accentuated number 3 teeth are clearly noticable (Fig. 37). The side view reveals in detail the

lovingly designed pink elements and the lively set-up (Fig. 38). With an open bite the lively anterior set-up in the mandibula is noticeable. It integrates harmoniously into the upper anterior alignment (Figs. 39 and 40). Figures 41 and 42 show a view of the situation before the removal of the healing caps and with inserted Locator abutments . In situ we get an overall natural appearance of the design of the pink elements, the colour and the shape (Fig. 43).

Epilogue

Especially for patients with limited fine motor skills the Locator offers easy handling depending on the bond strength and the handling during inserting and removal. The inserts



Fig. 40: This close-up reveals the tooth alignment done with special touch and the gingiva shape



Fig. 41: The healing caps before removal



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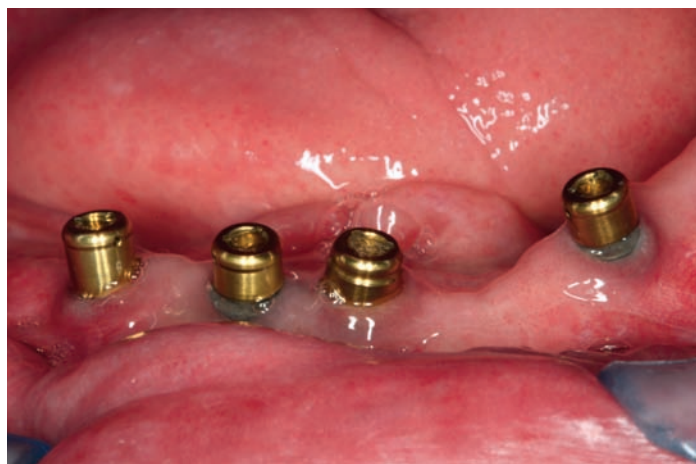


Fig. 42: The locator abutments are placed

are easily and fast exchangeable. Because of the moderate cost, a lower adhesion force may be used and once the patient is used to the inserting and removal process gradually a stronger adhesion strength can be introduced. With this kind of design despite the cost factor we believe that the importance of a stable superstructure should not be overlooked. It effectively prevents a prosthesis fracture or the loosening of the Locator housings from the acrylic prosthesis. The adhesive bonding with the appropriate conditioning assures a superior bonding and is impressive with its exact fit. Every small irregularity leads to an increase in abrasive wear of the retention inserts, to a rocking effect or to insufficient bonding. We also find that because of the basal non high-noble polished surfaces or the funnels, the plaque affinity compared to that with pure acrylic components is significantly reduced.

Materials

The Locator abutment system (Astra Tech, Elz) is impressive with its clear selection options and procedure simplicity. The different colour coded retention inserts offer a vast selection with regards to bonding strength and implants with an extreme angle. A mix-up is virtually impossible!

For the cutters (Gebr. Brasseler, Lemgo) we prefer the NEF-cutters (red/green) for the non high-noble areas. The cutting ability and surface are exceptional. In the acrylic area we like to use the Komet-cutter H 251 EQ because of its fine serration around the tip, for the contouring around the teeth and towards the shaft a coarser one for the larger



Fig. 43: The prostheses integrate harmoniously and do not feel like a foreign body to the patient

surfaces in the border areas. It reduces the time consuming tool changing considerably.

The 1:1 silicone putty material Platinum 85 (Zhermack, Marl) is very versatile as outlined in the present article: easy and secure handling and excellent detail definition. The duplication silicone Elite Double Fast 22 belongs to the speed silicone category and we could not detect any disadvantages, on the contrary it makes an impression with a very smooth surface and eliminates unnecessary waiting time.

For our impression trays and base plates we have used C-Plast (Candulor, Rielasing-Worblingen) for many years. Especially in the implant region with inserted temporary abutments for the screwing of base plates we value the minimal warpage even over a longer time period and the easy, secure handling. The aesthetic autopolymer is impressive with various shades with and without veining. The natural colour effect with semi-opaque pigmentation displays a natural pink. Characterization can be applied with a variety of available intensive colours if required. TW

Acknowledgment

- I would like to thank Dr. OA Christian Mertens and Dr. Burkhard Frei, MKG-Kopflinik Heidelberg. The positive and constructive cooperation and the accurate procedure documentation made a smooth and satisfactory realisation possible.
- A special thank you goes out to my co-workers especially to Mr. Herr Tobias Schwemmer, who played an important role in the design.

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The growth of implant dentistry worldwide is now at last firmly established as a recognised speciality that can offer ideal restorative solutions for many patients.

This is particularly so where crown, bridge and denture cases cannot be successfully restored by more conventional methods, and where some form of artificial support for the restoration is required.

Dental implant systems are based on engineering principles, and by design they need to incorporate sound mechanical properties. However, not all commercially available implant systems can satisfy all the demands required of them.

Most systems do offer well-designed implants made from biocompatible materials such as titanium, which generally work well and successfully osseointegrate with the supporting bone. It is more usual for the abutments to prove more challenging, particularly when trying to achieve an acceptable aesthetic result.

Ready-made, machined abutments are produced to match the many implant fixtures now available, and are supplied in various design configurations. They usually offer a choice of angulations to suit differing clinical situations, but because there is a large degree of incompatibility between individual manufacturers

abutments, and different implant systems, configurations are somewhat limited. This often restricts the options open to the technician when making the final restoration.

Problems can relate to final tooth shape, the position and angulation of the placed implant, the provision of adequate material thickness for the restoration, and an inability to create ideal emergence angles.

In many instances when using these ready-made abutments, the technician is forced to compromise, and may have to consider the fabrication of custom-made abutments.

Atlantis abutments and VAD

Advances in technology have enabled dental professionals to overcome many of the problems associated with the production of successful functional and aesthetic restorations. The introduction of the Astra Tech 'Atlantis' abutment system now offers practitioners and technicians further scope to overcome most, if not all, of these problems.

Atlantis is a custom abutment system that utilises VAD (Virtual Abutment Design). The initial idea for the system originated 15 years ago with Dr Scott Ganz, the internationally recognised dental implant specialist, and was further developed by Astra and Dentsply.

Fig. 1: A screw-retained Atlantis abutment, clearly showing tooth form

Fig. 2: The completed crown for this same case

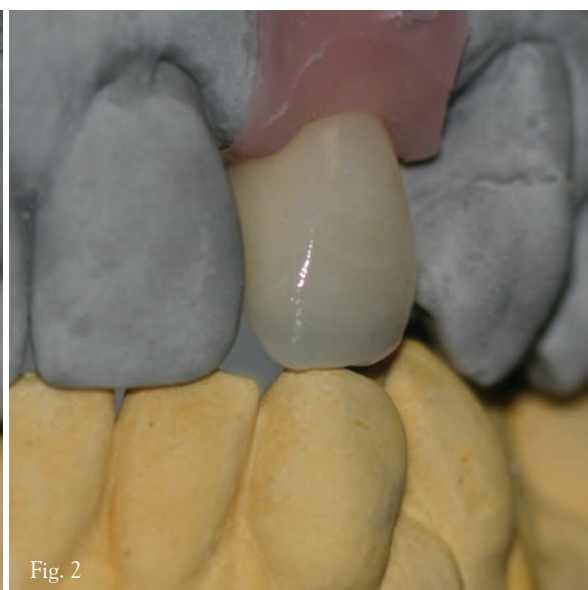
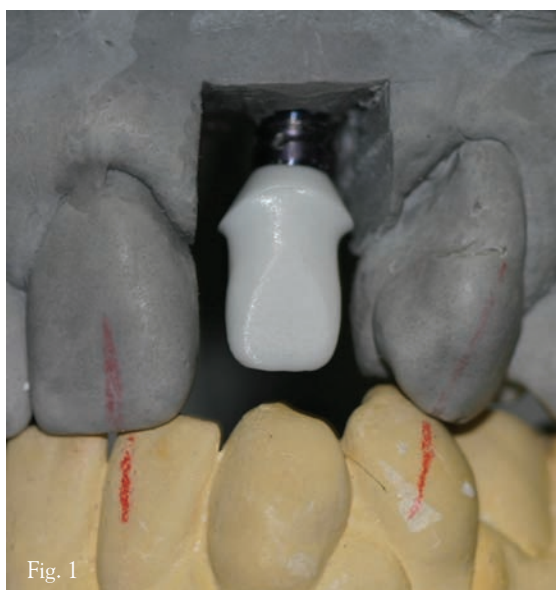




Fig. 3: Various Atlantis abutment options

The concept of VAD is mainly based on the final required tooth shape, and the desire to reduce the degree of compromise that is often required when using ready-made abutments.

It utilises proven CAD/CAM principles whereby a model of the implant site is scanned and the software then designs a tooth to fit the available space. This process is extremely useful where limited space is available, or where less than ideal placement angles exist. As VAD is patient specific, it helps produce a far more predictable and acceptable aesthetic result for the final restoration.

The procedure requires the practitioner to produce a suitable impression, followed by a laboratory made soft tissue model of the implant site, in the same manner as would be usual for conventional implant restorations.

Scanned images are then relayed online to the Astra laboratory in Sweden, where a design proposal for the intended Atlantis abutment is produced showing its ideal shape and contour.

This design proposal can be produced within one hour, and subject to acceptance by the originating laboratory, the abutments will then be milled from a solid titanium or zirconia block.

There is a choice of material to suit differing aesthetic and functional requirements, with standard titanium being most popular for posterior restorations. The other material options are goldhue (titanium-nitride coated titanium) and four different zirconia shades, which are especially suited to more aesthetically sensitive cases.



Fig. 4: The Atlantis abutment design allows for perfect contouring

ATLANTIS™

Discover Atlantis™ Crown Abutment

Atlantis™ Crown Abutment is an efficient, effective and esthetic alternative to traditional cast abutments for single-tooth, screw-retained restorations.

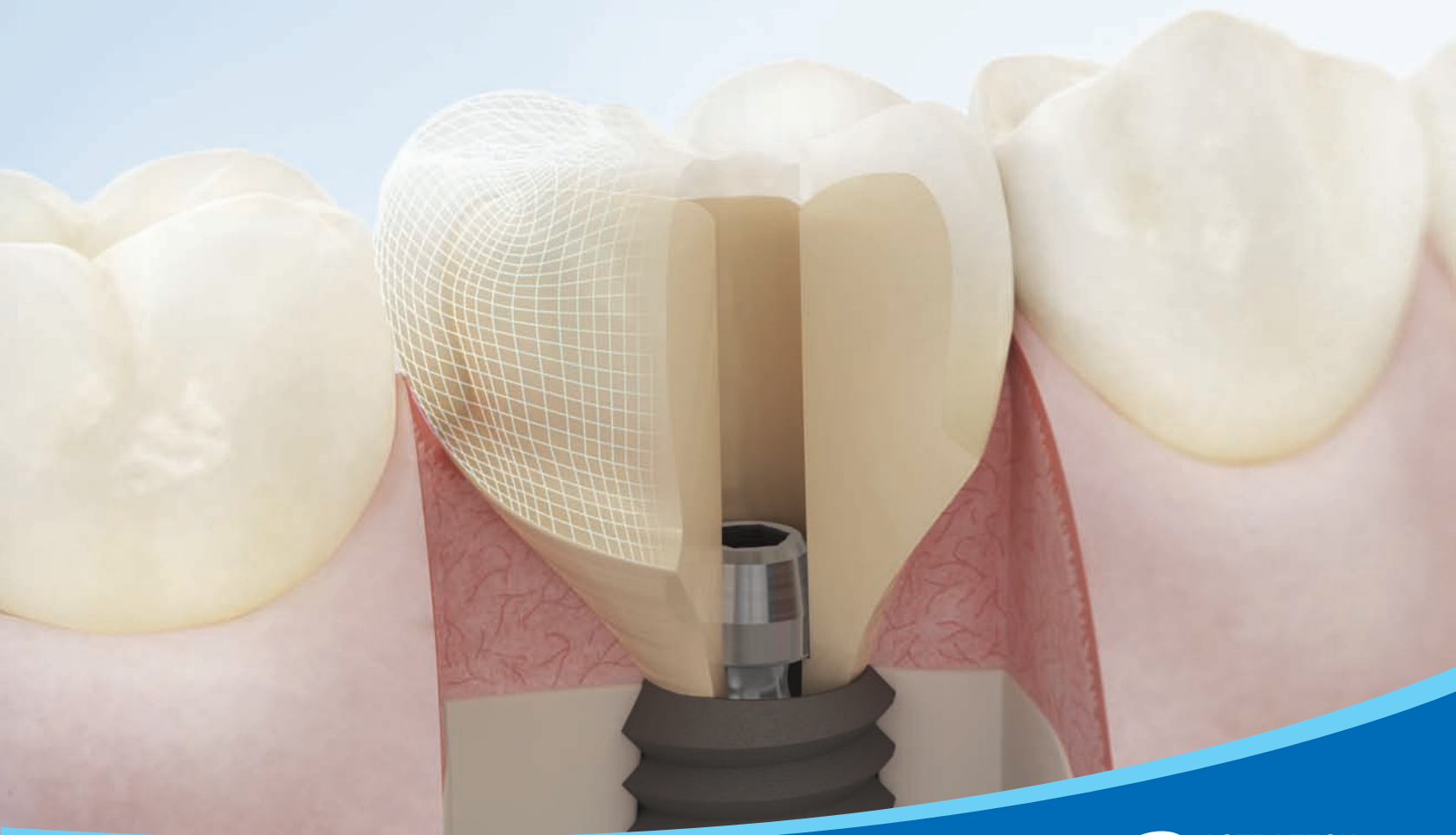
Like Atlantis™ patient-specific CAD/CAM abutments for cement-retained restorations, the Atlantis Crown Abutment is uniquely designed from the final tooth shape for more natural esthetic results and available for all major implant systems. It is also precision-milled from a solid blank of biocompatible zirconia, which eliminates the need to cast with precious metals.

What's more, because porcelain is applied directly to the Atlantis Crown Abutment, it can be easily retrieved, if needed, and the time and cost of preparing a separate coping is recaptured.

Atlantis Crown Abutment is available in five shades, including a new translucent zirconia in white. It can be placed in all positions in the mouth and is covered by a comprehensive warranty.

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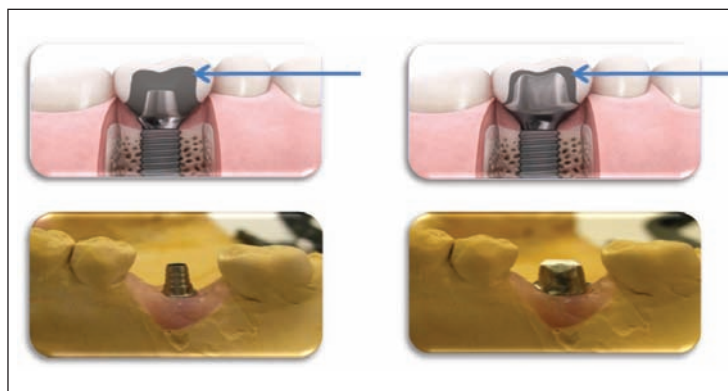


Fig. 5: Use of the Atlantis abutment enables considerable cost savings to be made in the alloy used for the restoration

Advantages of Atlantis abutments

Atlantis abutments, which are obviously matched to Astra fixtures, are fully compatible with Nobel Biocare, Straumann, Biomet 3i and other popular fixtures.

Use of the system includes a fully comprehensive 'takeover' warranty. In the unlikely event of failure of the restoration, Astra Tech will not only replace the abutment, but will also replace the supporting fixture and the restoration should this be due to abutment failure.

These abutments have many obvious advantages that will benefit the practitioner, technician and ultimately the patient.

For the practitioner, it involves very little – if any – change from the usual routine, and for the busy commercial laboratory it can allow skilled technicians to

devote time to more exacting procedures. The VAD process virtually eliminates the need to build up custom abutments in wax from scratch, and also reduces the need to keep stocked inventories of expensive ready-made machined abutments.

The resulting implant restorations will be predictable, can be made without error, and can embody the ideal characteristics of correct anatomical shape and thickness.

Through the use of titanium, which has been shown to have less attraction to plaque attachment, periodontal considerations can be better served through the production of 'tissue-kind' restorations. The need to use high-cost, gold-based alloys can also be much reduced. The

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- "His approach really works. I got my money's worth – not only have I learned this technique, but I've also learned new marketing skills. I feel I'm really helping folks who cannot afford regular implants, and are suffering from missing teeth." – Dr. Yuray Benko, Brossard

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TECHNOLOGY

Oral Cancer and Surgical Robots

The volume of robotic surgeries has risen in the last decade as demand for a minimally invasive approach grows. Here, a fascinating insight into their work

A robot that is precise enough in its movements to remove cancerous tumours from the mouth and throat is being used by surgeons in the US.

Surgeons at University of Rochester Medical Center in New York are incorporating a surgical robot into their everyday practice more and more.

The first trans-oral robotic procedure ever to be undertaken in upstate New York – a partial glossectomy – was performed last year by surgeon Matthew Miller.

This procedure expands the medical centre's robot-assisted surgery capabilities to include procedures for head and neck, urologic and gynaecologic conditions.

Matthew explains: "Traditional approaches to these tumours have the potential to be invasive and disfiguring – often leading to an extensive recovery and rehabilitation period. The robot allows us to limit or even eliminate some of the side effects associated with more invasive surgeries while still effectively treating the cancer.

It offers greater visuals and flexibility in getting at tumours that are very hard to reach. The 3D visuals are so much better and the instruments give us 360-degree manoeuvrability, which means we're able to perform surgeries with greater precision than ever before."

Strong Memorial Hospital's daVinci Surgical Systems consist of robotic arms that replicate a surgeon's motions in real time. The movements are by a surgeon using high-definition images provided by cameras positioned within the patient's mouth. The surgeon works from a console across the room from the patient.

Traditional surgery for some head and neck cancers requires large incisions – extending from the lip, across the chin and to the neck before entering the mouth or throat.

Often, surgeons need to cut through the lower jaw and move aside vital cranial nerves to gain access to the back of the mouth and throat.

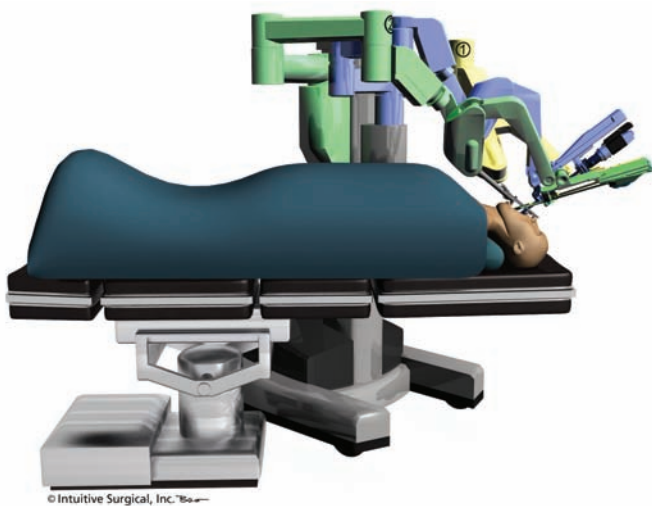
Using the high-precision robotic system, surgeons insert the slender instruments into the mouth to reach the base of the tongue, tonsils, oropharynx and throat.

The benefits for people with head and neck cancers are dramatic because the surgeries can be done, primarily, without incisions and offer faster recovery time and a reduced risk of infection or other complications. The jaw is left intact and the cranial nerves are avoided.

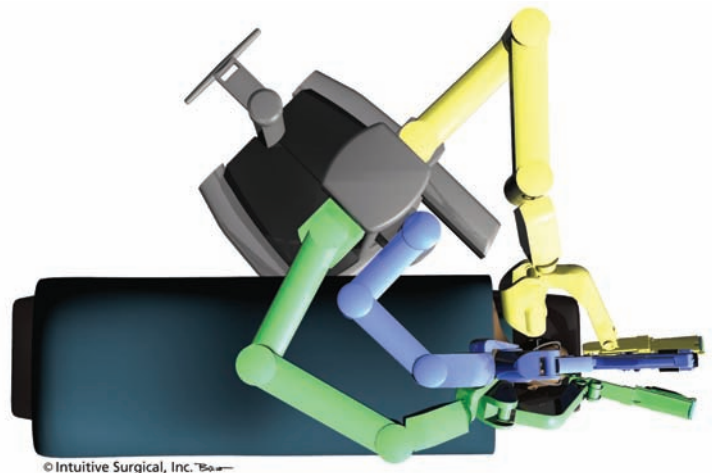
"Unfortunately, therapies for head and neck cancers haven't offered any significant increase in survival over the past several decades. Yet our ability to improve our treatments – through surgical advances such as robotics, targeted radiation therapy and better chemotherapies – has had a dramatic impact on the quality of our patients' lives," says Matthew, assistant professor of otolaryngology at the James P Wilmot Cancer Center.

Robotic surgeries

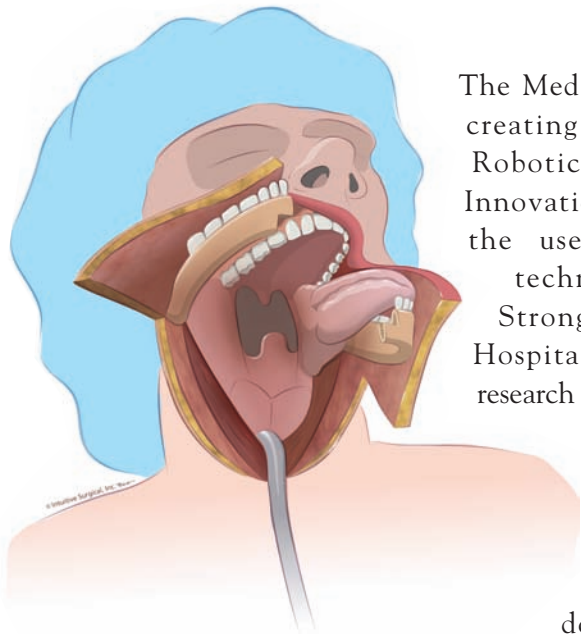
The volume of robotic surgeries has risen dramatically in the past decade as demand for the minimally invasive approach grows and surgeons grow more comfortable with the technology.



