



# ULTIMATE VENEERS

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Podcast. Delusional: Winning the Weekly War of Dentistry

[www.LEGION.dentist](http://www.LEGION.dentist), Non-traditional dental education to be more successful

Entrepreneur, Software Company, Author/Lecturer, Professional Race Car Driver



**LEGION**

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4

**HOW MANY VENEER  
CASES DO YOU  
DELIVER PER YEAR?**

5

**HOW MANY VENEER  
CASES DO YOU  
WANT TO DELIVER?**

6



7



8

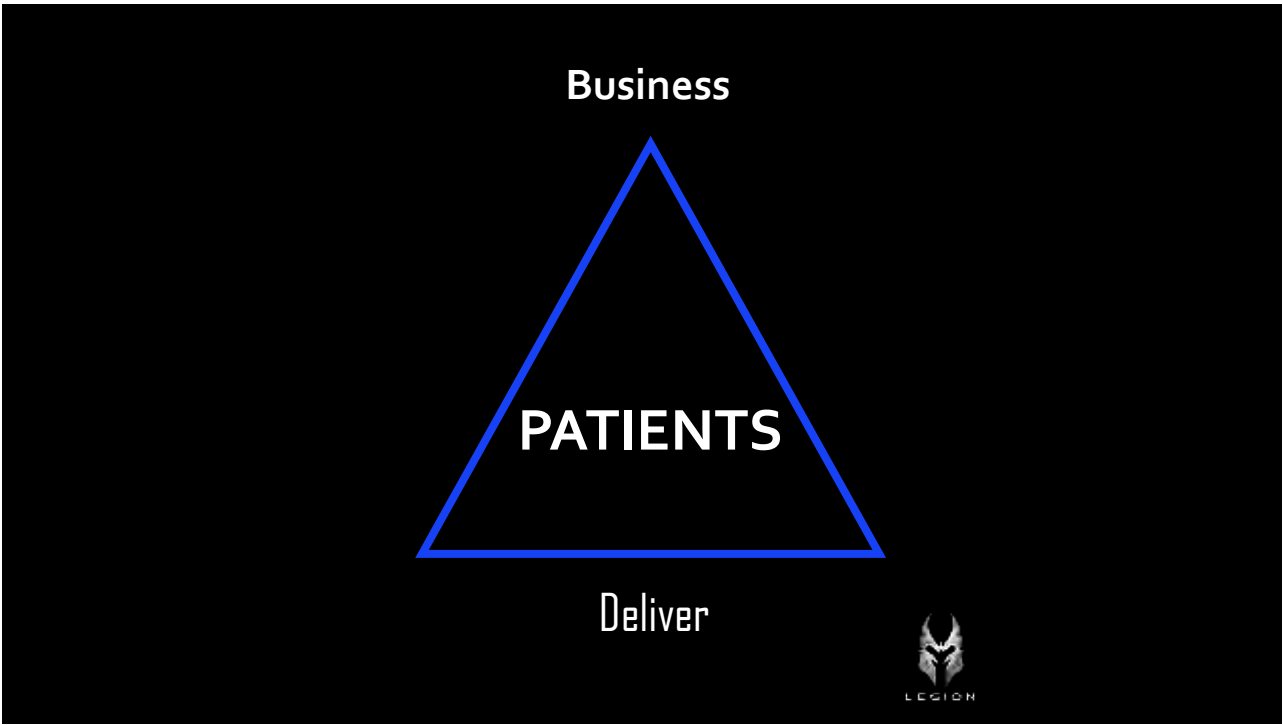


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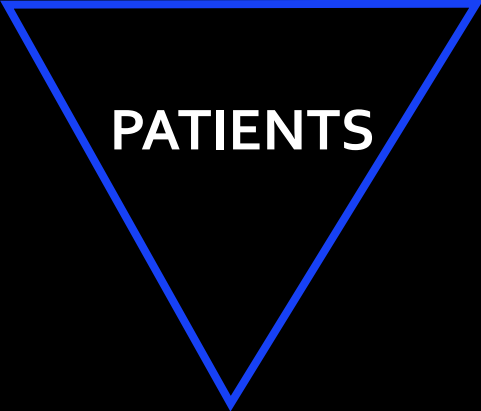
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**Tip #1**                      **Business**

Attract



**PATIENTS**

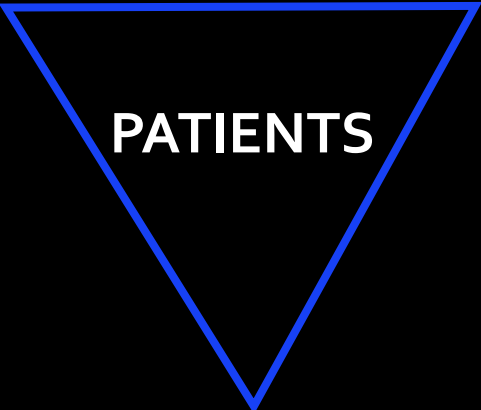


The slide features a black background. In the top left, the text 'Tip #1' is written in white. To its right, the word 'Business' is centered at the top. Below 'Business', the word 'Attract' is centered. A large blue downward-pointing triangle is positioned in the center, containing the word 'PATIENTS' in white, bold, uppercase letters. In the bottom right corner, there is a small logo consisting of a stylized figure with the word 'LESION' underneath it.


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**Tip #2**                      **Business**

Convert

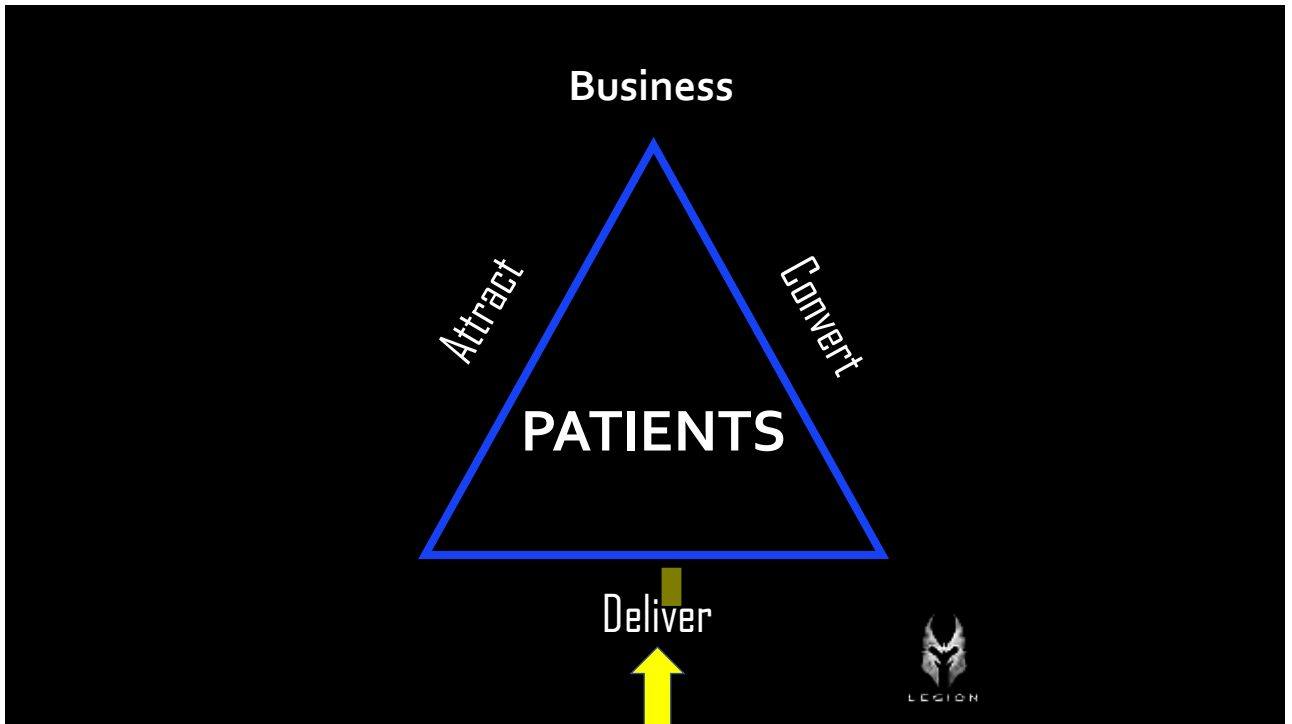


**PATIENTS**



The slide features a black background. In the top left, the text 'Tip #2' is written in white. To its right, the word 'Business' is centered at the top. Below 'Business', the word 'Convert' is centered. A large blue downward-pointing triangle is positioned in the center, containing the word 'PATIENTS' in white, bold, uppercase letters. In the bottom right corner, there is a small logo consisting of a stylized figure with the word 'LESION' underneath it.

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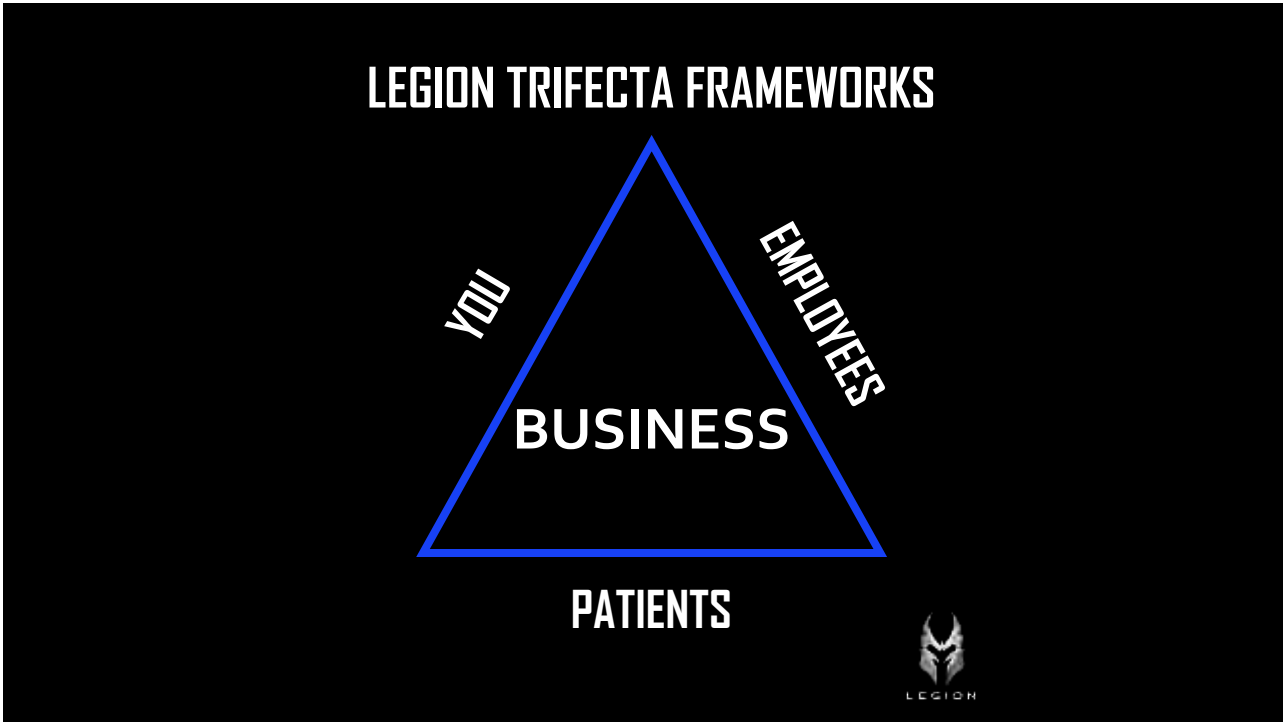


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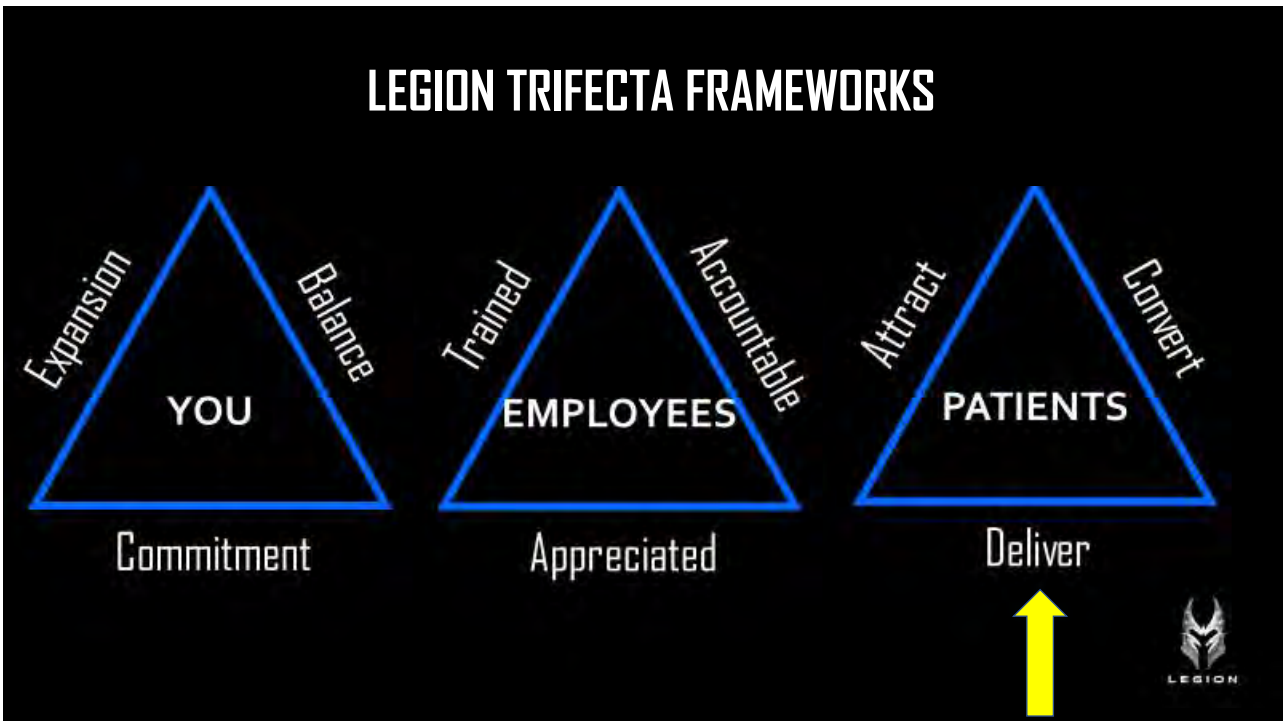
# Deliver

- 1) Preparation
- 2) Impressions
- 3) Provisionals
- 4) Cementation

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Please Turn On  
Your Cell Phones

18

 A promotional graphic for LEGION. On the left, a white silhouette of a person's head and neck is set against a black background. To the right of the silhouette, the text reads:
 

Get a handout with every slide from the lecture at [www.LEGION.dentist](http://www.LEGION.dentist)

Below the text is a large QR code that, when scanned, likely leads to the website mentioned. The QR code has the LEGION logo in the center.

At the top right of the graphic, the LEGION logo is displayed, followed by a list of cities: CHICAGO, DENVER, HOUSTON, LOS ANGELES, MIAMI, NEW YORK, PHOENIX, SAN ANTONIO, TAMPA, and WASHINGTON DC.

**LEGION**

LEGION was founded by Dr. Todd Springer to help dentists remove frustrations and become more successful in business.

The Goal is to strengthen and empower dentists by giving them the systems, skills, tools and training that they never received in school so that they can be more financially successful in both business & life!

Running a Business, High Performance Marketing, Strategic Sales Skills, Business Systems, Team Training, Technology, Habits & Goals, Cosmetic & Restorative Dentistry, Crowns & Photography

IF YOU ARE READY FOR SOMETHING BETTER...  
Get After It Now!

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**PACE**  
ACADEMY  
GENERAL DENTISTRY  
SPECIAL APPROACH  
TO ORTHODONTICS

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# Do you know “THEIR” desired outcome?



21

*Veneers*



22

*Veneers*



23



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25





26



27



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Hollywood Social Media Veneers?

29



## Provisionals Mimic The Final Restorations

30



31



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## *Developing Beautiful Smiles: CASE 18*

### Assessment:

- Joint Noise
- Facial Muscle Pain
- Poor Occlusion
- Invisalign Done/Retention
- Anterior Wear
- Wants to Keep Appearance



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## AIRWAY VOLUME

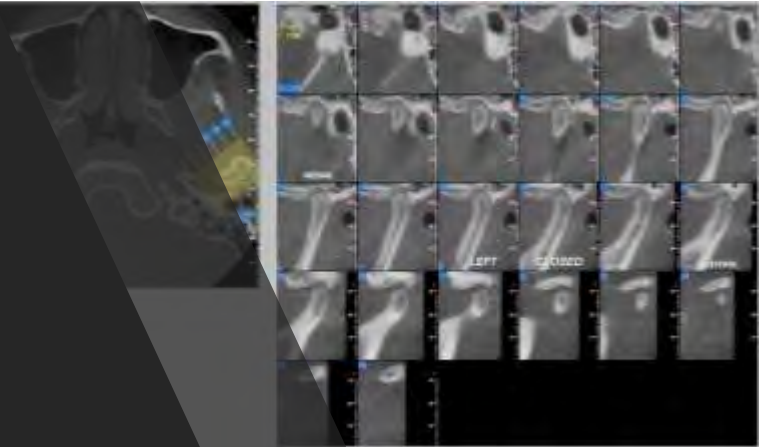
-50mm<sup>2</sup> and below have an association with OSA



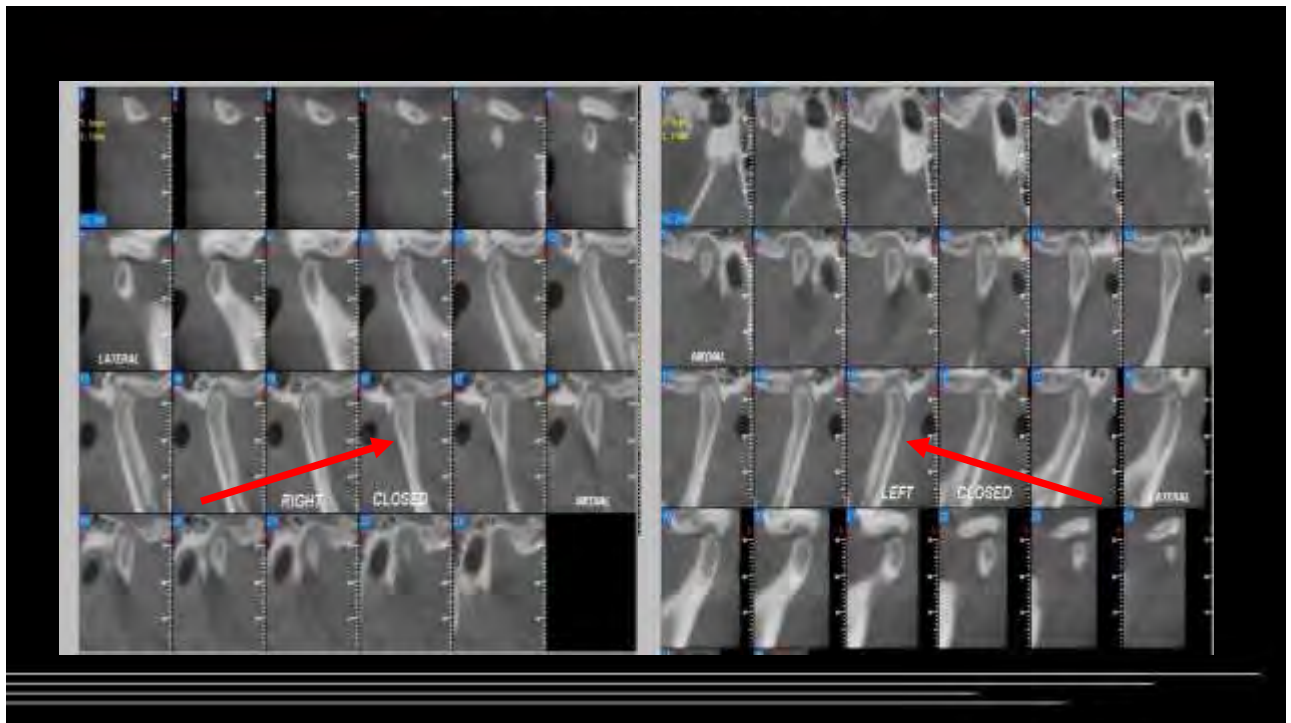
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# TMJ EVAL/Diagnosis

