

"EXPERIENCE THE LORD'S DIFFERENCE"

1966-2003

37

YEARS OF EXCELLENCE

Lord's Dental Studio, Inc.

Articulator

Published By Lord's Dental Studio, Inc.

Winter 2003/2004

SELF-ADHESIVE CEMENT, ALL-CERAMIC SYSTEMS, SELF-ETCHING PRIMER: FAQs



Dr. David Hornbrook, FAACD, is Executive Director of the Hornbrook Group, a CE provider offering comprehensive courses on various restorative and cosmetic dentistry topics at universities around the world. Dr. Hornbrook will be presenting his "The Art of Esthetics: The Pursuit of Excellence" course as part of Lord's Double Header seminar on January 30, 2004 at Lambeau Field's Tiletown Atrium.

We've asked Dr. Hornbrook to offer his perspective on a self-adhering cement, an all-ceramic system, and dentin bonding. This is what he had to say:

RelyX™ Unicem cement applications

Articulator: We've heard a lot about 3M ESPE's new resin cement that self-adheres and will bond to tooth structure without the need to etch or place a bonding agent. Have you had any experience with this and what are your thoughts? Also, can it be used with veneers?

Hornbrook: RelyX Unicem Self-Adhesive Universal Resin Cement, 3M ESPE's new self-adhesive cement, has made a huge impact on our profession this past year due to its

by Dr. David Hornbrook

seemingly good bonds to dentin and enamel, and its ease of use. Because dentin does not need to be etched with phosphoric acid - and thus the dentin tubules are not opened - there is less chance of post-operative sensitivity. There are basically two mechanisms for the cement's ability to bond to tooth structure. The dominant mechanism is the interaction of the phosphorulated methacrylate with the tooth surface. As with the self-etching adhesives, the phosphorulated methacrylate has a low pH; when it interacts with water or moisture on the surface, the tooth is demineralized (etched). During demineralization, the cement penetrates the tooth surface at the same time. When the methacrylates polymerize via light or self-curing action, a strong micromechanical bond is formed to the dentin and enamel.

In the secondary, or subordinate, reaction, the basic filler reacts with the acid in the presence of some water that is formed. This causes a reaction similar to glass

- See **Hornbrook** continued on page 4

JOIN YOUR PEERS IN PUERTO VALLARTA!



by Julie Stadtmueller

For the past 10 years, Lord's has offered our partnering dentists a wide range of services, products and continuing educational options to redeem their partner credits. It has been our way of recognizing our loyal partner's commitment and support, for which we are most grateful.

Beginning January 1, 2004, we are excited and proud to introduce our new and expanded Partner Loyalty Program. Not only will we still offer the services and products to which our qualifying customers are accustomed, but now they will have the additional redemption options of gift rewards and travel - alternatives our partners told us

- See **Partner Loyalty** continued on page 5

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PRESIDENT'S FORUM



by Don Warden

OCTOBER COUNCIL HIGHLIGHTS

The 38th session of the Lord's Dentists' Council meeting was held in October at the Stone Harbor Resort in Sturgeon Bay. The Council meeting serves as one of the primary means used to make major business decisions and gives members a very intimate look at what's new both at Lord's and in the industry.

Highlights of the meeting included a roundtable discussion, in which members shared information and challenges each faced practicing in their particular geographic location. Two challenges common among many of the participants are growing the practice and the role of marketing and managing/leading the team.

To all our readers, a very Peaceful Holiday Season and a New Year filled with Joy!

Ken Waldo provided an update on the Monodont™ Bridge and the initial survey that had been sent out as part of the study

we are conducting with CRA. He also reviewed the successful follow-up sessions

to Dr. Joe Massad's denture courses. We will hold additional hands-on sessions at the lab if enough dentists are interested.

Tim Weinscenk reviewed the first of our four-part series on implants. Session one was very successful and Tim reminded members that each module stands on its own and nothing would be missed if a dentist wanted to

attend future sessions but hadn't attended the previous modules.