The bed angle of trans-oral robotic surgery (TORS)



The top view of trans-oral robotic surgery (TORS)



The Medical Center is creating a Center for Robotic Surgery and Innovation to expand the use of robotic technology at Strong Memorial Hospital and expand research into its use.

The centre will also provide hands-on education for doctors who want to specialise

in robot-assisted surgeries and use techniques honed by our surgeons.

During a robot-assisted surgery using the daVinci Surgical System, patients are positioned as they would be during laparoscopic surgery, with medical personnel surrounding them, yet a surgeon is located at a console a few feet away, supporting surgical team members install the correct instruments, and supervising the laparoscopic arms and tools being used.

The instruments are designed with seven degrees of motion that mimic the dexterity of the human wrist. Each instrument has a specific surgical mission such as clamping, suturing and tissue manipulation.

Although the surgeon is not physically in contact with the patient, the daVinci control console allows the surgeon to actually see the surgical field in enhanced detail as a result of the 3D image transmitted from the laparoscopic cameras.

The surgeon manipulates the robotic 'hands' in real-time using master controls, seeing minute, 3D details inside the patient with the aid of the cameras located inside the patient. The two robotic arms and one laparoscopic arm execute the surgeon's commands.

How it works

Minimally invasive da Vinci Surgery is routinely used to treat throat cancer. Throat cancer occurs in the larynx and pharynx, which includes the

base of the tongue and tonsils. Throat cancer often develops from squamous cells (flat, thin, scale-like cells) on the moist tissue lining of the larynx, pharynx or mouth.

Worldwide, about 250,000 cases of throat cancer are diagnosed each year.

Tobacco and alcohol use are the leading risk factors for throat cancer: those who use both have up to 100 times the risk of people who avoid both.

HPV (human papillomavirus) infection is the third major risk factor for throat cancer; oral cancers related to sexually transmitted HPV infections are rising in young adults in the US and in the UK.

Traditional open surgery to treat throat cancer can be traumatic, disfiguring and result in difficulty speaking and swallowing. The innovative da Vinci Surgery provides surgeons with superior vision, precision, dexterity and control needed for delicate and complex procedures. It is performed minimally invasively – eliminating the need for a long incision and potential disfigurement.

Da Vinci offers patient many potential benefits when compared to traditional treatment options, including:

- Minimal blood loss
- Minimal pain
- No tracheostomy needed (incision in front of neck to provide airway)
- Low risk of complications
- Short hospital stay
- No visible scarring or disfigurement. TW



da Vinci Surgery
no incision, no scars



Open Surgery Incision

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Une brève histoire de l'occlusion aux
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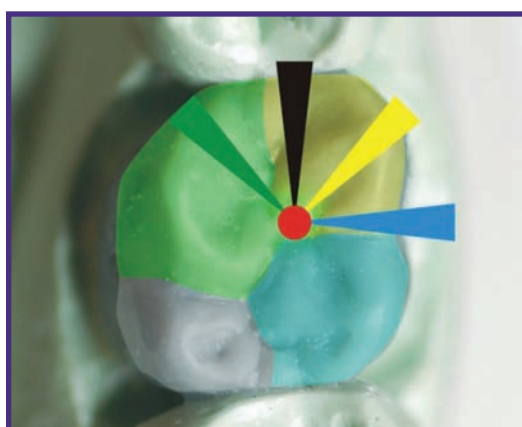
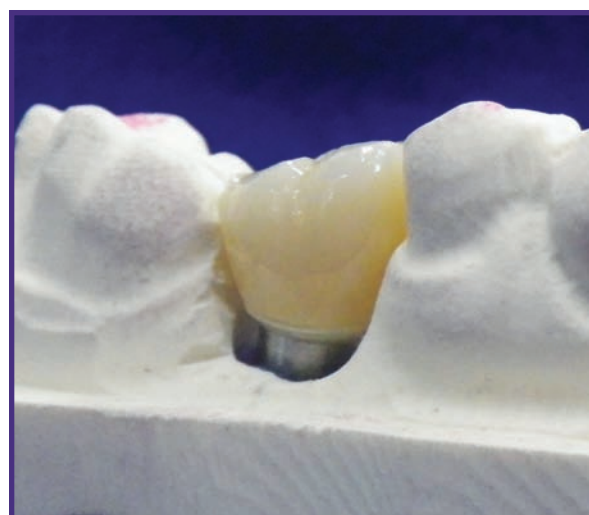
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Dr. Ian W. Tester
DDS, MSc

A Brief History of Occlusion in the 19th and 20th Centuries

Une brève histoire de l'occlusion aux 19e et 20e siècles

Abstract

The preponderance of literature reviews and lack of new basic research in North America emphasizes the need to reflect on the history of the science of occlusion so that we can design appropriate evidence-based studies. The ultimate goal must be a consensus that is backed by sound scientific research. A review of the evolution of the term occlusion throughout the late 19th and 20th century reveals a history marked by much dogma and controversy. Careful study also reveals some excellent research that should provide a framework for future studies as well as a good deal of useful information that can be applied in our therapies today. This paper offers a brief overview of the history of occlusion and temporomandibular dysfunction research.

Résumé

La prépondérance des analyses documentaires et l'absence de nouvelle recherche fondamentale en Amérique du Nord font ressortir le besoin de tenir compte de l'historique de la science de l'occlusion afin de pouvoir concevoir des études factuelles adéquates. Le but ultime est d'obtenir un consensus qui est appuyé par une recherche scientifique solide. Un examen de l'évolution du terme occlusion vers la fin du 19e siècle et au 20e siècle révèle une histoire marquée de dogmatisme et de controverse. Un examen minutieux révèle également une recherche excellente qui devrait fournir la structure pour les prochaines études ainsi que beaucoup d'informations utiles qui peuvent être appliquées aux traitements actuels. Cet article donne une brève vue d'ensemble de l'historique de l'occlusion et de la recherche sur la dysfonction de l'articulation temporomandibulaire.



Albert Einstein (1879–1955) wrote that “truth is what stands the test of experience.” The study of occlusion and its importance to health and restorative success cannot be overemphasized. The polarization of clinicians into the broad categories of “occlusionists” and “non-occlusionists” has done little to foster current research into diagnostic and therapeutic modalities related to occlusion. The preponderance of literature reviews and lack of new basic research in North America emphasizes the need to reflect on the history of the science of occlusion so that we can design appropriate evidence-based studies. The ultimate goal must be a

consensus that is backed by sound scientific research. A review of the evolution of the term occlusion throughout the late 19th and 20th century reveals a history marked by much dogma and controversy. Careful study also reveals some excellent research that should provide a framework for future studies and a good deal of useful information that can be applied in our therapies today. The years 1870 to 1970 saw much of the groundwork laid for our current understanding of occlusion. In addition, much of the perceived controversy revolving around the science of occlusion dates back to myths perpetuated from this period.



Figure 1 — Alfred Gysi

The complexity of the stomatognathic system and challenges faced in studying such an intricate structure are made even more difficult by the terminology that is used. The current understanding of the word “occlusion” is historically inaccurate and the term is more appropriately defined as “articulation of the teeth and temporomandibular joints.” A study of the history of occlusion requires a broadening of the scope to include a review of the history of gnathology. Gnathology as defined in *The Journal of Prosthetic Dentistry* Glossary of Prosthodontic Terms is “the science that treats the biology of the masticatory mechanism as a whole: that is, the morphology, anatomy, histology, physiology, pathology, and the therapeutics of the jaws or masticatory system and the teeth as they relate to the health of the whole body, including applicable diagnostic, therapeutic, and rehabilitation procedures.”¹ The term gnathology was originally suggested by Harvey Stallard in 1924 and is a combination of the Greek terms “gnathos” meaning jaw and “ology” meaning the study of early history.²

Early understanding of the function of the temporomandibular joint dates back to the first edition of *Gray's Anatomy* which was written and published by Henry Gray in England in 1858. Gray recognized that the temporomandibular joint was capable of both hinge as well as sliding action. He termed this a “ginglymoarthrodial joint.” Earlier, Balkwell (1824) of England noted the sliding action of the joint; however, this research was largely ignored in North America until the time of Bonwill (1858) who believed the transverse movements were in a straight line forward. He was a proponent of balanced occlusion and believed that a four inch distance existed between the condyles and the distance from each condyle to the lower incisor was also four inches. This triangular theory led to the development of the Bonwill articulator. Other notable 19th century contributions were made by Snow (development of the facebow for transfer of the hinge axis), Sigmund (1870) and Ferdinand Graf von Spee of Kiel, Germany who described the correlation between the curved arrangement of the occlusal planes of teeth

and the curves of condylar paths (1890).²⁻¹⁸ Finally, W.E. Walker (1897) modified Bonwill's earlier articulator to reflect the fact that the condylar path was not parallel to the occlusal plane. The Walker-Bonwill articulator which later evolved into the Walker physiological articulator was used in combination with anatomical teeth that Walker based on his evaluation of the natural dentition. This created a more accurate transference from articulator to the mouth with respect to function. In addition, Walker developed the facial clinometer which allowed measurement of the direction of the condylar paths and occlusal plane relative to the facial plane. It is clear that the principles of jaw movement were well defined by the end of 19th century.²⁻⁷

1900–1950

Alfred Gysi of Zurich, Switzerland (1865–1957) was responsible for many important developments including recordings of the hinge axis and the development of anatomical teeth that were based on a 33 degree condylar inclination (Trubyte teeth). Gysi also discussed grinding these teeth to create a mortar and pestle effect (later described as lingualized occlusion through the work of Brenner and Payne – 1940). Gysi graduated from the University of Geneva in 1886 and opened his own practice in 1891 in Zurich. In addition to significant contributions to the fields of photography, botany, and histology he conducted important research in the fields of Prosthodontics and occlusion after the turn of the century.⁴

Norman Bennett originally described the Bennett Movement (side shift of the rotating condyle) in 1908 using instrumentation called a gnathograph. Monson developed the spherical theory of occlusion which was based on a combination of Bonwill's four inch triangle; Von Spee's compensating curve and Balkwell/Christensen's condylar movements in three dimensions. Hanau (1923) disagreed with Monson and developed the Hanau articulator to produce bilateral balanced occlusion with articulator movements designed to reflect

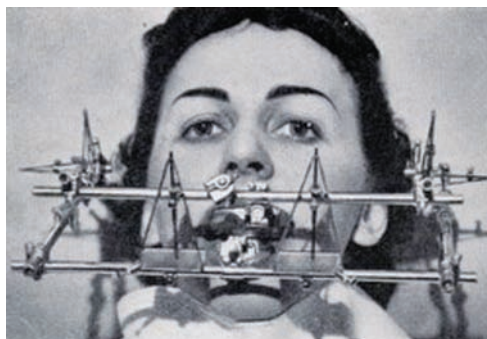


Figure 2 – McCollum gnathoscope

mandibular movements. Meyer (1933) proposed using a functionally generated path to produce a functional occlusion.^{3,8}

Pankey and Mann (Pankey-Mann system) combined the Monson four inch sphere and Meyer's functionally generated path to produce bilateral balanced occlusion. Later, Schuyler's influence allowed the development of the Pankey, Mann, Schuyler system (PMS) which was a combination of incisal guidance, long centric and posterior separation of teeth in excursions.²

B.B. McCollum formed the Gnathological Society in 1926 and proceeded to guide this organization in refining research into mandibular movement. Initially he modified a Snow facebow which he rigidly attached to the mandibular teeth with compound. Using small pencils he demonstrated the presence of a distinct rotational hinge axis. After confirming the existence of the hinge axis McCollum lead the Gnathological Society of California to investigate the work begun by Balkwell, Walker, Gysi, and others using instrumentation similar to Gysi's and Walker's that was rigidly fixed to the mandible and more precise. In addition they developed a functional clutch that could be fixed to the mandible without interference with intercuspation during the studies. Dr. McCollum was a proponent of balanced occlusion which had been popularized through previous complete denture studies. His laboratory technician, Everitt Payne developed the incremental wax buildup techniques used today to create the balanced occlusion. Dr. Charles Stuart, another member of the gnathological society teamed up with Dr. McCollum to produce the first semi-adjustable articulator deemed the McCollum Gnathoscope in 1930 and the McCollum gnathograph in 1934. This instrument recorded mandibular movement on extra oral plates.⁵

Harvey Stallard is credited with defining and postulating the "structural and functional unit" which was the term

used to define the anterior teeth working to produce a mutually protected occlusion (disocclusion of the posterior teeth). As a member of the Gnathologic Society this created two distinct belief systems within the group. Stallard and Stuart were proponents of anterior guidance (Mutually protected occlusion or cuspid protection) while McCollum and Payne were in favour of balanced occlusion.

The years prior to 1950 were ultimately a period that could be termed "The Dawn of Gnathology." Many concepts were introduced that emphasized excellence and precision with respect to reconstruction. It is important to note that much of the literature focused on an "inside-out" movement of the mandible. A paradigm shift occurred in the 1950s when research began to look at "outside-in" mandibular movement that was more representative of function. The concentration on the posterior determinants of occlusion (temporomandibular joint condylar inclination and Bennett movement) was also lessened with anterior guidance taking a prominent place in the literature.

1950–Today

In the second half of the 20th century, Gerber and the Swiss school popularized lingual occlusion. This was one of four dogmatic occlusal theories being promoted. Group function (Byron and later Pankey, Mann), cuspid guidance (Stuart and Stallard) and balanced occlusion (McCollum, Payne) were all purported to be the best occlusal scheme.

The 1950s and 1960s provided a wealth of information about mandibular movement and stomatognathic function. Posselt (1952) in his classic gnatho-thesiometer studies was able to identify the habitual and extreme positions of mandibular movement.^{10–12} Posselt's research recognized the envelope of function which Ahlgren (1966) verified. Moller¹⁹ (1966) used electromyography to study the actions of the muscles in mastication further adding to the literature base that emphasized function.

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McCollum and Stuart published their classic “Research Report” in 1955 which summarized the philosophy of capturing mandibular movements, accurate transfer of casts and the use of an Arcon type articulator.^{2,6} Stuart fabricated the Stuart articulator with gnathological settings that allowed use of accurate transfer of models and articular movements. Subsequently, Guichet designed the Denar pantograph for determining condylographic movements and articulator settings and many practitioners adopted the Denar articulator system for routine prosthetic dentistry.^{3,20}

Woefel (1957) provided electromyographic evidence supporting the mandibular hinge axis theory. Using needle electromyography he identified a lack of external pterygoid activity during initial hinge opening followed by contraction during protrusive movements.¹³ Brotman further developed hinge axis theory.¹⁴ The stage was set for the 1960s as research attempted to expand on the theories developed to date. Centric relation and its definition dominated much of the research.

Granger²¹ (1960) reiterated the necessity of proper hinge axis location and transference while Cohen²² (1960) noted that centric relation occurred at the only point in mandibular position where the mandible underwent pure rotation. Cohen also described three different slopes of the glenoid fossa. He felt that the shallowest fossa was the most tolerant to aberrant closure patterns which caused the condyle to seat improperly. The steeper eminence led to the most lateral strain on the teeth and pathology in the joint. Hinge axis location was deemed necessary to determine if centric occlusion was in harmony with centric relation. In addition, vertical dimension changes on the articulator did not affect the centric relation position if the hinge axis was correctly recorded. The axis of rotation of the ginglymoid part of the joint was described as being 5 mm below the center of each condyle by Naylor²³ (1962). Boucher²⁴ (1962) discussed growth and development of the articular eminence. The fossa is shallow at birth and gradually deepens thereafter. The eminence starts to form at age 7 to 9 years. This development accelerates during the 10th and 11th years. By the 13th year the articular eminence has usually attained adult proportions. Slight flattening occurs after the age of 40.

D’Amico²⁵ (1961) reviewed the function of natural teeth reporting to the Academy of Restorative Dentistry in Chicago. He concluded that the study of the evolution of natural teeth of the primate family did not support von Spee’s observations or the theory of balanced occlusion.

His attrition studies on pre-white California Indians noted that the heavy attrition recorded was diet related and not an evolutionary response. He further illustrated the role that the cuspids played in avoidance of deleterious lateral forces. Periodontal failure due to occlusal forces was reduced by the elimination of traumatic antagonist tooth forces.

Schuyler²⁶ (1963) in a classic article on anterior guidance noted its importance as equalling or surpassing the temporomandibular joints (TMJs) in influence on the functional occlusion of the dentition. The incisal guidance does not have the flexibility of the TMJs for adaptation. Schuyler noted that the condylar pathways had little influence on the incisal guidance; conversely, the incisal guidance did have an influence on the development of the glenoid fossa. He stressed that an improper anterior guidance could produce an abnormal movement pattern of the condyles. Mounted diagnostic casts were used to establish the pre-existing incisal guidance. In combination with the functionally generated path technique and proper anterior guidance a “freedom in centric” ensured a non-locked posterior occlusion.

Lucia²⁷ (1964) defined centric relation as the intersection of the centers of vertical arcing and lateral motion in each condyle when they are in the most posterior terminal position in relation to the maxilla. The need to remove the proprioceptive influence of the teeth that leads to muscle programming was described by Guichet.²⁰ Okeson termed this programming “muscle engrams.” Lucia felt that removal of muscle engrams dictated by tooth contact would allow a perfect hinge axis closure in centric relation. Glickman (1966) defined CR as the most retruded position of the mandible to which the mandible could be carried by the patient’s own musculature. Graber (1966) defined it as an unstrained neutral position of the mandible neither deviating to the left or right nor protruded or retruded. Goldman, Cohen (1968) believed centric relation to be the most posterior relationship of the mandible to the maxilla from which lateral excursions could be made.²¹ In 1969 Jankelson reported on the stimulation by Myomonitor of cranial nerves V and VII as a method of producing a “physiologic rest” position of the muscles which became the basis of neuromuscular occlusion.¹⁵ Subsequent research by Remein and Ash refuted this position as it was non-reproducible and created an anterior-inferior condylar position from CR.¹⁶

Long²⁸ (1973) described the use of a leaf gauge to seat the condyles through the use of the elevator muscles. This gauge consisted of multiple leaves 0.5 inches wide



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and 0.01 inches thick. The effect of anterior deprogramming and the production of a class three lever braces the condyle against the articular disk on the posterior slope of the eminence. Williamson's²⁹ technique began with 10 leaves being placed between the upper and lower incisors. Leaves were removed until the teeth initially contacted. One leaf was added sequentially until the patient felt no posterior contact when biting for 5 minutes. This time period was based on Jarabak's work that aberrant neuromuscular electromyography recordings returned 5 minutes after splint removal.³⁰ The last leaf was removed and the bite registration was taken ostensibly in a centric relation position.

Celenza⁸ (1973) described centric relation as the most important spatial relationship of the mandible to the maxilla. He defined this position as the most retruded position of the mandible and stated that it must be repeatable and consistent. Guided and unguided gothic arch techniques and guided biting point methods were used. No statistical differences were noted between all three techniques. Lundeen³¹⁻³⁴ described centric relation as the most superior posterior position of the condyles.

Weinberg (1975) used transcranial radiography to study condylar position with respect to TMD. He recognized the multi-causality of the condition and believed that lateral transcranials radiographs that were anatomically aligned would identify condylar misalignment created by deflective occlusal contacts. Concentric 2-dimensional position was the goal.^{2,35} Williamson³⁵ (1978) noted that tomographs provided superior diagnostic information to transcranials which he used to substantiate Dawson's³⁷ hypothesis that centric relation was a superior position of the condyles braced against the posterior slope of the articular eminence. In a paper published in 1983 Gilboe³⁸ described the posterior limitation of condylar movement as dictated by the intra-articular tissue and the eminence, not by the concept of condyle-fossa spatial relationship. He defined centric relation as "the most superior position of the mandibular condyles with the central bearing area of the disk in contact with the articular surface of the condyle and the articular eminence." Gilboe described the bimanual manipulation technique of Dawson as creating a posterior directed force on the mandible with a simultaneous superoanterior force created by the elevator muscles positioning the condyle against the eminence and disk. He felt that anterior deprogrammers created a similar force vector however Guichet's chin point guidance technique pushed the condyles too posterior away from the eminence.

The capsular ligament was noted to be responsible for maintaining the central bearing area of the disk against the condyle. The temporomandibular ligament limits posterior movement of the condyle pivoting it against the eminence when maximally stretched.

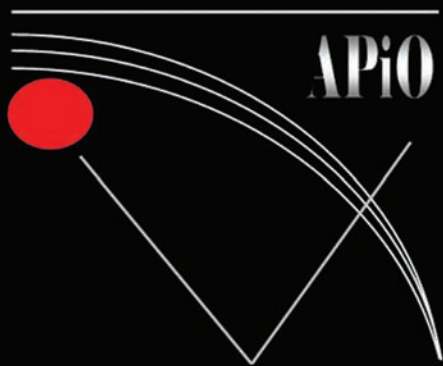
Lundeen, Shyrock and Gibbs³⁹ (1979) studied mandibular border movements using plastic blocks engraved by air-turbine drills. They concluded that patients with excessive Bennett movement (3.5mm +) and little or no anterior guidance were the most challenging to restore as the elimination of eccentric cusp interference was extremely difficult. A fully adjustable articulator was recommended with condylar recordings including Bennett movement. Patients with minimal Bennett movement (.75 mm or less) had molar cusp heights that were steeper and reflected the anterior guidance and non-working condylar pathway (posterior determinant). These patients could be restored adequately on a semi-adjustable articulator. The study of 163 subjects note that 80% had a Bennett movement of 1.5 mm or less with the average being .75 mm.

Williamson and Lundquist¹⁷ (1979) concluded that if posterior teeth were separated by a leaf gauge the temporal muscles remained active while the masseter muscles showed minimal electromyographic activity. In excursive movements when the posterior teeth were kept from touching (i.e., anterior guidance) a marked reduction of masseter and anterior temporalis on the mediotrusive side and reduction of masseter activity on the laterotrusive side was noted. If the anterior guidance was eliminated muscle activity in excursions was not reduced. It was also stated that the absence of lateral forces on the posterior teeth was desirable which again supported anterior guidance.