- CBCT
- Pathology
- Jaw position
- Bone Appearance
- Active DJD/Remodeling



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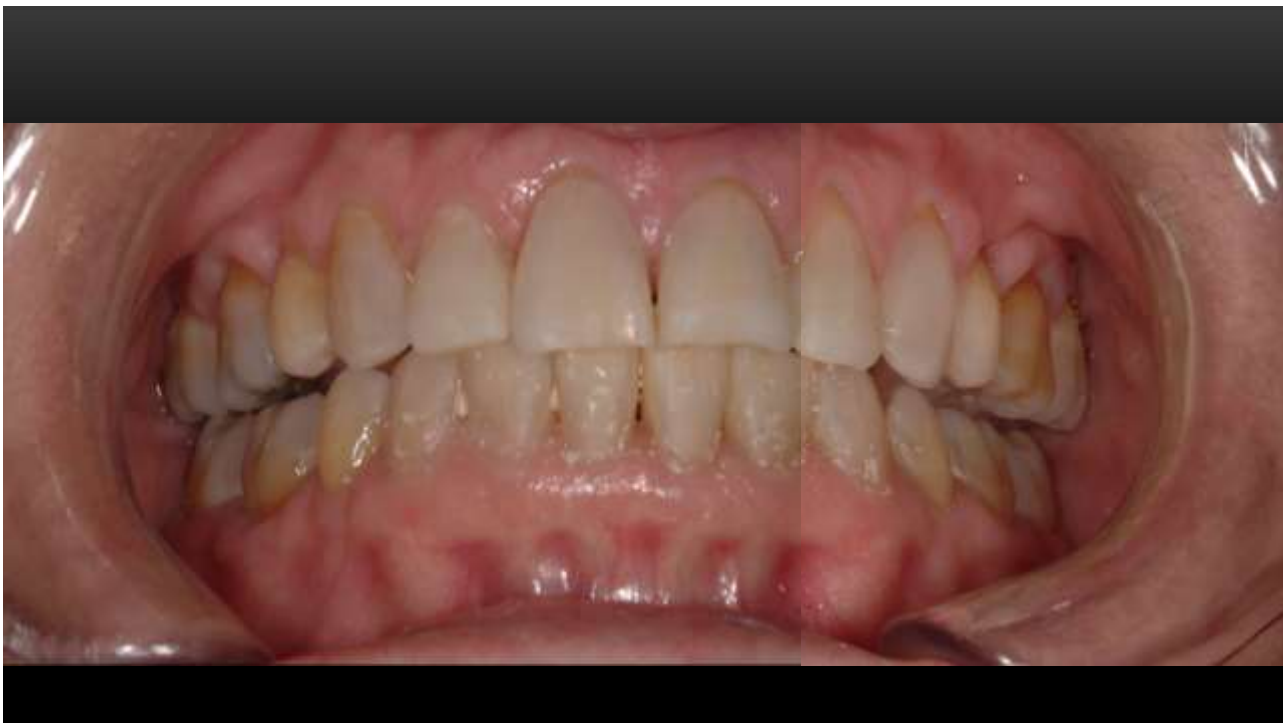


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Orthotic: Superior Repositioning Appliance (SRA)



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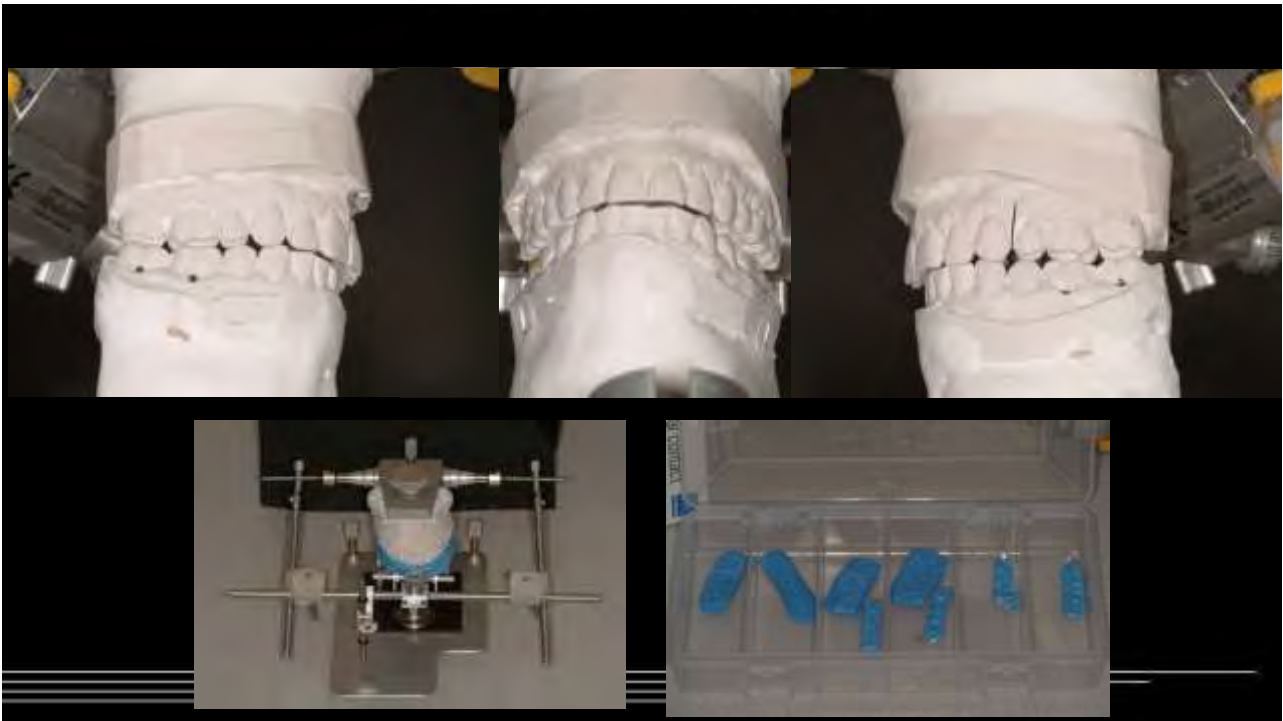
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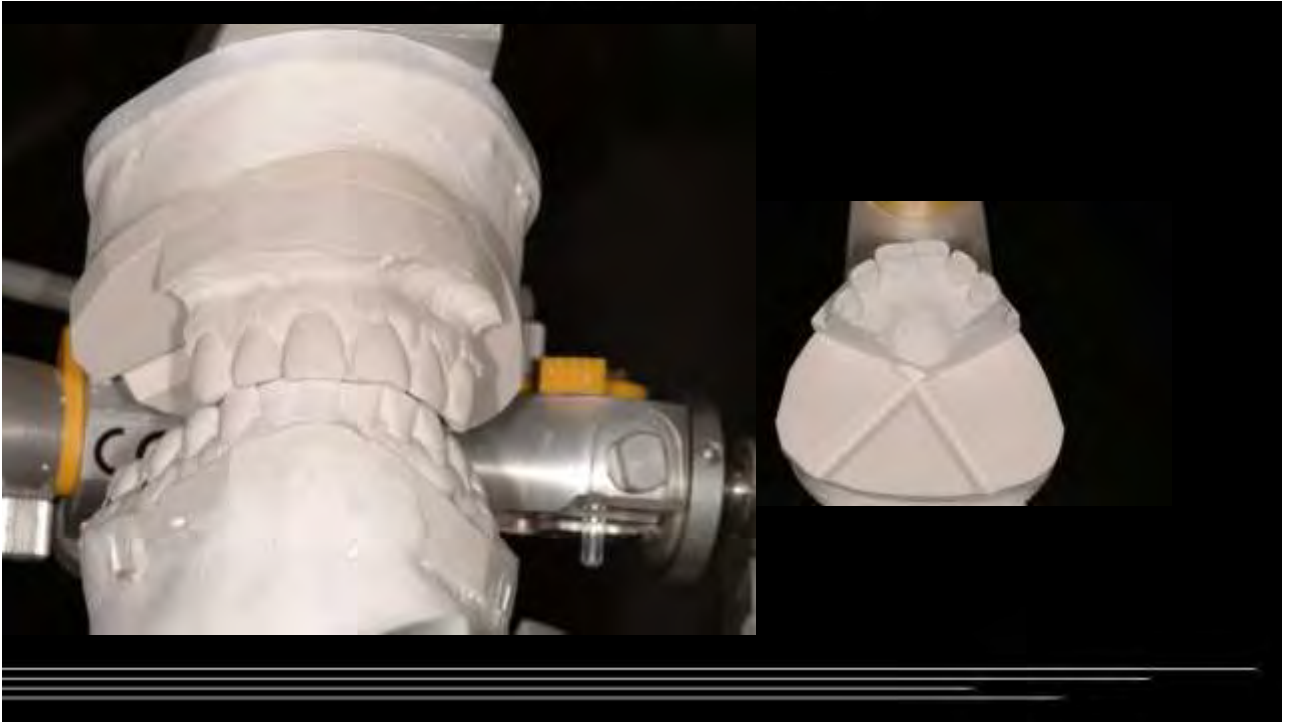


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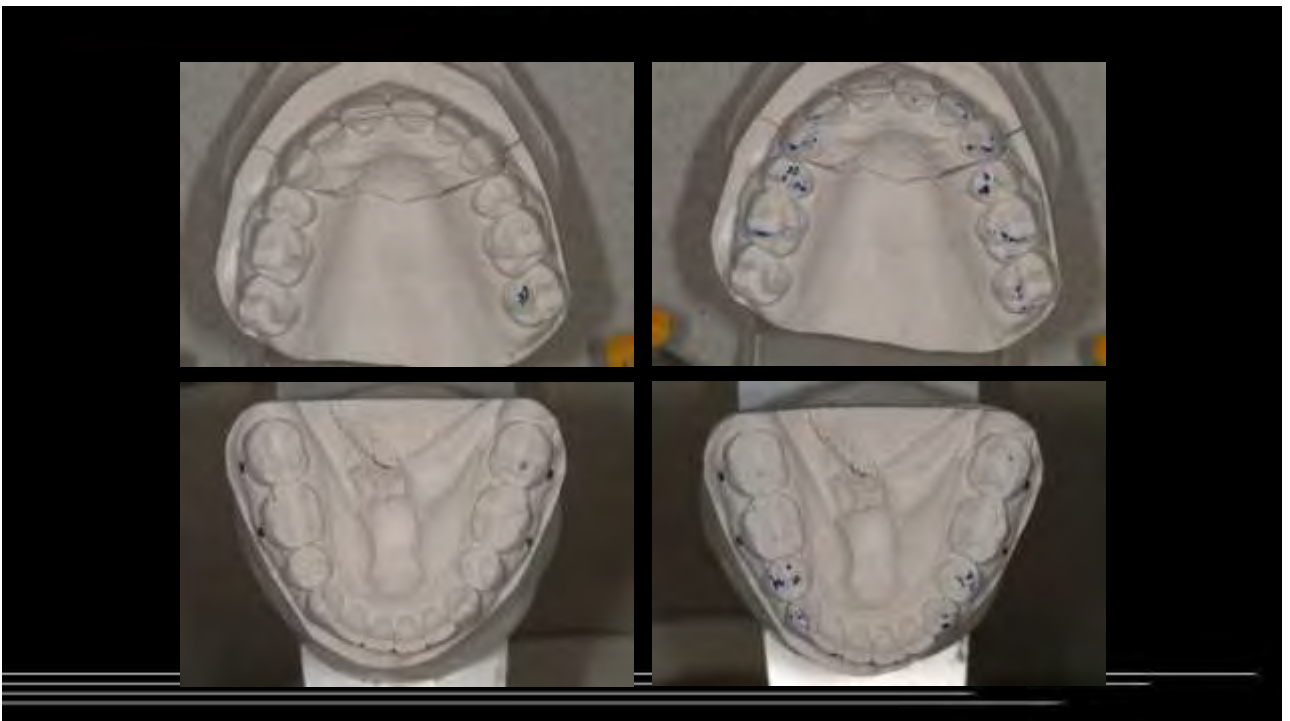


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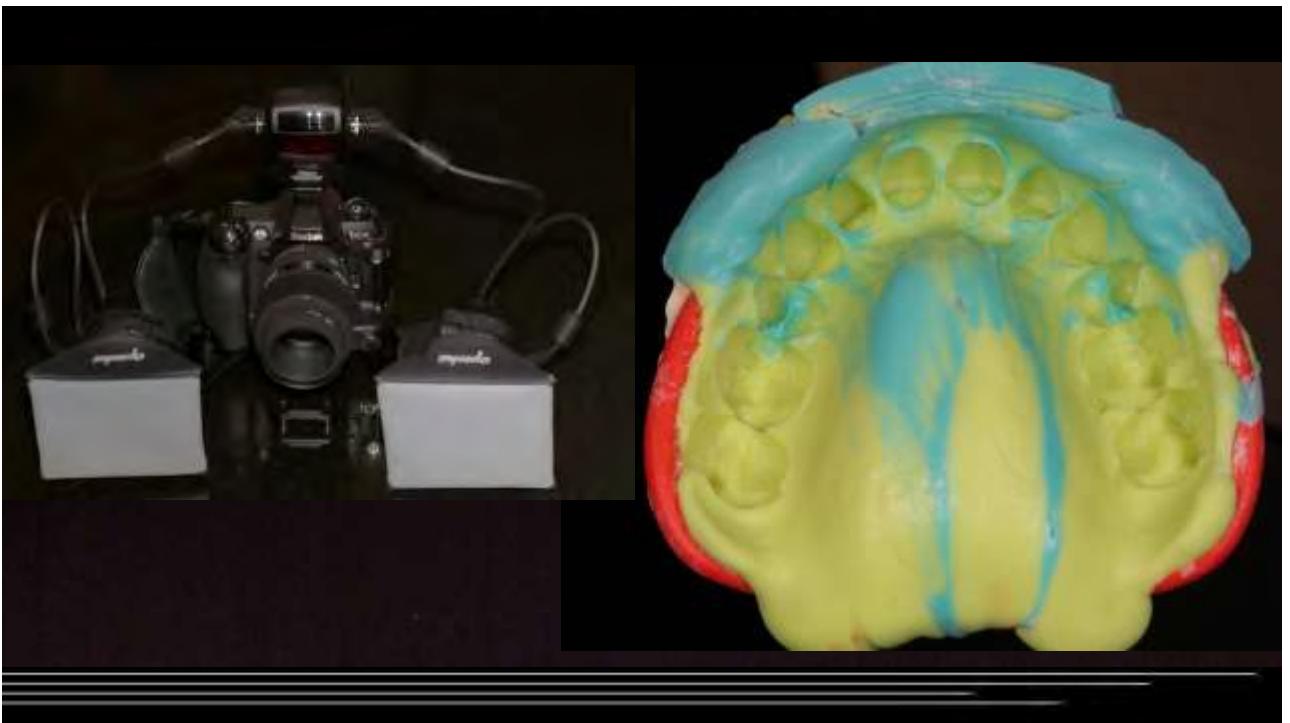
46



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- Verify shape
- Display at rest
- Protrusive
- Excursives



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## CEMENTATION OPTIONS

- Glass Ionomers
- Resin Modified Glass Ionomers
- Self Etch Resin Cements
- Bonding Agent w/ Resin Cement
- Calcium Aluminate
- TriSilicate Cement



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## CERAMIR (CALCIUM ALUMINATE CEMENT BY - DOXA)

- Alkaline pH 8.5
- Moisture Tolerant
- Self Sealing
- Apatite Formation
- Insoluble
- Stronger with time
- Semi / Translucent
- Biocompatibility-Excellent
- Bioactivity-Apatite formation
- Sealing Quality-Excellent



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## Cement Selection

### A Bioactive Dental Luting Cement— Its Retentive Properties and 3-Year Clinical Findings

Steven R. Jefferies, MS, DDS, PhD; Cornells H. Pameljer, DMD, DSc, PhD;  
David C. Appleby, DMD, MScD, FACP; Daniel Boston, DMD; and Jesper L  f, PhD

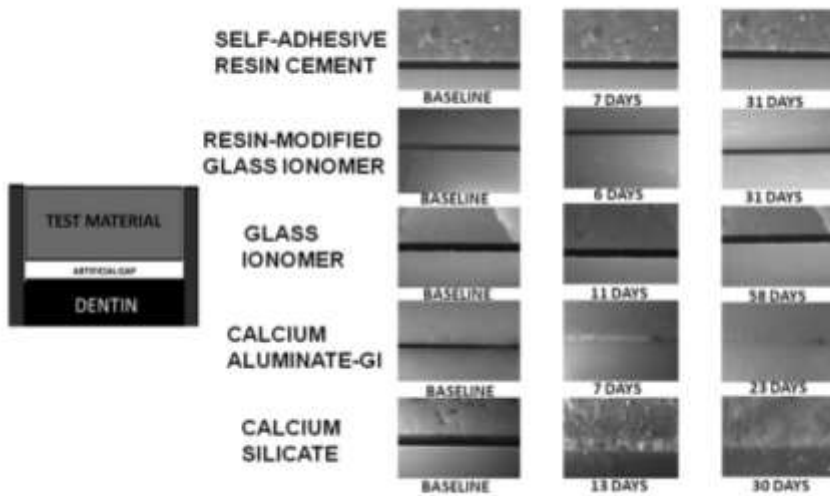
**ABSTRACT**—A clinical validation study was conducted to determine the performance of a new bioactive dental cement

Three year recall data yielded no loss of retention, no secondary caries, no marginal discoloration, and no subjective sensitivity. All restorations rated excellent for marginal integrity. Average visual analogue scale (VAS) score for tooth sensitivity decreased from 7.01 mm at baseline to 0.44 mm at 6-month recall, 0.20 mm at 1-year recall, and 0.00 mm at 2- and 3-year recall. Average gingival index (GI) score for gingival inflammation decreased from 0.56 at baseline to 0.11 at 6-month recall, 0.16 at 1-year recall, 0.21 at 2-year recall, and 0.17 at 3-year recall. After periodic recalls up to 11 years, Ceramir C&B thus far has performed quite favorably as a luting agent for permanent cementation of permanent restorations. In vitro crown coping retention studies were also conducted using this cement and various control cementation materials. Mean laboratory retentive forces measured for Ceramir C&B were comparable to other currently available luting agents for both metal and all ceramic indirect restorative materials.

and one two-unit implant. Three-year recall data yielded no loss of retention, no secondary caries, no marginal discoloration, and no subjective sensitivity. All restorations rated excellent for marginal integrity. Average visual analogue scale (VAS) score for tooth sensitivity decreased from 7.01 mm at baseline to 0.44 mm at 6-month recall, 0.20 mm at 1-year recall, and 0.00 mm at 2- and 3-year recall. Average gingival index (GI) score for gingival inflammation decreased from 0.56 at baseline to 0.11 at 6-month recall, 0.16 at 1-year recall, 0.21 at 2-year recall, and 0.17 at 3-year recall. After periodic recalls up to 11 years, Ceramir C&B thus far has performed quite favorably as a luting agent for permanent cementation of permanent restorations. In vitro crown coping retention studies were also conducted using this cement and various control cementation materials. Mean laboratory retentive forces measured for Ceramir C&B were comparable to other currently available luting agents for both metal and all ceramic indirect restorative materials.

**Keywords:** dental cement, cementation, luting cement, bioactive, crowns, bridges, grid, P&P

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**FIGURE 1.** Basic experimental design for artificial gap (left) and microscopic photos of artificial gap changes over time during incubation in phosphate buffered saline (right).

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### Review Patient with Problems

- Sleep Study Questionnaire
- Sleep Study?
- Cone Beam CT (CBCT)
  - TMJ Diagnosis (Beamreaders.com)
  - Airway Evaluation
- Superior Repositioning Appliance (SRA)
  - Reline as needed.
- Hinge Axis
- Diagnostic Model Workup
- Discuss Options with Patient
- I.C. and RBAs....Signatures

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**VENEERS ARE NOT JUST FOR  
COSMETICS.  
THEY ARE A RESTORATIVE  
PROCEDURE TO  
CONSERVATIVELY REBUILD  
FUNCTION.**

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There is not one key to success....



There are many and they all open different doors

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# How Would You Treat This Case?



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## TRAUMA (Restored with Mosaic Composite/ULTRADENT)



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**TRAUMA (Restored with Mosaic Composite/ULTRADENT)**



67

**ATTRITION & RECESSION**



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**Human Hair** 60 –120µm  
6,000 – 12,000nm

**Red Blood Cells** 2 – 5µm  
200-500nm

BAUSCH  
ARTICULATING  
PAPER

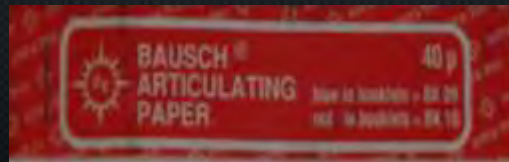
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# SHIMSTOCK & ARTICULATING PAPER

What do you use.....

....and why?



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# SHIMSTOCK & ARTICULATING PAPER

- PARKELL ACCUFILM II IS 21MM FOR DENTISTRY
- GREAT LAKES ARTICULATING RIBBON 12MM
- 8MM ALMORE SHIMSTOCK FOIL
- 8MM ARTICULATING PAPER??



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What do you use.....



....and why?

8µm articulating paper  
Available in blue

Mark the bite before  
prepping teeth!!