Ken Mathys provided a quick recap of what has been happening with Dental Practice Advisors, LLC. Additional practices are coming on line and he shared a story of one client whose practice performance and personal view on dentistry has turned 180 degrees since he signed up. Council members responded by urging Ken to press forward because of the great need they see in dentistry for this type of



Welcome New Members: (l to r) Dr. John Reed, Green Bay, WI; Dr. Laura Guevara, Valders, WI; Don Warden, Lords' President; and Dr. William Boylan, Stevens Point, WI.

Lord's would also like to thank our departing members (not pictured): Dr. Paul Kollath, Green Bay, WI; and Dr. Ron Fisher, Hancock, MI for their service to the Council.

service.

Julie Stadtmueller reviewed the new Partner Loyalty Program and members helped pick gift rewards for the Silver, Gold and Platinum membership levels. More about this program can be found on the front page of the newsletter.

Rick Smith reviewed the results of the Council R&D study done with the Phoenix™ Full-Cast. Details are provided on page 3.

Finally, I led members through an exercise on what they liked and didn't like about our current laboratory. The process has begun to design a new facility so we no longer have to work out of two different buildings as we do now on the west side of Green Bay. Thank you, Council for your great input in this exciting new project that will likely be completed by early 2005.



Training: Lord's Captek™ Product Team reviews details of the breakthrough technology for Captek bridges. The patent-pending technique will give dentists and patients a stronger, more reliable and more predictable bridge. Pictured (l-r) are: Jan Meintz, Crystal Raasch, Emily Kowalski, Bill Pigeon and Brian Stoychoff.

CAPTEK™ COMPONENT BRIDGE TECHNIQUE & CASE STUDY

by James Bloch, DDS and Rick Smith

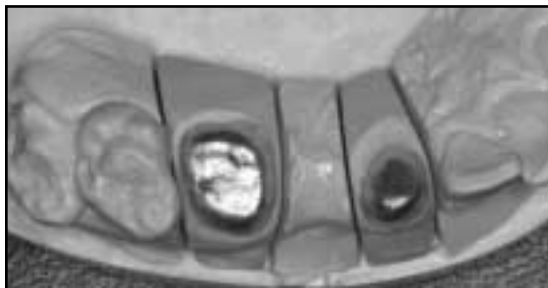
Background and Purpose

While the use of Captek as a restorative material for single unit restorations has been widely accepted for esthetics and biocompatibility, its application to fixed bridges has been limited due to concerns about strength.

The purpose of this case presentation was to demonstrate the strength and esthetics of a Captek bridge using an alternative fabrication technique developed at Lord's Dental Studio. The Component Bridge Technique was designed to standardize the laboratory procedure, resulting in consistent and predictable strength outcomes.

If adequate strength could be demonstrated using such a fabrication technique, then Captek would be a comfortable restorative option for bridges, both in the esthetic zone and in posterior quadrants.

In the esthetic zone, Captek has performed extremely well due to the absence of dark oxides found in cast gold alloys. The warm reflective gold color of the Captek coping has a favorable influence on the esthetics of the veneered porcelain, particularly at the cervical when a porcelain shoulder cannot be used.



The optical qualities of Omega 900 porcelain combined with the warm reflective Captek sub-structure were able to rival the esthetics of an all-ceramic restoration, particularly in the cervical third where porcelain shoulders were not used.

Three prototype bridge frameworks were fabricated using the component and spacer technique. The frameworks were veneered with porcelain and load strength was measured with Instron testing. Additional test bridges were cross-sectioned, and SEM analysis measured the density of metal in the connector areas. Strength, efficiency, and repeatability of results were the goals of this study. The clinical case presentation would evaluate the esthetics of the restoration.

Case Presentation

The clinical case featured a 30-year old male presented with pain in his maxillary left quadrant. A clinical exam revealed a vertical root fracture on tooth #13 with buccal and lingual segments moving independent of one another. There was no history of macro trauma. Tooth # 13 had no caries or previous restorations. The tooth was deemed non-restorable and scheduled for extraction. The patient decided to forego a single tooth implant with bone grafting in favor of a three-unit fixed bridge. Due to the

fact that the patient fractured a virgin tooth, obvious heavy occlusal function was a concern. All four permanent first premolars had been extracted, which further concentrated occlusal forces on his posterior dentition.