McHorris^{40, 41} discussed occlusal schemes and the functional role of teeth emphasizing anterior determinants that are coordinated with appropriate occlusal plane angles as well as posterior determinants. He described cusp fossa and cusp embrasure occlusions and noted that steep eminences allow steeper anterior teeth slideways while shallow eminences require shallow front tooth slideways.

Mahan and Gibbs (1984) identified the actions of the external pterygoid superior and inferior heads during opening and closing movements. The superior head was found to contract on closure stabilizing the articular disc while the inferior head was active during translation laterally and protrusively.^{2,42}

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Woods⁴³ (1988) further described centric relation as a border position that may be related to the horizontal hinge axis. This position was described as a repeatable, anatomical and physiologically stable relationship of the condyle maximally braced against the thinnest part of the disk against the eminence. The centric relation position was commonly not coincident with the intercuspal position of the teeth. Woods emphasized that centric relation is a reference position used by the dentist to accurately transfer pantographic tracings and the patient's models to an articulator. Roth^{44,45} combined deprogramming with a bimanual manipulation technique using Delar wax (Delar Corp.). By chilling three thicknesses of wax placed on the anterior teeth after centric registration the patient was instructed to bite hard into soft wax placed on the posterior teeth. In this way the elevator muscles provided a superior anterior force which proved to be an accurate and repeatable method of taking a centric relation record in a normal patient group. Carr⁴⁶ failed to find any physiologic basis for the use of a leaf gauge to deprogram muscles using electromyography after 15 minutes of leaf gauging.

Jensen²⁶ (1990) described the effect of jaw size on occlusion terming it the "5th factor." With class II and class III malocclusions the anterior determinants of occlusion were reduced or eliminated from the guidance scheme. Using a hypothetical mandibular model he illustrated the various strains that could occur in tooth to tooth contact as the arches widened and narrowed. In addition, the increasing importance of posterior determinants in the absence of anterior guidance as well as the need to create a proper group function guidance mechanism using the bicuspid and first molar were discussed. The increasing potential for production of a class III lever system was reported.

Kinderknecht et al.⁴⁷ (1992) used an Axiotron to study terminal hinge axis location and deprogramming. Their conclusion was that in healthy subjects the amount of positional change in the TTHA after 12 hours of deprogramming with a custom anterior deprogrammer made out of stent material and orthodontic resin was not statistically significant. In addition, they concluded that the Axiotron was a valid tool for in vivo study of the terminal transverse hinge axis. Numerous other authors have reported on the validity of using electronic condylography to describe condylar position.^{11,23,48-51} In a normal healthy individual the repeatability of the maximum intercuspation position can be verified.

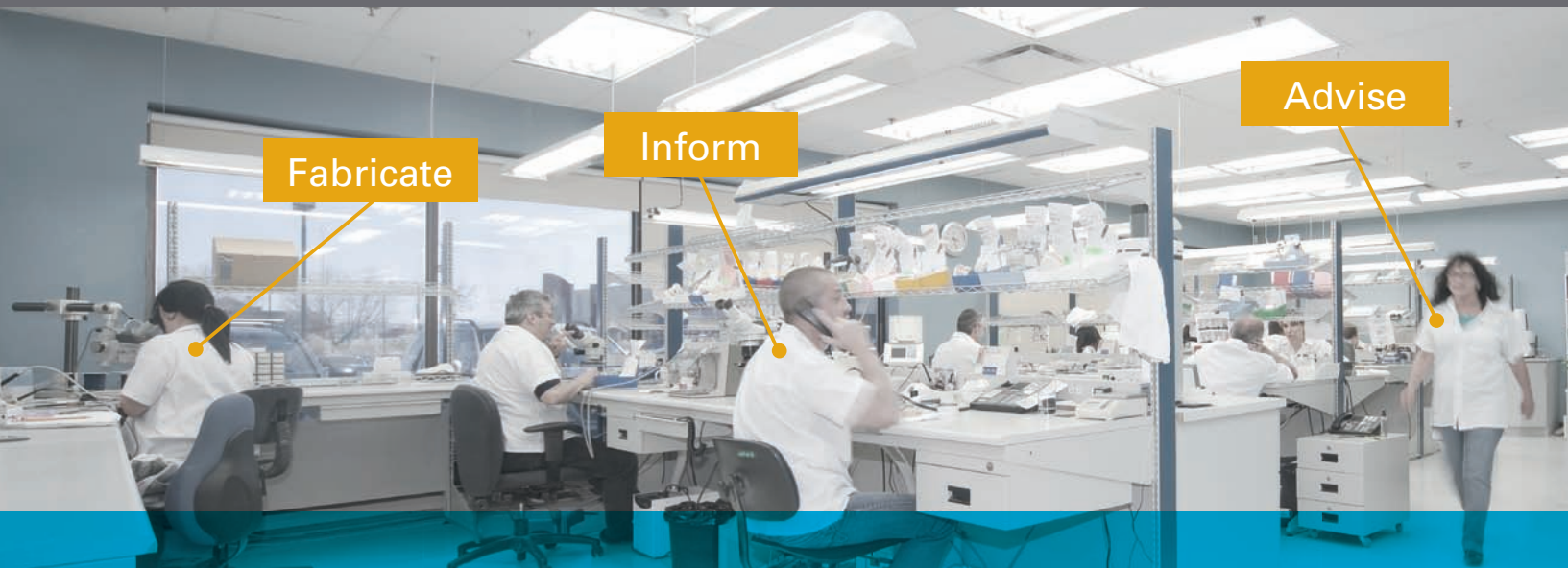
Dawson⁵² (1995) recognized that some structurally deformed TMJs function adequately and are comfortable in cranial loading despite the fact that they could not meet the requirements of a true centric relation position. He termed their position as adapted centric posture (ACP). Slavicek⁵³ has used the terms reference position (RP) and deranged reference position (DRP) in place of CR and ACP. RP is defined as the retral border position of the mandible with the joint structures unstressed. DRP is the reference position of a joint that has a deranged disc.

Wiskott and Belser⁵⁴ (1995) reviewed the history of various occlusal schemes and proposed a simplified scheme for occlusal design in restorative dentistry. Observations of natural dentitions revealed (1) occlusal contacts (OC) were fewer and less ideally placed relative to ideal schemes; (2) functional and parafunctional forces were not directed along the long axes of teeth only; (3) the terminal hinge axis is neither absolutely stable nor absolutely reproducible; (4) unstrained lateral movements have a smaller envelope of motion than strained movements; and (5) position of teeth depends on forces of low intensity and long duration and tooth stability is mostly independent of occlusal relationships. A simplified pattern of OC should follow these guidelines and allow adequate function, esthetic demands and be applicable to small and large restorations ensuring stability. The primary characteristics outlined by the authors were (1) anterior guidance; (2) at least one buccal cusp of a mandibular tooth occludes with the central fossa of a maxillary tooth neutralizing eruptive force; (3) proximal contacts are necessary to stabilize the teeth mesiodistally; (4) OC must be designed to allow room for variability in TMJ movement; and (5) cusp to fossa contact should be a definite bearing surface as opposed to a point to reduce the force per surface area and reduce wear. They further concluded that immediate side shift (ISS) would create concave internal slopes of cusps in parafunction and thus cusp anatomy should reflect this freedom to avoid interferences. The authors suggested that occlusal surfaces should reflect a "worst case" scenario as more room for posterior tooth movement in excursions could create no harm.

This brief review of the period 1950–2000 recognizes that much of the research was devoted to function as well as identifying and recording the hinge axis, and defining centric relation (CR). A brief review of the evolution of CR definitions reveals two major beliefs. The tolerant gnathologists (Ramjford, Wirth, Lauritzen, and Slavicek) recognized that much of the argument of



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different CR definitions was over a less than a .6 mm difference of condyle position. Gerber and others argued for a more dogmatic definition requiring tripodism of contacts and a point specific CR position. (Personal Communication – Dr. R. Slavicek July 2010). All gnathologists agreed that a defined reference point was necessary to practice clinical dentistry.

No review of history would be complete without emphasizing the contributions of Dr. Harry Lundeen and Dr. Charles Gibbs who completed comprehensive research on function and dysfunction throughout the 60s, 70s, and 80s beginning at Case Western University and continued after moving to the University of Florida. They preached diagnostics as a priority with canine guidance and 1:2 occlusion ideal.¹⁴ In addition, Dr. Robert Lee developed his concept of biological occlusion (bioesthetics) during the 1960s and 1970s. He was a pioneer in jaw tracking and axiopantography and also recommended a 1:2 occlusal scheme with cuspid guidance. This concept fit well with the “tolerant” gnathology as described by Slavicek.

Dental Implants and Occlusion

The unique interface with which implants are integrated to bone has led to much conjecture on the best occlusal treatment to ensure success. Taylor et al.⁵⁵ (2005) completed an extensive literature review and concluded that non-axial loading had no effect on the integrity of the osseointegrated surface although these forces could have a deleterious effect on screws and joints. The cylindrical shape, surface coating and thread components of implants make it impossible to load an implant with just compressive forces. Tension and shear forces will be transferred to bone at the same time. Progressive loading of implants has been promoted as a method of progressively increasing bone mass about implants through graduated application of stress. The authors concluded that there was no evidence to support graduated loading and indeed the concept was clinically extremely difficult to achieve due to the variety of functional and parafunctional forces involved. Similarly, occlusal overload of implants in animal models does not produce a direct cause-effect with respect to failure of the integration. Finally the authors noted the presence of so called “osseoperception” that allows proper functioning of implants without an associated periodontal ligament. This form of proprioception comes from the combined efforts of other stomatognathic proprioceptors.

A second review of occlusal considerations in implant therapy completed by Kim et al.⁵⁶ (2005) emphasized

that occlusal overload causes mechanical complications with screws, prosthesis fractures, and implant fractures; however, the effect on integration was not conclusive. They reported that some authors believed that peri-implant bone loss was primarily associated with biologic complications such as peri-implantitis. The basic principles of implant occlusion may include (1) bilateral stability in centric occlusion; (2) evenly distributed occlusal contacts and force; (3) no interferences between retruded position and centric occlusion; (4) wide freedom in centric occlusion; (5) anterior guidance where possible; and (6) smooth, even lateral excursive movements without working/non-working interferences. The authors discussed various occlusal schemes suitable for occlusion on full arch fixed prostheses, overdentures, posterior fixed prostheses, and single implant restorations and concluded that the objectives of implant occlusion were to minimize overload to the implant prosthesis and interface and to provide long term stability. This is best accomplished by minimizing force magnification, improving force direction and increasing support area.

Conclusion

So where are we today? The dogma of the past will inevitably be replaced by excellent evidence-based research that can assist clinicians in making proper diagnostic and treatment decisions. An understanding of the path that research has taken should lead to better experimental designs in the future. Consensus must be established so that clinical guidelines can be written. A brief review of the history of “occlusion” is a good starting point.

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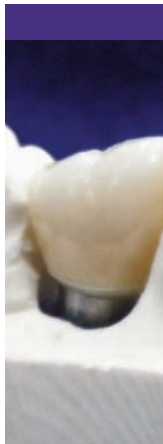
References

1. 8th edition of glossary of prosthodontic terms. *J Prosthet Dent* 2005;94(1).
2. Pokorny P, Wiens JP, and Litvak H. Occlusion for fixed prosthodontics: A historical perspective of the gnathological influence. *J Prosthet Dent* 2008;99:299-313.
3. Becker C, Kaiser D. Evolution of occlusion and occlusal instruments. *J Prosthodont* 1993;2(1):33-434.
4. Furnace J. In memoriam: Gysi. *J Prosthet Dent* 1958;8(1):5-7.
5. McCollum B, Fundamentals involved in prescribing restorative dental remedies, *J Prosthet Dent* 1960;10(3):428-35.
6. McCollum SC. A research report. South Pasadena, CA: Scientific Press; 1955.
7. Sonstebo H., Walker's improvements of Bonwill's system. *J Prosth Dent* 1961;6(11):1074-79.
8. Isaacson D, A clinical study of the Bennett movement. *J Prosth Dent* 1957;8(4):641-49.

9. International College of Gnathology American Section. Available at: <http://www.gnathologyusa.org/History.html>.
10. Posselt U. An analyzer for mandibular positions. *J Prosthet Dent* 1957;7(3):368-74.
11. Posselt U. Registration of the condyle path inclination: Variations using the Gysi technique. *J Prosthet Dent* 1960;10(2):244-47.
12. Posselt U. Movement areas of the mandible. *J Prosthet Dent* 1957;7(3):375-85.
13. Woefel J, Hickey J, and Rinear L. Electromyographic evidence supporting the mandibular hinge axis theory. *J Prosthet Dent* 1957;7(3):361-67.
14. Brotman D. Hinge axes. Part1: the transverse hinge axis. *J Prosthet Dent* 1960;10:436-40.
15. Jankelson B. Neuromuscular aspects of Occlusion. Effects of occlusal position on the physiology and dysfunction of the mandibular musculature. *Dent Clin North Am* 1979;157-68.
16. Remien J C, Ash M Jr. Myo-monitor centric: an evaluation. *J Prosthet Dent* 1979;31:137-45.
17. Lundeen H. Mandibular movements recordings and articulator adjustments simplified. *Dent Clinics North Am* 1979;23(2):231-41.
18. McCollum B. The mandibular hinge axis and a method of locating it. *J Prosthet Dent* 1960;10(3).
19. Møller E. The chewing apparatus. An electromyographic study of the action of the muscles of mastication and its correlation to facial morphology. *Acta Physiol Scand* 1966;69:(Suppl. 280)1-29.
20. Guichet N. Procedures for occlusal treatment, a teaching atlas. Anaheim: Denar Corp.; 1969.
21. Ahlgren J. Mechanism of mastication. A quantitative cinematographic and electromyographic study of masticatory movements in children with special reference to occlusion of teeth. *Acta Odont Scand* 1966;24(Suppl):44.
22. Cohen R. The hinge axis and its practical application in the determination of centric relation. *J Prosthet Dent* 1960;10(2):248-57.
23. Naylor J. A scientific concept of temporomandibular articulation. *J Prosthet Dentistry* 1962;12(3):476-85.
24. Boucher L. Anatomy of the temporomandibular joint as it pertains to centric relation. *J Prosthet Dent* 1962;12(3):464-472.
25. D'Amico A. Functional occlusion of the natural teeth of man *J Prosthet Dent* 1961;11(5):899-915.
26. Schuyler C. The function and importance of incisal guidance in oral rehabilitation *J Prosthet Dent* 1963;13:1011-29. Reprinted: *J of Prosthet Dent* 2001;86(3):219-32.
27. Lucia V. A technique for recording centric relation. *J Prosthet Dent* 1964;14:492-505.
28. Long J. Locating long centric with a leaf gauge. *J Prosthet Dent* 1973;29:608-10.
29. Williamson E. Leaf gauge technique. *Facial Ortho Temporomandib Arthro* 1985;2(1):11-14.
30. Jarabak JR. An electromyographic analysis of muscular and temporomandibular joint disturbances due to imbalances in occlusion. *Angle Orthod* 1956;26:170-99.
31. Lundeen H, Shryok E, and Gibbs C. An evaluation of mandibular border movements: their character and significance *J Prosthet Dent* 1978;40:442-52.
32. Lundeen H. Mandibular movements recordings and articulator adjustments simplified. *Dent Clin North Am* 1979;23(2):231-41.
33. Lundeen H, Gibbs C. Jaw movements and forces during chewing. *Advances in occlusion. J Prosthet Dent* 1982;41(1):1-32.
34. Lundeen H. Centric relation records: The effect of muscle action. *J Prosthet Dent* 1974;31:244-51.
35. Weinberg L. Anterior condylar displacement: its diagnosis and treatment. *J Prosthet Dent* 1975;34:195-207.
36. Williamson E. The effect of bite plane use on terminal hinge axis location. *Angle Ortho* 1977;47:25-33.
37. Dawson P. Centric relation: Chapter 4. Evaluation, diagnosis, and treatment of occlusal problems. St. Louis: Mosby; 29-55.
38. Gilboe D. Centric relation as the treatment position. *J Prosthet Dent* 1983;50:685-89.
39. Lundeen H, Shryock E, and Gibbs C. An evaluation of mandibular border movement: Their character and significance *J Prosthet Dent* 1979;40(4):442-452.
40. McHarris W. Occlusion with particular emphasis on the functional and parafunctional role of anterior teeth Part 1. *J Clin Orthod* 1979;13(9):606-20.
41. McHarris W. Occlusion with particular emphasis on the functional and parafunctional role of anterior teeth Part 2. *J Clin Orthod* 1979;13(10):684-701.
42. Gibbs C, Mahan P. EMG activity of the superior belly of the lateral pterygoid in relation to other jaw muscles. *J Prosthet Dent* 1984;51:691-702.
43. Wood DP, Korne PH. Estimated and true hinge axis: A comparison of condylar displacements. *Angle Ortho* 1992;62(3):167-75.
44. Roth R. Functional occlusion for the orthodontist: Part 1. *J Clin Orthod* 1981;15:32-51.
45. Roth R. Functional occlusion for the orthodontist: Part 2. *J Clin Orthod* 1981;15:100-23.
46. Carr A, Donegan SJ, Christensen LV, and Ziebert GJ. An electrognathographic study of aspects of deprogramming of human jaw muscles. *J Oral Rehab* 1991;18:143-48.
47. Kinderknecht K, Wong G, Billy EJ, and Shou Hua Li. The effect of a deprogrammer on the position of the terminal transverse horizontal axis of the mandible. *J Prosthet Dent* 1992;68:123-31.
48. O'Leary TJ, Shanley DB, Drake J. *J Prosthet Dent* 1972;27(1):21-25.
49. Piehslinger E, Celar A, Celar R, Jager W, and Slavicek R. Reproducibility of the condylar reference position. *J Orofacial Pain* 1993;7:68-75.
50. Slavicek R. Clinical and instrumental functional analysis for diagnosis and treatment planning. Part 9: Removable splint therapy. *J Clin Ortho* 1989;23(2):90-97.
51. Weinberg L. Role of condylar position in TMJ dysfunction-pain syndrome. *J Prosthet Dent* 1979;41:636-43.
52. Dawson P. New definition for relating occlusion to varying conditions of the temporomandibular joint. *J Prosthet Dent* 1995;74(6):619-26.
53. Slavicek R. the masticatory organ: functions and dysfunctions 2002. GAMMA Medizinisch.
54. Wiskott H. and Belser U. A rationale for a simplified occlusal design in restorative dentistry: Historical review and clinical guidelines *J Prosthet Dent* 1995;73:169-83.
55. Taylor T, Wiens J, and Carr A. Evidenced-based considerations for removable prosthodontic and dental implant occlusion: A literature review *J Prosthet Dent* 2005;94:555-60.
56. Kim Y, Oh T-J, Misch C, and Wang H-L. Occlusal considerations in implant therapy: clinical guidelines with biomechanical rationale *Clin Oral Impl Res* 2005;16:26-35.
57. Osborn JW. The temporomandibular ligament and the articular eminence as constraints during jaw openings. *J Oral Rehab* 1989;16:323-33.
58. Granger E. The temporomandibular joint in prosthodontics. *Prosthet Dent* 1960;10(2):239-42.

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A Prosthodontist's Approach to Choosing a Material for Crown Construction

L'approche d'un prosthodontiste dans le choix d'un matériau pour la fabrication d'une couronne



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Abstract

There are many choices that one has when deciding on a material to be used for a single crown. This article presents a prosthodontist's rationale for choosing a specific material (metal, PFM, laminated all ceramic, monolithic, or combination thereof) for single restorations based on the inherent strength, esthetic qualities, technical requirements, and clinical needs of the situation. Clinical limitations of different materials are highlighted and a cementation protocol for each material combined with its clinical purpose is also highlighted.

Résumé

Il y a possibilité de nombreux choix, pour se décider sur un matériau à utiliser pour une seule couronne. Cet article présente la justification d'un prosthodontiste pour le choix de ce matériau spécifique (métal, CCM, laminé tout en céramique, monolithique, ou une combinaison de ceux-ci), pour des restaurations simples, basées sur la force inhérente, les qualités esthétiques, les exigences techniques, et les besoins cliniques de la situation. Les limitations cliniques de différents matériaux sont mis en évidence, avec un protocole de cimentation pour chaque matériau, combiné avec son objectif clinique qui est également démontré.



You know, it is hard to decide which material to use when we plan any form of crown and bridge treatment. There are so many materials on the market that it can be very confusing. One need understand what are the inherent strengths and weaknesses of the different materials and what is the clinical situation that you are looking to treat. Sometimes it is best to break down the materials into their characteristics (esthetic and mechanical) in order to help categorize them and therefore allow us to make better treatment choices.

Crown and bridge materials have gone through a rapid evolution over the past century. There was a time when metals were king and you placed an aesthetic material on metal only in the most esthetic conscious patients. This was the time of the gold crown, the partial crowns (3/4, 7/8, pin ledge retainers, etc.) and the gold acrylic crowns. These restorations were conservative for their time yet left much to be desired from the esthetic perspective¹. The restorations did well over time and there are still many of these restorations that can be



Figure 1A — Pre treatment photograph of patient with amelogenesis imperfecta.



Figure 1B — Post treatment photograph of patient with all ceramic zirconia based laminated crowns anteriorly and full gold crowns posteriorly. The gold restorations support occlusion without risk of fracture. The anterior crowns are both esthetic and functional.

seen surviving in some of our older patients². During this time, situations needing highly esthetic restorations made use of the porcelain jacket crown. This restoration was highly aesthetic however lacked in strength. It was limited to the anterior part of the mouth and often fractured due to its inherent weakness and the inability to bond the restoration to increase strength (nor did we have the knowledge of bonding and its benefits³). It was under this environment that the combined restoration (the all metal and the ceramic) came about. The porcelain fused to metal (PFM) restoration was developed. It used the strength of the metal core with laminated porcelain over top. Much work went into the connection of the materials and new metals were developed that allowed for this to happen. The aesthetics were improved upon by development of new methods to colour the metal before porcelain application. As the prices of noble metals increased, newer less expensive metals were developed that could also be used for this application (Non precious or base metal alloys). This level of dentistry was the main stay for many years⁴.

