

# CERAMIC

August 20, 2011

Integra Institute  
Center For  
Advanced  
Dental Study



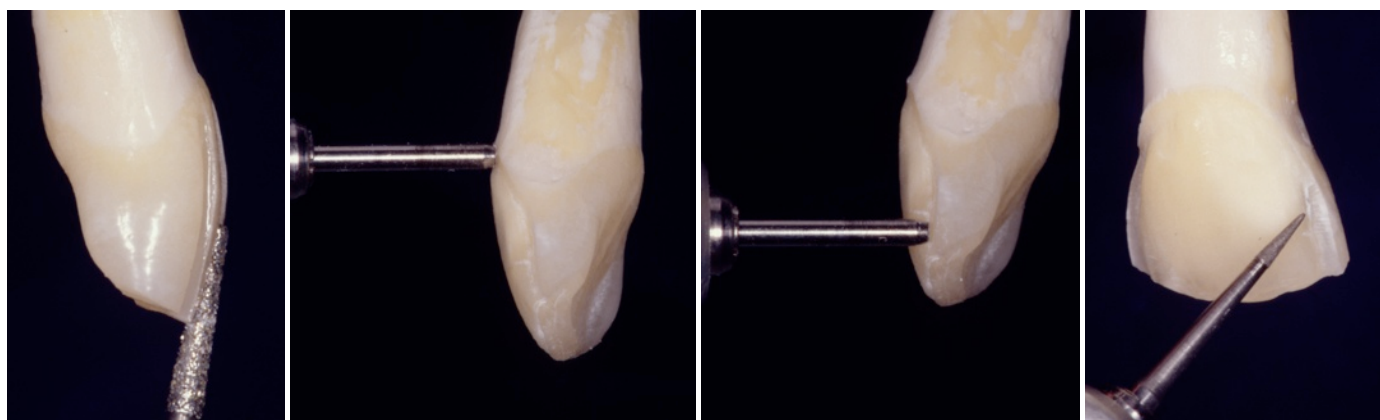
## Performance Esthetics. The Vertical Shoulder Laminate Preparation. VSL Veneers.

By John Schwartz

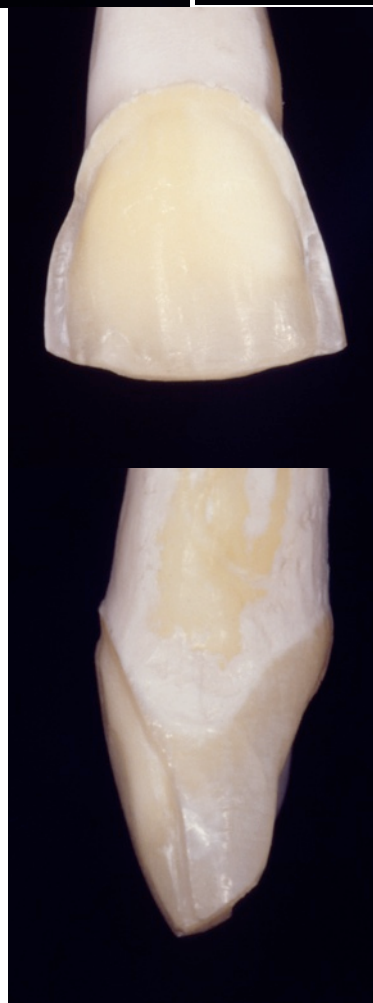
The Vertical Shoulder Laminate (VSL) Veneer is based upon a unique preparation design that enables accurate reproduction of the facial anatomy of anterior teeth. Traditional veneer preparations focus on conservative tooth reduction, yet little effort is made to ensure that the definitive restoration will have a sufficient structural design to maintain structural integrity under stress. Due to the clinician's desire to perform conservative tooth preparation, anatomic accuracy in the cervical third, incisal third, and interproximal aspects of traditional veneer preparations are neglected. As a result the ceramist is forced to compromise the esthetic and structural quality of the veneer. The VSL veneer preparation design emphasizes tooth morphology rather than conservative reduction. The idea is to provide a stable base on which to build a structurally sound and accurate restoration. Used in conjunction with the VSL veneer preparation the ceramist can recreate tooth contour in the facial, interproximal, cervical, and incisal aspects, which were previously unfeasible with a chamfered margin laminate preparation. If attention is given to certain anatomic components during the preparation phase, the resultant biomimetic behavior of the porcelain laminate veneer can be optimized.