73

**TROLLDENTAL-**  
4.5MM ARTICULATING PAPER  
[WWW.TROLLDENTALUSA.COM](http://WWW.TROLLDENTALUSA.COM)



FREE SAMPLE

<https://www.trolldentalusa.com/sample>

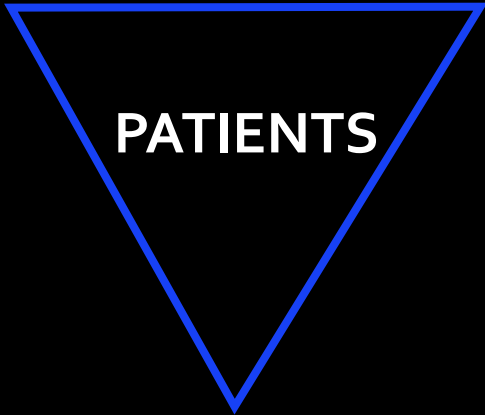
DIRECTA DENTAL

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# Tip #1 You Want To Do More Cases

Attract



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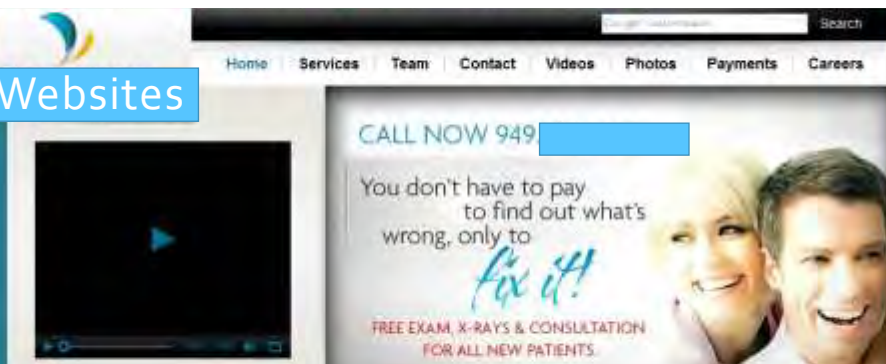
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## Postcards & Mailers



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## Websites



**These ARE the NORM everyday!!!**



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87

According to the American Academy of Cosmetic Dentistry, 60% of patients are happy with their smiles and 3 out of 5 people will invest in their smiles.

*How Do You Get More Elective Cosmetic Cases?*

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## ATTRACTiOn



One of the most powerful & fastest tools you own to create cosmetic opportunities??

**SINGULARITY**



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**Start Here**



**Immediate Call to Action Motivator**

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Over-the-Counter **Teeth Whiteners**: \$1.4 billion  
(MSNBC) ...  
(Consumer Reports).

91

## Over The Counter Whitening



92

# COSMETIC DENTISTRY OPPORTUNITIES



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## Opalescence **GO!**

- *Fast, Easy, Effective, Better Experience*
- *Convenient & affordable professional whitening to **GO***
- *Pre-loaded, disposable UltraFit™ tray for a custom-like fit*
- *Molar-to-molar coverage*
- *No chair time*



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## Instructions



1. Remove from package.



2. Center tray on arch.



3. Gently suck down or swallow.



4. Remove outer tray.



5. Suck down or swallow again.



6. Wear 10% for 30 to 60 minutes and 15% for 15 to 20 minutes.

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Opalescence  
Go Sample  
Tower



96



# Reduce or Eliminate Sensitivity

*Potassium Nitrate & Fluoride*



97

**“Total annual revenue in the teeth whitening industry topped \$11 billion at the beginning of 2015, with \$1.4 billion spent on teeth whitening products. These figures suggest a steady annual increase in the teeth whitening market industry, which is expected to continually climb over the next 10 years” AACD Research**

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Tip #2

Business

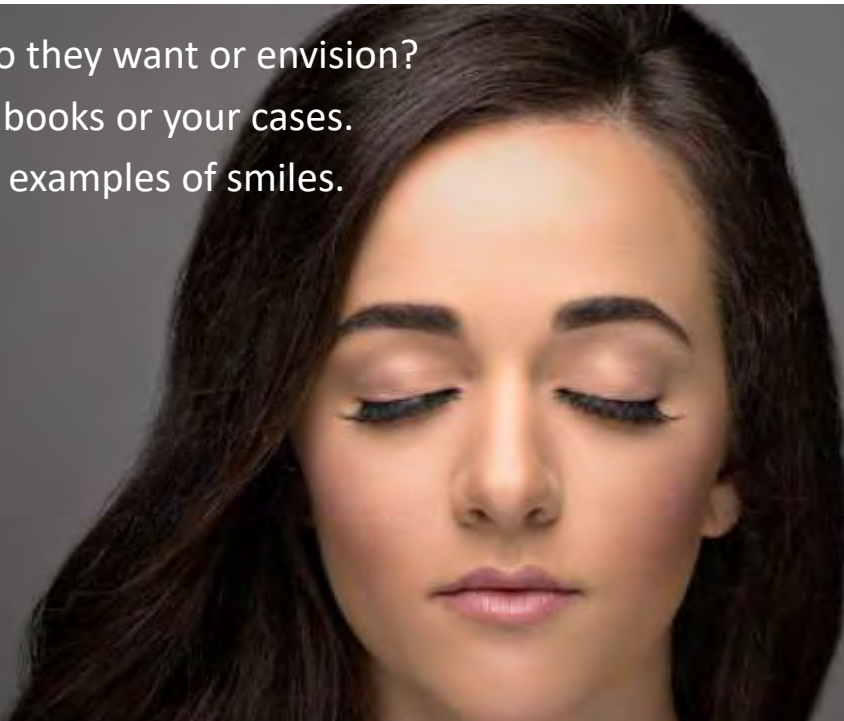
Convert

PATIENTS

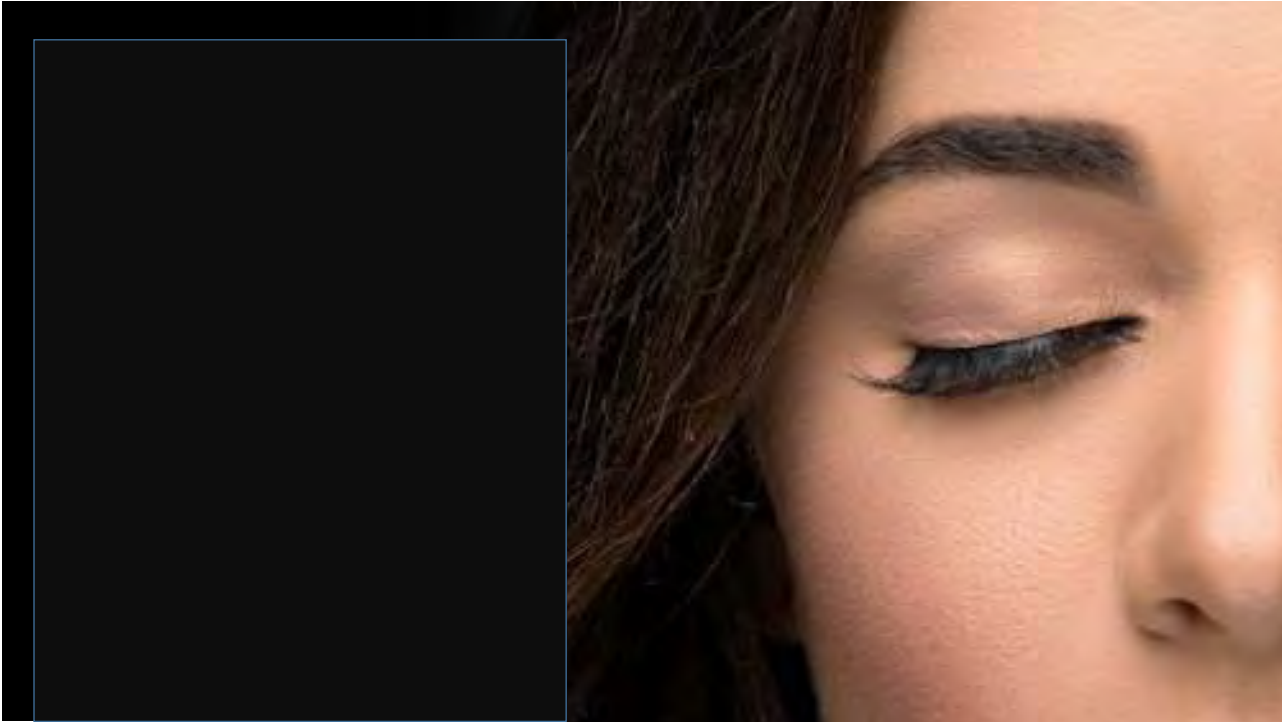


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What do they want or envision?  
Look at books or your cases.  
Bring in examples of smiles.



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Everyone has an  
opinion & priorities  
How WHITE?  
Translucency?  
What Texture?  
Color Transitions

104



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February 18, 2020

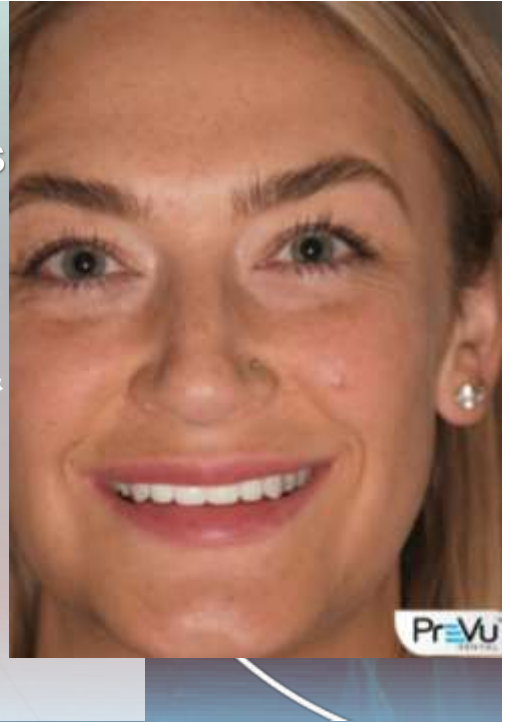
<https://prevudental.com/>

**An enhanced smile for Briaette [REDACTED] provided by Dr. Todd Snyder**

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## Smile Simulations / Digital Mockups

- STARTS WITH A PROBLEM OR PAINPOINT
  - ELABORATE ON IT RELATED TO THE EFFECT ON: BODY, BEING, BALANCE, & BUSINESS
- PAINTS THEIR FUTURE POSSIBILITY
- THEY SEE A NEW REALITY!!
- SHOW VISUALLY APPEALING PHOTO(S)
- OFFER



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**Aesthetic Dental**  
DENTISTRY

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www.aestheticdentistry.com

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# COMMUNICATION!!

## SECOND KEY COMPONENT

---

Appearance...what is it? who decides, Dentist? Ceramist? Patient?

Combined effort?

**THEIR DECISION v**

**BUT YOU HAVE TO GUIDE THEM**



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## Direct Mockups



114





115

# OPPORTUNITY

- Patient wants to fix the small lateral incisor
- No tooth reduction



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# Beadline Provisional Mockup

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## Beadline Provisional Mockup



**Diagnostic Models with a waxup are duplicated. Special over impression is created and used to deliver temporary mockup**

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***LISTEN For Yourself***

**Instant CASE ACCEPTANCE!!**



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***Show Possibilities..***



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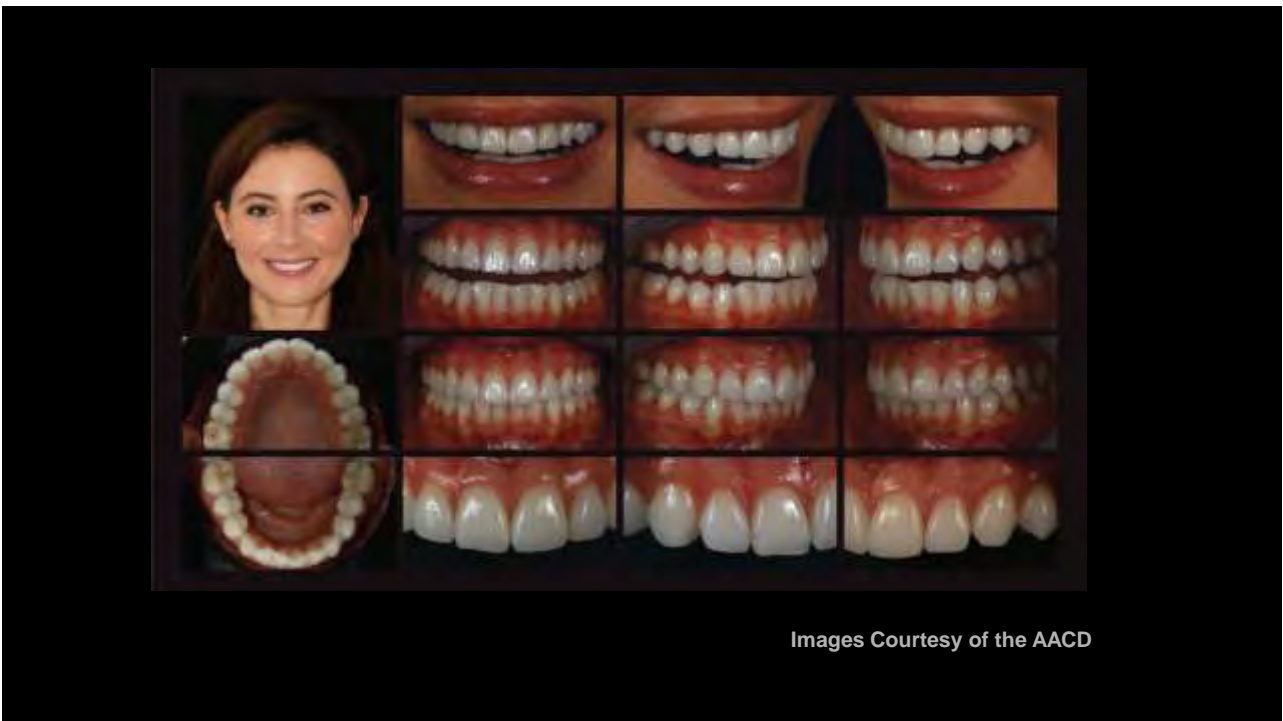


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Images Courtesy of the AACD

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## 3 Sets of Models

- One is untouched for legal documentation
- Second to practice preparations (It will be waxed up)
- Third is a spare to practice on or make bleach trays



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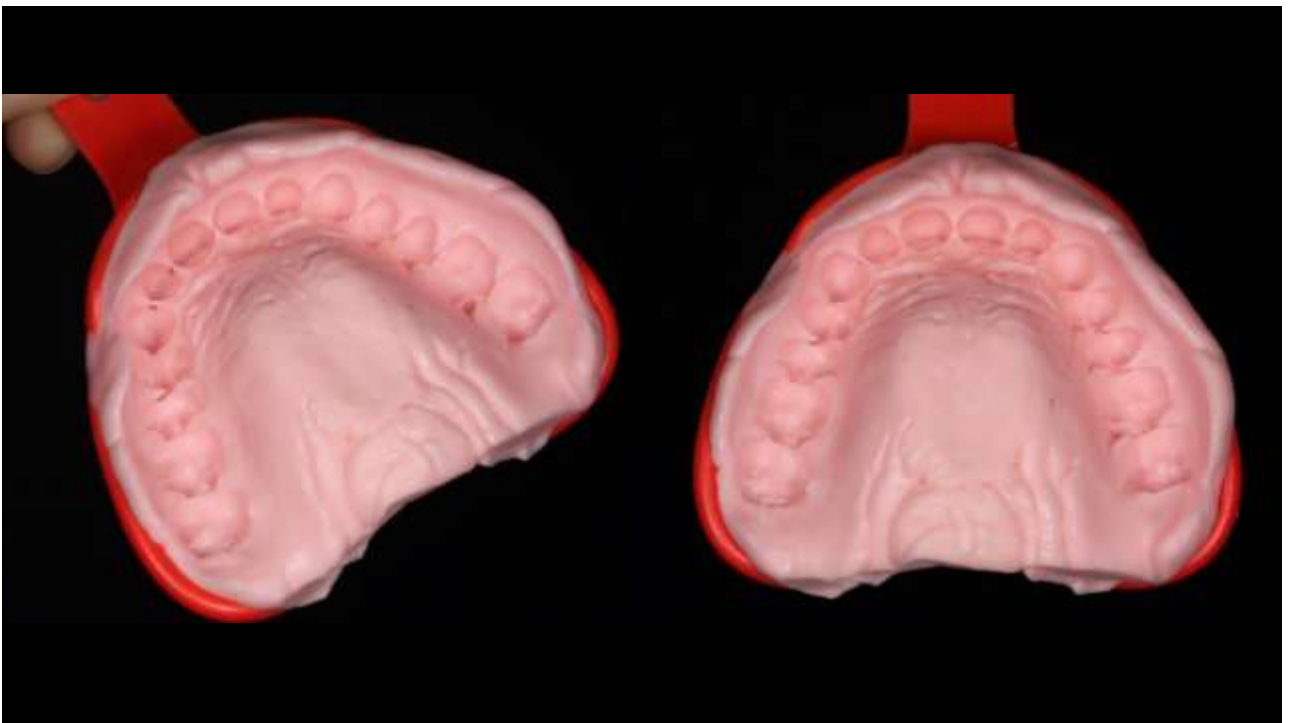


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# Silginat - Kettenbach Counter FIT- Multipurpose Replication Silicone (Clinician's Choice)



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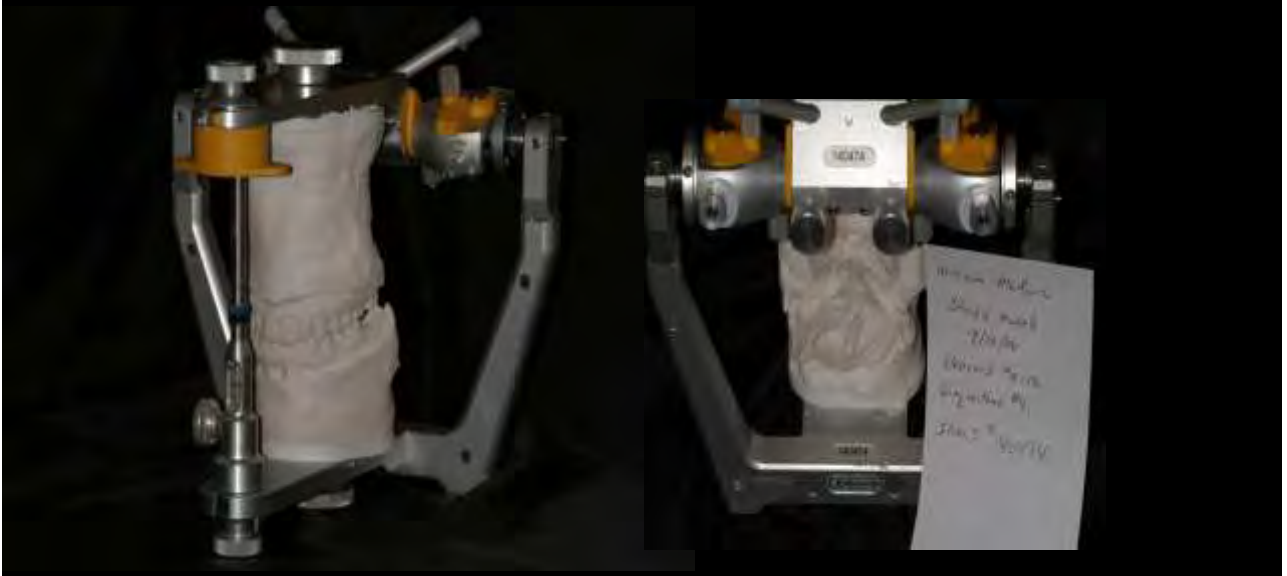
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# Facebow and Possibly a Bite Registration



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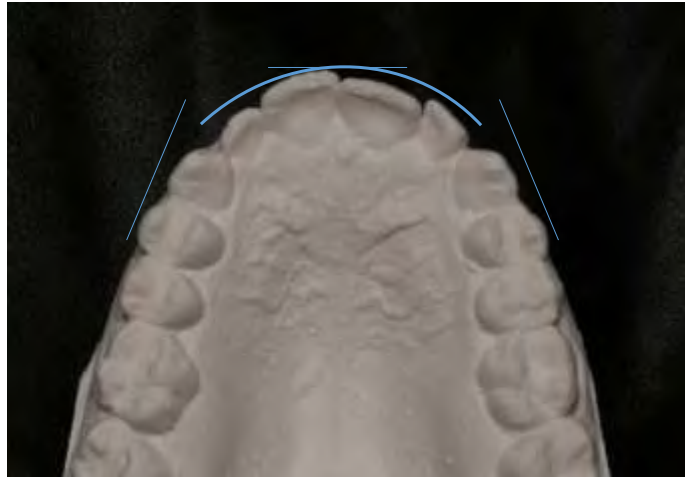
# Mounted and Equilibrated



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## Smile Design/Preparation Design: -What, Where, Why, Apply



134

- 1) What is the plan??***
- 2) What are you thinking?***
- 3) What is the patient thinking?***
- 4) What is the lab technician thinking?***