The need for aesthetic restorations pushed the industry to develop new all ceramic materials. The concept of all ceramic materials meant that no obvious metal or metallic like material was used in the restoration⁵. Early versions of this were not very successful clinically (DICOR, CERESTORE) which led many to avoid its use but more recent advances in the technologies of design⁶ and manufacturing made manufacturing of all ceramic restorations easier, more precise and clinically the newer materials were stronger. This type of restoration has become very popular and it currently takes on the form of two designs — the laminated design and the monolithic design.

The laminated design uses some type of high strength ceramic core and then laminates this ceramic core with an overlay of porcelain. The monolithic design makes use of one material that makes up the complete restoration⁷.

Laminated ceramic (non-metal) designs are an extension of the gold acrylic crown and the porcelain fused to metal restoration. They use the concept that



Figure 2A — All ceramic restorations fabricated for the anterior maxillary teeth. Note the implant in the upper right lateral incisor site.



Figure 2B — An access hole has been created in the ceramic restoration so that it can be bonded to the metal abutment which then provides for a screw retained restoration yet the same ceramic is used for all restorations in the area.



Figure 2C — Final restorations in place.



Figure 3 – A maxillary arch showing many different types of restorations. A fracture is noted in the right first molar disto-lingual area suggesting a weak ceramic that is also possibly unsupported.

Note that other restorations include a full contour zirconia crown (upper right second molar), PFM based restorations in all other areas and a repair veneer in the upper left lateral incisor site.

the underlying material can be made to fit well to the preparation and then the overlaying material gives the esthetics that is needed. Sometimes the underlying structure is brought out to support the occlusion or if this is not needed, then the overlaying material is used to support function and aesthetics by being the functional surface (occlusal surface). It is important to remember than when dealing with laminated designs, the two materials must be able to work together and stick to each other so they don't separate. They must be compatible with each other both functionally and esthetically. Over the years there have been many recorded mismatched materials from functional and esthetic perspectives. When this occurs, failure of the restoration often occurs. The most commonly used laminated all ceramic designs used today are based on



Figure 4 – A highly opaque full contour zirconia based crown (same as in Figure 3)

zirconia substructures that are laminated with either feldspathic porcelains or other higher strength ceramics. (Figures 1A and 1B) These restorations are highly esthetic and are quite functional in most situations⁸. The issues that arise from these materials are the fact that the weak link (clinically) is the strength of the overlying porcelain. It is subject to chipping and fracture when it does fail. This does not happen very often but is a nuisance when it happens and needs to be dealt with. The esthetic quality of these materials is very high since the experienced dental technologist can layer porcelains of different esthetic quality over the core and create very beautiful restorations. These material combinations can also be used in the implant application for both the cemented as well as the screw retained restoration. (Figures 2A, 2B, 2C) One must remember however that in the implant scenario, occlusion on the restoration becomes very important since the ligament is absent and there is little shock absorption present in the system. One would guess that the implant situation may present itself with more ceramic fractures for this reason. Of course, a fracture of ceramic material in the implant situation alerts the clinician that there may be a need for occlusal adjustment⁹. (Figure 3)



Figure 5A – A full contour 3 unit zirconia based bridge is stained to enhance its appearance but leaves much to be desired.



Figure 5B – Radiograph of the zirconia restoration giving a look much like metal.



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Figure 6 – A maxillary arch showing many different types of restorations. A fracture is noted in the right first molar disto-lingual area suggesting a weak ceramic that is also possibly unsupported. Note that other restorations include a full contour zirconia crown (upper right second molar), PFM based restorations in all other areas and a repair veneer in the upper left lateral incisor site.

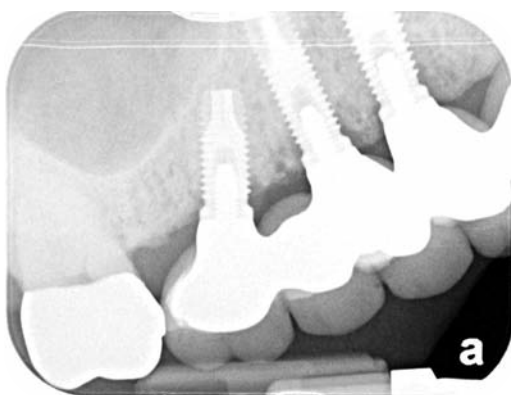


Figure 7A – Radiograph showing a full contour zirconia based restoration on the upper right second molar. This shows the radiopacity of the restoration blocking out any underlying tooth structure.

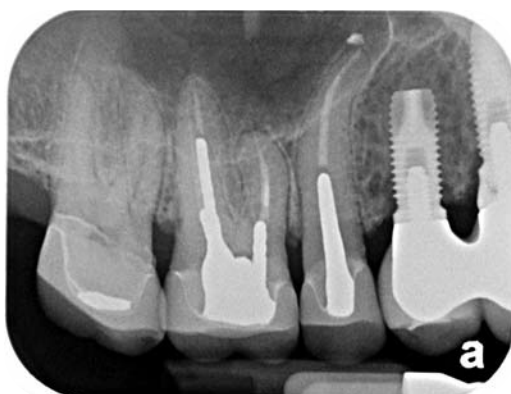


Figure 7B – Radiograph showing the translucent effect in radiography of the lithium disilicate crowns. All underlying tooth structure can be visualized.

Monolithic ceramic designs began with the porcelain jacket crowns. Today monolithic restorations are commonly being manufactured using CAD/CAM concepts and most commonly take the form of lithium disilicate based materials or full zirconia based materials¹⁰. Several materials can also be pressed to contour and there are many that use these methods to create their crowns. The monolithic material has the inherent quality of not involving lamination so there is one less interface to deal with. This makes the crown stronger and more resistant to some of the surface fractures that occur with laminated crowns. The perceived downside of this type of restoration is its esthetic quality. The zirconia based restoration started off as a stark white colour with no translucency and a highly opaque quality. (Figure 4) Over time, methods were developed where this material can be stained and coloured so its esthetic value has improved. It by no means matches the esthetics of the laminated restoration since no overlying porcelain is used to enhance the esthetic quality of the restoration. (Figures 5A and B) The all ceramic lithium disilicate material was originally manufactured for a pressed method which made its shade limited since once again there was no overlying porcelain. It can be stained but this is just a surface stain. Now, with the use of the milling process, the material can be milled in its precrystallized state. This mills out the material in a hardness that is close to the hardness of standard ceramics. This can then be adjusted for shape and contour and can also be infused with stains before it is crystalized. This gives a much deeper and richer colour to the restoration. Once the material is crystalized, it can then be further stained if needed. The final outcome is an esthetic material that is hard and resistant to fracture. These cad/cam restorations can be used in the anterior as well as the posterior parts of the mouth. (Figure 6) The lithium disilicate material can be bonded using conventional bonding methods that relate to porcelain. Zirconia cannot be bonded to with predictability so it is more limited in its applications (no veneers or short crown preparations)¹¹. Clinically, these materials also have very different radiographic appearances. The lithium disilicate material is radiolucent and easily evaluated while zirconia takes on the appearance of a metal on radiographs (radio opaque)¹². (Figures 7A and B)

With the knowledge of how these materials work, how do you decide which material to choose and when. This is the issue that we are all faced with on a regular basis.

As a prosthodontist, I need to choose specific materials for all my patients based on the patient's functional needs as well as their esthetic demands.



Figure 8 – The classic full gold crown still serves as one of the best restorations available. From a functional point of view it may still be considered the “gold standard”.

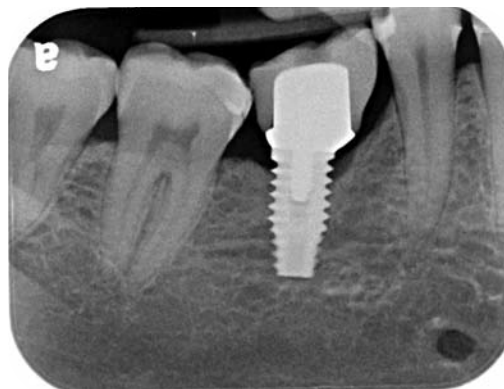


Figure 9A – A radiograph showing a zirconia based abutment for an implant with a lithium disilicate crown that has been bonded to it.

1. Need for a full coverage crown in the posterior part of the mouth (non esthetic zone – second molar) – My first choice here is the gold crown due to its strength, kindness to the opposing dentition, and minimal requirements for tooth reduction. Often times a crown in the second molar region is short occluso-gingivally and as such may require additional retention from grooves or pin preparations. Gold lends itself well to this need. Gold can also be bonded if one needs the added “cementation comfort” of bonding the restoration as part of cementation. In this case the metal crowns internal surface is air abraded and then a metal bonding cement (METABOND) is used. Gold works well in all situations of occlusal forces; from light to heavy load. It is the best universal functional material. Its drawbacks are only its colour and its cost.(Figure 8)
2. Need for full coverage crown in the posterior part of the mouth (patient does not want any show of metal in the mouth) where the patient exhibits a high occlusal load. This is the patient who has broken down their posterior teeth over the years and exhibits the ability to produce high occlusal forces. This patient is the one who breaks restorations and or teeth on a regular basis and may not be very compliant with your constant requests for night guard use. In this type of case, use of a ceramic monolithic material is called for. For reasons of strength, a full contour zirconia based crown is needed. One must remember that the crown will look opaque but will be quite strong as long as the preparation design allows for adequate occlusal reduction. The material cannot be etched and as such cannot be truly bonded to tooth structure. According to published reports, cementation is best achieved with PANAVIA. In the



Figure 9B – Occlusal view of the restoration on the master cast showing the esthetic quality of the stained monolithic lithium disilicate.



Figure 9C – Lateral view showing the restoration and part of the underlying abutment.

opinion of this author, METABOND is also a wonderful cement for this crowns material. Tooth preparation needs to be idealized for retention and resistance form since posterior teeth are generally lacking in height and the zirconia based material cannot be adequately and predictably bonded to.

3. Need for full coverage crown in the posterior part of the mouth (second molar) where the patient exhibits a lighter occlusal load. This is the patient who does not seem to exhibit that much force posteriorly but wants an esthetic restoration. In this situation, use of monolithic lithium disilicate is ideal since it can be bonded during cementation and is very strong. It is also much more esthetic in its appearance (when compared to monolithic zirconia) and can be stained more readily than zirconia.
4. Full coverage crowns on all other posterior teeth (1st molars and both premolars) where esthetics are crucial. This case needs lithium disilicate for its strength and esthetic quality. The material is quite lustrous and strong. When possible I prescribe the milled version of this material so that colours can be more deeply embedded into the surface.
5. Full coverage for the anterior teeth. Due to lower stress levels in this part of the mouth in most patients, a layered ceramic could be considered for its aesthetic quality. Either a zirconia core or a lithium disilicate core can be used and porcelain can be laminated to it. If it is felt that forces are heavy in anterior guidance or in lateral excursion, then one might consider making the crown out of the core material and extending the core material to the occlusal surface and the laminating porcelain to the nonfunctional regions of the crown for aesthetic enhancement. If the preparation is short, then bonding during the cementation protocol is a good idea and would direct one towards the use of lithium disilicate to assure adequate bonding cementation.

Based on the breakdown listed here it is quite evident that I do not use PFM restorations very often anymore for single crown restorations. If I need to match an existing PFM crown in an area of lower force, a new PFM is acceptable; otherwise an all ceramic crown has become the workhorse in our practice.

For an all ceramic crown to work well and fit properly, one must prepare the crown to ideal preparation design. There must be adequate occlusal reduction (this is the key) and the margins of the preparations must be clear and easily read. Whether you choose to use a chamfer like preparation margin or a shoulder like margin, it must be clean and smooth so the material can be made to fit the margin. Metals are much more forgiving when they are cast to fit a margin that is less than ideal. A milled crown needs a clean smooth margin of adequate depth so that the mill can produce the crown with proper shape and fit. A zirconia based crown margin is more forgiving in its manufacturing when compared to the milled lithium disilicate. One must remember these issues when preparing teeth. If I find that I am not able to adequately prepare a tooth margin for milled in-house CAD/CAM, then I choose either pressed ceramic (monolithic lithium disilicate in non esthetic areas or monolithic zirconia if preparation height allows for it) or a laminated all ceramic where the core is pressed and additional porcelain is added to it.

What choice do I make in my production of an implant based crown?

Where esthetics is important, and low to medium occlusal load is present, a zirconia based abutment is made and a cemented crown (zirconia or lithium disilicate core with laminated porcelain over top) is placed using conventional implant cementation protocol. If a screw retained crown is chosen, either porcelain can be added directly to the zirconia abutment or a separate crown can be manufactured with a screw access hole and it is cemented to the abutment extra orally once complete. (Figures 9a-c) The full restoration can then be



Figure 10 — A recently made full contour zirconia based screw retained implant restoration without any laminating porcelain.

Table 1 — Cement choices and methods for all ceramic materials.

Crown Material	Crown Treatment	Prep Treatment	Cement	Alternate cements
PFM / Gold where bonding is required due to limited preparation design	Air Abrasion (Al_2O_3 blasting) to help with bonding	Pumice (lab), dentinal etching with Citric acid and ferric chloride	METABOND	PANAVIA (follow manufacturer's instructions)
PFM/Gold where bonding is not required due to adequate preparation design	Air abrasion to clean surface	Pumice (lab)	Maxcem Elite RelyX Unicem2	Any cement can be used.
Lithium Disilicate where bonding is required due to limited preparation design	Air Abrasion, HF etching, silanation	Pumice (lab), etching of dentin and enamel, priming and bonding as indicated.	Maxcem Elite RelyX Unicem2	
Lithium Disilicate where bonding is not required due to adequate preparation design	Clean surface with ethyl alcohol and dry	Pumice (lab)	Maxcem Elite RelyX Unicem2	Any cement can be used
Zirconia where bonding is required due to limited preparation design	Air Abrasion	Pumice, etching of dentin and enamel, bonding resin as per manufacturer	PANAVIA	METABOND
Zirconia where there is adequate tooth preparation height	Air Abrasion	Pumice (lab)	Maxcem Elite RelyX Unicem2	Any cement can be used
All ceramic crown cemented to an all ceramic implant abutment	Clean surface with ethyl alcohol and dry	Clean surface as preferred	Maxcem Elite RelyX Unicem2	Any cement can be used as long as esthetics is maintained
All ceramic crown cemented to a titanium abutment	Air Abrasion	Surface treatment based on surface configuration	METABOND Opaque	Opaque cement is needed
PFM based crown cemented to a titanium abutment	Air Abrasion	Surface treatment based on surface configuration	Improv Maxcem Elite RelyX Unicem2	Any cement can be used as per clinical requirements

secured to the implant using the conventional screw-in approach. In cases of high stress, a monolithic crown is needed rather than the layered crown. This can be manufactured from either zirconia or lithium disilicate based on the esthetic need. This can then be cemented or connected to either a zirconia abutment or to a titanium abutment. In the highest stress situations, a monolithic abutment and crown can be made from either zirconia or from metal and screwed in on top of the implant. This approach makes use of the fewest number of materials, has the least number of interfaces and stands the best chance of survival. (Figure 10)

How do I treat the different materials when it comes to cementation?

One must remember that there are many materials that can be used to cement a crown to either a tooth or to an implant. One must consider what we are trying to do. Is this an interim cementation? What is the crown preparation like? Is there enough retention and resistance form in the preparation? Is the crown preparation in tooth structure or is there build up material (composite resin, amalgam, cast post and core metal, etc.) present? What is the crown made of and do I need to bond to it? How difficult is clean up?

It is difficult to characterize and give strict guidelines since clinical experience plays a big role in how one decides which cement to use and under what conditions one chooses and uses particular cement. In a busy practice one wants to minimize the number on materials that one uses so that simplicity rules. Table 1 suggests several choices in cement materials and methods when it comes to all ceramic materials. It by no means is the only option. If preparation is adequate, and there is retention and resistance form, one can cement any strong material with virtually any cement. Metal, zirconia, lithium disilicate can all stand on their own and as such they can be cemented with luting cements. In these cases any cement can be used. It has been our practice to use self-etch self-bond cement that simplifies the process by not requiring added steps. For this we use either Maxcem Elite (Kerr) or RelyX Unicem2 (3M). If bonding is needed due to lack of preparation, then one must look closely at the crown material as well as the preparation substrate and use cement that bonds to both materials.

All ceramic materials are here to stay and it becomes up to us to choose the proper material and the clinical application presented to us. This field will continue to evolve and will give us much to think about.

References

- 1 Wagner J, Hiller KA, Schmalz G; Long Wagner J, Hiller KA, Schmalz G; Long-term clinical performance and longevity of gold alloy vs ceramic partial crowns Clin Oral Investig. 2003 Jun;7(2):80-5.
- 2 Wassell RW, Walls AW, Steele JG; Crowns and extra-coronal restoration materials selection Br Dent J. 2002 Feb 23;192(4):199-202, 205-11.
- 3 Swift EJ Jr, Friedman MJ. Critical appraisal. Porcelain veneer outcomes, part I. J Esthet Restor Dent. (2006);18(1):54-7.
- 4 Zarone F, Russo S, Sorrentino R. From porcelain-fused-to-metal to zirconia: clinical and experimental considerations. Dent Mater. 2011 Jan;27(1):83-96.
- 5 McLean JW. Evolution of dental ceramics in the twentieth century. J Prosthet Dent. 2001 Jan;85(1):61-6.
- 6 Malament KA, Socransky SS. Survival of Dicor glass-ceramic dental restorations over 20 years: Part IV. The effects of combinations of variables. Int J Prosthodont. 2010 Mar-Apr;23(2):134-40.
- 7 Calamia JR, Calamia CS Dent Clin North Am. Porcelain laminate veneers: reasons for 25 years of success. 2007 Apr;51(2):399-417.
- 8 Raigrodski AJ, Hillstead MB, Meng GK, Chung KH Survival and complications of zirconia-based fixed dental prostheses: a systematic review. J Prosthet Dent. 2012 Mar;107(3):170-7.
- 9 Guess PC, Schultheis S, Bonfante EA, Coelho PG, Ferencz JL, Silva NR All-ceramic systems: laboratory and clinical performance. Dent Clin North Am. 2011 Apr;55(2):333-52.
- 10 Bindl A, Mörmann WH Survival rate of mono-ceramic and ceramic-core CAD/CAM-generated anterior crowns over 2-5 years. Eur J Oral Sci. 2004 Apr;112(2):197-204.
- 11 White SN, Miklus VG, McLaren EA, Lang LA, Caputo AA Flexural strength of a layered zirconia and porcelain dental all-ceramic system. J Prosthet Dent. 2005 Aug;94(2):125-31.
- 12 Lin WS, Ercoli C, Feng C, Morton D. The Effect of Core Material, Veneering Porcelain, and Fabrication Technique on the Biaxial Flexural Strength and Weibull Analysis of Selected Dental Ceramics. J Prosthodont. 2012 Mar 29. doi: 10.1111/j.1532-849X.2012.00845.x.

Author declaration

I submit that I have no commercial interest in the subject of the above Case Report.

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Mr. Paul Rotsaert
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Occlusal Function and the Single Crown

Fonction occlusale et couronne

Abstract

The concept of the occlusal compass was originally proposed by Michael H. Polz to help technicians wax-up occlusal forms of crowns. The movements of an antagonistic cusp across the occlusal table of a tooth are described with sequential waxing completed to allow proper clearance in all excursions. This article describes the use of the occlusal compass in the waxing of an upper and lower first molar. The concepts outlined can be applied to all restorative materials including amalgam, composite, gold, and porcelain.

Résumé

Le concept du compas occlusal a été proposé au départ par Michael H. Polz pour aider les techniciens à préparer des modèles en cire de formes occlusales de couronnes. Les mouvements d'une cuspide antagoniste sur la face occlusale d'une dent sont décrits par cirage séquentiel complété pour permettre le jeu dans toutes les directions. Cet article décrit l'emploi du compas occlusal dans la préparation de modèles de cire d'une molaire de six ans de la mandibule supérieure et inférieure. Les concepts décrits peuvent s'appliquer à tous les matériaux de restauration y compris l'amalgame, le composite, l'or et la porcelaine.



When we are taught tooth morphology the emphasis is usually on the features of each individual tooth. The functional aspects are often glossed over or are presented in a manner that causes a great deal of confusion. The concept of the occlusal compass was proposed by Michael H. Polz to help technicians wax-up occlusal forms of crowns. The occlusal compass describes the movements of an antagonistic cusp across the occlusal table of a tooth.

In its basic form the occlusal compass is made up of four movements of the mandible: protrusion, the forward movement of the mandible; laterotrusion, the movement of the mandible away from the midline; mediotrusion, the movement towards the midline; and lateroprotrusion, a combined movement with forward and lateral components.

The three-dimensional pathways are dependent on the geometries of the anterior guidance (lingual surfaces of maxillary anterior teeth) and the posterior determinants (articular eminence, head of the condyle, condylar disc and other associated soft tissues). Figures 1 and 2 show

these movements. Note that these movements are paired: a right laterotrusion (teeth) and a left mediotrusion (condyle) are the result of the same movement. In the occlusal design concept the laterotrusive side guidance (canine) will cause the mediotrusive side to disclude. This protection of the mediotrusive side is significant because this is the side where the condyle is translating down the eminence. Any mediotrusive contact can cause significant deflections of the condyle, potentially leading to derangement of the temporomandibular joint.

The advantage of working with full-arch models that are facebow mounted is that the anterior guidance components are present and thus can be used to more accurately approximate the movements of the patient's mandible. Having the guidance components from the right side is critical for simulating the mediotrusive movement on the left side. Anterior guide tables on articulators can help when the anterior guidance is missing or incomplete. Ideally correct sagittal condylar inclinations can be recorded using condylography.