Since the incisal third of the restoration is generally regarded as the determinant factor for esthetic success for veneers the importance of restructuring the cervical and middle thirds is often overlooked. The CEJ, cervical line, points of concavity, and contour ridge lines are anatomic landmarks that blend the facial, interproximal, and cervical aspects of the cervical third. The VSL margin is a shouldered margin prepared with the shaft of the cylindrical diamond bur placed perpendicular to the apico-coronal axis of the tooth, which results in a shoulder parallel to the long axis of the tooth. Located just coronal to the CEJ, placement of the vertical shoulder in the cervical third allows modification of anatomic landmarks. The resultant composition can dictate the curvature of the cervical line, cervical ridge, and the surrounding gingival tissues. In contrast, the reprojection of these landmarks may not be possible with a chamfered margin placed in the cervical third without violating the anatomic form of the tooth causing periodontal inflammatory responses and ultimately recession. The vertical shoulder technique permits the reprojection of healthy, proper anatomic gingival form. Also, if a chamfered margin is finished supra-gingival to the free gingival margin the human eye can see the cement line. If a vertical shoulder margin is placed supra-gingivally the human eye will only see the survey form of the tooth, because the vertical shoulder will conceal the cement line in a vertical orientation.

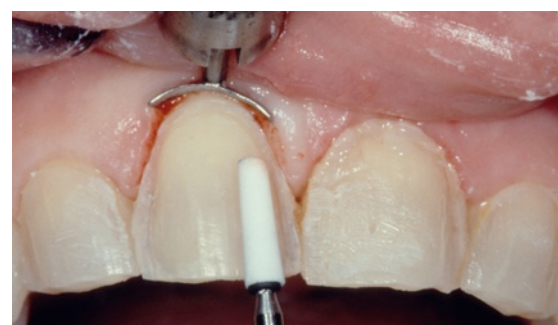


Placement of the vertical shoulder interproximally below the contact anatomy allows for the proper placement of the points of concavity, the proximally directed concave lines, and the survey form as the proximal developmental lobes project in the incisal direction. Proximally directed concave lines give “bend” to a tooth around its contact anatomy. Since the interproximal margin is visible at the junction of the middle and cervical thirds, a chamfered margin veneer preparation does not allow the proper reprojection of the points of concavity. Attempts by the ceramist to conceal the margin will result in as “fattening” of the interproximal embrasure anatomy. Placement of a vertical shoulder in the middle third of the tooth allows proper facial embrasure anatomy and a natural transition from the proximal to facial surfaces. If necessary, the proximally



directed concave lines can be placed deeper into the body of the restoration as in the case of bell, and triangular shaped teeth. The vertical shoulder also provides for a sufficient uniform bulk of porcelain for a stable, fracture resistant veneer. The physiologic forces that act upon a maxillary central incisor during function cause the highest tensile stresses in the palatal concavity. These tensile forces create stabilizing, counter-torquing, and compressive forces around the fulcrum axis of the tooth. The area of highest counter compressive stress is the cervical area closest to the periodontium. Since the porcelain of the vertical shoulder margin design is perpendicular to these counter compressive forces, the vertical shoulder will have a higher resistance to cervical fracture.

The vertical shoulder is prepared parallel to the long axis of the tooth and should be 1-1.2 mm wide. It is prepared by placing a TPE Diamond, or 014 cylindrical shouldered diamond perpendicular to the long axis of the tooth. Move the bur incisal to cervically, and remove just before the contact finalizing the margin under the contact by creating an elbow-effect, burying the shoulder interproximally. Continue cervically reflecting the gingival with a Zekyra instrument. Maintain the



surfaces with a Diamond. This is critical to prevent binding during laminate seating Polish and round with a Shofu White Stone.



vertical component of the shoulder gingivally, 1.2 mm below the crest, and proceed to the distal creating an elbow just underneath the contact point. Round the junction of the buccal and incisal





In summary the vertical shoulder preparation design

- conceals the cement line, even if the margin is supragingival.
- allows the ceramist to recreate the proper line angles and points of concavity without weakening the restoration.
- creates a 1-1.2 mm circumferential rib (in enamel) to strengthen the veneer.
- allows the ceramist to create the proper gingival emergence profile.
- is easier to conceal interproximally.