For optimal strength, a three-unit Captek bridge was chosen, utilizing the component bridge fabrication technique. Shade selection was performed using the Vita 3-D Master shade guide. Tooth numbers 11 and 14 were prepared with 1.5 mm reduction in the occlusal areas and 1 mm reduction near the chamfer margin. Impressions and a bite registration were taken. A lab-fabricated bis-acryl provisional bridge (Temptation, Clinician's Choice) was lined with Pro Temp 3 Garant. Tempbond was used to cement the provisionals. Vita Omega 900 porcelain was used to veneer the Captek bridge framework, in order to match the 3-D Master shade guide. The final Captek restoration was conventionally cemented using 3M RelyX.

High Quality Full Cast Restoration Saves Chairtime

Beginning in May 2003, Lord's and its Dentists' Advisory Council began a 5-month clinical evaluation of an upgraded full-cast gold restoration called the Phoenix™ Full Cast. Criteria for the study included fit, function, tooth morphology, and marginal integrity.

Several important details contributed to the study's success:

1. The alloy chosen has been engineered to meet the specifications of the prestigious Academy of Richard V. Tucker Study Clubs. This 77% gold alloy has an exceptional rich yellow color and has properties that contribute to its wear kindness, biocompatibility, and strength. The elongation properties of the alloy enable our technicians to burnish the margins using a duplicate master die.

– See **Phoenix Full-Cast** continued on page 6

ionomers and creates a chemical bond to the tooth surface. The reaction also enhances some of the moisture tolerance or wettability of the system and offers some fluoride release.

Personally, I have used RelyX Unicem cement on several occasions in my private practice. So far, the results have been excellent, at least in terms of the restorations not falling out and the lack of any post-operative sensitivity. For me this is still somewhat anecdotal because I have not seen any long-term clinical trials with the cement and it is a relatively new product. Early studies by 3M ESPE indicate that they are achieving acceptable bonds to dentin and enamel, but a couple of questions remain to be answered: Will RelyX Unicem cement provide a long-term bond to sclerotic dentin, such as we may see under a crown preparation? How does the residue from provisional cements affect the bond to dentin with a self-etching cement?

Lastly, a note for those who haven't placed amalgam for some time - RelyX Unicem cement requires the use of an amalgamator.

As far as its use with veneers, it is not recommended. From a technical perspective, RelyX Unicem cement can be utilized for veneers; however, it is not a practical material for this use.

When dentists seat veneers, they typically load a number of veneers with cement and then place them into the tooth to get the proper alignment and spacing. This requires an indefinite amount of work time. Once the alignment is achieved, the material is tack-cured and then the clean-up can begin. One concern is that the cement is dual-cured and, once the capsule is activated and mixed, the dentist has a limited amount of working time. It would be difficult for the dentist to load multiple veneers and seat them to determine proper alignment before the working time is up and the material would start to gel.

There are no non-cure try-in gels for RelyX Unicem cement, and thus

trying in the veneers to check for shade would be impossible. You are better off sticking with a resin cement indicated for veneers.

Eris™ replaced Empress™ 2

Articulator: What are your thoughts about Eris, the all-ceramic replacement product for Ivoclar's Empress 2?

Hornbrook: Although Empress 2 was an excellent material, it did have some problems with ease of use and thus many ceramists and clinicians experienced problems. Ivoclar Vivadent replaced Empress 2 with the Eris system 18 months ago. Eris, like Empress 2, utilizes a lithium disilicate core and an overlying fluorapatite layering material. The strength lies in the core, while the esthetics and wear compatibility result from the layering ceramic. Ivoclar altered the layering material slightly to provide a more predictable union between the two materials. Thus far, it has proven to be the material of choice for full-coverage all-ceramic restorations and anterior three-unit bridges.

Self-etch with self-cures?

Probably not

Articulator: Can dentists use a self-etch dentin bonding system with a self-cure resin, such as with a build-up or under a metal-based crown?

Hornbrook: Although some manufacturers recommend the use of the particular self-etching primer with a self-cure resin, most manufacturers do not. On many of the ads for this new category of materials, the fine print even states that it should be used for direct restorations only, which would indicate limited use with self-etch materials.