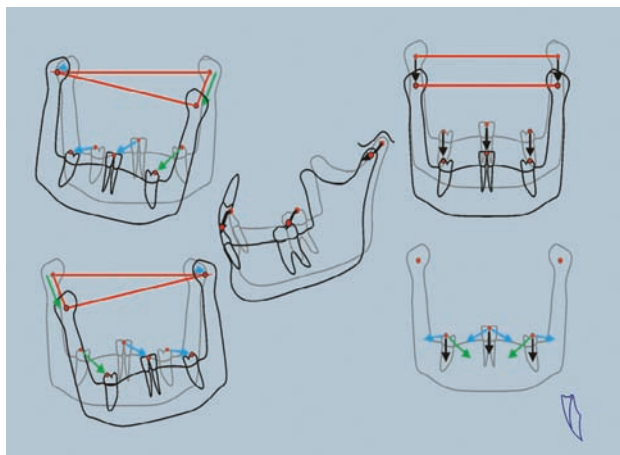


Figure 1 – Mediotrusive, laterotrusive, and protrusive movements of the mandible and teeth superimposed.

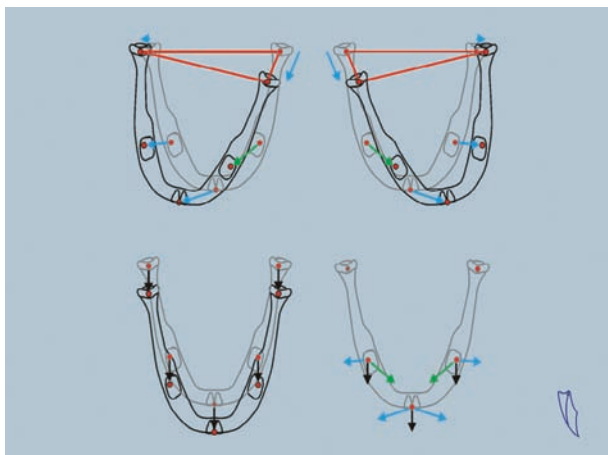


Figure 2 – Mediotrusive and protrusive movements of the mandible.

Figure 3 illustrates the pathways of the opposing cusp tips on the right side of the diagram; on the left side the colour coding of the teeth represents the parts of the occlusal surfaces that are significantly influenced by the specific movement.

Figure 4 takes the view of the occlusal compass to the individual first molars. The patterns illustrate the waxing sequence for the development of the occlusal surfaces. By waxing the occlusal morphology cusp by

cusp we are able to focus on the specific pathways that influence the morphology of each cusp.

The stamp cusps that land in the center of the opposing teeth have the greatest influence on the occlusal morphology. In the example of an Angle Class I occlusal scheme it is the middle buccal cusp of the lower molar (the stamp cusp) that drives the occlusal morphology of the upper molar. The key to developing the occlusal morphology is locating the occlusal stop on

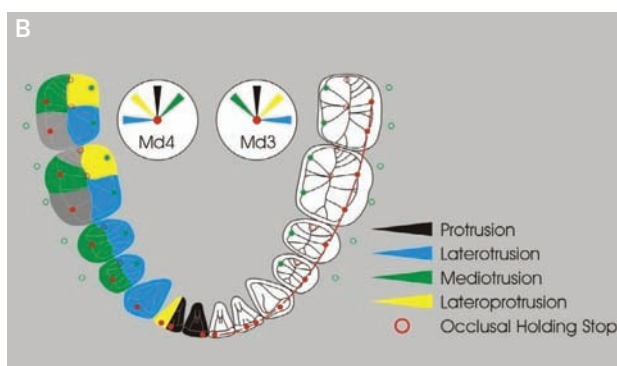
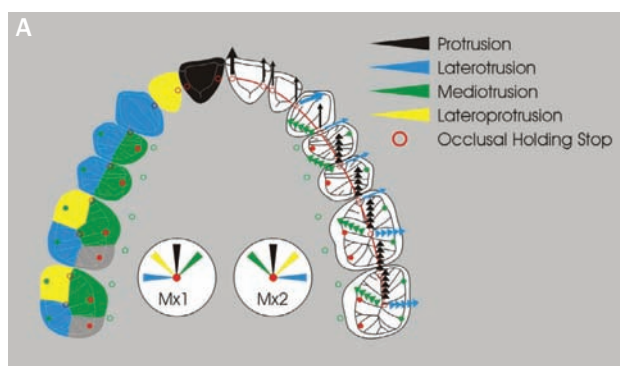


Figure 3 – A and B, Illustration of pathways of the opposing cusp tips on the right side of the diagram: on the left side, the colour coding of the teeth represents the parts of the occlusal surfaces that are significantly influenced by the specific movement.



Figure 4 – A and B, View of the occlusal compass to the individual first molars.

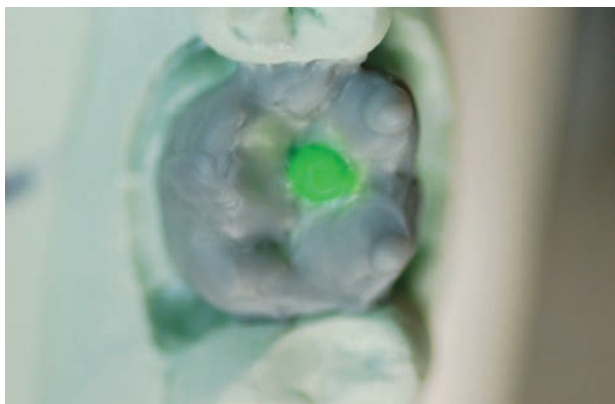


Figure 5 – Occlusal view of cusp sketches.

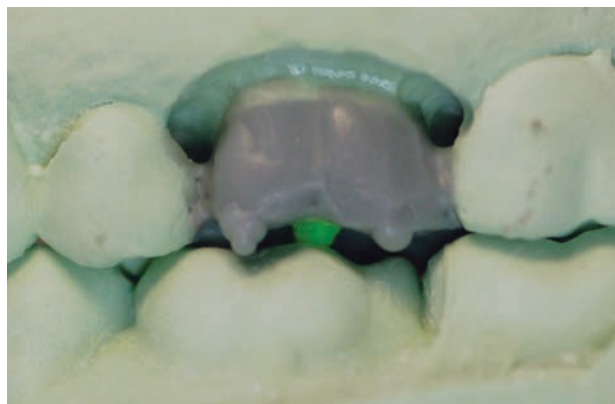


Figure 6 – Buccal view maximum inter-cuspal position.

the occlusal table. In this example a single stop is waxed and based on its position it is connected to one of the triangular ridges. The cusp positions are then sketched in (Figure 5). The two buccal shear cusps of the upper molar are positioned so that the middle buccal cusp of the lower molar moves between them in the laterotrusive movement (Figures 6 and 8). The mesiolingual cusp of the upper molar is positioned in the central fossa area of the lower molar so that the cusp moves between the two lingual shear cusps of the lower molar in laterotrusion (Figure 7). It is very important to verify the mediotrusive excursion (Figure 9) and modify the position so that there are no contacts in this excursive movement.

Once the cusp tips have been located, the process of developing the morphology of each cusp can begin (Figure 10).

The mesiobuccal cusp of the upper molar is greatly influenced by the lateroprotrusive movement; thus the yellow colour coding (Figure 11A and B). Care must be taken not to make this cusp too tall, and it is important to ensure that the triangular ridge is somewhat flat. This shape is needed so that the lower cusp can move from the holding stop without contact in the entire range of movement from protrusion to laterotrusion. Once the triangular ridge is completed, the rest of the cusp can be formed including the mesial marginal ridge (Figure 11C).

The distal buccal cusp is more influenced by the laterotrusive movement (blue; Figure 12A and B). The height of this cusp can be higher than the mesial cusp and the form of the triangular ridge can be much higher as well (Figure 12C). This cusp will also tie into the distal aspect of the mesial lingual cusp to form a transverse ridge. The addition of the small lobe mesial from the main body of the triangular ridge creates the larger volume characteristic of this cusp. The mesial and distal aspects of the cusp are filled in to complete the cusp form as well as the distal marginal ridge.

This completes the buccal shear cusps; note the differences in the forms as generated by the influence of the two dominant movements.

The mesial lingual cusp is most influenced by the mediotrusive movement in the occlusal table (Figure 13A and B). The lingual side of this cusp is influenced by the laterotrusive movement where it will pass between the lingual cusps. The mediotrusive movement is from the holding stop moving mesially and lingually. This requires the surfaces in this direction to be clear of obstructions. The distal aspect can be much higher and created with greater volume as there is minimal opposing tooth structure in this area (Figure 13C). The triangular ridge is very shallow and as it develops toward the central fossa it diminishes in size. The small auxiliary ridge

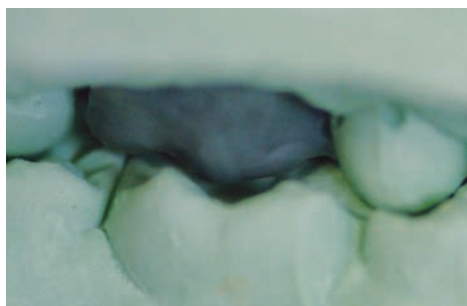


Figure 7 – Lingual view maximum inter-cuspal position.

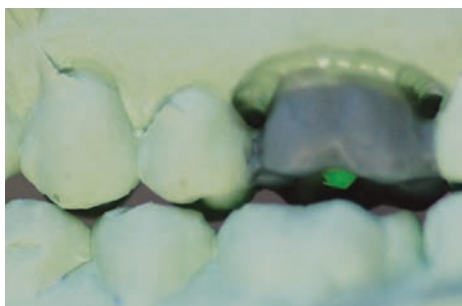


Figure 8 – Buccal view laterotrusion.



Figure 9 – Lingual view mediotrusion.

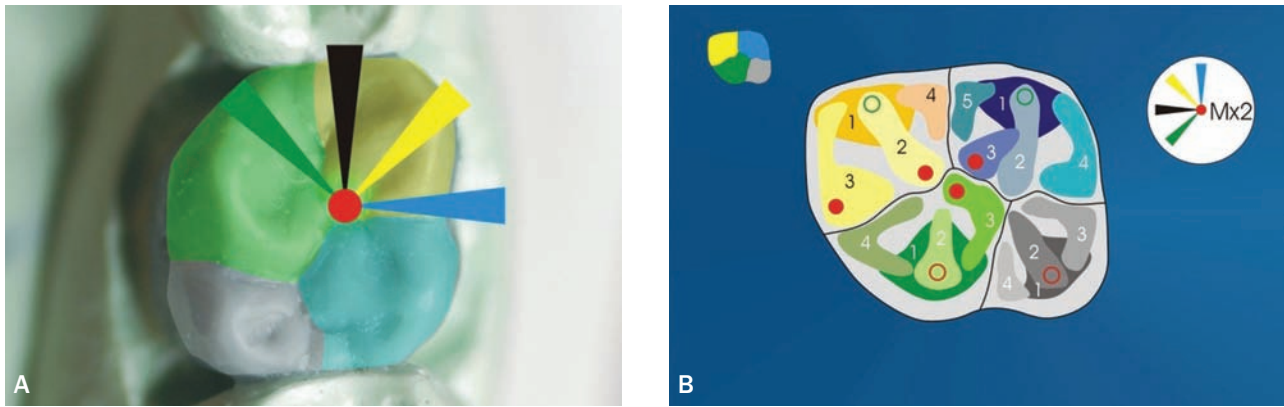


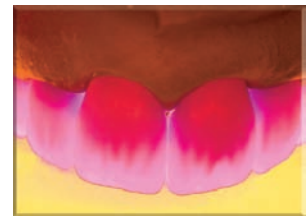
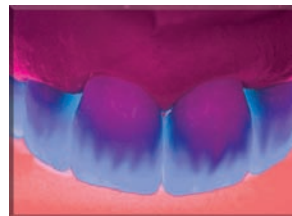
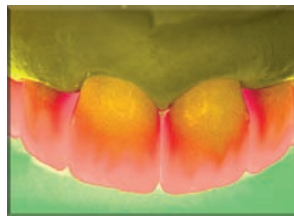
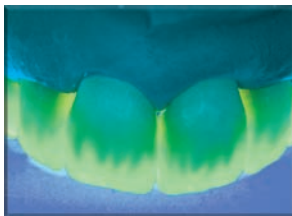
Figure 10 – A and B, Development of the cusp morphology of the upper molar.



Figure 11 – A-C, Mesiobuccal cusp of the upper molar.



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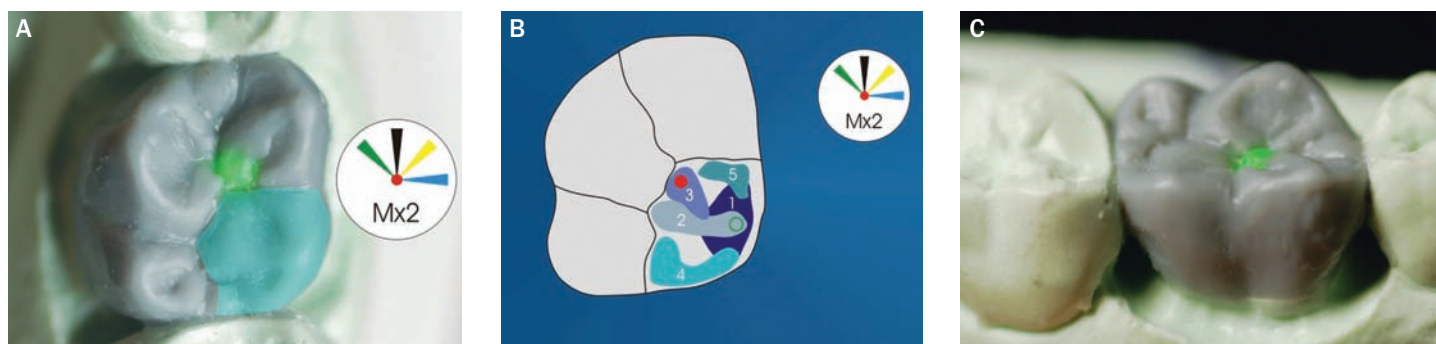


Figure 12 – A-C, Distal buccal cusp of the upper molar.

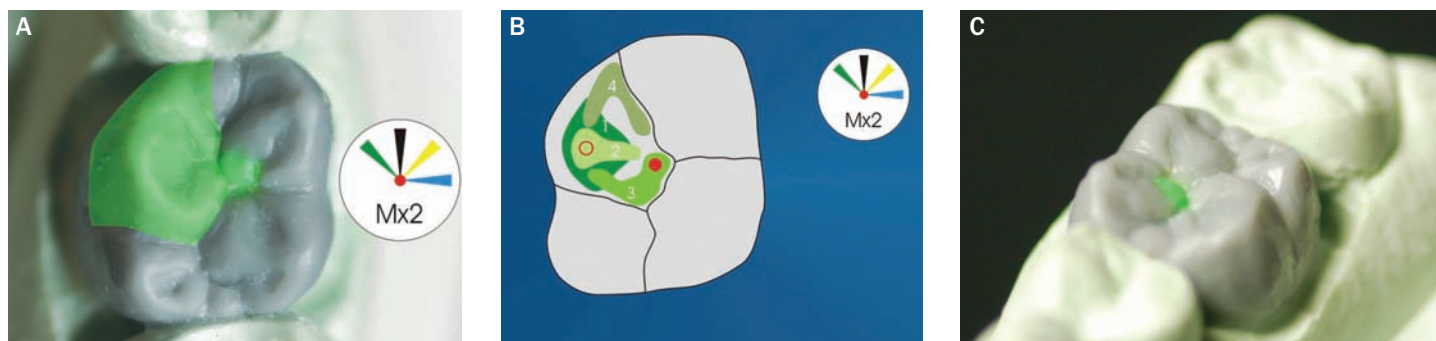


Figure 13 – A-C, Mesial lingual cusp of the upper molar.

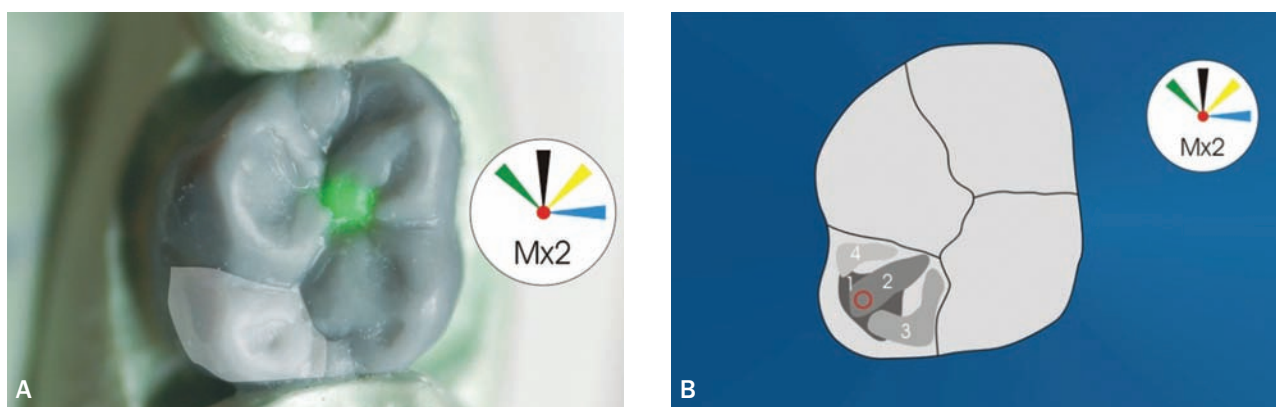


Figure 14 – A and B, Distolingual cusp of the upper molar.

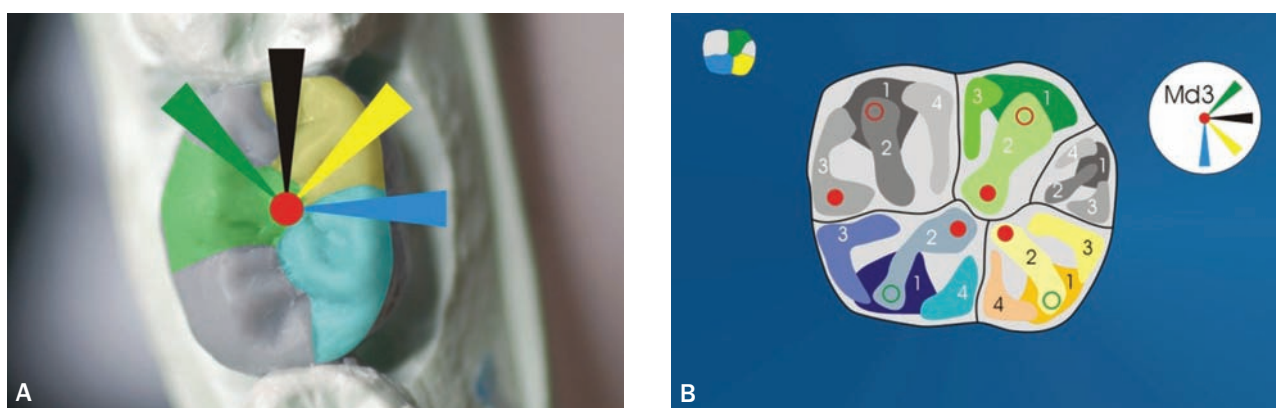


Figure 15 – A and B, Development of the cusp morphology of the lower molar.

radiates from the central fossa and progresses out to the mesiodistal of the occlusal table. This creates a groove that tracks the mediotrusive movement acting as a sluiceway for food during mastication.

The distolingual cusp is almost an afterthought as it may or may not occlude with the opposing tooth. In some patients this cusp is minimal or missing on second and third molars. It is not significantly influenced by a major opposing cusp and is thus assigned the colour grey (Figure 14). In Angle Class II cases there will be more of an influence from the middle buccal cusp of the lower molar. A small triangular ridge and a distal ridge define the form of this cusp.

This completes the forming of the lingual stamp cusps and the occlusal form of the upper molar. The development of the occlusal morphology using this method should generate a form that is without excursive contacts and blends with the adjacent dentition.

The development of the occlusal morphology of the lower first molar follows a similar sequence (Figure 15).

Again, the first step is to locate the position of the holding stop of the mesiobuccal cusp of the upper molar. The cusps are sketched in taking into account the

excursive movements. The heights and position of the two lingual shear cusps are established by the laterotrusive movement of the mesial lingual cusp of the upper molar passing between them. The main stamp cusp (middle buccal cusp) reaches for the central fossa of the upper molar. The laterotrusive and mediotrusive movements are checked for interferences. The mesial buccal cusp is positioned so that it contacts the mesial marginal ridge of the upper molar (Figure 16). There are no significant movements associated with this cusp. It

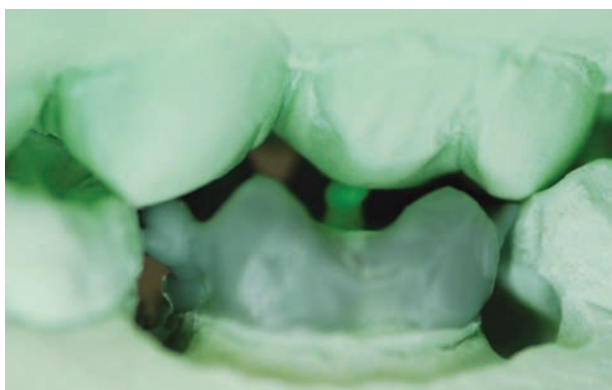


Figure 16 — Mesial buccal cusp positioned so that it contacts the mesial marginal ridge of the upper molar.

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Figure 17 – A-C, Distolingual cusp of the lower molar.