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# What Records & When

Diagnostic & Prep Reduction Models



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## Tooth Preparation

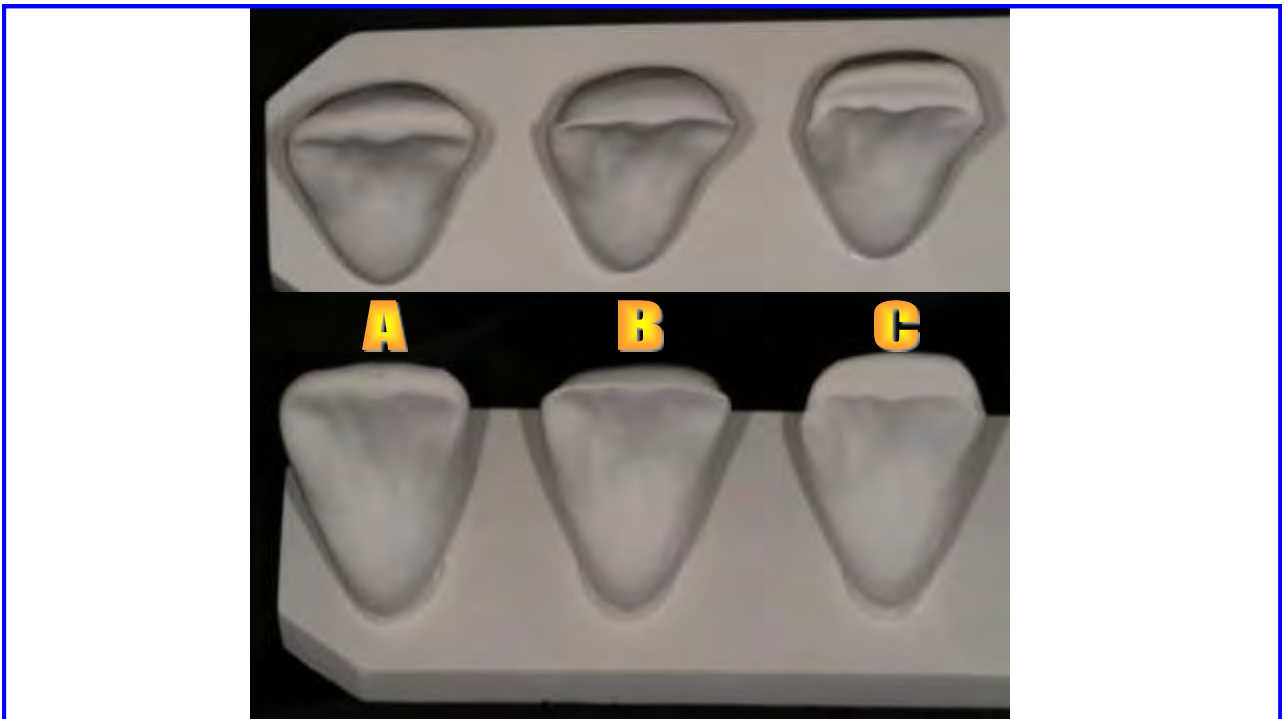
Conservative Preparations



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# *Veneer Preparations*

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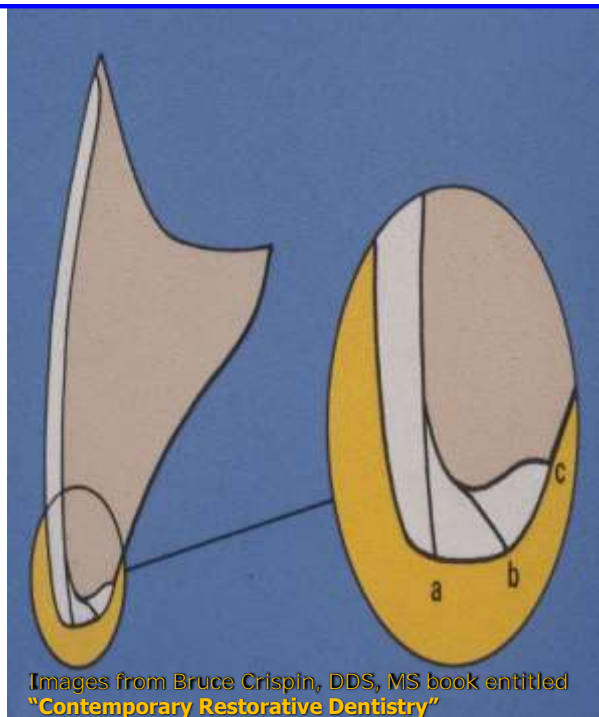


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## ***Veneer Preparations***

Incisal edge preparations

- a) No incisal lengthening
- b) Changing color or wear
- c) Lengthening tooth
- d) Interproximal
  - a) When to break contact?
- e) When to do a crown



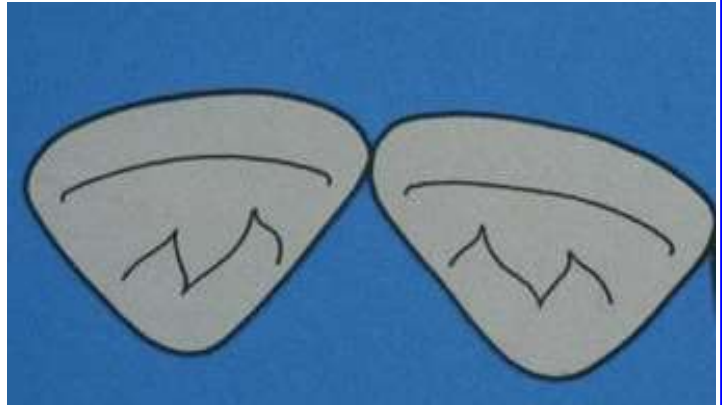
[Images from Bruce Crispin, DDS, MS book entitled "Contemporary Restorative Dentistry"]

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## Veneer Preparations

- Depth Cuts
- Tooth Reduction
- Margins
- Retention Form (Line of Draw)

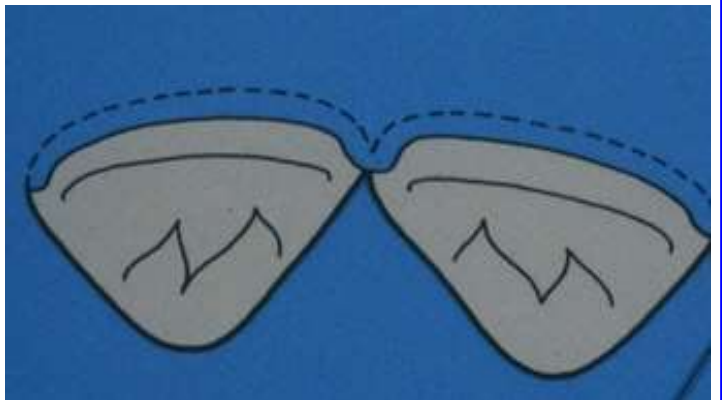


Images from Bruce Crispin, DDS, MS book entitled "Contemporary Restorative Dentistry"

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## Veneer Preparations

- Depth Cuts
- Tooth Reduction
- Margins
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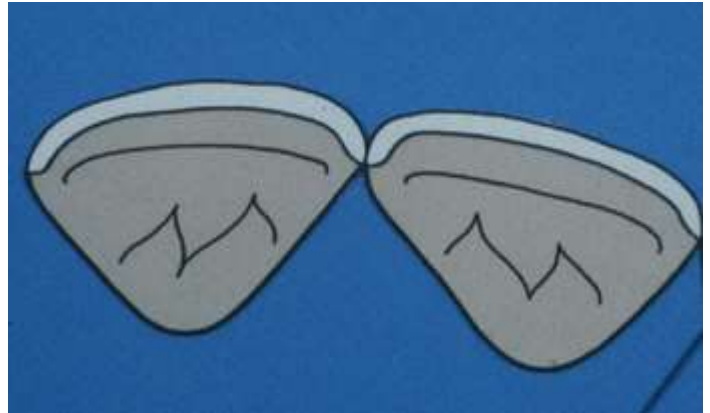


Images from Bruce Crispin, DDS, MS book entitled "Contemporary Restorative Dentistry"

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## Veneer Preparations

- Depth Cuts
- Tooth Reduction
- Margins
- Retention Form (Line of Draw)



Images from Bruce Crispin, DDS, MS book entitled "Contemporary Restorative Dentistry"

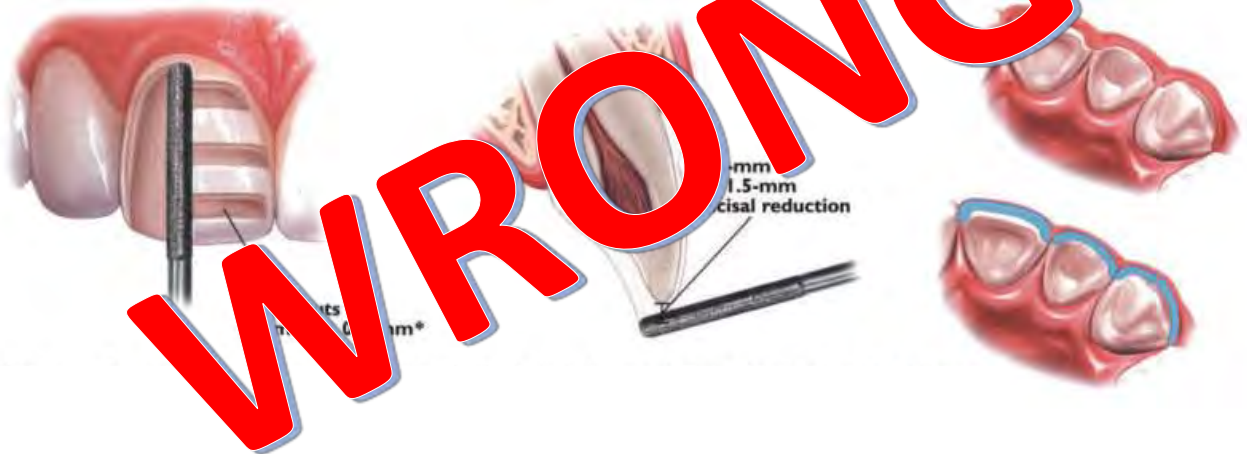
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## Veneer Preparations-Feldspathic Porcelain



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## Veneer Preparations-Pressed Ceramics



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## Modern Ceramics

- Stand Alone Strength Properties
  - Feldspathic (80-120 mpa)
  - Lithium disilicates (360-500mpa)
  - Lithium silicate (373 mpa)
  - Zirconia (Monolithic 640-1200 mpa+)
    - Layered Zirconia Feldspathic (80-120mpa)

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## GC America Initial Lisi Veneering Ceramic for Lisi Press (Lithium Disilicate)



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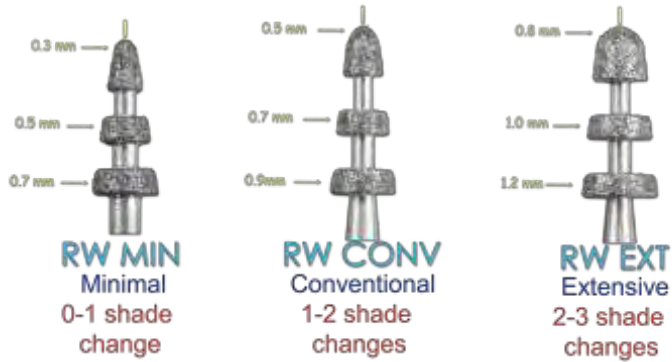
# Veneer Preparations

labial reduction options  
Depth Limiting Burs - Brasseler USA



Average enamel thickness

At CEJ .3-.4 mm  
Middle third .8-1.0 mm  
Incisal third 1.1-1.3 mm



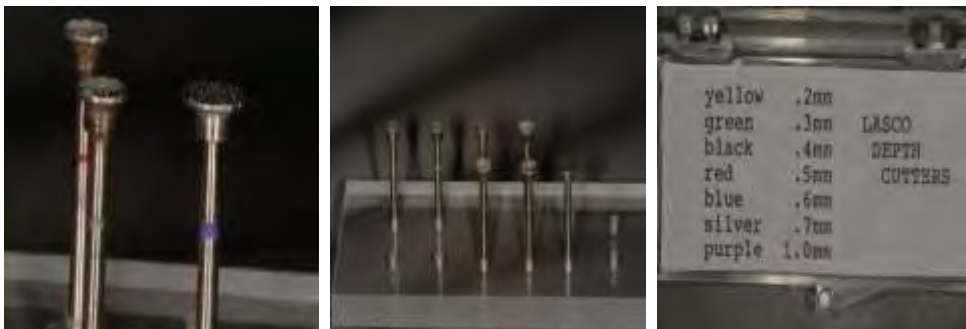
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# Veneer Preparations

## Preparation Reduction



- Depth reduction burs
  - Safe reduction
  - Lasco



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# Minimal Prep Case: 4

- Preparation
- Aesthetics
- Function
- Bonding to Enamel
- Material Options



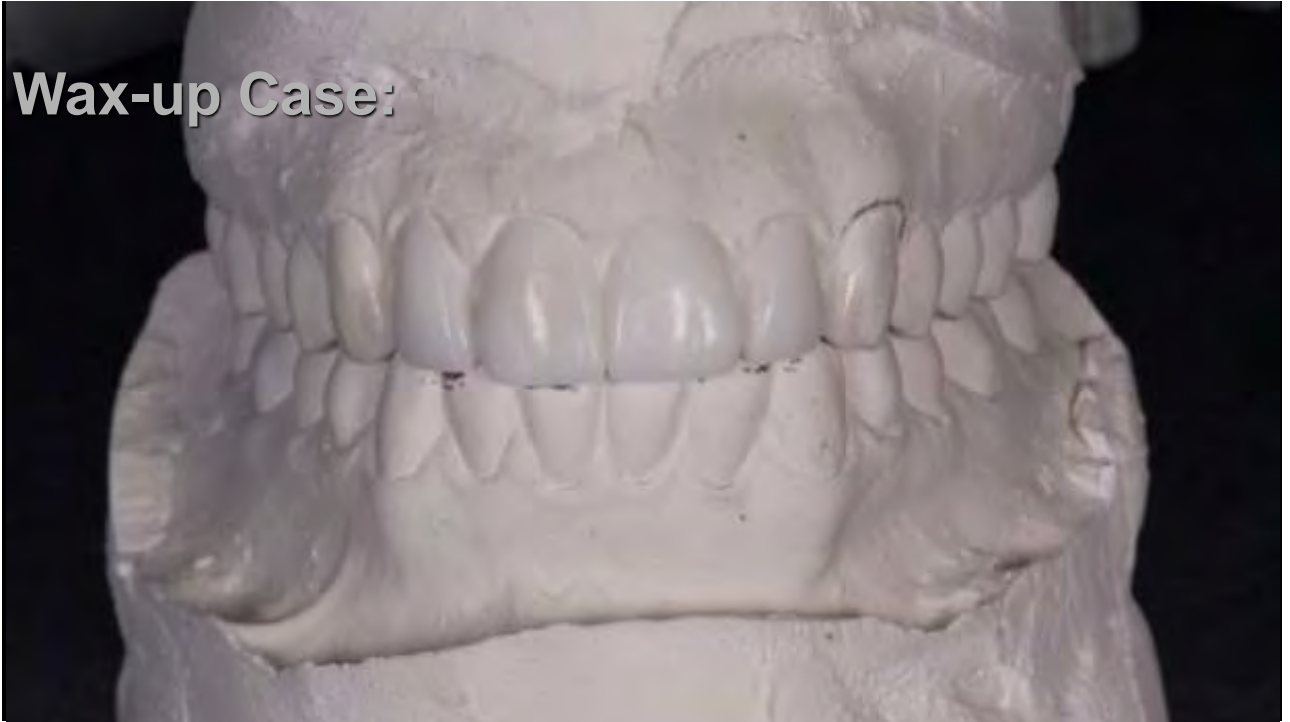
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# Minimal Prep Case: 4



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# Wax-up Case:

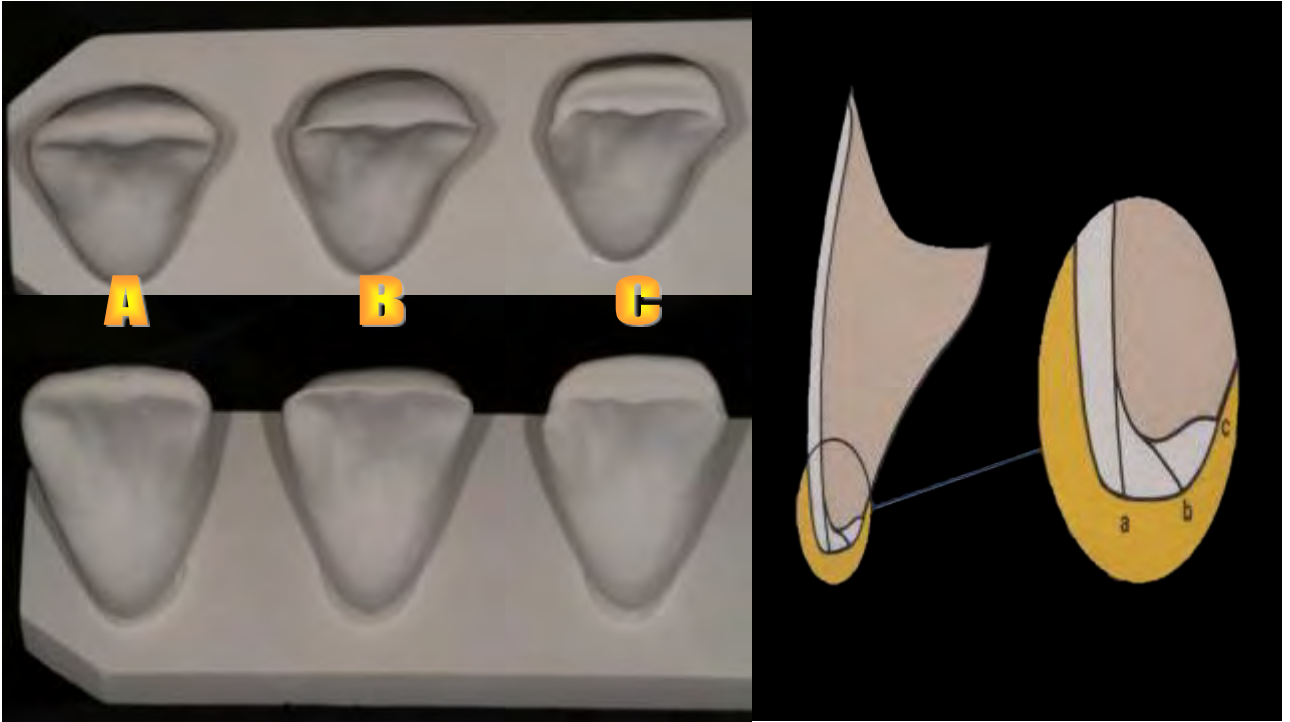


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# Preparation Guides:



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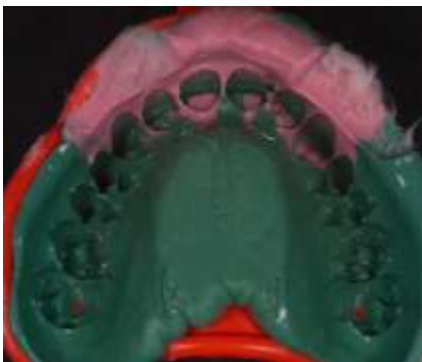


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**Shade Assumptions  
BW, B1, B2, A1, A2**

**Provisional Techniques**

- Free hand
- Beadline Provisionals
- Putty over impression of waxup
- Premade temps?



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## **Review**

- Chief Complaint
- Occlusion
- Photographs/Imaging?
- Whiten first
- Waxup/BeadLine Provisional
- Material Selection
- Practice Preps
- Photograph Prep Shade



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## PREPARATION REVIEW

- Mount cases
  - Practice preparations
  - Stay away from functional stops
  - Do not break contacts unless:
    - Black triangles
    - Large fillings
    - Rotation
    - Diastemas
- ◆ **Take the least amount of tooth off**
  - ◆ **Build teeth out a few tenths when possible**
  - ◆ **Show lab your preparations**

169

# *PROVISIONALS*

170

## Provisionals

- Visalys (Kettenbach)
- TempSmart (GC America)
- Inspire (Clinician's Choice)
- ExperTemp (Ultradent)
- Luxatemp Ultra (DMG)



171

### Luxatemp Ultra

Industry leader in flexural strength - a true measure of provisional stability and durability

- Unsurpassed break resistance
- Faster curing, easier cutting and handling
- Fluorescence added for outstanding esthetics and temporaries that appear more like natural teeth
- Superior stability and durability
- Incredible polish and luster



172

## VISALYS (Kettenbach)

Proprietary multifunctional acrylic composite.

Suitable for the fabrication of temporary crowns, partial crowns, bridges, inlays, onlays and veneers.

- Made without BPA
- High Strength
- Natural Luster
- Unsurpassed break resistance
- Incredible polish and luster



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## Simplified Provisionals



CONTINUING EDUCATION ▼

### BEAD LINE VENEER PROVISIONAL RESTORATIONS

Full Course, CEPT

**Bead Line Elimination**  
 Bead line elimination for aesthetic restoration, particularly in the anterior region, has remained to the ability of laboratory professionals during the post-impresion period. Temporary provisionals are an integral tool, direct indirect, and comprehensive means to improve the patient's existing condition and avoid deterioration of an optimal condition. This article discusses the use of the Impression Plus to create superior restorations and avoid bead line formation or bead line issues.

**Learning Objectives**  
 The article reviews the use of an efficient provisionalization technique to ensure superior function, esthetic results, and stability during the impression period. Upon completion, the article the reader should:

- Recognize the role of the provisionalization period in overall aesthetic and form.
- Understand the processing required to create suitable provisionals for use in making final and cast restorations.