Independent studies by *Reality* did not show particularly good bonds to dentin with self-etch primers and self-cure resin. Clinically, this would discourage their use with self-cure build-up materials and even dual-cure cements in a dark environment, such as under a metal-based restoration or in an endodontic canal.

I would check with specific manufacturers about their recommendations for their product, but at the same time, check-independent, unbiased studies that support their claims.

WHEN MAJOR CONNECTORS FAIL

*by Brian Stoychoff, CDT
Laser Weld Technician*



The hardest and most frustrating repair for both the doctor and the lab is a partial with a fractured major connector. Getting a good pick-up type impression of the two-piece frame is difficult at best. The weld itself is a fairly easy repair, but to align the two pieces can be a problem. Following these simple steps will assure a good fitting, positive, long-lasting repair.

Place both pieces in the mouth making sure there is no interference from the broken ends that would cause the frame to fit improperly. If needed, trim the ends until there is a positive fit. Check for adequate retention on both sides to hold the frame in place to take the impression. A problem may arise if there is not enough retention on one side.

Remove both sides dry and, if possible, sand blast the joints. Replace the frame and align the two parts while holding the non-retentive side in place. Apply Duralay or a light cure material to the joint. Take a pick-up type impression after curing and, to ensure a successful repair, we encourage a bite registration.

Lord's will wax and cast a custom made splint to be laser welded over the joint. Even though Lord's laser repairs are backed by a two-year guarantee, we still have to address the cause of the failure. To prevent future breakage we would recommend that the prosthetic be checked for fit and function (i.e. saddle relines, balanced occlusion).

The Right Fit

Exploring your occlusal options



Frank Lauciello,
D.D.S.

Denture occlusion has long been one of the most mystifying and confusing components of denture fabrication. Therefore, based on collaboration with leading academic and technical denture occlusion experts, the BlueLine denture tooth system incorporates the full spectrum of denture occlusal schemes. This brief outline highlights your occlusion options with BlueLine denture teeth, all of which provide exceptional anatomical detail.

SRPostaris®: The SRPostaris moulds are designed to closely replicate the anatomy and size of natural teeth in all dimensions. They're ideal for partial denture replacements and feature steep cusp angles, natural tooth size and lingual contours.

SROrthotyp®: This semi-automatic occlusion is selected primarily to allow the anterior teeth to be set with some degree of vertical overlap. BlueLine's SROrthotyp teeth are designed with approximate cusp angles from 18 to 24 degrees depending on the position in the arch. The teeth are pre-milled and designed to intercusate to a natural tooth-like occlusion.

SROrtholingual®: These teeth are designed for traditional lingualized occlusion. This concept appears to be the most desired occlusal scheme for most clinical situations because of its simplicity and desirable biomechanics. The Ortholingual tooth mold for the BlueLine is specifically designed to satisfy the traditional lingualized occlusal scheme (cusp upper/shallow cusp lower). The dominant lingual cusps are the uncomplicated shallow mandibular fossa are the significant features of this mold.

SROrtholingual/SROrthoplane: This combination approach is designed for modified lingual occlusion. The mandibular SROrthoplane zero-degree BlueLine mold was specifically designed to combine with the SROrtholingual maxillary mold by having a central fossa that accepts the maxillary lingual cusps. Therefore, esthetic compromise and a significant need for adjustments are eliminated.

SROrthoplane® for non-anatomic occlusion: Although this occlusal scheme is requested only 10% to 15% of the time, many clinicians continue to insist that many patients, especially geriatrics or medically compromised, benefit from this type of occlusion. The SROrthoplane tooth mold is a revolutionary design that truly gives the illusion of cusps while maintaining the biomechanics of zero-degree occlusion.

A Full Spectrum of Shades to Choose From

Recognizing that most dentists and laboratory technicians use and teach from the A-D shade system, Ivoclar Vivadent has made the anterior and posterior tooth molds in the BlueLine system available in all 16 A-

D shades. The BlueLine also has incorporated two new bleach shades (010 and 030) to accommodate color matching for all patients and to satisfy their esthetic demands.



Partner Loyalty - continued from page 1

they wanted included in the program.

That's right! They can now choose from a wide range of quality, brand name merchandise like a Hitachi 57" HDTV Monitor, Elliptical Fitness Cross Trainer or an exciting travel experience with their peers to Puerto Vallarta, Mexico for our Gold and Platinum members. Our Dentists' Council advised us to add practice performance services from Dental Practice Advisors, LLC as well.