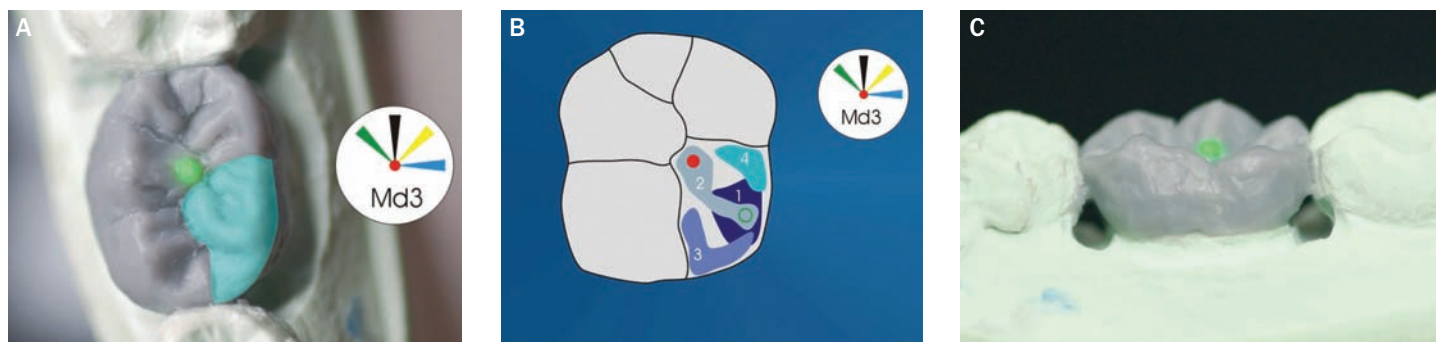


Figure 18 – A-C, Mesiolingual cusp of the lower molar.

is important to see that none of the basic cusp forms contact any of the opposing teeth in the excursions.

The distolingual cusp is the shear cusp most influenced by the lateroprotrusive movement and will have similar attributes to the mesiobuccal cusp of the upper (Figure 17A and B). This cusp is smaller and flatter when compared to the mesiolingual cusp (Figure 17C). When observing natural dentition, this cusp will often exhibit a greater degree of wear when compared to the mesiolingual cusp.

The mesiolingual cusp is most influenced by the lateral movement; hence colour coded blue (Figure 18A and B).

This cusp is larger in size and the triangular ridge is larger and higher in the occlusal table when compared with the distolingual cusp (Figure 18C).

This completes the lingual shear cusps of the lower molar: note the similarities with the buccal shear cusps of the upper molar (Figure 19).

The middle buccal cusp of the lower first molar is influenced by the mediotrusive movement and is assigned the colour green (Figure 20A and B). Given the large size of this cusp and the mesiolingual cusp of the upper molar care must be taken to allow for sufficient room for the mediotrusive movement. The movement follows the distobuccal dissectional groove. The height of contour of the triangular ridge is towards the mesial side of the cusp (Figure 20C). In this occlusal scheme there is a small auxiliary ridge running to the mesial. This produces a relatively simple form for this large cusp.

The mesiobuccal cusp is not significantly influenced by the mediotrusive movement as the only cusp that would affect it is the lingual cusp of the upper second premolar (not a large cusp). This cusp can be developed almost like the buccal cusp of the second lower premolar with the cusp tip occluding on the opposing marginal ridge.

The distobuccal cusp is like the upper distolingual cusp; small and rarely having an occlusal contact. If not



Figure 19 – Lingual shear cusps of the lower molar share similarities with the buccal shear cusps of the upper molar.



Figure 20 – A-C, Middle buccal cusp of the lower molar.



Figure 21 – A and B, Distobuccal cusp of the lower molar.

Figure 22 – Lower molars: indirect restoration (crown) on the 36, a direct restoration on the 37, and a natural tooth on the 38.

for the dissectional groove, it could be considered an extension of the middle buccal cusp (Figure 21).

This completes the forming of the buccal stamp cusps and the occlusal form of the lower molar. The development of the occlusal morphology using this method should generate a form that is without excursive contacts and blends with the adjacent dentition.

Conclusion

The most restored teeth are the molars, so as a technician it is important to be able to fabricate molar restorations that are functionally correct. The occlusal compass is a powerful tool that we can use to develop the occlusal morphology. Whenever we see an occlusal surface that has a large cusp contacting somewhere within that tooth's occlusal table, the occlusal compass will help guide us in the development of cusp positions and forms. In restoring the posterior anatomy the adage form follows function is of paramount importance. By developing the occlusal forms one cusp at a time with the occlusal compass in mind we are able to recreate natural anatomic forms that will function in harmony with the patient's occlusal determinants. The careful observation of the wear pattern of the teeth adjacent to the tooth being restored gives us an idea of the excursive pathways for each patient. These wear facets are a guide

to the angles and direction of the patient's habitual movements that we then use to individualize the occlusal compass.

In the example of the lower molar we have an indirect restoration (crown) on the 36, a direct restoration on the 37, and a natural tooth on the 38. We have used the waxing scheme and the occlusal compass to attempt to replicate the natural morphology found in the 38 in the 36 crown (Figure 22).

The replication of nature in form and function is an ideal worth striving for. The concepts outlined here using wax can be applied to all restorative materials including amalgam, composite, gold, and porcelain.

Bibliography

- De Vreugd RT. The Occlusal compass concept: A practical approach to posterior morphology. Available at: http://idseminars.com/articles/QDT_Article_1997.pdf.
- Douglass GD, De Vreugd RT. The dynamics of occlusal relationships. In: McNeill C (ed). Science and Practice of Occlusion. Chicago: Quintessence; 1997.
- Polz MH. Inlay-und Onlay Techniken. Dental-Labour, Documentation 2. Munich: Verlag Neuer Merkur; 1987.
- Slavicek R. The Masticatory Organ. Ann Arbor: Needham Press; 2003.

About the Author

Paul Rotsaert, RDT is the President of Rotsaert Dental Laboratory.

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On May 26th, Dalhousie Dental School celebrated the 100 year of dental graduates. This weekend was shared with the annual Nova Scotia Dental Association meeting. CARDP has a strong presence in the NSDA with Dr. Kevin Walsh (left) past president of NSDA, Dr. Heather Carr current president of NSDA and Dr. Maureen Andrea president of CARDP. Dr. Robert McGregor, past president of CDA was also in attendance.



Drs. Rick Nash, Richard Tucker, and Maureen Andrea.

Several members of CARDP attended the 75th anniversary of the Vancouver Ferrier Gold Foil Study Club in British Columbia on April 12, 2012. There have only been 3 mentors since its beginning: Dr. George Ellsperman, Dr. Gerald Stibbs and currently Dr. Richard V. Tucker.

Clinical operations took place in the afternoon at the Sirona Learning Centre, and a celebratory dinner at the University Women's Club. Dr. Tucker spoke and said these words: "The art of dentistry, like the art of the great masters, have brought us together and created something even more meaningful, a collaboration of dentists/artists that can share a relationship of mastery and strong friendships, from near and far. A debt worth having and a thread worth weaving, Gold thread."

Meeting Revisited Toronto 2011 Rétrospective du congrès



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6

Fig. 1: Left to Right: Margo Pedlar, Dianne Shaffner, Dr. Peter Walford, Dr Larry Pedlar, Dr. Gary Kotack, Sandra Tateishi-Kotack, Pearl Pin Harry and Dr. Oliver Pin Harry, Starting their Sailing Trip on Lake Ontario.

Fig. 2: Dr. Kim Parlett (2011 CARDP President) & Dr. Baxter Rhodes attending the CARDP President's Party

Fig. 3: Left to Right: Dr. Oliver Pin Harry (2011 Speaker), Dr. Ian Tester (2011 Clinic Chairman) and Nancy Tester attending the CARDP President's Party

Fig. 4: Alan Bampton & Dr. Maureen Andrea (2012 CARDP President) with Daughter Ava attending the CARDP President's Party

Fig. 5: Ann Rajczak & Dr. Emmanuel Rajczak (2011 Essay Chairman, Celebrating his 80th Birthday)

Fig. 6: Honorary Member Dr. Don Coburn and Dr. Rick Freeman attending the CARDP President's Party



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An Invitation from the President of CARDP

Greetings from Halifax and Céad Míle Fáilte!
(One Hundred Thousand Welcomes)



It is an honor as President of the Canadian Academy of Restorative Dentistry and Prosthodontics to welcome you to the 2012 Annual Scientific Meeting. The members of the Atlantic Provinces are thrilled to be hosting this meeting in the unique city of Halifax. The meeting will be held September 6 – 8, a wonderful time of year to visit this beautiful port city. Our venue is the Marriott Halifax Harbourfront situated in a premier location with wonderful views of the harbour, just a walk away from the downtown sites and scenes.

CARDP is steeped in great traditions. In 1993, two highly respected organizations, the Canadian Academy of Prosthodontics and the Canadian Academy of Restorative Dentistry, joined forces to create this Academy. The Academy has always offered its members and guests a highly educational Scientific Program and a sincere social program – and this year will be no different!

Dr. Peter Thomson, the Essay Committee Chair, has created a lecture program that will generate a dialogue of scientific information as it relates to Restorative Dentistry and Prosthodontics. Dr. Mark Sutherland, the Clinic Committee Chair, brings us a Saturday morning of short lectures that will keep us intellectually stimulated! The Table Clinic portion of the meeting offers the ability to interact one on one with speakers, presenters and the dental industry providing an intimate setting to discuss and learn.

Our Academy continues to have a strong relationship with its sponsors – the industry leaders. Many thanks to these long-standing relationships and we look forward to seeing you again.

From each meeting to the next, members and their families, guests and sponsors of the Academy enjoy the social events that bring everyone together. The flavour of the Maritimes will continue to be the theme in Halifax and we look forward to lots of laughter and learning. Mark these dates in your calendar and join us for a fun-filled, memorable meeting. See you there!

Respectfully,

Dr. Maureen Andrea
CARDP President

Introduction to CAD/CAM and Digital Dentistry 2012

Thursday, September 6th, 9:00am – 4:00pm

Hands-on Course presented by Dr. Joseph Carpentieri



Dr. Carpentieri graduated from the University of Maryland College of Dental Surgery. Practiced general dentistry for eight years before receiving a Certificate in Prosthodontics from Einstein Montefiore Medical Center. Subsequent to that time he completed a four-year surgical implant fellowship at the Department of Periodontology and Implant Dentistry at NYU. Currently, he is an associate clinical professor, Dept of Prosthodontics/Implant Fellowship, at Columbia University College of Dental Medicine Department, headed by Dr.

Dennis Tarnow. Speaker, Publisher, Mentor and BIOMET 3i Consultant; Dr. Carpentieri speaks both nationally and internationally on all phases of surgical and implant dentistry.

Synopsis:

The purpose of this hands-on lecture is to present a thorough and concise overview of CAD/CAM and Digital Dentistry; it has absolutely revolutionized the practice of clinical dentistry and significantly changed what we do and how we do it.

- Evidenced-based perspective of advantages/disadvantages or benefits and limitations of these technologies
- Review 'new workflow options' from both a conventional and digital perspective
- Understand how a CAD/CAM manufactured prosthesis provides us with the most cost effective modality for most implant restorations
- Present literature supported rationale for utilization of CAD/CAM abutments and full arch CNC frameworks
- Discuss step-by-step clinical guidelines, abutment and material choice, and review controversies associated with zirconia abutments with new guidelines
- Review other controversies including third party abutments, the zirconia-titanium interface, veneering of various framework designs
- Introduce concept reverse engineering; one of the hottest topics in implant dentistry
- Introduce the "players"; making this a diverse presentation of all implant companies
- Review BIOMET 3i's CAD/CAM Portfolio; ie, BellaTek™ Encode® Impression System. How does this company fit into this space and why is it different?
- Demonstrate integration of digital impression-taking-review of devices
- How to select a scanner? Does it really work? Benefits to patient and practice?

Learning Objectives:

To increase knowledge, confidence and predictability that will lead to improved aesthetic and functional patient outcomes.

CE CREDITS

Thursday, September 6th, 2012 • Hands-on Course • 6 CE Credits
Friday, September 7th, 2012 • Scientific Sessions • 7 CE Credits
Saturday, September 8th, 2012 • Scientific Sessions • 7 CE Credits

**Plus 13 Afternoon
Table Clinics!
3 CE Credits**

For more information and to register for the meeting, visit www.cardp.ca



Charting the Course for the Future!

The Canadian Academy of Restorative Dentistry and Prosthodontics
l'Académie canadienne de dentisterie restauratrice et de prosthodontie

Friday, September 7, 2012 • Essayists • 1 Hour Presentations

Provisional Techniques for Traditional and Implant Dentistry



Dr. George Cho

Synopsis: Factors of occlusion, tooth preparation, function, phonetics, soft tissue manipulation and especially esthetics, can all be evaluated through the fabrication of a well-made provisional restoration. It is an important tool of communication to the patient, laboratory, and can help the dentist to anticipate problem esthetic areas. Factors of soft tissue management around implants will be discussed to optimize gingival architecture, papilla management, and implant crown contours utilizing provisional restorations. Manipulation of crown contours will be discussed to achieve ideal subgingival contours around the implant restorations. A technique will be presented to fabricate multiple-unit esthetic custom provisional restorations with all the characteristics of natural teeth.

Learning Objectives:

- Fabricate multiple-unit esthetic custom provisional restorations with all the characteristics of natural teeth
- Fabricate implant provisional restorations
- Discuss the ideal gingival architecture
- Develop the implant coronal and subgingival contours
- Manipulate implant soft tissue form with contours of implant restorations

Oral Lesions: An Anatomic Approach to Differential Diagnosis



Dr. Charles Shuler

Synopsis: This presentation will guide the participants to develop an approach for the differential diagnosis of lesions of the soft tissues of the oral cavity through evaluation of key features of the lesions and reference to the anatomy/histology of the intraoral site. It is not important to make the clinical diagnosis of any oral lesion

the first time it is observed but rather to consider the range of possible diagnoses and establish a priority for them. Procedures that lead to a definitive diagnosis will be discussed and the rationale for selecting a particular procedure introduced. This presentation will use specific clinical cases to demonstrate the steps involved in generating a thorough assessment of the lesion.

Learning Objectives:

- Recognize pathologic changes in soft tissues
- Evaluate lesions in a standardized format based on clinical examination strengths
- Develop a process for generating a differential diagnosis based on the anatomy/histology of the site
- Understand the application of additional procedures to reach a definitive diagnosis and determine an approach to treatment
- Apply the process to clinical cases to reinforce this new approach

"3DP" - Digital Implant Planning, Placement, and Prosthetics



Dr. Izchak Barzilay

Synopsis: This presentation will showcase digital implant dentistry in its many forms. It will look at placing implants in difficult situations and then restore those implants using a digital approach for design and manufacturing. Angled implants, planning software, digital impressions and final restorations will be presented in a fast paced manner.

Learning Objectives:

- Use different planning softwares to decide on the best implant choice and placement location
- Use CT guided placement of angled implants through guides without flaps in situations of minimal bone
- Use digital technology to collect information so restorations can be made without conventional impressions

Occlusion in the Restorative and Specialty Practice in 2012



Dr. Jim McKee

Synopsis: Occlusion continues to be a critical factor in the success or failure of many dental cases and yet occlusion is perhaps the least understood discipline in our profession. Historically, the approach to occlusion has focused at the tooth level and addresses how teeth should contact in both vertical and horizontal mandibular movements. This approach has lead to inconsistent results. Today, current occlusal concepts focus at both the teeth and the TM joints to provide a new level of predictability for both the restorative and specialty practice.

Learning Objectives:

- Develop a protocol to use for every patient to determine the occlusal and TMD risk
- Determine what diagnostic records are necessary and how to collect the information efficiently
- Establish treatment planning options for both simple and complex occlusal/TMD cases

Contemporary Trends on the Use of Direct Posterior Composites



Dr. Andre Ritter

Synopsis: This presentation will summarize the current uses of posterior composites and discuss clinical solutions for common problems.

Learning Objectives:

- Identify the best cases for using posterior composites
- Understand the advantages and disadvantages of current resin composite systems used for posterior restorations
- Apply clinical solutions to address common problems associated with the use of posterior composites

New Materials and Technologies – Is it Time to Jump In?



Dr. Jim Kessler

Synopsis: In this presentation we will examine what new technologies offer to us in the way of conservative preparations, esthetics, efficiency, accuracy, and even predictability. We will also take a candid look at the marketing claims associated with CAD/CAM, Digital Impression technologies, and digital articulation, while attempting to separate fact from hype. We will discuss how various systems produce restorations from a myriad of materials and how this might modify our concepts of treatment planning and ideal preparation design.

Learning Objectives:

- Understand the physical properties for the various all-ceramic materials with particular emphasis on what most frequently leads to failure and perhaps more importantly, what constitutes failure
- Choose the all-ceramic systems most likely to succeed in given situations based on evidence from the current literature
- Identify clinical situations for which gold or metal-ceramic restorations remain the restorations of choice
- Learn the current status of digital image acquisition (digital impressions)

Halifax: Nova Scotia's capital city has the amenities of a big city but the charm of a small town. Part of Halifax's charm is due to the hospitality of the people, something for which the whole Maritime region is famous. More of the city's charm can be attributed to an oceanside location, rugged shorelines, sandy beaches, nearby fishing villages and historic architecture.

Average September Temperature (Low / High) 49/66°F (9 / 19°C)



Charting the Course for the Future!

The Canadian Academy of Restorative Dentistry and Prosthodontics
l'Académie canadienne de dentisterie restauratrice et de prosthodontie

Saturday, September 8, 2012 • AM Clinics • Short Presentations



Reverse-Engineered, Defect-Driven Preparations for Bonded Restorations
Dr. Jim Kessler



How to Choose the Right Curing Light for Your Practice and How You Can be Trained to Effectively Use it
Dr. Richard Price



Prognosis of Fractured Teeth: Considerations for Treatment Planning
Dr. Rob Roda



Why Do Teeth Crack?
Dr. Emmanuel Rajczak



"The Dirty Little Secret" – Perimplantitis Caused by Excess Cement
Dr. Tim Hess



Esthetic and Biologic Tissue-Management for Fixed Restorations
Dr. Peter Taylor



Enhanced Success with Multi-surface Composites
Dr. Peter Walford



Essential Criteria for Large Vertical Dimension Bone Grafting – "it may not be what you think"
Dr. Ron Zokol

Saturday, September 8, 2012 Table Clinics • 2:00 pm – 5:00 pm

Mucostatic Impressions – Dr. Emmanuel Rajczak

The Conservative Cast Gold Inlay as a Semi-precision Abutment – Dr. Terry Koltek

"The Dirty Little Secret" – Perimplantitis Caused by Excess Cement – Dr. Tim Hess

Ankylos Syncone Bridge, the Right Removable Implant Restoration for the Right Patient – Mr. Henry Hintze

Porcelain Fracture Resistance: Screw Retained vs. Cement Retained Implant Restorations – Dr. Al Mardini

How to Choose the Right Curing Light for Your Practice and Use it Effectively – Dr. Richard Price

A New Option of Restorative and Replacement Therapy with the Combination of CAD-CAM and BEST and STARRT – Dr. John Bembenek

Peri-implant Diseases: What You Need to Know – Dr. Chris Cameron

Evidence on Wisdom Teeth Extraction – Dr. Joel Powell

The Predicament of Choices – Anterior PFM vs. Full Ceramic Solution – Mr. Martin Mueller

The Custom Impression Coping – Dr. Allan Coopersmith

Intra-oral Scanning and You – Speaker to be announced

Digital Impressions and the Dental Laboratory – Dr. Henri Thériault

September 5 – 8, 2012 Social Activities

Wednesday, September 5th & Thursday, September 6th

Kayaking with the Shaffners in Lunenburg, NS

Thursday, September 6th

6:45 am – 4:00 pm

Golf at Chester Golf Club

9:00 am – 4:00 pm

Kayaking at St. Margaret's Bay and Peggy's Cove, NS

6:00 pm – 10:00 pm

Eat, Meet & Greet at The Halifax Marriott Harbourfront Hotel • Welcome Dinner Buffet

Friday, September 7th

9:00 am – 4:00 pm

Evangeline Trail and Wine Tasting at Grand Pré • Partner/Guest Event

6:00 pm – 10:30 pm

Evening Harbour Tour and Lobster Ceilidh
Harbour Queen and Murphy's on the Water Cruise, Lobster Dinner & Entertainment

Saturday, September 8th

2:00 pm – 4:00 pm

High Tea • Partner/Guest Event

Reception 6:30 pm • Dinner/Dance 7:30 pm
President's Gala



Soyez des-nôtres à Halifax en septembre

The Canadian Academy of Restorative Dentistry and Prosthodontics
l'Académie canadienne de dentisterie restauratrice et de prosthodontie

20ième congrès annuel, 6-8 septembre 2012

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Une invitation de la présidente de l'ACDRP

Salutations de Halifax et Cédad Mille Fáilte!
(Cent mille bienvenues)



En tant que Présidente de l'Académie canadienne de dentisterie restauratrice et de prosthodontie, c'est un honneur pour moi de vous souhaiter la bienvenue au Congrès annuel de 2012. Nos membres des provinces de l'Atlantique sont ravis de vous accueillir dans notre ville incomparable. Le Congrès aura lieu du 6 au 8 septembre, une période idéale pour visiter notre magnifique cité portuaire. L'événement se tiendra au Marriott Halifax Harbourfront, avec vues sur l'eau et à quelques pas du centre-ville.

L'ACDRP abonde en traditions depuis 1993, lorsque deux organismes, soit l'Académie canadienne de prosthodontie et l'Académie canadienne de dentisterie restauratrice se sont joints. L'ACDRP a toujours offert à ses membres et invités un programme scientifique des plus éducatifs ainsi qu'un calendrier social étoffé et cette année n'y fera pas exception.

Dr. Peter Thomson, Président du Comité de dissertation, a mis en place un programme de conférences qui engendrera un dialogue d'informations scientifiques relatives à la Dentisterie et la Prosthodontie. Dr. Mark Sutherland, qui préside le Comité clinique, nous propose un samedi avant-midi de conférences stimulantes et des présentations cliniques qui offriront l'occasion d'interagir directement avec les conférenciers, animateurs et représentants de l'industrie dentaire dans une ambiance intime de discussion et d'apprentissage.

Notre Académie conserve des liens étroits avec ses commanditaires – les chefs de file de l'Industrie; à ceux-ci, nos sincères remerciements pour votre appui soutenu.

D'un congrès à l'autre, nos membres et leurs familles, les invités et commanditaires, se rassemblent lors de nos événements sociaux. Le parfum maritime demeure la thématique cette année à Halifax, pleine de découvertes et de gaieté.