**Key Words:** impressionless, acrylic, dentistry, post-impresion, bead line issue.

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Full Course Article Year 2023 CEPT 1-11/21

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## Cosmetic Provisionals (Bead Line Technique)



[Bead Line Veneer Provisional Restorations. Pract Proced Aesthet Dent 2009;21\(3\):E1-E7.](#)

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## Cosmetic Provisionals (Bead Line Technique)

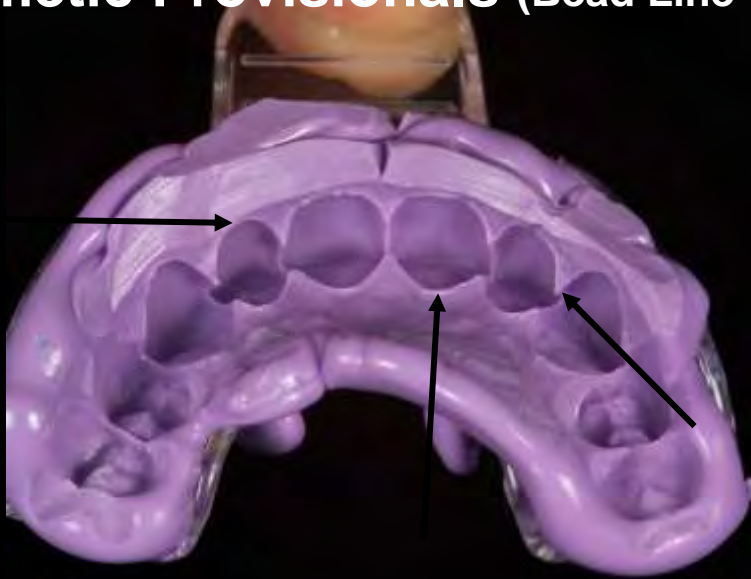
Scribe a 0.5mm-1mm groove into tissue & a little on tooth



176



# Cosmetic Provisionals (Bead Line Technique)



177

# Cosmetic Provisionals (Bead Line Technique)



178

## Cosmetic Provisionals (Bead Line Technique)



No Polish Necessary if you use a good model

179

## Cosmetic Provisionals (Bead Line Technique)



180

## Cosmetic Provisionals (Bead Line Technique)



181

## Cosmetic Provisionals (Bead Line Technique)



182



183



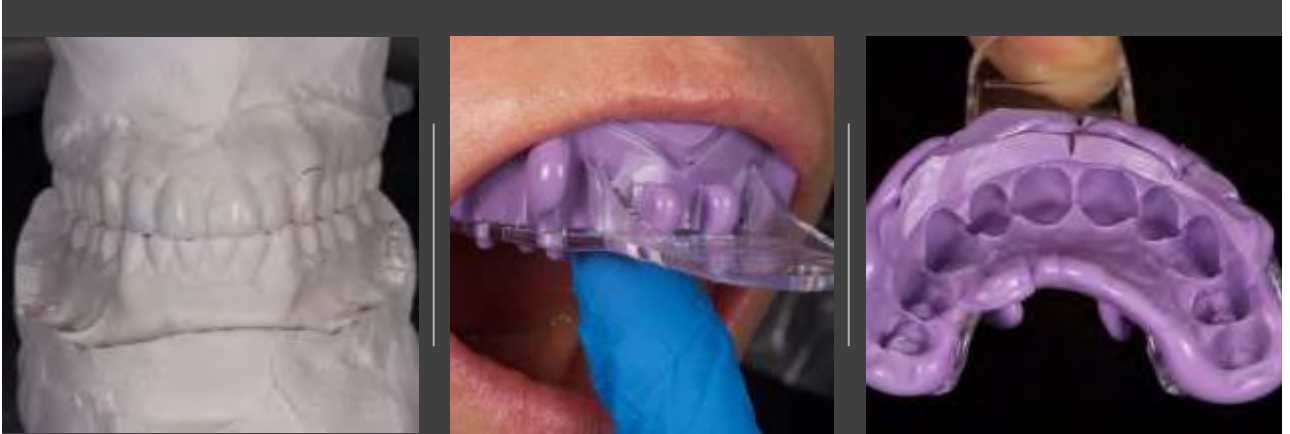
## Minimal Prep Case

- Waxup
- Mockup
- Preparation
- Provisional
- Bonding to Enamel
- Material Options

Minimally Invasive Veneers....  
Why? Benefits??

184





## Beadline Provisional Mockup

(No etching, no bonding, mechanical retention only)

185



## Mockup

186





# Depth Cuts

187



# Photos for Laboratory Technician

188



# Provisional Restorations

(No etching, no bonding, mechanical retention only)

189

## AESTHETIC TEMPORARY CEMENT

ClearTemp LC-Ultradent



190



# Final Restorations

191



# Provisionals Mimic The Final Restorations

192

# IMPRESSIONS

193

## Impression Trays

### *HeatWave* by Clinician's Choice

- 4 upper & lower trays
- 60 sec. @ 158°F
- Fast, efficient
- Virtually custom
- 30% less impression material used



194



195

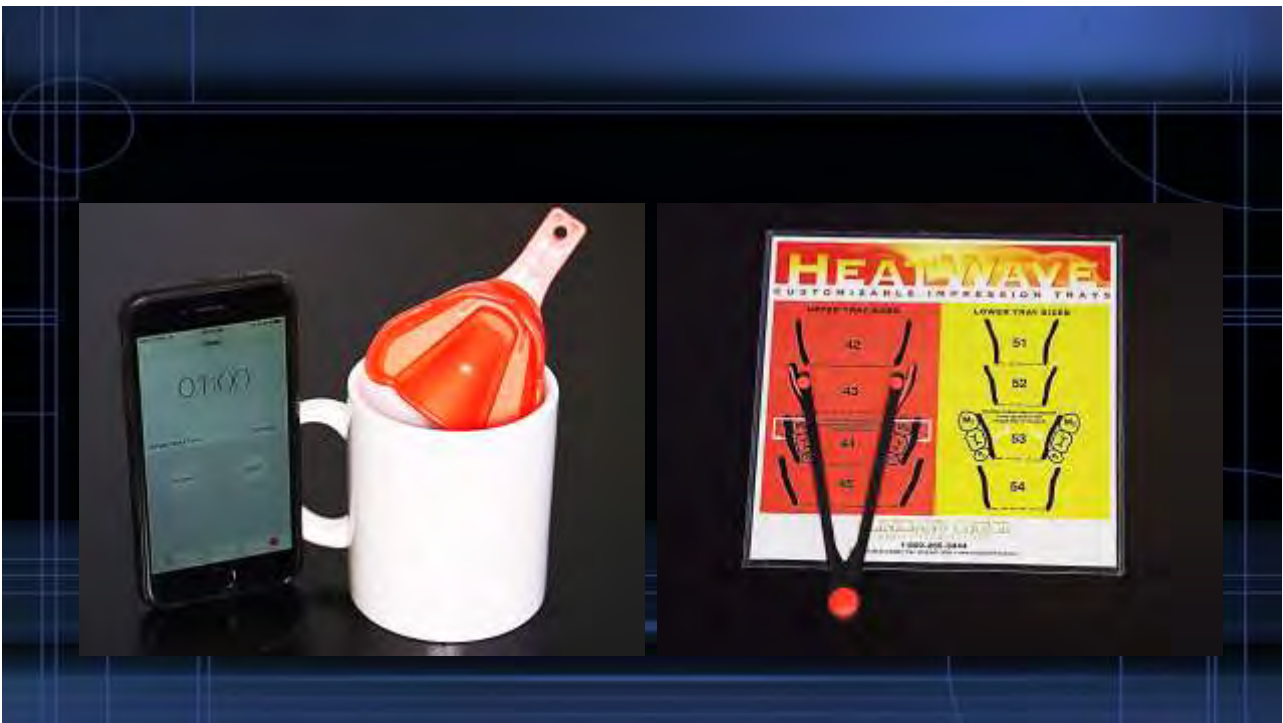


196





197



198

### Impression Trays

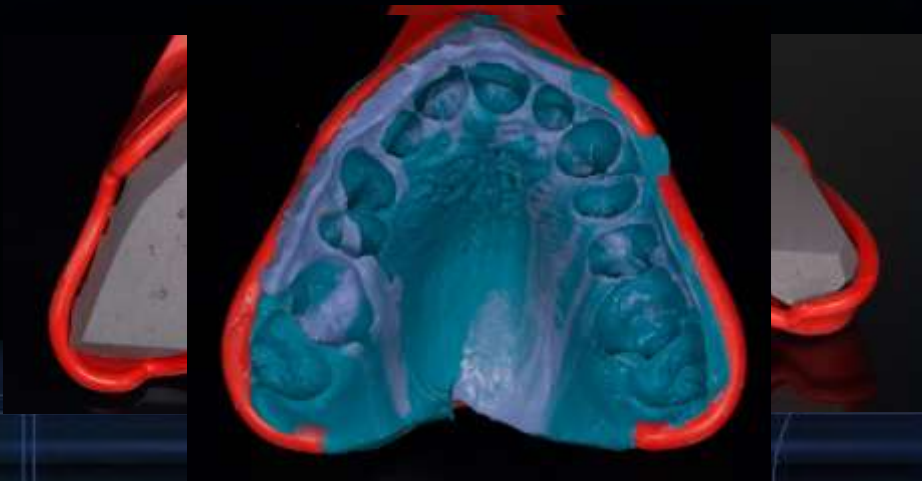
*HeatWave* by Clinician's Choice



199

### Impression Trays

*HeatWave* by Clinician's Choice



200

## Thermoclon VPS (Ultradent)

Viscosities

Set Times

Wetability

Detail



201



202

Typically use a #00 or #0 with no chemicals unless bleeding. A single cord displaces tissue 0.5mm-1mm typically



25% aluminum chloride  
Ultradent ViscoStat Clear



203



204





205



206



## *Aesthetic Contouring (LASERS & IMPRESSIONS)*



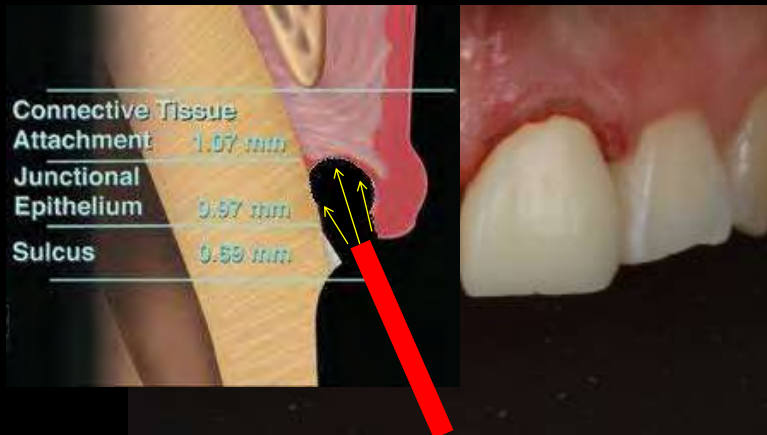
207

## *Aesthetic Contouring*



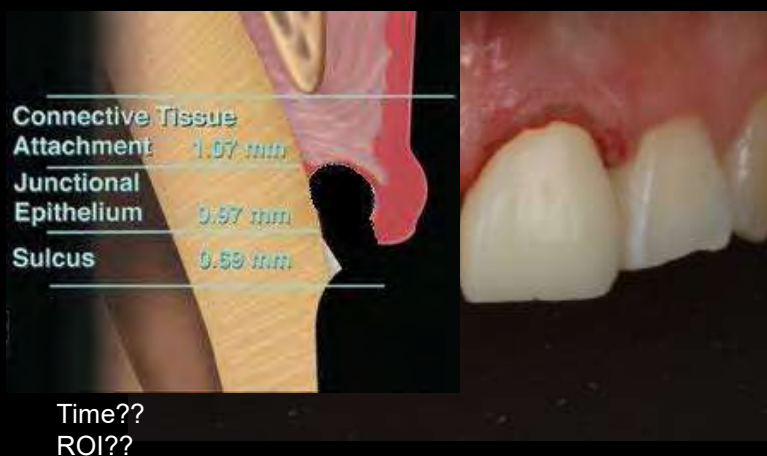
208

## Aesthetic Contouring

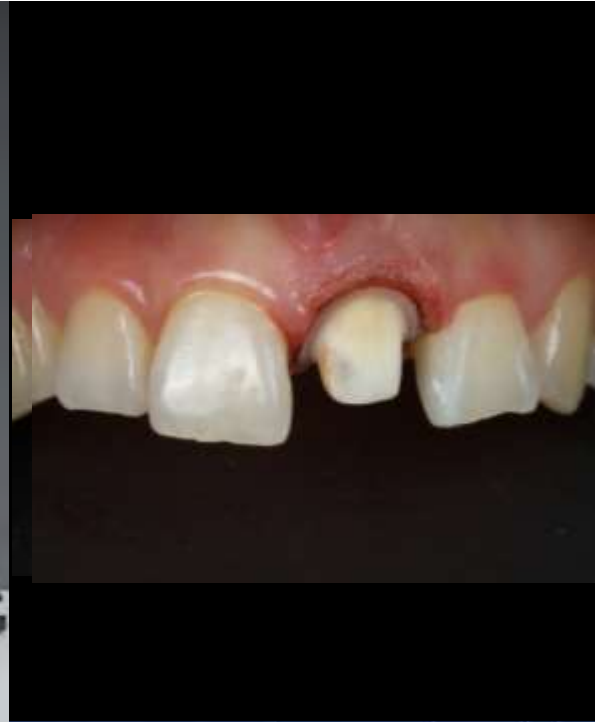


209

## Aesthetic Contouring & ExperTemp Provisional



210



211



212

## GEMINI EVO (ULTRADENT)

- The Gemini EVO laser provides 100 watts of peak power—5x the power of the original Gemini laser—for faster cutting, less heat, and ultra-clean incisions in soft tissue.
- Three PBM adapters are included with the Gemini EVO laser (3 mm, 7 mm, and 25 mm)

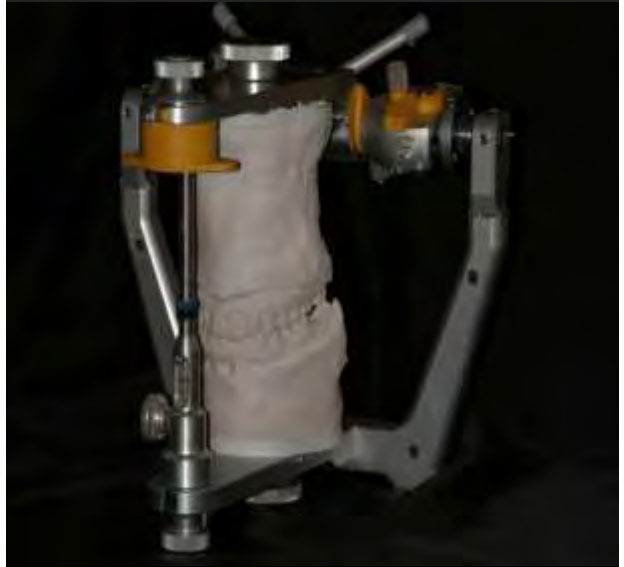


213

## Gemini Laser (Ultradent) Tissue Re-contouring



215



216

## *Instant Ortho/Un-Rotating Teeth*

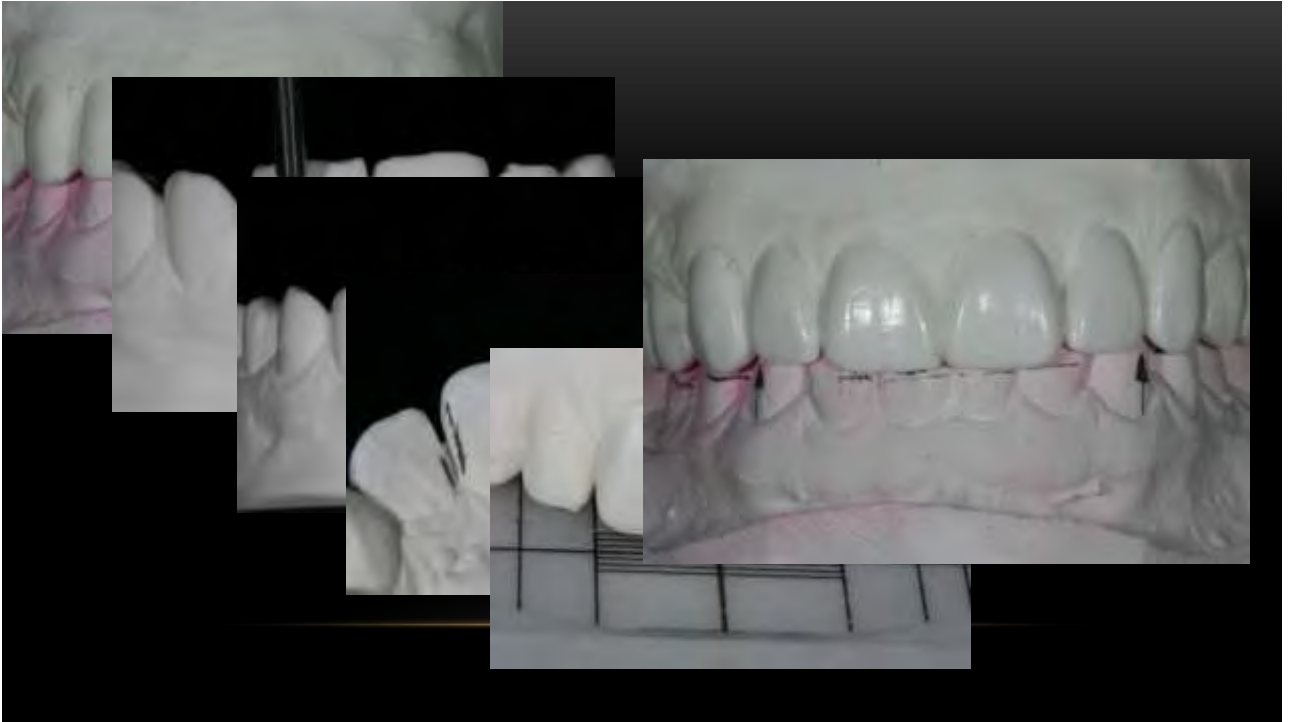
- Reduce all excess tooth structure
- Ideal reduction
- Margin placement



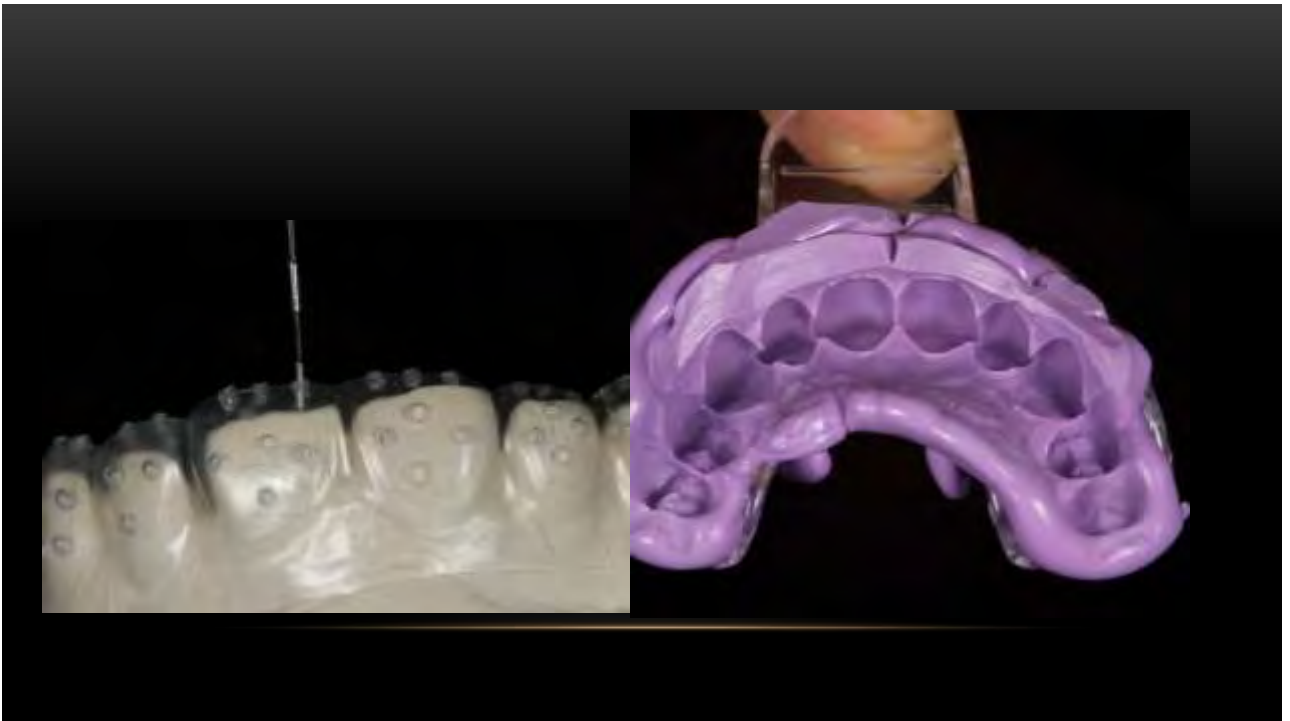
**Images from Bruce Crispin, DDS, MS book entitled "Contemporary Restorative Dentistry"**