## Upcoming Events



November 11-12, 2011

**Color Logic Analysis. The Missing Link In Esthetics. Central, Lateral, Canine. A Porcelain Hands-on Experience.**

**Instructor: John Schwartz, D.D.S.**

Through the philosophy of biomimetics you will discover the missing link in esthetics.

Learning the Color Logic method of analysis of natural tooth color you will be able to

“decode” a natural dentition, and apply color logic principles in porcelain to create crowns

that are indistinguishable with nature.

Recommended for ceramists of any level and dentists who want to stack porcelain.

Course Objectives:

- Rationale of anterior tooth shape
- The shape of color
- Value differential of central, lateral, and canine
- Color Logic decoding of a natural tooth Creation of a ceramic DEJ and it's role in controlling value
- Surface texture and polishing techniques to create natural luster
- Creation of bleached dentitions in ceramic

Fee: \$995 US.



January 27-28, 2012 Olivier Is Back!

**Prep-less Veneers. A Hands-on Experience With Olivier Tric, Master Ceramist.**

Learn methods to artistically infuse color and shape into the thinnest of esthetic

restorations. This is an opportunity to learn from one of the world's greatest ceramists.

Recommended for ceramists, dentists and dentist/ceramist teams.

Course Objectives

- Controlling color and detail with the use of multiple powders
- The essence of the refractory build-up will demonstrate a different type of stratification for each tooth
- Creation of subtle light scattering effects mimicking the morphological characteristics of natural teeth with Fluoroapatite crystal porcelain.
- Finishing techniques that will establish ideal shape surface texture/luster, function, and detail
- In-depth discussion and analysis of natural teeth

Fee: \$995 US. [Esthetics. The Vertical Shoulder Laminate Veneer Preparation Technique and Fabrication of the VSL Veneer with John Schwartz, D.D.S.](#)





February 10-11, 2012

**The Vertical Shoulder Laminate Veneer Preparation Technique and Fabrication of the VSL Veneer with John Schwartz, D.D.S.** Upon completion of this course you will obtain the knowledge base to prepare an anterior dentition with the vertical shoulder veneer preparation technique and fabricate Vertical Shoulder Laminate (VSL) veneers in the laboratory. Indicated for ceramists, dentists and dentist/

ceramic teams. A hands-on and over-the-shoulder experience. Observe Dr. John Schwartz prepare vertical shoulder laminates on a live patient, then you will fabricate a set of VSL laminates along with Dr. Schwartz in the laboratory.

Objectives:

- Vertical shoulder principles and design for porcelain laminate veneers
- Layering laminates in the bio-esthetic approach
- The esthetic effect of biomimetic analysis
- Secrets to matching and creating bleached dentitions
- Anterior case design utilizing the esthetic keyway

Fee: \$995 US.

Visit us at [www.integrainstitute.net](http://www.integrainstitute.net)

email: [info@integrainstitute.net](mailto:info@integrainstitute.net)

Course Registration:  
504-382-5956

### Future Courses

March 9-10, 2012 Color Logic Analysis. The Esthetic Missing Link.. A Porcelain Hands-on Experience

March 23-24, 2012 Soft Tissue Surgical Procedures for Teeth and Implants: Lecture and Hands-On Course with Surgical Demonstration. Hisham Nasr, D.D.S., MSed

April 20-21, 2012 Introduction to Botox In the Modern Dental Office. Live Participation and Demonstration. Warren Roberts, D.D.S.

The Integra Institute is a world-class ceramic training center in New Orleans, Louisiana. The Institute philosophy is based on intimate hands-on learning experiences. Small class environments enable you to receive the attention to detail necessary to implement innovative techniques the moment you get back to your lab. Learn in the creative environment of the Integra Institute and enjoy the warmth and hospitality of New Orleans. Don't miss the opportunity to experience the city's fascinating history, architectural treasures, gourmet food, and internationally known music.