If you are currently a Partner Credit member, watch your mail for a complete Partner Loyalty Program folder arriving in early January. If you are not a member or have questions, please call me or check the attached business reply card and we'll send you an information folder.

TECHNICALLY SPEAKING!

Q. How do I avoid “Black Triangles?”

A. Gingival embrasures are one of the keys to success for anterior restorations. In order for crowns to look natural, they must be in harmony with the surrounding teeth as well as support and follow natural tissue contour. The technician can match tooth form, however many times tissue contour can be more difficult. To avoid open gingival embrasures (black triangles) and aid technicians with tooth contour, consider the following preparation guidelines.

- When closing diastemas, margins should be placed at least 2 mm subgingival. This will allow the technician to maintain proper tooth form. Margins placed just below the tissue (less than or equal to 1-2 mm’s) lead to a more square or rectangular form and porcelain must be built directly horizontal from the margin to close embrasures, creating a possible food trap.
- Margins also need to be subgingival when they are adjacent to

bridge pontics. Typically in pontic areas the tissue is resorbed, so it is critical that the margins adjacent to this area be subgingival enough to get proper emergence profile.

Lastly, when prepping for veneers, make sure that the margins are placed toward the lingual and slightly subgingival. Doing this will allow the technician to maintain or improve tooth contours. Margins placed toward the facial restrict the technician’s ability to change the shape or inclination of existing dentition.

Please call with any questions or concerns prior to the preparation appointment. The best guarantee is Lord’s white wax-up service prior to the preparation appointment.

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Do you have a question regarding materials, techniques, or products?

**Send your e-mail to:
lords@lordsdental.com**

All questions will be answered by follow-up e-mail, and your question may be considered for an upcoming issue of the Articulator. (Names will not be used.)

DOCTORS LOOKING FOR DOCTORS

The following Lord’s partners are looking for an associate or for someone to purchase their practice.

For more information call (1-800-821-0859) or email (jstadmuellet@lordsdental.com) Julie Stadtmueller at Lord’s.

Dr. Chris Hansen Green Bay/ Manitowoc	Dr. Robert Bandt Manitowoc, WI
Dr. Jason Thiel Mishicot, WI	Dr. Chris Laws Green Bay, WI
Dr. Steven Hein Green Bay, WI	Dr. David Brusky Green Bay, WI
Dr. Paul Gerrish Marquette, MI	Dr. Todd Reich Black River Falls, WI

Phoenix Full-Cast - continued from page 3

2. The cornerstone of the Phoenix Full-Cast is the Occlusal Compass, a concept our Phoenix Full-Cast Team has learned through mentoring with Russell DeVreugd, CDT. The Compass has proven to eliminate incline plane interferences, thus minimizing costly chairside adjustments. Patients enjoy the comfort of this functional occlusal anatomy.
3. Overall, the results indicate that in most cases there was a significant reduction in chairtime due to the use of a second solid model, a polymer die used for final margin perfection, and the Occlusal Compass techniques.

The October 2003 Council advised Lord’s to move forward with the high quality full-cast product and Lord’s is pleased to be able to offer an additional restorative option to their customers. The benefits of a premium gold alloy are well documented for biocompatibility and longevity.

A compilation of the evaluation results is available by calling us or checking the box on the enclosed response card.

\$5,240 Raised for Wisconsin Dental Clinics. This summer, the Fox River Valley Dental Society, Brown-Door-Kewaunee Dental Society, Dane County Dental Society and the Greater Milwaukee Dental Association joined forces with Lord’s to raise money for the Northeast



Wisconsin Community Clinic (Green Bay), Tri-County Community Dental Clinic (Appleton), Madison Community Dental Clinic, and the Madre Angela Clinic (Milwaukee). The funds were raised during the societies’ annual golf outings. Lord’s sponsored the events and matched the funds donated by the society members. Carrie Stepien, Lords’ Customer Support Representative, delivered a fund-raising check to Dr. Mark Vande Walle and assistant Katie Alksnis at the NEW Community Clinic in Green Bay.