217

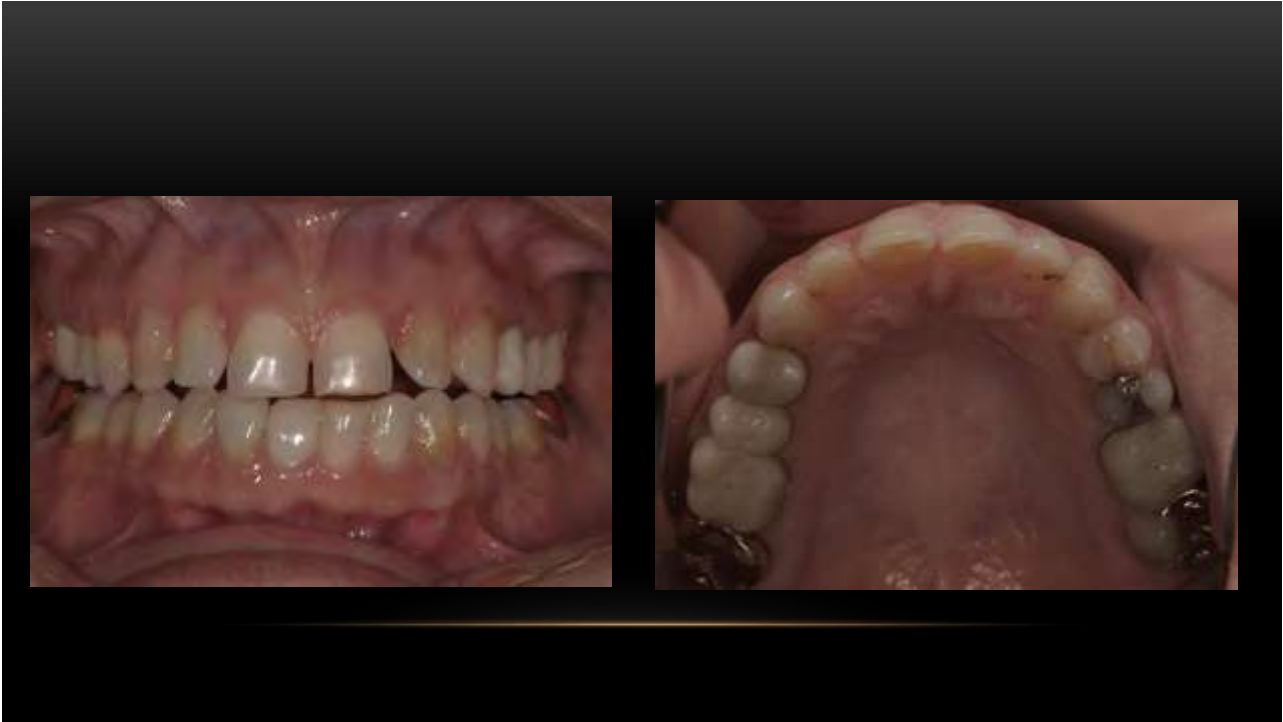




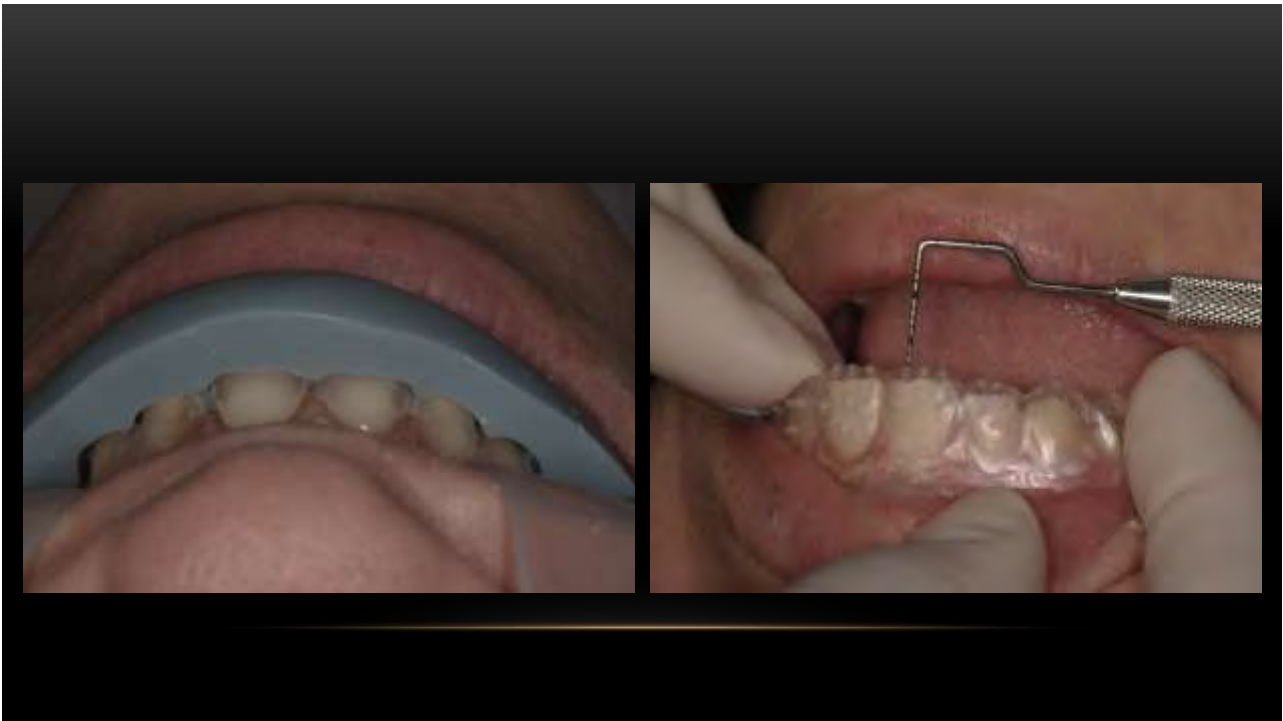
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222

Beadline provisionals that are locked on.



223

# Removing provisionals that are locked on.



224

# Removing provisionals that are locked on.



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**Aesthetic Dental**  
DENTISTRY

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Web: [www.aestheticdental.com](http://www.aestheticdental.com)

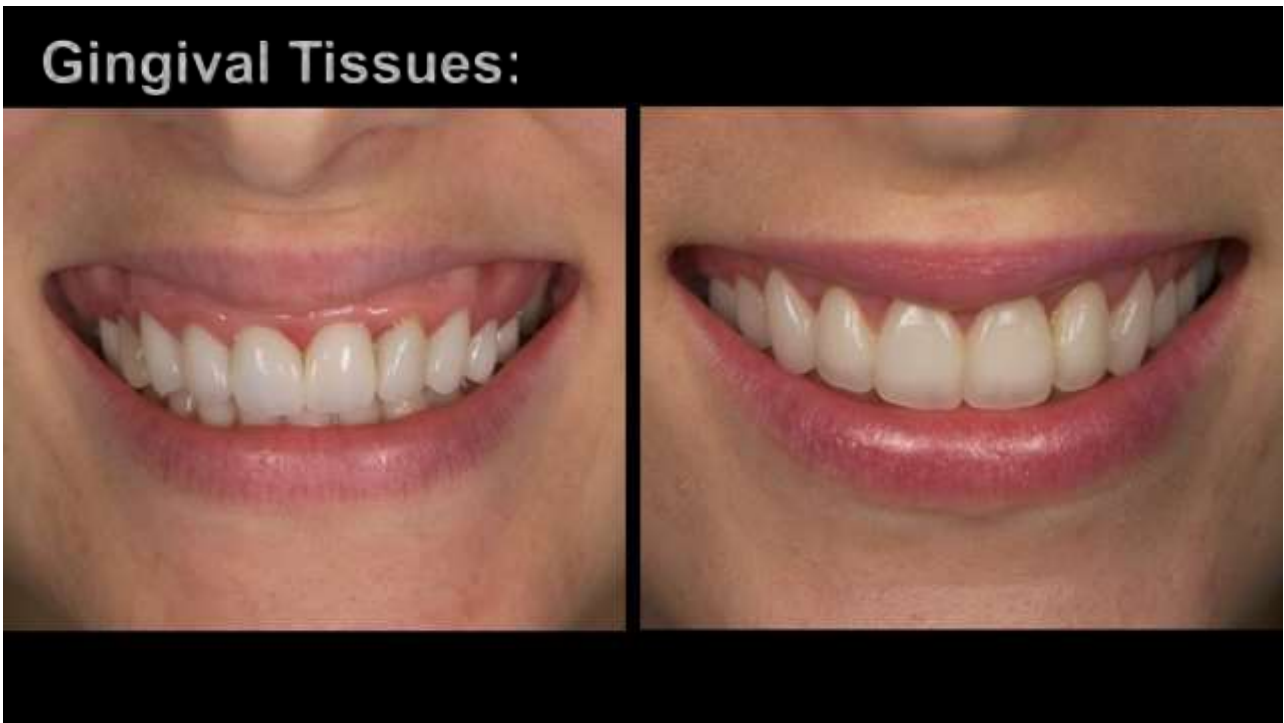
©. Turbano Dentals  
Proprietary Information - Please Hide This

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# Complex Positioning & Gingival Tissues: #8

Aesthetics  
Tissue Problems  
Poor Function  
No TMJ Problems



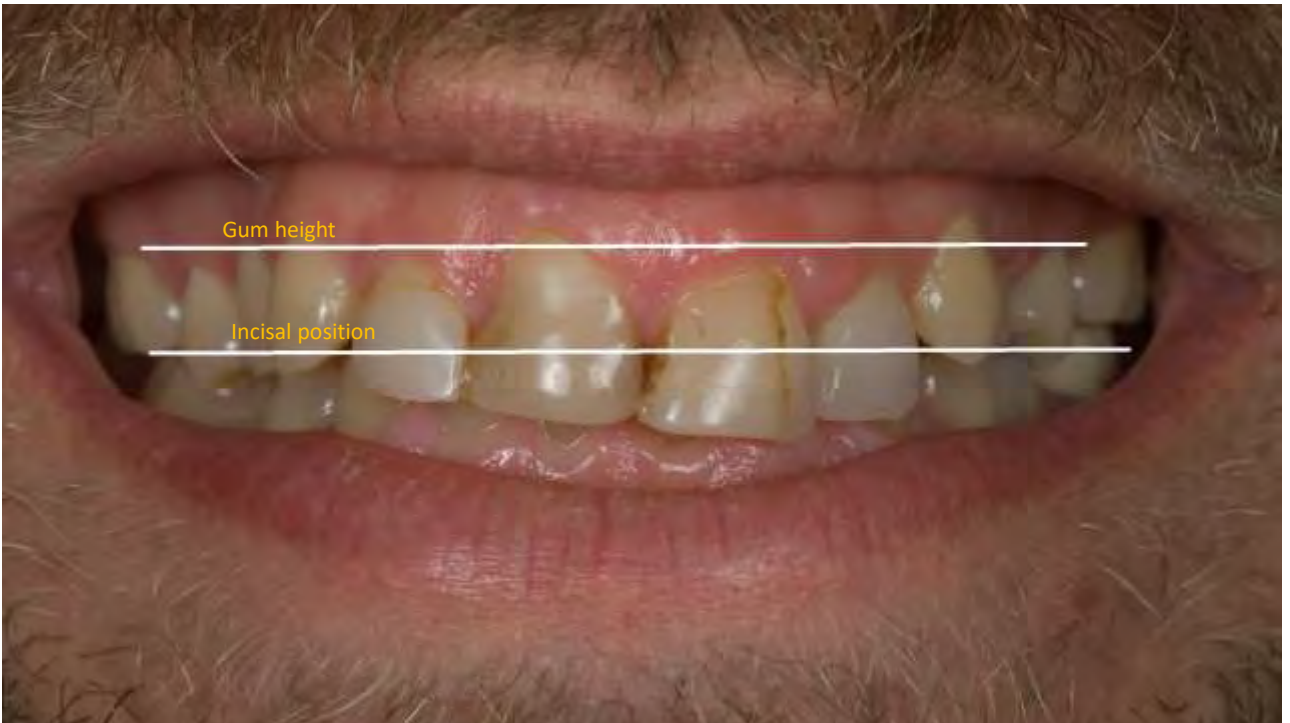
230



231

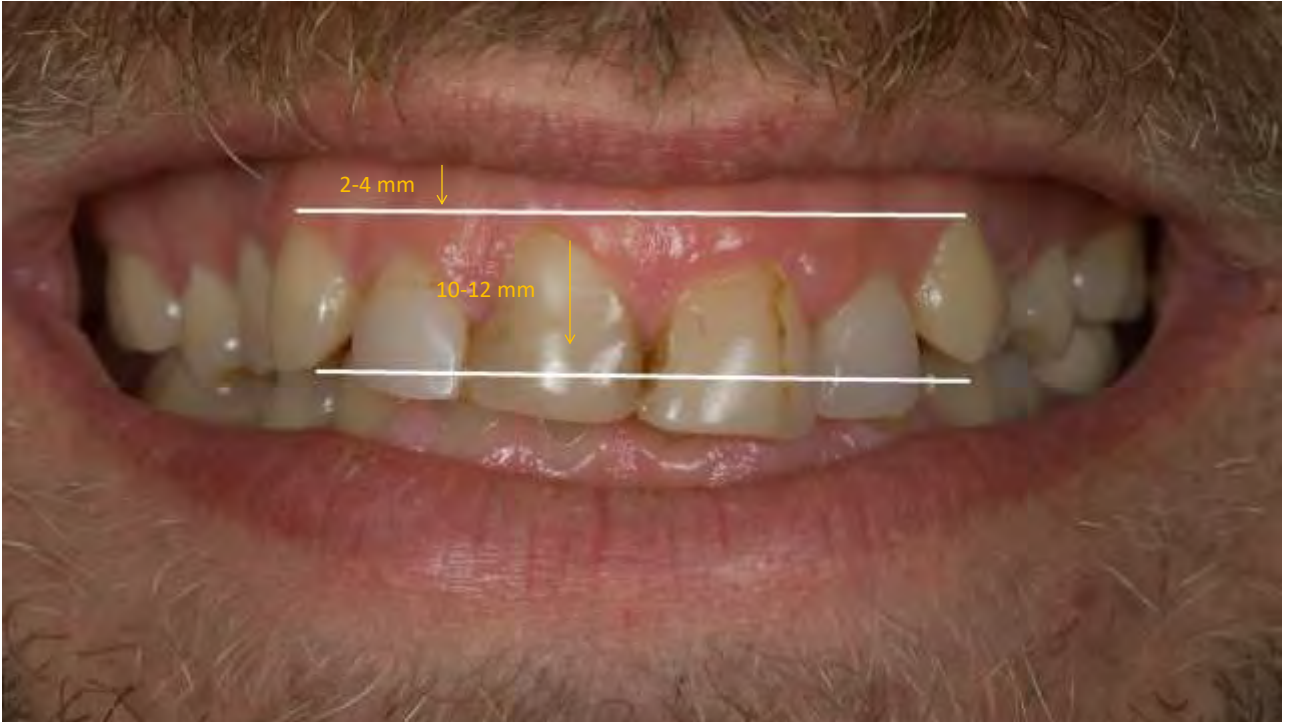


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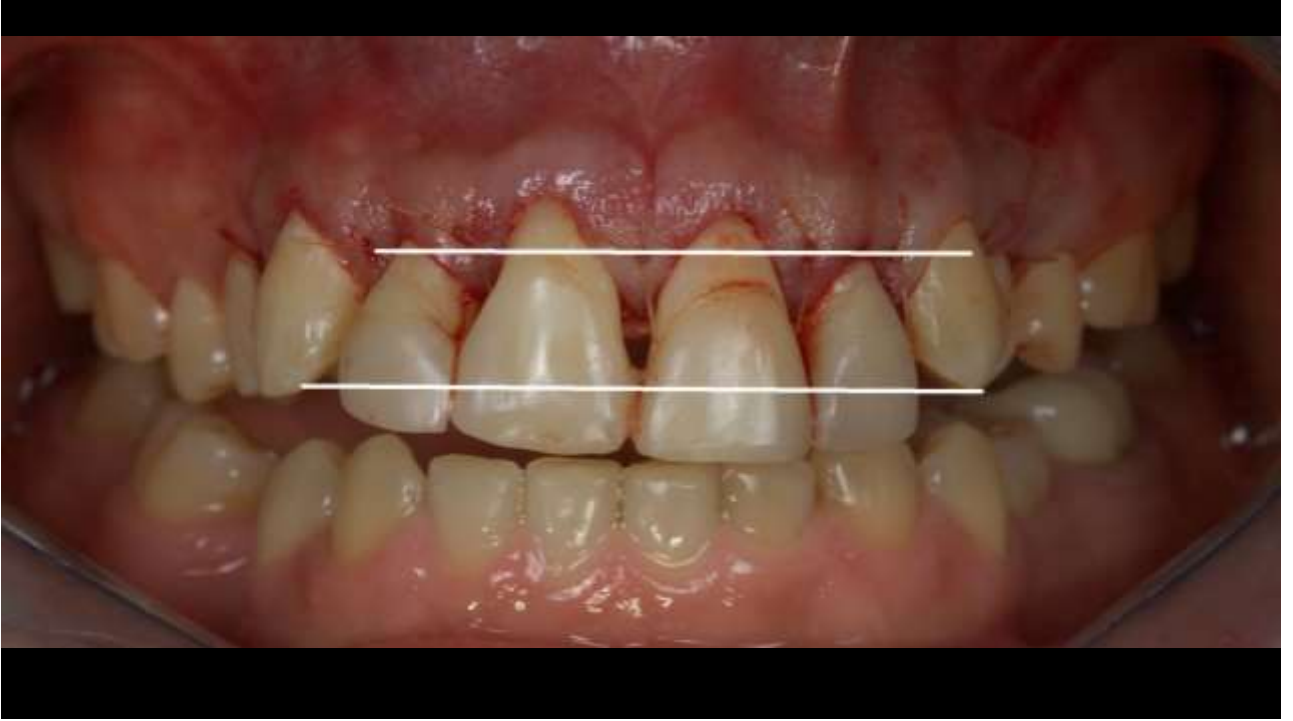




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240



241



242



243

## *Instant Ortho/Un-Rotating Teeth*

- Do initial workup
  - Diagnostic preps
  - Diagnostic waxup
- **Sequence**
    - Reduce all excess tooth structure
    - Ideal reduction
    - Margin placement



Images from Bruce Crispin, DDS, MS book entitled "Contemporary Restorative Dentistry"

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246



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# ***Buildups & Fillings***

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## GINGIVAL RECESSION & ABFRACTION LESIONS



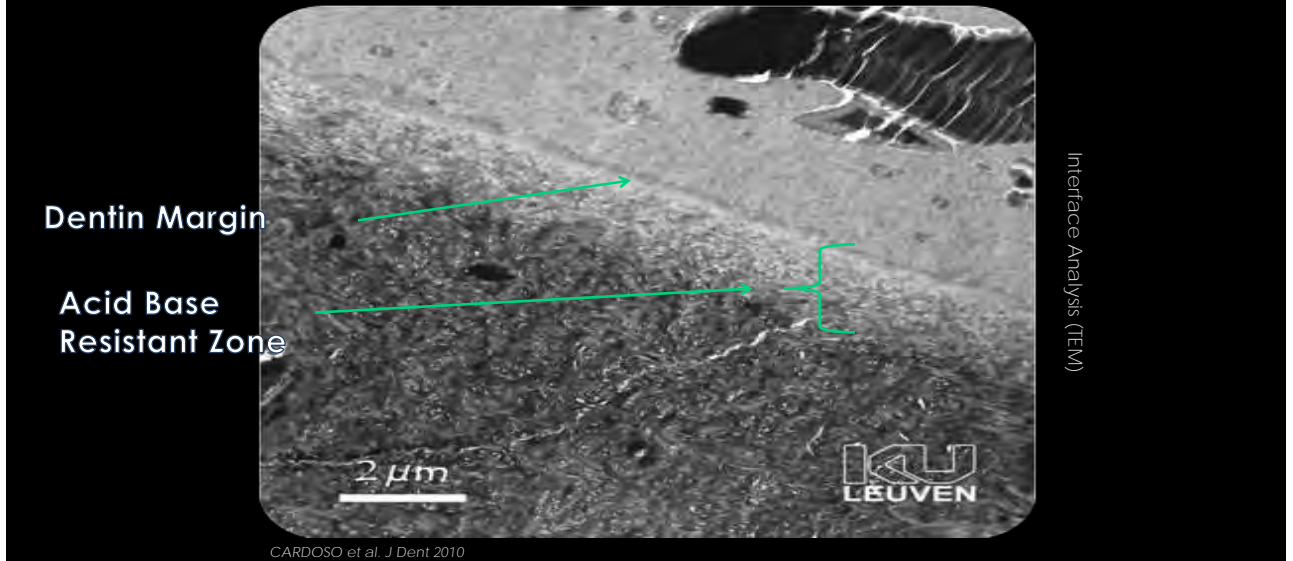
252

## Why Glass Ionomers?

- Bioactive material
  - affinity to tooth structure. when placing a glass ionomer a weak acid or conditioner is used to aid in releasing calcium and phosphate ions from the tooth structure. These calcium and phosphate ions combine into the surface layer of the glass ionomer and form an intermediate layer called the interdiffusion zone. This bond layer can be very strong and significantly reduce the microleakage that would occur at the margins of the restoration.
- Very good fluoride and ion release helps remineralize tooth structure in the remineralization–demineralization process that naturally occurs in the oral cavity.
- They chemically bond to enamel and dentin and are hydrophilic.