Notez ces dates à votre agenda et soyez des-nôtres pour un congrès mémorable.

À bientôt!

Cordialement,
Dr. Maureen Andrea
Présidente, ACDRP

Introduction à la dentisterie numérique et la CAO/FAO

Jeudi le 6 septembre: 09h00 -16h00

Cours Pratique offert par Dr. Joseph Carpentieri pour 6 crédits



Le Dr Carpentieri est diplômé de University of Maryland College of Dental Surgery. Il a pratiqué la dentisterie générale pendant huit ans avant de recevoir son certificat en prosthodontie du Einstein Montefiore Medical Center. Il a par la suite poursuivi un post-doctorat de quatre ans sur les implants chirurgicaux au Department of Periodontology and Implant Dentistry à NYU. Il est actuellement Professeur agrégé clinique, membre associé du département de prosthodontie/implants au Columbia University College of Dental Medicine, sous la direction de Dr Dennis Tarnow. Conférencier, éditeur, mentor et consultant pour BIOMET 3i, Dr Carpentieri donne des conférences au niveau national et international sur toutes les phases de la dentisterie chirurgicale et implantaire.

Synopsis: L'objectif de cette conférence consiste à présenter un aperçu complet et concis de la dentisterie CAO/FAO et numérique laquelle a complètement révolutionné la pratique de la dentisterie clinique et changé significativement ce que nous faisons et comment nous le faisons.

- Offrir une perspective fondée sur des faits des avantages/désavantages ou des bénéfices et limitations de ces technologies.
- Évaluer les nouvelles options en matière de flux de travail à partir de perspectives conventionnelles et numériques.
- Comprendre comment une prothèse fabriquée à l'aide de la CAO/FAO constitue la modalité la plus rentable qui soit pour la plupart des restaurations implantaires.
- Présenter des arguments basés sur des faits justifiant l'utilisation de piliers CAO/FAO et d'armatures CNC à arcade complète.
- Discuter en détail des lignes directrices cliniques, du choix des piliers et matériaux et examiner les controverses associées à l'utilisation de piliers de zircone à l'aide des nouvelles lignes directrices.
- Examiner d'autres sujets controversés dont les piliers de fabricants tiers, l'interface zircone-titane et les facettes de différentes armatures.
- Introduire le concept de l'ingénierie inverse : l'un des sujets les plus chauds de l'heure en matière de dentisterie implantaire.
- Introduire les grands joueurs: offrant ainsi une présentation diversifiée de toutes les compagnies d'implant.
- Évaluer la gamme des produits CAO/FAO de Biomet 3i, notamment les systèmes de prise d'empreinte BellaTek™ Encode®. Comment cette compagnie réussit à se tailler une place et comment se démarque-t-elle?
- Démontrer l'intégration de la prise d'empreintes; aperçu des différents systèmes.
 - Comment choisir un numériseur?
 - Cela fonctionne-t-il réellement?
 - Quels sont les bénéfices pour mes patients et mon entreprise?

Objectifs: Accroître les connaissances, la confiance et la prévisibilité, tous des éléments qui favorisent la production de meilleurs résultats esthétiques et fonctionnels.

**Crédits
Éducation
continue**

Jeudi 6 septembre • Cours pratique • 6 crédits
Vendredi 7 septembre • Programme scientifique • 7 crédits
Samedi 8 septembre • Programme scientifique • 7 crédits

**Démonstrations
de tables!
3 crédits**

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l'Académie canadienne de dentisterie restauratrice et de prosthodontie

Vendredi le 7 septembre • Présentations de 1 Heure

Techniques provisoires en dentisterie implantaire conventionnelle



Dr. George Cho

Synopsis: Les facteurs tels l'occlusion, la préparation d'une dent, la fonction, la phonétique, la manipulation des tissus mous, et surtout l'esthétique, peuvent tous être évalués par la fabrication d'une restauration provisoire adéquate. Celle-ci s'avère un outil de communication avec le patient et le laboratoire et aide le dentiste à prévoir les problèmes esthétiques potentiels. Le maniement des tissus mous autour des implants sera discuté pour optimiser l'architecture gingivale, les papilles, et les profils d'émergence des couronnes implanto-portées au moyen de restaurations provisoires. Une méthode sera démontrée pour fabriquer des unités de restaurations multiples provisoires esthétiques qui possèdent toutes les caractéristiques d'une dent naturelle.

Objectifs:

- Fabriquer des unités multiples de restaurations provisoires esthétiques ayant toutes les caractéristiques d'une dent naturelle
- Fabriquer des restaurations implantaires provisoires
- Discuter de l'architecture gingivale optimale
- Effectuer des contours coronaux et sous-gingivaux des implants
- Manipuler les tissus mous péri-implants avec les profils d'émergence de restaurations implanto-portées

Les lésions buccales: approche anatomique au diagnostic différentiel



Dr. Charles Shuler

Synopsis: Notre présentation mènera le participant à développer une approche de diagnostic différentiel des lésions des tissus mous de la cavité orale en évaluant les points clés de ces lésions et les référant à l'anatomie/histologie du site intra-oral. Il ne faut pas diagnostiquer une lésion dès sa première observation, mais plutôt tenir compte de la panoplie de diagnostics possibles et d'établir leurs priorités. Les méthodes pour arriver à un diagnostic final et les raisons pour favoriser certaines méthodes seront discutées. Des cas cliniques démontreront les étapes d'évaluation et de la démarche à suivre pour atteindre ce diagnostic final.

Objectifs:

- Identifier les changements pathologiques des tissus mous
- Évaluer les lésions selon un format standardisé
- Générer un diagnostic différentiel basé sur l'anatomie et l'histologie du site
- Comprendre les procédures additionnelles qui favorisent le diagnostic et le plan de traitement
- Appliquer ce processus aux cas cliniques afin de renforcer cette nouvelle approche

«3DP» Planification, placement et prosthodontie numérique de l'implant



Dr. Izchak Barzilay

Synopsis: La dentisterie implantaire numérique sera vue sous ses multiples formes: le placement d'implants dans des situations difficiles et la restauration de ces implants à l'aide d'une approche numérique de conception et de fabrication. Les implants angulés, le logiciel de planification, les empreintes numériques et les restaurations finales seront présentés prestement.

Objectifs:

- Employer divers logiciels de planification pour décider du meilleur choix d'implant et de son placement
- Dans des conditions osseuses minimales, placer les implants angulés avec un guide CT sans lambeau
- Utiliser la technologie numérique pour recueillir l'information nécessaire pour la fabrication des restaurations sans avoir recours aux empreintes conventionnelles

L'occlusion dans une pratique restauratrice et de spécialité en 2012



Dr. Jim McKee

Synopsis: Bien que l'occlusion continue d'être un facteur critique pour la réussite d'un cas, c'est peut-être la discipline la moins comprise de notre profession. La vision traditionnelle s'adresse uniquement aux contacts des dents et leurs mouvements mandibulaires verticaux et horizontaux. Cette approche cependant mène à des résultats variables. De nos jours, les concepts sur l'occlusion englobent à la fois les dents ainsi que les articulations temporo-mandibulaires, ce qui assure une prévisibilité accrue en pratique restauratrice et spécialisée.

Objectifs:

- Développer un protocole pour chaque patient afin de jauger les risques occlusaux et temporo-mandibulaires
- Trouver les dossiers diagnostiques appropriés de manière efficace
- Fixer les options de plans de traitements pour les cas occlusaux/DTM simples ou complexes

Tendances dans l'usage de composites directs postérieurs



Dr. Andre Ritter

Synopsis: Cette présentation résumera les usages courants de composites postérieurs et discutera des solutions cliniques pour les problèmes liés aux restaurations avec composites postérieurs.

Objectifs:

- Identifier les meilleurs cas pour l'usage de composites postérieurs
- Comprendre les avantages et inconvénients des systèmes de résine composite courants pour les restaurations postérieures
- Employer des solutions cliniques pour les problèmes associés aux composites postérieurs

Les nouveaux matériaux et technologies: Devrions-nous nous lancer?



Dr. Jim Kessler

Synopsis: Cette présentation examinera les nouvelles technologies en vue de préparations conservatrices, de l'esthétique, l'efficacité, la précision et la prévisibilité. Nous étudierons les réclames publicitaires associées à la CAO/FAO, aux empreintes numériques et à l'articulé numérique, tout en tentant de distinguer entre la vérité et l'exagération. Nous discuterons comment différents systèmes produisent leurs restaurations à partir d'une multitude de matériaux et comment ceci influence notre approche envers le plan de traitement et notre concept du design idéal d'une préparation.

Objectifs:

- Comprendre les propriétés des divers matériaux tout-céramiques avec une vue particulière sur les causes fréquentes d'échecs, et ce qui constitue un échec
- Choisir les systèmes tout-céramiques les plus aptes à déterminer le succès d'après la littérature contemporaine
- Identifier les conditions cliniques où l'or ou les restaurations céramo-métalliques demeurent le choix par excellence
- Mettre à jour le statut des prises d'empreintes numériques disponibles

Halifax: La capitale de la Nouvelle-Écosse possède les atouts d'une grande métropole sans pour autant sacrifier le charme et l'hospitalité réputée des Maritimes. S'ajoutent son emplacement en bordure de la mer, ses côtes accidentées, ses plages sablonneuses, ses pittoresques villages de pêcheurs à proximité et son architecture historique qui font de cette ville un joyau canadien.

Température moyenne en septembre: 9-19C/49-66F

Renseignements sur le congrès et l'inscription disponibles au: www.cardp.ca



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The Canadian Academy of Restorative Dentistry and Prosthodontics
l'Académie canadienne de dentisterie restauratrice et de prosthodontie

Samedi le 8 septembre • AM: courtes présentations cliniques



Préparations rétroconçues pour restaurations mordancées

Dr. Jim Kessler



Choisir la bonne lumière photopolymérisante et l'utiliser efficacement

Dr. Richard Price



Le pronostic des dents fracturées: plans de traitements

Dr. Rob Roda



Pourquoi les dents fêlent-elles?

Dr. Emmanuel Rajczak



Le vilain petit secret: Péri-implantite causée par l'excès de ciment

Dr. Tim Hess



À la recherche d'une gestion esthétique et biologique des tissus en restauration fixe

Dr. Peter Taylor



Meilleur rendement des composites à surfaces multiples

Dr. Peter Walford



Critères essentiels pour les greffes osseuses volumineuses verticales

Dr. Ron Zokol

Samedi le 8 septembre

Démonstrations de tables • 14h00 – 17h00

Les empreintes mucostatiques – Dr. Emmanuel Rajczak

L'incrustation conservatrice en or comme pilier de semi-précision – Dr. Terry Koltek

Le vilain petit secret: péri-implantite causée par l'excès de ciment – Dr. Tim Hess

Le pont Ankylos Syncone, la restauration implantaire amovible adéquate pour le patient – Mr. Henry Hintze

La résistance de la porcelaine aux fractures: restaurations implanto-portées vissées vs cimentées – Dr. Al Mardini

Choisir la bonne lumière photopolymérisante et l'utiliser efficacement – Dr. Richard Price

Une option nouvelle de restauration et de remplacement thérapeutique avec une combinaison CAO/FAO et BEST et STARRT – Dr. John Bembenek

Les maladies péri-implantaires: ce que vous devez savoir – Dr. Chris Cameron

L'extraction des dents de sagesse – Dr. Joel Powell

L'embarras du choix: la céramo-métallique antérieure vs la solution toute céramique – Mr. Martin Mueller

Chape d'empreinte individualisée – Dr. Allan Coopersmith

L'empreinte numérique intra-orale et vous – Nom du présentateur à venir

Les empreintes numériques et le laboratoire dentaire – Dr. Henri Thériault

Samedi le 8 septembre

Programme social

Mercredi le 5 et jeudi le 6 septembre

Faire du kayak avec les Shaffners à Lunenburg

Jeudi le 6 septembre

06h45 – 16h00

Golf au club de golf Chester

09h00 – 16h00

Le kayak à St-Margaret's Bay et Peggy's Cove

18h00 – 22h00

Dîner au Halifax Marriott Harbourfront • Buffet de bienvenue

Vendredi le 7 septembre

9h00 – 16h00

La route Évangéline et dégustation de vins à Grand Pré • Activité pour invités/conjoints

18h00 – 22h30

Croisière, souper de homard, divertissement
Naviguez le port en soirée et assistez à un Ceilidh

Samedi le 8 septembre

14h00 – 16h00

Le thé l'après-midi • Activité pour invités/conjoints

Réception 18h30 • Dîner/danse 19h30

Gala du Président

Renseignements sur le congrès et l'inscription disponibles au: www.cardp.ca



Social Activities

The Canadian Academy of Restorative Dentistry and Prosthodontics
l'Académie canadienne de dentisterie restauratrice et de prosthodontie

20th Annual Scientific Meeting, September 6-8, 2012

Kayaking with the Shaffners in Lunenburg

Wednesday, September 5th & Thursday, September 6th

Wednesday afternoon arrival until 4:00 pm

Registrant and/or Partner/Guest Event



Your Hosts for this Lunenburg experience are Dr. Vernon Shaffner and his wife Dianne. When you arrive in Halifax, you will need to make your own transportation arrangements to get to the Ocean View Chalets, 78 Old Blue Rocks Road (902) 640-3344. For directions visit

www.lunenburgoceanview.com. The chalets are located at the edge of Lunenburg, with easy access to the many shops, galleries, museums and restaurants. Come and stroll through the ages of Grand Architecture that gave Lunenburg the title "UNESCO World Heritage Site". From Lunenburg, in the center of the South Shore, you can plan day trips to Peggy's Cove, Liverpool, Mahone Bay or the Annapolis Valley. Your accommodation will be in a 1 or 2-bedroom chalet where, on Wednesday evening, you'll enjoy a traditional Bar-B-Que with your friends and colleagues. Thursday morning will begin with a continental breakfast delivered to your chalet. Then a short trip will start you on your kayaking adventure at 9:00 am ending around 4:00pm. Blue Rocks is a premier sea kayaking destination of Nova Scotia. Made up of stratified slate pushed upward by crustal folding, the fifty-plus islands in this archipelago are stunning to paddle through. This maze of islands has passageways that only kayakers can navigate. Blue Rocks offers many opportunities to see wildlife above and below it's clear waters, including playful seals. For more information, please visit: www.pleasantpaddling.com

Cost: \$295 p.p. (tax included)

Includes: Accommodations, arrival BBQ dinner, continental breakfast, kayaking, snack, water and lunch.

Dress: Warm and casual – appropriate footwear, sunscreen and hats recommended.

Golf at Chester Golf Club

Thursday, September 6th

6:45 am – 4:00 pm • *Registrant and/or Partner/Guest Event*



Chester offers visitors the magic of a classic golf course in a seaside setting. The course routing provides a golfing adventure that is both challenging and enjoyable for all skill levels. Any missed shots will be due to the distracting beauty of the Atlantic Ocean,

the islands, and the colourful sailboats tacking in the wind. For more information, please visit: www.chestergolfclub.ca

Cost: \$185 p.p. (tax included)

Includes: Transportation departing and returning Halifax Marriott Harbourfront Hotel, green fees, cart and lunch.

Dress code: Shirt must have collar except women who wear sleeves (no collar required). We are a soft spike course. Warm and casual, sunscreen and hats recommended.

Meet in the lobby at 6:45 am.

Kayaking at St. Margaret's Bay and Peggy's Cove

Thursday, September 6th

9:00 am – 4:00 pm • *Registrant and/or Partner/Guest Event*



St. Margaret's Bay is a cruising destination for sailing yachts, sea kayaking and picturesque shorelines that offer protection in many natural harbours, as well as anchorages in coves and near the many small islands. Explore the islands along our kayak routes.

You'll find an overview of the features unique to each island including trails, beaches and views, common wild life sightings, geological and human history. Enjoy an exciting kayak-sailing experience as we put up our sails and blow back to the base! (winds permitting). Watch for: porpoises, whales, giant gray seals, harbor seals, mink, bald eagles, muskrat, terns, and more.

What to wear and bring along on a half-day tour:

- Clothing: dress for the weather and dress in layers! Avoid wearing clothing made of cotton, which stay wet. Instead, wear 'quick-drying' fabrics such as polyester or other synthetic blends. Wear a short-sleeve shirt, a long sleeve shirt (for sun protection), quick-drying shorts/pants, warm undergarments, a sun hat, swim suit (depending on weather). Also bring an extra change of clothes in a waterproof bag.
- Must-haves: sunglasses, sunscreen, insect repellent, any required medications.
- Other items suggested: binoculars and camera.

Sea Sun Kayak provides guides, kayaks, kayak equipment (including spray skirts and PFDs) first aid kit, VHF radios or cell phones and food.

Cost: \$135 p.p. (tax included)

Includes: Transportation departing and returning Halifax Marriott Harbourfront Hotel, kayaking, snack, water and lunch.

Dress: Warm and Casual – friendly foot wear, Sun Screen and hats are suggested.

Meet in the lobby at 8:00 am.

Meet, Greet & Eat at The Halifax Marriott Hotel

Thursday, September 6th

6:00 pm – 10:00 pm, Halifax Ballroom, Conference Level, 2nd Floor

Registrant and Partner/Guest Event

Starting off this Year's 20th Scientific Meeting will be our Opening Reception hosted in the Halifax Ballroom and Foyer looking over the Halifax Harbour traffic. Join Our Meeting



Sponsors, other registrants and guests to rekindle old acquaintances and make new ones. A roaming dinner style Buffet will be available for all to enjoy offering a variety of traditional Maritime foods. So plan to be in Halifax early to join us for the 2012 Scientific Meeting.

Cost: Complimentary with Registration

Dress: Business casual

Evangeline Trail and Wine Tasting at Grand Pré

Friday, September 7th

9:00 am – 4:00 pm • *Partner/Guest Event*



Leaving the Marriott Harbourfront Hotel we will travel through the heart of the farmland of Nova Scotia, past rolling hills and pleasant pastoral settings of the Annapolis Valley to visit the land of the Acadians. Here, you will see the effects of the world's highest tides in

Windsor. Continue on to Grand Pré National Historic Park, where you will learn of 'Evangeline', Longfellow's tragic heroine, and the sad plight of the Acadians, the farmers who were amongst the first settlers of Nova Scotia. Next, a tour of the Grand Pré Winery and a chance to sample some of Atlantic Canada's finest wines, will be followed by a luncheon at the winery. The Winery offers 30 acres of beautiful vineyards, an on-site art display allowing guests to view the works of both Nova Scotian and European artists. Time permitting, you will then travel through beautiful Wolfville before returning to Halifax.

Cost: \$120 p.p. (tax included)

Includes: Luncheon at Grand Pré Winery, transportation departing and returning Halifax Marriott Harbourfront Hotel.

Dress: Warm casual, comfortable walking shoes.

Meet in the lobby at 8:45 am

For more info, please visit www.ourvalley.ca and www.grandprewines.ns.ca

Evening Harbour Tour and Lobster Ceilidh: Murphy's on the Water

Friday, September 7th

6:00 pm Meet in Hotel Lobby • 6:30 pm – 7:30 pm Halifax Harbour Tour
7:30 pm – 10:30 pm Lobster Dinner & Entertainment

Registrant and Partner/Guest Event



We will meet in the Lobby of the Halifax Marriott Harbourfront Hotel and make our way to Murphy's on the Water. We will board the Harbour Queen II for a Halifax Harbour tour, viewing military sites, ship building, the harbour bridges and Georges Island. This vessel is

enclosed below and open at the top to provide comfort for everyone. We will dock at Murphy's where we will enjoy the passing harbour traffic and sea air. Maritime music will set the tone for a traditional lobster dinner. Seafood chowder will start off the meal followed by fresh Atlantic lobster with all of the trimmings. Finishing this sumptuous meal will be fresh Nova Scotia strawberry shortcake. This evening in Halifax is not to be missed.

Cost: \$155 p.p. (tax included)

Includes: Halifax harbour tour, lobster dinner and evening's entertainment.

Dress: Warm casual with comfortable walking shoes.

Meet in the lobby at 6:00 pm

For more info, please visit: www.murphysonthewater.com

High Tea

Saturday, September 8th

2:00 pm – 4:00 pm, Halifax Marriott Harbourfront Hotel

(Private dining room, 44 North) • *Partner/Guest Event*



Legend has it that afternoon tea was started in the mid-1800s by the Duchess of Bedford. Around this time, gas light was introduced in wealthier homes, and eating a late dinner (around 8 or 9 PM) became fashionable. At the time, there were only two meals each day – a mid-

morning, breakfast-like meal and the other was an increasingly late dinner-like meal. The story goes that the Duchess found herself with a "sinking feeling" (likely fatigue from hunger during the long wait between meals) and decided to have some friends over for assorted snacks and tea (a very fashionable drink at the time). The idea of an afternoon tea gathering spread across high society and became a favourite pastime of ladies of leisure. Later, it spread beyond the elites and became popular among certain other socioeconomic groups. Join your friends in the private dining-room of 44 North, located in the hotel along the Halifax waterfront. Watch the harbour traffic and enjoy a snack and a variety of teas.

Cost: \$45.00 p.p. (tax included)

President's Gala

Saturday, September 8th

Halifax Ballroom, Conference Level, 2nd Floor • Reception 6:30 pm

Dinner/Dance 7:30 pm • *Registrant and Partner/Guest Event*



For 20 years we have tried to top this event in every city we gather, so the galas just keep getting better and better due to the friendships created. Join us for the President's Gala to be held in the Halifax Ballroom at the Halifax Marriott Harbourfront Hotel, overlooking the

harbour and city lights of Dartmouth and the passing harbour traffic. The entire Meeting will be capped with the President's Gala, including a champagne reception, fine dining and dancing to one of Halifax's Hottest Dance Bands "Bittersweet". Plan on attending because you wouldn't want your friends to tell you what a great time you missed.

Special Appearance by the "Singing Strings": Join us as we welcome back one of PEI's most enduring youth ensembles of accomplished musicians for an evening that spans the musical ages.