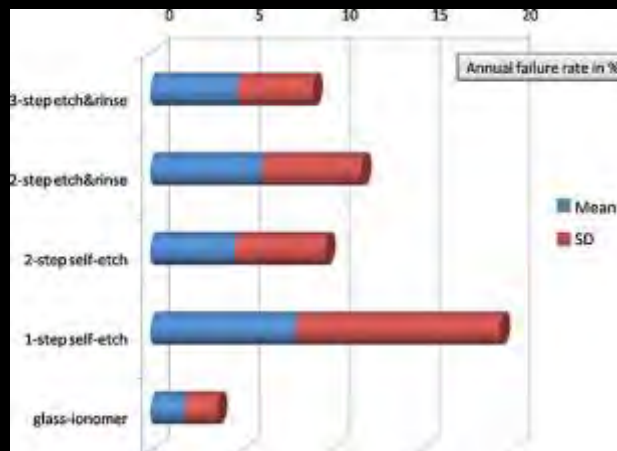
253

## GLASS IONOMER INTERFACE



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Van Meerbeek B, et al. Relationship between bond-strength tests and clinical outcomes. Dent Mater (2009), doi:10.1016/j.dental.2009.11.148



**Fig. 15** – Graph representing the mean annual failure rates per adhesive class, determined according to a systematic review of Class-V clinical trials of adhesives during the period 1998–2004 [2].

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## GLASS IONOMER SANDWICH



Red dye indicates  
marginal leakage

- Class I, II, III & V posterior restorations
- Open & Closed Sandwich techniques
- Composite replacement
- Amalgam replacement
- High caries risk patients
- Pediatric patients
- Geriatric patients
- Special needs patients
- Long term resistance to microleakage

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(RFA-DE-10-004)

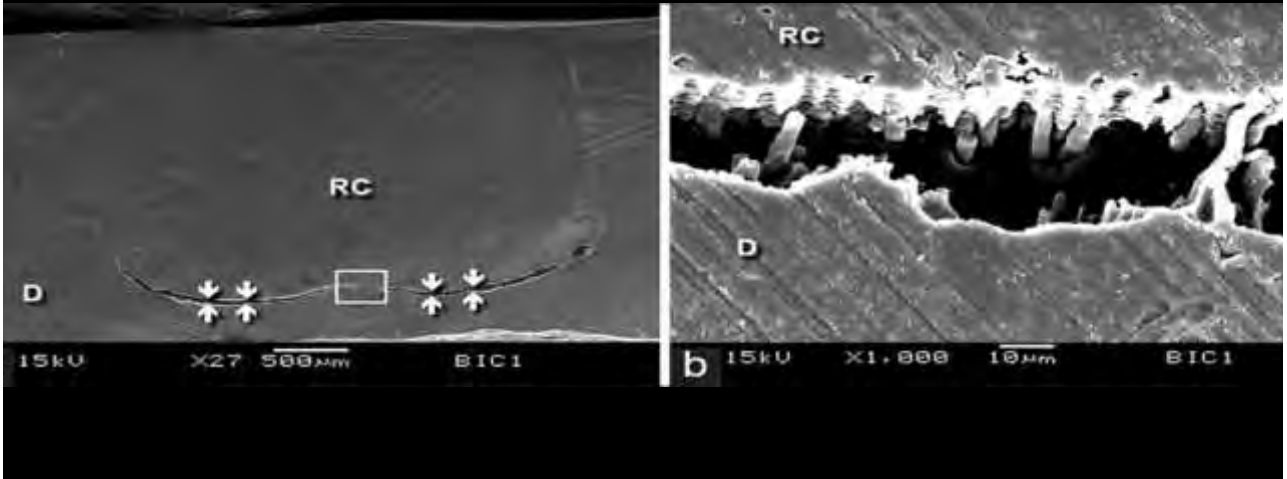
**"Tooth**-colored resin restorations have an average replacement time of 5.7 years due to secondary caries precipitated by bond failure."

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3148178/>

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# RESIN TO DENTIN HYBRID ZONE

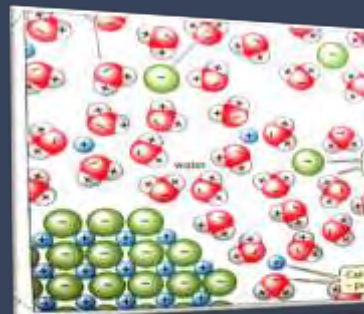
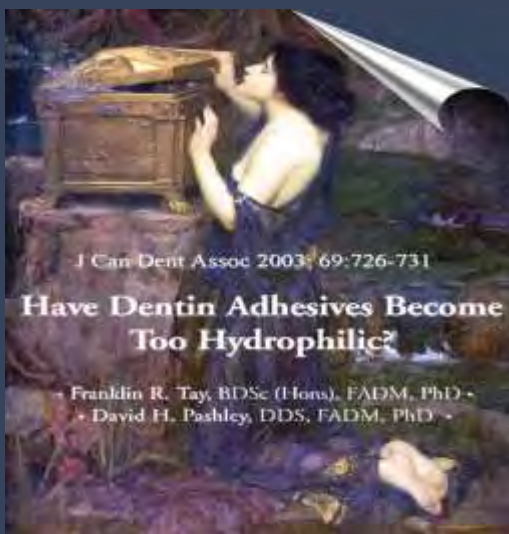


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## **i** Factors that compromise bond durability in restorative dentistry

### Hydrophilic dentin bonding

We challenged that current dentin adhesive designs that incorporate increasing concentrations of hydrophilic monomers are going in the wrong direction



Water sorption  
 Polymer swelling  
 Decline in mechanical properties  
 Leaching of hydrolyzed resin components

259

*Factors that compromise bond durability*

*Hydrophilic dentin bonding*

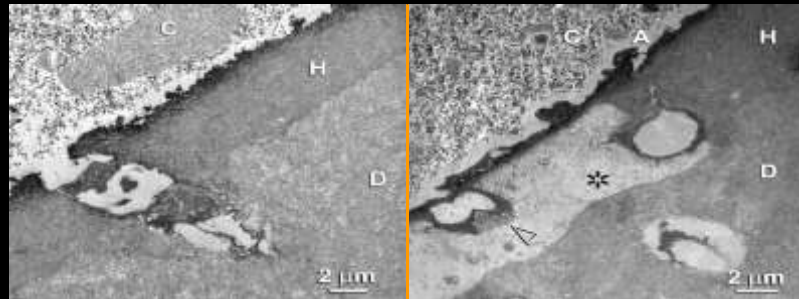
**RESEARCH REPORTS**

J Dent Res 2005; 84:741-746

J. Hobling, D.H. Pashley,  
I. Tiddeman, and F.R. Tay

**Chlorhexidine Arrests  
Subclinical Degradation of  
Dentin Hybrid Layers *in vivo***

*Instability of hybrid  
layers problem may  
be more severe  
than we realize*



*Intact hybrid layers created by a simplified etch-and-rinse adhesive in caries-affected primary dentin partially disappeared after 6 months of intraoral function*

260

*Factors that compromise bond durability*

*Hydrophilic dentin bonding*

**RESEARCH REPORTS**

J Dent Res 2004; 83:216-221

D.H. Pashley, F.R. Tay, E. Yiu,  
M. Hashimoto, L. Breschi,  
K.W. Carrillo, and S. Ito

**Collagen Degradation  
by Host-derived Enzymes  
during Aging**

***Demineralizing dentin is like opening the Pandora's box,***  
*releasing endogenous enzymes (Matrix Metalloproteinases -  
MMPs) that were trapped within the mineralized dentin matrix.*

*In the presence of water (such as that derived from water  
sorption or from adhesives, MMPs (2, 8 & 9) can breakdown  
collagen fibrils that are not protected by intrafibrillar minerals*

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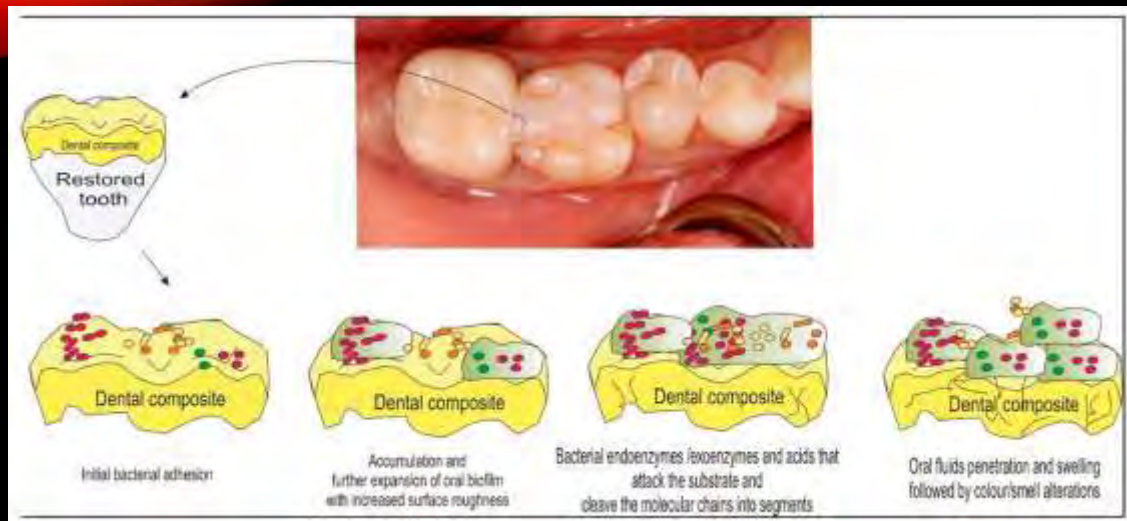
## BOND DEGREDDATION

- Pashley DH, Tay FR, Imazato S. How to increase the durability of resin-dentin bonds. *Compend Contin Educ Dent.* 2011 Sep;32(7):60-4, 66.

Resin-dentin bonds are not as durable as was previously thought. Microtensile bond strengths often fall 30% to 40% in 6 to 12 months.

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## ORAL BACTERIA DEGRADATION OF RESIN RESTORATIONS



American Journal of Dentistry Oct 2017

<https://www.researchgate.net/publication/321184952> The role of adhesive materials and oral biofilm in the failure of adhesive resin restorations

263

## microleakage testing in vitro using three different bases under composites

T. DUONG, L. TRAN, R. FERRY, G. KUGEL, *Special Issues of the Journal of Dental Research*, ABSTRACT #0366  
> Tufts University School of Dental Medicine, Boston, MA, USA.

### abstract:

**Objective:** To compare Class II microleakage in vitro of three different bases placed under composite restorations.

**Methods:** Thirty-six extracted molars were prepared as Class II MODC (2mm occlusal depth, 2mm axial box depth, 3-5mm gingival box width, and 1mm gingival margin below CE). Teeth were randomly divided into three groups of 12/12 (group 1-2 = glass ionomer; group 3 = flowable resin). Group 1-4:iva Light Cure GI (3M), Group 2-Flow Self Cure GI (SDI), Group 3-Edite X Flow (DENTSPLY Caulk). All groups were primed with Clearfil SE Bond Primer and Bond (Kuraray). All samples were then restored using KCE nano-hybrid Composite (SDI), finished and polished. Restorations were thermocycled for 300 cycles between 5°C and 55°C with a dwell of 30 seconds, and then placed in 0.5% aqueous basic Tetracycline dye for 24 hours at 37°C. Samples were sectioned mesiodistally and scored independently by two evaluators for microleakage at the occlusal-cavo and proximal-cavo surfaces under a 40x stereomicroscope. Dye penetration was evaluated using a scoring system: 0 = no penetration, 1 = penetration in enamel/cementum, 2 = penetration at the axial wall, 3 = penetration beyond the axial wall.

**Results:** A Kruskal-Wallis test revealed no statistically significant difference in microleakage between the three groups at the occlusal-cavo surface (p>0.05). Group 3 was found statistically different at the proximal-cavo surface. Group 3 yielded the most microleakage at both interfaces while Group 2 showed no axial wall penetration at either interface.

**Conclusion:** Both light-cured and self-cured glass ionomers were more resistant to microleakage than a flowable resin on both occlusal-cavo and proximal-cavo surfaces.

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## ABFRACTION LESIONS & CLASS V RESTORATIONS

LATIN WORDS, AB – “AWAY”, FRACTION – “BREAKING”

- Pathological loss of tooth structure caused by biomechanical loading forces.
- Static and cyclic flexural overloading of tooth structure ultimately leading to fatigue and failure of tooth structure away from the point of loading.



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## RESIN MODIFIED GLASS IONOMERS (RMGI)

- Light cured
- Dual cured
- High flexural strength
- Lower compressive strength than conventional G.I.
- Good polishability
- Excellent wear
- Hydrophillic
- Fluoride release
- No microleakage
- No adhesives
- Acid resistant layer
- Reduces sensitivity
- True chemical adhesion



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## GC FUJI AUTOMIX LC



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## Replacing Existing Restorations & Decay

- Resin bonding is mostly due to the intertubular dentin.
  - Deep preparations have less intertubular dentin.
  - More moisture present due to odontoblastic tissues and fluid
  - Higher risk of post-op sensitivity
  - Use a New Advanced Adhesive and Flowable
- Glass Ionomer (GI)
  - True adhesion to tooth structure
  - Bonds to moist dentin
  - Less technique sensitive
  - Fluoride release
  - Decreased gap formation and cusp deformation
  - Coefficient of thermal expansion is similar to dentin
- No post operative sensitivity
  - Use on dentin & cementum
  - Base out deep areas
  - Place resin/composite on top of GI



[Dentin Bond Strengths of Simplified Adhesives: Effect of Dentin Depth. Compendium June 2006, p.340-345](#)  
[Using Cavity Liners with Direct Posterior Composite Restorations. Compendium June 2006, p.347-351](#)

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## RESIN MODIFIED GLASS IONOMER RESTORATION

Post-Op Photo – notice unlike typical class V composite RMGI restorative material.

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## Restorative Therapy- Case

Typical treatment involves the placement of a #00 retraction cord on each tooth followed by a shade selection. Roughen tooth structure with air abrasion. Place cavity conditioner on all areas to be restored for 10 seconds, then wash and dry.



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## Restorative Therapy- Case

Mix RMGI and syringe into place. Utilize hand instruments to shape and remove gross excess. Cure each tooth for 20 seconds. Remove excess and contour using a handpiece with fine diamond burs. Teeth should be isolated from saliva.



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## Restorative Therapy- Case

After contouring the restorations can be coated with a self etch adhesive coating, and cure for 10 seconds.



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## Restorative Therapy- Case

**Ten year post-op photos show the integrity of the material is still excellent. Note the lack of marginal microleakage stain often present with composite restorations.**



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# RESIN MODIFIED GLASS IONOMER



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# INJECTABLE COMPOSITES

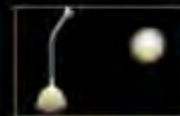


**G-aenial Universal Flo**  
A full strength, universal, injectable composite for all cavity classifications

Perfect for:

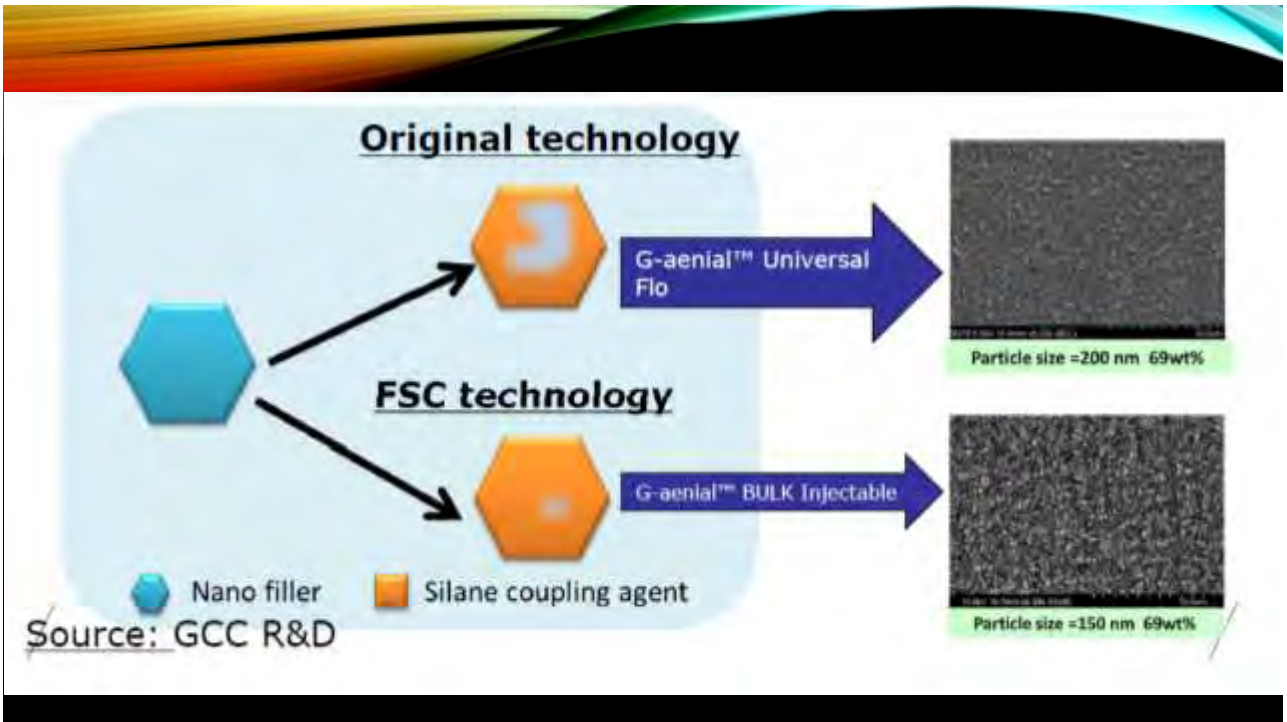


- > Highly aesthetic
- > Exceptional wear resistance
- > Unmatched polish retention
- > Controlled fluidity

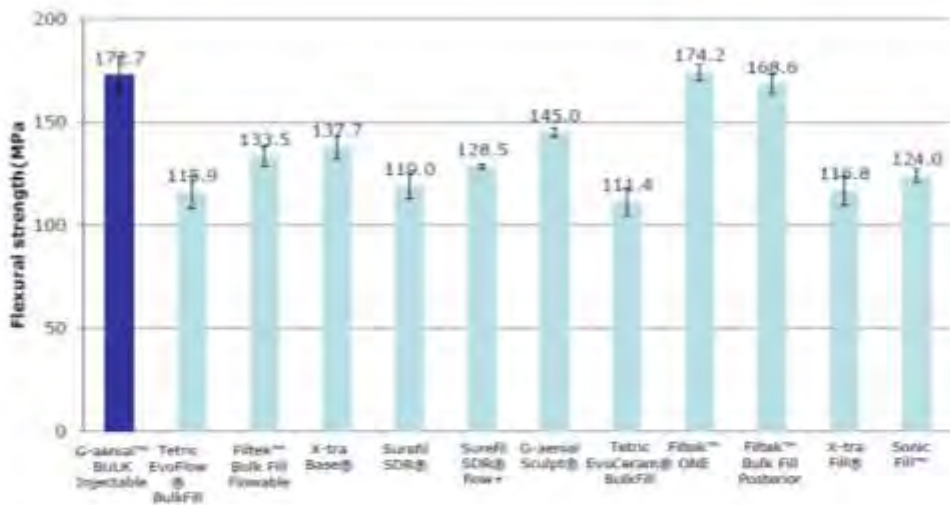


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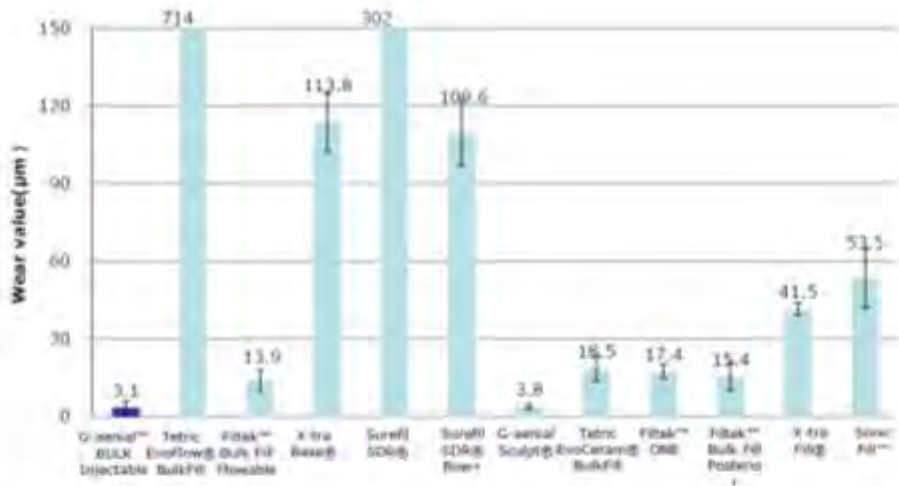


G-aenial™ BULK Injectable exhibits very high Flexural Strength, which translates to a **lower risk of chipping or fracture.**

Source: GCC R&D

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G-aenial™ BULK Injectables shows the highest wear resistance compared to the competitive set. This measure indicates that **the material will provide a highly durable and long-lasting restoration.**

Source: GCC R&D

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Cavity Depth	Product Recommendation
Up to 2 mm	G-aenial™ Flo X or
	G-aenial™ Universal Injectable
Up to 4 mm	G-aenial™ BULK Injectables
4-6+ mm	G-aenial™ BULK Injectables & G-aenial Sculpt®

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# ***CEMENTATION***

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RESIN CEMENT COSMETIC CASES....