BITTERSWEET: BITTERSWEET has grown into a 6 piece Halifax-based band known for its versatility and high-tempo shows. Featuring 6 vocalists and multi-instrument players, the crowd is guaranteed to be entertained! Styles of music range from fast-paced East coast favourites, to classic rock, to country rock and much more.

Cost: \$195 p.p. (tax included)

Includes: Champagne reception, Gala dinner & entertainment

Dress: Black tie optional

**For more information and to register
for the meeting, visit www.cardp.ca**



Programme social

The Canadian Academy of Restorative Dentistry and Prosthodontics
l'Académie canadienne de dentisterie restauratrice et de prosthodontie

20ième congrès annuel, 6-8 septembre 2012

Le kayak avec les Shaffners à Lunenburg

Mercredi 5 et jeudi 6 septembre

Arrivée mercredi vers 16h00

Pour membres inscrits et invités/conjoints



Vos hôtes pour cette aventure sont Dianne et Vernon Shaffner. Lors de votre arrivée à Halifax, vous devrez faire vos propres arrangements de transport pour vous rendre au Ocean View Chalets, 78, Old Blue Rocks Road – (902)640-3344. Pour les instructions sur l'itinéraire

consultez www.lunenburgoceanview.com Les chalets sont situés à l'extrémité de Lunenburg offrant un accès facile aux boutiques, galeries, musées et restaurants. Découvrez la grandiose architecture de Lunenburg qui lui a mérité une place parmi les sites patrimoniaux de l'UNESCO. À compter de Lunenburg, qui est au centre de la côte sud, vous pouvez facilement rayonner vers Peggy's Cove, Liverpool, Mahone Bay et la vallée de Annapolis. Vous serez logés dans des chalets de 1 ou 2 chambres à coucher. Le mercredi en soirée, vous et vos collègues et amis partagerez un barbeque traditionnel. Le jeudi matin débutera avec un petit déjeuner continental livré à votre cabine. De là, un court transfert vous mènera à votre point de départ vers 09h00. L'expédition se terminera aux environs de 16h00. Blue Rocks est une destination prisée de la Nouvelle-Écosse. Composées d'ardoise stratifiée, soulevées par les plis de la croûte terrestre, la cinquantaine d'îles de cet archipel, que seuls les kayaks peuvent naviguer, offrent un coup d'œil sensationnel. Vous apprécierez les nombreuses occasions d'admirer ses eaux cristallines, sa flore et sa faune. Pour plus de renseignements, consultez www.pleasantpaddling.com

Coût: 295\$ p.p. (taxes incluses)

Inclus: Accommodation, dîner barbeque, petit déjeuner, la journée en kayak, casse-croûte, eau et repas du midi.

Habillement: chaud et décontracté – chaussé de façon appropriée, écran solaire, chapeau.

Golf au club de golf Chester

Jeudi 6 septembre

06h45 – 16h00 • *Pour membres inscrits et invités/conjoints*



Chester propose un parcours classique en bordure de mer qui plaira à tous les niveaux. Gare aux coups manqués par distraction tellement la vue de l'océan, des îles et des voiliers est spectaculaire! Pour de plus amples renseignements, consultez www.chestergolfclub.ca

Coût: 185\$ p.p. (taxes incluses)

Inclus: Transport aller-retour du Marriott Harbourfront Hotel, droit de jeu, voiturette et repas du midi.

Habillement: Gilet avec col, crampons mous, écran solaire et couvre-têtes recommandés.

Rassemblement dans le hall d'entrée de l'hôtel à 06h45.

Le kayak à St-Margaret's Bay et Peggy's Cove

Jeudi 6 septembre

09h00 – 16h00 • *Pour membres inscrits et invités/conjoints*



St-Margaret's Bay est une destination privilégiée pour la voile, le kayak et ses côtes pittoresques qui offrent des refuges naturels où mouiller son embarcation parmi les anses et les îlots. Explorez ces îles en kayak et découvrez leurs pistes, plages et points de vues.

Le vent nous favorisant, nous leverons les voiles pour rentrer à notre base.

Coût: 135\$ p.p. (taxes incluses)

Inclus: Transport aller-retour du Marriott Harbourfront Hotel, guide, kayak, goûter, eau et repas du midi, produits de premiers soins, radio VHF.

Habillement: Chaud et décontracté mais évitez le coton qui sèche mal; portez plutôt des synthétiques – chemise à manches courtes plus chemise à manches longues pour protéger du soleil – pantalons courts ou longs qui séchent rapidement – vêtements de rechange dans un sac étanche – chaussures appropriées – écran solaire – lunettes soleil – chapeau – produit anti-moustique – autres items suggérés: lunettes d'approche et appareil photo.

Rassemblement dans le hall d'entrée de l'hôtel à 08h00.

Buffet de bienvenue

Jeudi 6 septembre

18h00 – 22h00, Halifax Ballroom, Niveau des conférences, 2ième étage

Pour membres inscrits et invités/conjoints



Nous démarrons notre 20ième congrès annuel avec une réception dans la salle de bal qui surplombe le port de Halifax. Venez rencontrer amis, collègues et commanditaires. Un dîner style buffet vous sera offert, incluant des mets maritimes typiques.

Coût: Compris avec l'inscription.

Tenue vestimentaire: De ville, décontractée.

La route Évangéline et dégustation de vins à Grand Pré

Vendredi 7 septembre

09h00 – 16h00 • *Pour invités/conjoints*



Notre excursion nous mènera au cœur de la Nouvelle-Écosse champêtre de la vallée Annapolis pour visiter la terre ancestrale des Acadiens. En passant par Windsor, vous constaterez les effets des marées les plus hautes du monde. Puis au parc national historique de Grand Pré, vous apprendrez l'histoire tragique de Évangéline, l'héroïne de Longfellow, et le triste sort des cultivateurs Acadiens, qui furent parmi les premiers colons de la Nouvelle-Écosse.

Ensuite, une visite de la viniculture de Grand Pré, accompagnée d'une dégustation d'excellents vins régionaux, sera suivie d'un repas. Ce site jouit de 30 acres de vignobles, ainsi qu'une galerie d'art présentant les oeuvres d'artistes locaux et européens.

S'il nous reste du temps à notre retour vers Halifax, nous ferons une belle escale à Wolfville.

Pour plus d'information consultez: www.ourvalley.ca ou www.grandprewines.ns.ca

Coût: 120\$ p.p. (taxes incluses)

Inclus: Transport aller-retour du Marriott Harbourfront Hotel, repas du midi à Grand Pré.

Habillement: Décontracté, des chaussures confortables.

Rassemblement dans le hall d'entrée de l'hôtel à 08h45.

Soirée croisière et Ceilidh à Murphy's on the Water

Vendredi 7 septembre

18h00 Rassemblement dans le hall d'entrée de l'hôtel

18h30 – 19h30 Croisière dans le port d'Halifax

19h30 – 22h30 Souper de homard et divertissement

Pour membres inscrits et invités/conjoints



Réunissons-nous dans le hall d'entrée du Marriott Harbourfront Hotel et de là, nous nous rendrons à pied à Murphy's on the Water où nous monterons à bord du Harbour Queen II pour une tournée du port et de ses installations, et une vue des ponts et de l'île

Georges. Pour le confort de tous les passagers, ce vaisseau est pourvu d'une section fermée en-bas et d'une section ouverte en-haut. Chez Murphy's l'eau, l'air salin et la musique des Maritimes nous accueilleront. Notre repas débutera avec un chowder de fruits de mer suivi d'un homard de l'Atlantique fraîchement cuit et garni. Pour terminer, régalez-vous d'un délicieux shortcake aux fraises fraîches de la Nouvelle-Écosse. Ne manquez pas cette soirée! Pour de plus amples informations, voir: www.murphysonthewater.com

Coût: 155\$ p.p. (taxes incluses)

Inclus: Croisière, dîner, divertissement.

Tenue vestimentaire: Chaud, décontracté, bonnes chaussures de marche.

Rassemblement dans le hall d'entrée de l'hôtel à 18h00.

Le thé l'après-midi

Samedi 8 septembre

14h00 – 16h00, Marriott Harbourfront Hotel

Salle à dîner privée – 44 North • *Pour invités/conjoints*



L'histoire raconte que le «High Tea» anglais a connu ses débuts avec la duchesse de Bedford au milieu du 19ième siècle. À l'époque, les maisons cossues pouvaient se permettre l'éclairage au gaz, ce qui entraîna l'habitude mondaine de souper beaucoup plus

tard qu'auparavant, c'est-à-dire vers 20h00 ou 21h00. Or, puisqu'il n'existait que 2 repas quotidiens, en matinée et en soirée, la duchesse avait le ventre creux vers la fin de l'après-midi, accompagné de malaises. Par conséquent, elle décida d'inviter des amies pour partager un gueuleton agrémenté du breuvage de prédilection, le thé. Cette pratique devint vite coutume parmi les nantis, particulièrement au sein de la gent féminine. Éventuellement, cette tradition gagna en popularité chez les autres classes sociales. Venez rencontrer vos amis(es) au 44 North et savourer un goûter assorti d'une variété de thés.

Coût: 45\$ p.p. (taxes incluses)

Gala du Président

Samedi 8 septembre

Halifax Ballroom

Niveau des conférences, 2ième étage

Réception: 18h30 • Dîner/danse 19h30

Pour membres inscrits et invités/conjoints



Cela fait 20 ans que chaque ville hôte de nos assemblées tente de surpasser les précédentes, ce qui fait que les galas ne vont qu'en s'améliorant. Ce congrès-ci clôturera l'événement avec une réception au champagne dans la salle de bal Halifax du Marriott

Harbourfront Hotel, ainsi qu'un somptueux repas. Vous danserez ensuite à la musique énergisante de l'orchestre Bittersweet. En supplément, nous accueillerons les Singing Strings de l'île du Prince Edouard, un ensemble de jeunes musiciens talentueux dont le répertoire couvre divers styles. Quant à Bittersweet, ce groupe de Halifax est composé de 6 artistes versatiles dont tous les membres chantent et jouent une variété d'instruments. Leurs genres musicaux sont extrêmement vastes, allant de la tradition locale au rock classique au country, et plus.

Coût: 195\$ p.p. (taxes incluses)

Inclus: Réception au champagne, dîner et divertissements.

Tenue vestimentaire: Tenue de soirée optionnelle.

Renseignements sur le congrès et l'inscription disponibles au:
www.cardp.ca

Lemons Can Leave a Bad Taste!

You probably think that lemons are delicious, and they maybe in a long, tall summer drink, but in reality, they are sour and taste sour unless covered with sugar! The idea of calling a defective product a “lemon” comes from the misleading stance that lemons are a lovely citrus fruit when clearly they aren’t!

Not buying a “lemon” can be quite difficult, especially when it comes to dental loupes as many people assume that all loupes are the same and that they all provide the same quality of magnification and frame.

The problem comes in separating quality loupes from the poor quality inferior versions, and often a lack of information can lead to bad purchasing decisions. However, there are some basic things you can do to check that you aren’t being buying a lemon.

What to look for

Not all loupes are the same, so when making a choice it is important to understand the differences in the products available, from design to performance and quality to service, there are many things to consider.

There are several options in terms of lens construction, but the latest Galilean multi-lens loupes are lightweight and can yield high power with short oculars. Loupes mounted through the lens (TTL) ensure a wider field of view by reducing the distance between the eye and the loupe. Additionally the best loupes use special multi-

coatings in both the oculars and the outer lenses to allow more light to pass through the lenses.

For the general dentist using magnification throughout the day, the recommended magnification is between 2x and 3x, as these levels give an optimal depth of field allowing freedom of movement whilst keeping the subject in focus. This also helps to maintain a relaxed posture throughout the day. In addition, the field of view is also widest at these magnifications.

Higher magnifications are best suited to more demanding work. Many loupe wearers have 2x to 3x magnification loupes for general dentistry, whilst turning to their higher magnification loupes for more intricate procedures. Some, however, may use over 3x magnifications for all procedures.

Custom-Made

It’s important when wearing loupes that both the working area and, for example, a nearby computer screen, need to all be in focus. To achieve this, loupes need to be custom-made from measurements taken by an expert loupes specialist who can make sure your needs are met. It is important that the company providing your loupes has an optician in the team. There are many choices in terms of frame style and colour and again a loupes specialist can explain the options available.



“I would not work without these superb loupes (5x magnification) and light. I also have a pair of 2.5 x which I bought five years ago. They are light and easy to use. Highly recommended. You may find cheaper but they will not match the build quality and long term use of these. A must buy!”

Dr. Roy Bennett BDS MFGDP(UK)

Less is Less

It may be tempting to try and save a few dollars by buying a lower priced loupe. But the old adage “you get what you pay for” is very true as it applies to a loupe purchase. Far too many dentists have “saved” but in fact lost every dollar they spent when they purchased a product that was inexpensive but did not fit correctly and was un-wearable, or had poor optics – and as a result just sit in a drawer unused. The better loupes will last you 7-10 years, and the extra you pay for a good pair is pennies a day more over that period.

Post Sale Support

Choose a supplier that is committed to servicing you and other health professionals in your area. Companies that invest in locally available, technically competent sales professionals are committed to supporting you well after



your purchase is completed. The proper loupe is a custom made and fitted product and often requires final “tweaking” to ensure you’re getting the best possible vision and overall experience from your loupes.

Deal with a Professional

Finally, make sure you’re purchasing your loupes from someone who knows vision and knows optics. There are a number of factors that come together to create the best possible loupe-wearing experience, and you should consider your chosen supplier as a consultant who will help you sort through all the variables and choices, given your unique visual acuity, facial geometry, and clinical working style. TM

We take magnification seriously!



ExamVision loupes are custom-made using the highest quality components. They represent a perfect blend of optics, materials, design and ergonomics. Synca's specialized staff offers in-office* consultations, advice, fittings and measurements.

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How Much Does It Really Cost to Open a New Practice?

Bryce Gibney



It's a Sunday afternoon, and I just finished a marathon call from a client on the other end of the country. He has a multiple location business, and has been painfully going through the process of selling an interest in either location - or all locations.

He has discovered what we already knew. Associates with no business experience (and frequently with little clinical experience either) have zero appreciation for what kind of investment – both financial and sweat equity – has gone into developing a well run and profitable existing practice. The choices are - buy in as a partner, purchase the practice entirely, or sign a new lease and open a brand new practice on their own. After all, someone will finance either option!

My very wise accountant told me decades ago that expansion is best served by purchasing existing businesses, because there is less distraction regardless of how you feel about overpaying for assets, perceived or otherwise. We purchased an electrical company during one expansion, and thought we overpaid for the asset. As it turned out – the yellow page listing from the previous owner stayed with us, and we earned enough in one year from an obscure account we wouldn't have found in a million years to finance the entire acquisition. That was a 'grey area' benefit never factored into the original numbers.

A new dentist looks at equipment, rent, wages, and base level wages as the cost of doing business. Frequently they feel they can generate a patient base cheaper than 'buying' goodwill from an existing practice. This is seldom the case. They don't appreciate at that point that 93% of all dental advertising is a waste of money, and if they did they wouldn't know how to differentiate the other 7%! They don't usually know how to run the 'business' side of dentistry, because they still 'don't know what they don't know'. The HR component is fudged through – and they will run through a couple of bad hires before they get it right. Each one of those will cost them 6 figures a year - if they keep that wrong individual around for a year. As most dentists hire too fast and fire too slow – that is almost guaranteed.

They don't understand that you either purchase patients through buying a practice, or you purchase them through external lead generation. An 'introductory special' type of patient will cost you \$150 in advertising investment to put in a chair – and this is simply an audition on your part for their future business. If the practitioners see themselves as cosmetic dentists (like 95% of dentists), that same 'cosmetic' prospective patient will cost \$500+ to place in their chair – simply to earn the right to audition for their veneers too! When you consider that internal marketing is the least expensive method to grow a business – the inherent value of a solid chart base becomes very transparent.

During our coaching sessions – it is a rare associate who ever feels it is worth their time to sit in on our marketing meetings with the practice owner. They realize that they presently earn 40%, and ‘understand’ the remaining 60% is profit going to the practice! Expenses such as utility bills, property taxes, lease payments, janitorial fees, insurance, employee acquisition costs, CE events, professional fees, Christmas parties, cancelled appointment wages, advertising and marketing etc. all come from where?

Young dentists cannot be faulted for not yet being business savvy. No dental school has time in their curriculum to provide the business training they really require. One sad result is basing their business valuation assumptions on insufficient information. This particular client today has a gift on a silver platter for his potential future partner. The prospect thought he could lowball it with a 50% offer. If he chooses to hang out his own shingle, he will get his half million dollar ‘lesson’ over the next 24 months. As we are privy to all the pertinent

numbers and we see daily the scars from ill advised dental business decisions – that young dentist just passed up the opportunity to save a half million dollars by spending a half million dollars. He will take as much as 5 years to get to the same level (if he ever indeed gets there), and will have to make all the mistakes on his own dime and on his own time!

Literally, being a business coach is sometimes like parenting teenagers. You have to watch them run into the wall and hope they learn from it. I wish this young dentist luck, because he needs it already! TW

Author:



Bryce Gibney is a practice management coach, seminar leader, and marketing consultant operating specifically in the dental profession for a decade now. His ‘hands on’ approach to solving everything from advertising issues to dental team sales training has been invaluable to practices across the continent. He is available at 1-800-492-2118 or info@patientmoneyinc.com

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Spring Cleaning

Nadean Burkett



As the weather brightens and days grow longer, it is the traditional time to declutter and reorganize. It's been proven that a clean and organized workspace belongs to those who are more productive – not just busy. This process can be daunting, especially for first-timers, so let's review some tips to make your spring cleaning simple and satisfying...

Make a Plan to Make It FUN.

1. Map out the office ahead of time so that no nooks and crannies are forgotten.
2. Divide tasks among all team members fairly. Cleaning and reorganizing should not fall to one employee or team member.
3. Schedule times that do not interfere with patient services (patients ALWAYS are priority!). For some teams, scheduling spring cleaning works better as a "blitz" – all out one or two day clean-out blast. This may work better for those with practice spring cleaning experience. Set a reasonable timeline as a team to complete the spring cleaning chores. Practice Fairy says: "The first time, double the amount of time you estimate to complete the tasks assigned so that team members can focus on quality performance rather than beating the clock!"
4. Consider working in pairs for improved performance and efficiency. This can be a team building exercise which results in deeper appreciation of each person's responsibilities and

value to the practice operation.

5. Be creative – there are so many ways to turn drudgery into a group bonding experience. Dress up as your favorite charwomen (or man) in TV or movie; have a potluck with a theme that is predetermined by the group (i.e. February – Groundhog Day; March - St. Patrick's Day; April – Easter).

The Purge

1. Be systematic. Finish one drawer or cabinet before moving on to another. Allocate each item as it currently meets the following categories:
2. Keep it. But only if it has a purpose and still meets current practice standards; otherwise
3. Recycle it. Plastics, paper and cardboard, and electronics may be recyclable in your community. Find out what and how these are handled and make arrangements to prepare them appropriately. Shred documents and papers that have personal or other confidential information related to patients or employees of the practice. This includes notes that may have phone numbers, address, or birthdates; insurance or credit card information. If there is too much to shred in your regular office shredder, consider hiring a commercial mobile shredder or share those services with another office or your accountant.

4. Donate it. Some materials or supplies that you don't want or do not fit your current practice standards might be appreciated by a local NFP clinic or volunteer programs in other communities or countries. Contact your local dental association or dental sales representative to connect with these groups if you are not already. Even books, toys and other non-dental items may be appreciated by others less fortunate.
5. Toss it. Be ruthless! Get rid of broken items that have been cluttering storage cupboards. Take care to dispose of biohazards and medications properly. Practice Fairy says, "This is a great time to check your amalgam separator and replace it as necessary."
2. Create effective inventory management systems that will help avoid wastage in the future
3. Organize to provide immediate access for those items used routinely – ergonomically and efficiently improving delivery of services to patients.
4. Don't neglect staff and private office areas. Refresh and replace worn, torn and outdated postings in staff areas. Consider use of white boards instead of Post-It notes and printed memos taped to walls and cabinets in the office which can be unsightly.
5. If you haven't used something for a year, it isn't likely that you will any time in the foreseeable future. There are some exceptions to this, of course – fire extinguishers, and defibrillators, for example. Those should be checked for expiry and retested before updating or replacing. Change batteries in clocks, wireless phone extensions, etc.

Clean Up Your Act

1. Dust, vacuum and scoop out loose debris from drawers, shelves and under cabinets and furniture.
2. Use a good quality cleaning product that is appropriate to the application and congruent with your practice philosophy when scrubbing storage areas before restocking.
3. Clean surfaces that are often overlooked; such as window blinds, tops of window and door trim, and even the little divots on the computer keyboard. Arrange with your janitorial service to do a major scrub-down of walls, ceilings, and windows to catch those cobwebs and prevent them from recurring.
4. View the clinic and office from your patients' and visitors' perspective. Stained upholstery in the reception area? Grimy plastic toys in the kids' play area? If steam cleaning doesn't solve the problem, it might be time to replace those.
5. Will a fresh coat of paint and/or new welcome mat at the front door give you and your patients a "lift"? For under \$500, the effect could be beneficial to productivity and generate some new referrals.

Get It Together

1. Rotate existing stock of perishable/dated items so they are used before expiration.

Renewing your surroundings is a simple and positive way to renew morale and motivation in any dental practice. Have fun with it, and at the end why not celebrate by planting some flowers in a container at your front door? How inviting for passersby and your returning patients to your practice... HAPPY SPRING!

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Nadean Burkett is a career and business transition coach with more than 30 years experience in the dental profession – now assisting accountants and other professionals in private practice by referral. Trusted practice evaluator, business planner and respected coach and advisor for the past 7 years - Nadean facilitates The EMPOWERMENT Program series, Career & Practice Management for Dentists both online and from NBAI's head office situated in beautiful Vancouver, British Columbia. Visit www.empoweredbynba.com email burkett@empoweredbynba.com for listings, job postings, & more resources with your practice transition coach.

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Dr. George Zarb (front row, far right) seated next to P-I Brånemark at the landmark conference.



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