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COSMETIC CASES....



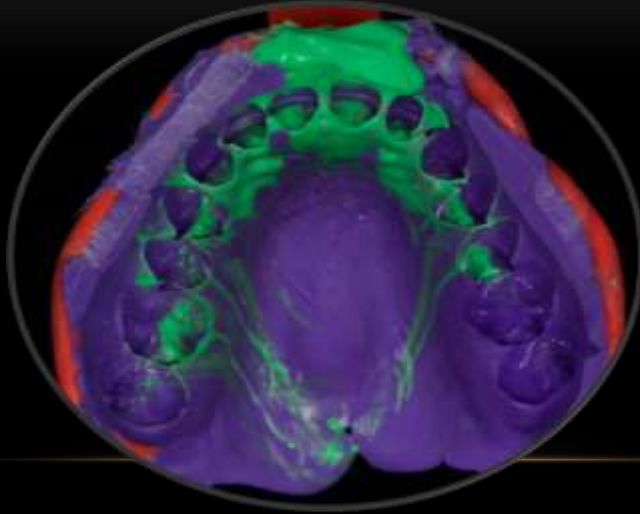
284

COSMETIC CASES....



285

COSMETIC CASES....



286

PROVISIONALS



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Check the etch on the ceramic restoration. (All ceramics except zirconia restorations)



288

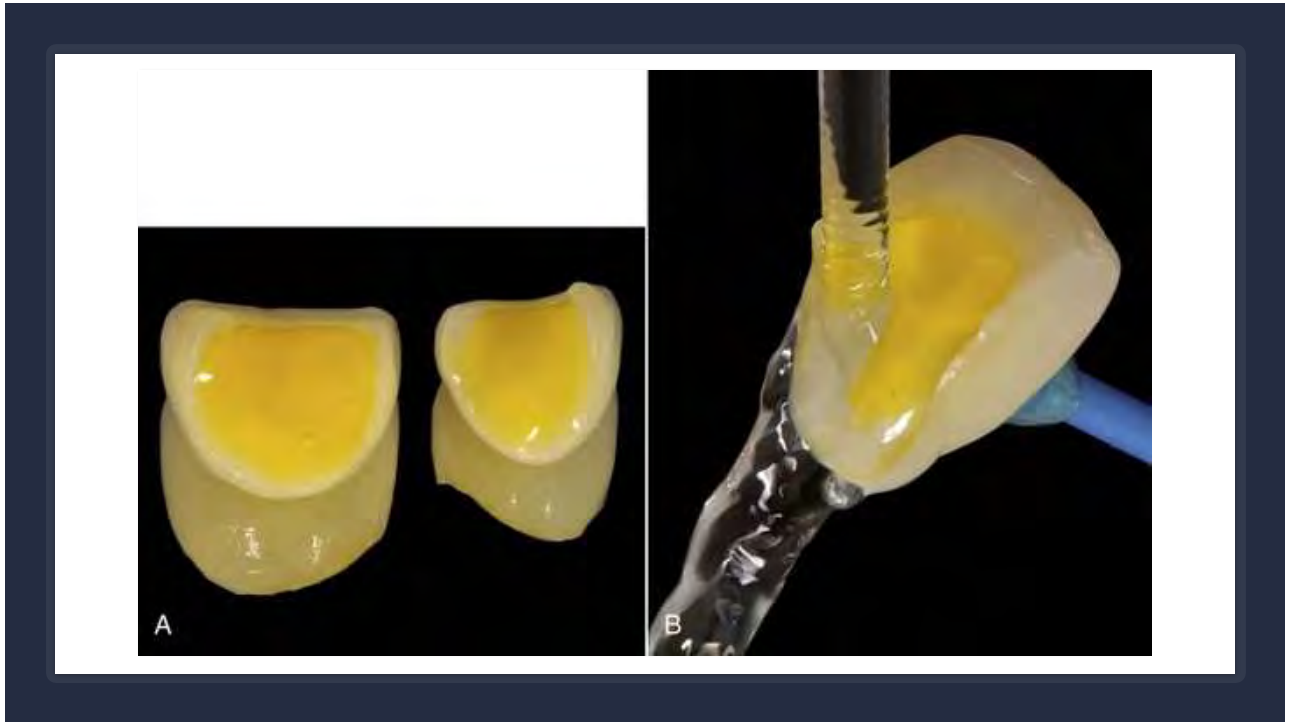
### PORCELAIN ETCHANT 9.5% HF

- ◆ Improves the mechanical bond between porcelain and adhesive/cement by increasing the surface area of the porcelain. The effect is like sandblasting but is more controlled and effective.
- ◆ Apply PORCELAIN ETCHANT (9.5% HF) to the dry porcelain surface for 90 seconds. Care must be taken to avoid having the etchant contact glazed porcelain surfaces since these surfaces will lose their gloss. 3. Rinse with a copious amount of water and air dry. The etched surface should appear dull and frosty (if porcelain has a white/chalky appearance, agitate a moist microbrush on the porcelain to remove salt and debris created by etching). 4. Apply one to two thin coats of silane with a brush to the etched internal surface of the restoration according to manufacturer instructions. Dry with air syringe.



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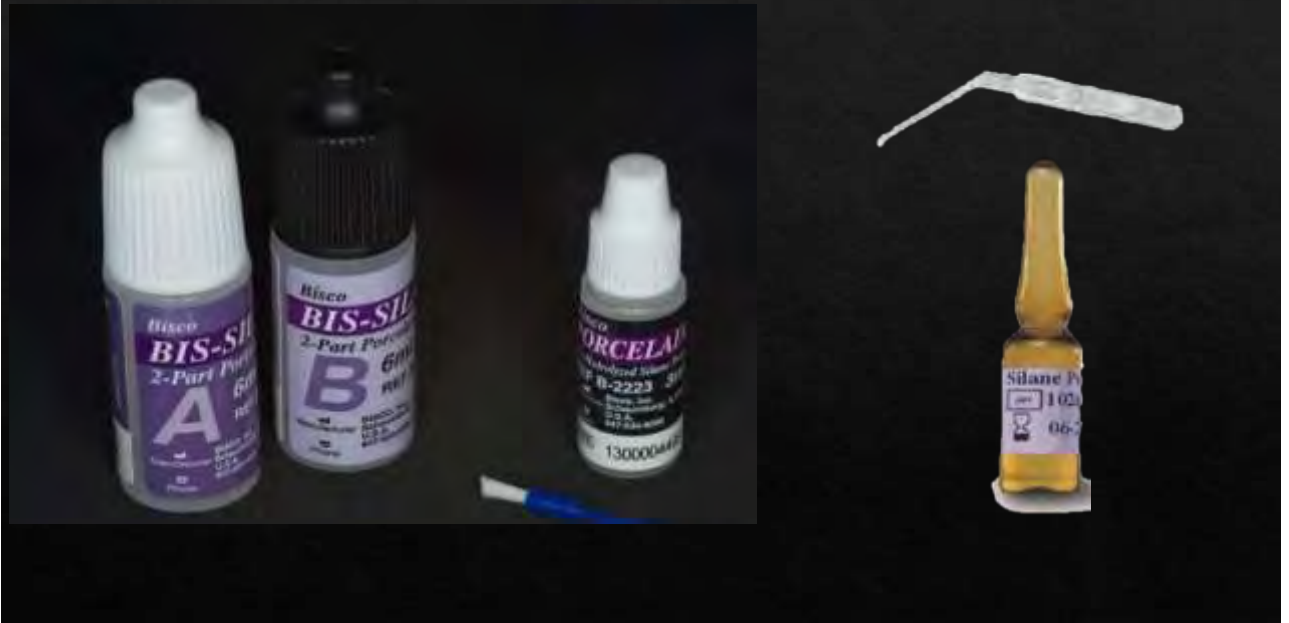
## Steam Cleaners

- ◆ \$600-1200 dollars
- ◆ The beauty of **steam cleaning** is that it effectively trades heat for chemicals without sacrificing strength. In fact, when used correctly, **steam** can quickly kill 99.99% of germs and bacteria, making it a safe, healthy, way to clean ceramic restorations prior to cementation.
- ◆ (Zirconia is handled differently)



291

## Silane for Glass Ceramics



292



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## Ceramic Try-in

- Clean Tooth
- Try-in with water soluble try-in paste, not water.
- Clean & Decontaminate

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### Whip Mix: Preppies

- ◆ Preppies™ Flour of Pumice Paste has been specifically formulated for dental professionals requiring a cleaning agent that contains no flavoring agents, oils or fluoride. Pumice Preppies™ leave no residue and are ideal for a variety of operatory procedures



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### Danville: Microetcher IIa

- ◇ DO NOT HIT GUM TISSUES or it will BLEED!!!



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### KerrHawe: OptiClean

- ◇ OptiClean™ removes all traces of temporary cement and delivers a perfectly clean cementation surface of the entire tooth preparation in literally seconds.
- ◇ MY FAVORITE



297

## Try-in APPROVAL (Optically Connected to Tooth)



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## Ceramic Adjustment

- ◆ Jiffy Ceramic Polishers (Ultradent)



299



## Steam Cleaners

- ◆ \$600-1200 dollars
- ◆ The beauty of **steam cleaning** is that it effectively trades heat for chemicals without sacrificing strength. In fact, when used correctly, **steam** can quickly kill 99.99% of germs and bacteria, making it a safe, healthy, way to clean ceramic restorations prior to cementation.
- ◆ (Zirconia is handled differently)



300

## ISOLATION



301

# Cement Selection

- ◆ Light Cured Resin Cement
  - ◆ Thin or Translucent Ceramic
  - ◆ Enamel or Dentin
  - ◆ Total Etch or Self Etch
  - ◆ Shade Selection
- ◆ Dual Cured Resin Cement
  - ◆ Thick Ceramic or Opaque Ceramic
  - ◆ Enamel or Dentin
  - ◆ Total Etch or Self Etch
  - ◆ Shade Selection

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303

**Uni-Etch** is a 32% semi-gel phosphoric acid etchant available with Benzalkonium Chloride (BAC) and designed for **etching** tooth structure prior to bonding.



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**Select HV Etch** is a 35% high viscosity phosphoric acid etchant available with Benzalkonium Chloride (BAC) and is designed for pin-point accuracy.



305



306

***What is the best adhesive?***



307

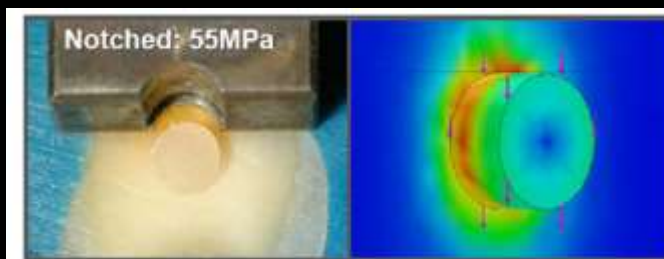
•Courtesy Pacific University (Dr Marc Guisberger)



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## INSTRON

- Ultra Tester (Ultradent)
- Ultra Jig (Ultradent)

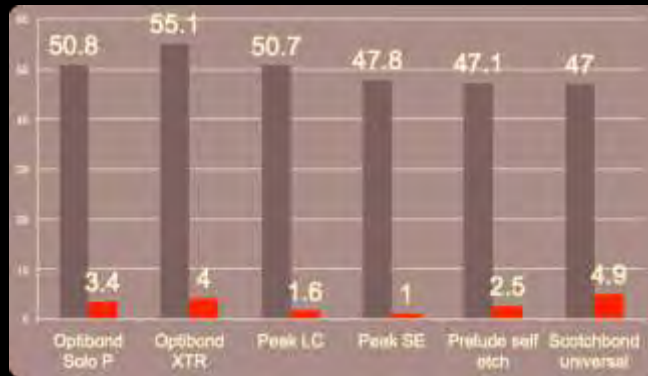


309



Courtesy Pacific University (Dr Marc Guisberger)

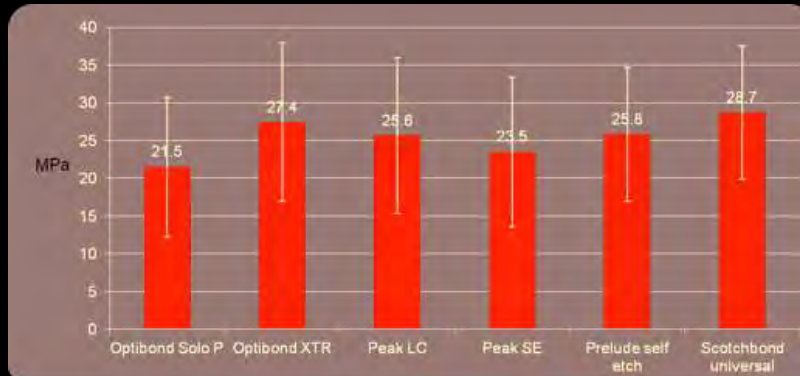
## SHEAR BOND TEST RESULTS - 2012



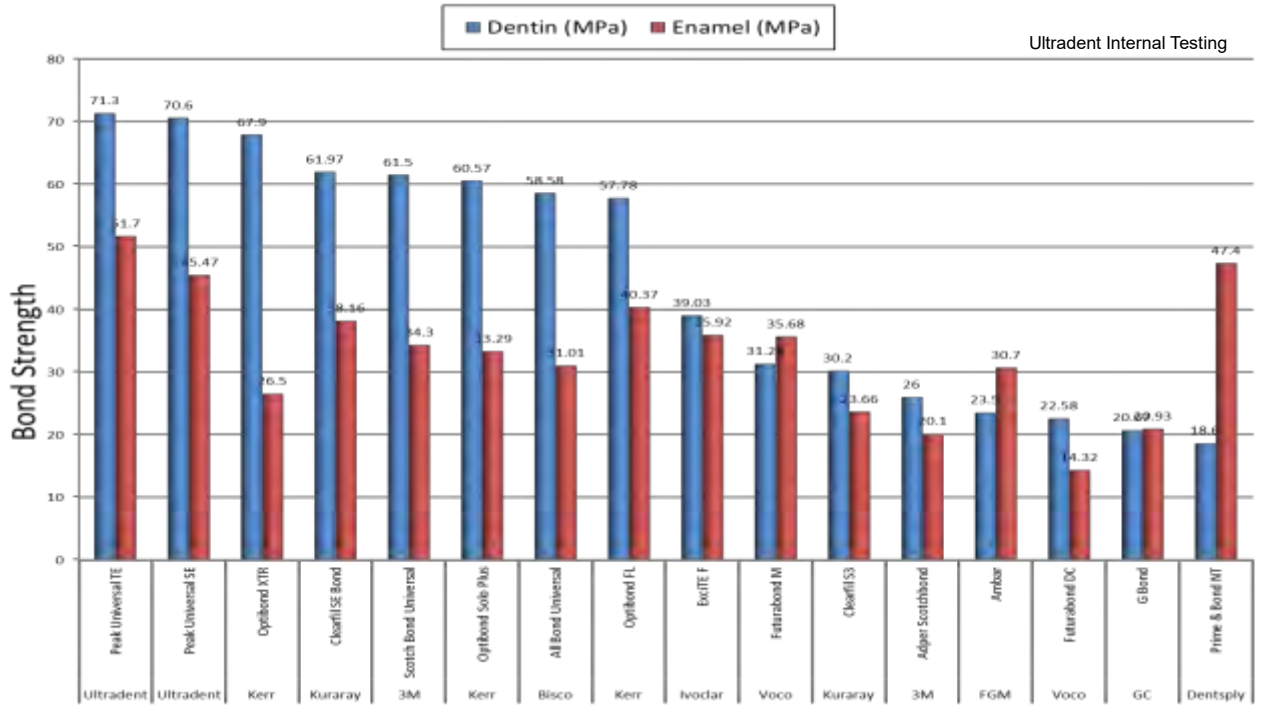
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Courtesy Pacific University (Dr Marc Guisberger)

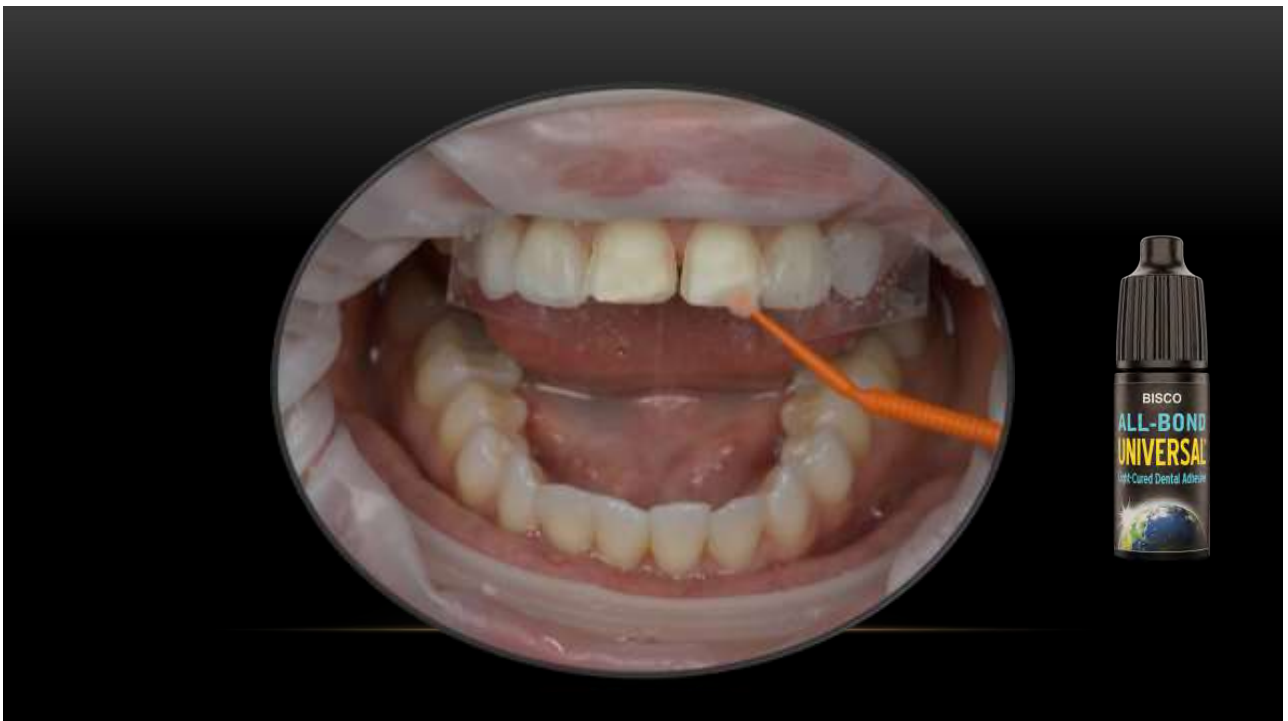
## SHEAR BOND TEST RESULTS - 2012



311



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◆ **Light-Cured Dental Adhesive**

All-Bond Universal is a truly universal adhesive it can be used with direct and indirect restorations and is formulated to be compatible with light-, dual- and self-cured materials. The versatility of All-Bond Universal makes it an indispensable part of any dental practice.

◆ **Unique Benefits:**

- ◆ Not moisture sensitive use on wet, dry or moist tooth structure
- ◆ Impressive bond strength to ALL substrates
- ◆ Use with ALL direct and indirect restorations (<10 micron thickness)
- ◆ Ideal chemical balance for both total- and self-etch adhesion from one bottle
- ◆ Compatible with ALL resin cements (no additional activator required)
- ◆ Virtually no post-operative sensitivity

◆ **Clinical Significance:**

- ◆ All-Bond Universal offers the flexibility for total-, self- and selective-etch procedures
- ◆ All-Bond Universal is compatible with all light-, self- and dual-cured resin composite and cement materials for all direct and indirect procedures
- ◆ All-Bond Universal works with dual cure resins, NO activator is required



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## Choice 2 Veneer Cement (Bisco)

- Light-cured luting cement designed for cementation of porcelain veneers.
- Color stability.
- Corresponding try-in pastes (sold separately)
- Choice 2 is specifically formulated for color stability (Delta E <1.2\*\*) resulting in high esthetics
- Highly filled resin cement enhances the overall strength of the restoration
- Low film thickness ensures veneers are completely seated
- Corresponding try-in pastes confirm shade selection prior to cementation
- Choice 2 cement will not change (shade shift) over time, a problem that can occur with dual-cured systems

321



322



323

# Valo GRAND LED Curing light (Ultradent)



324



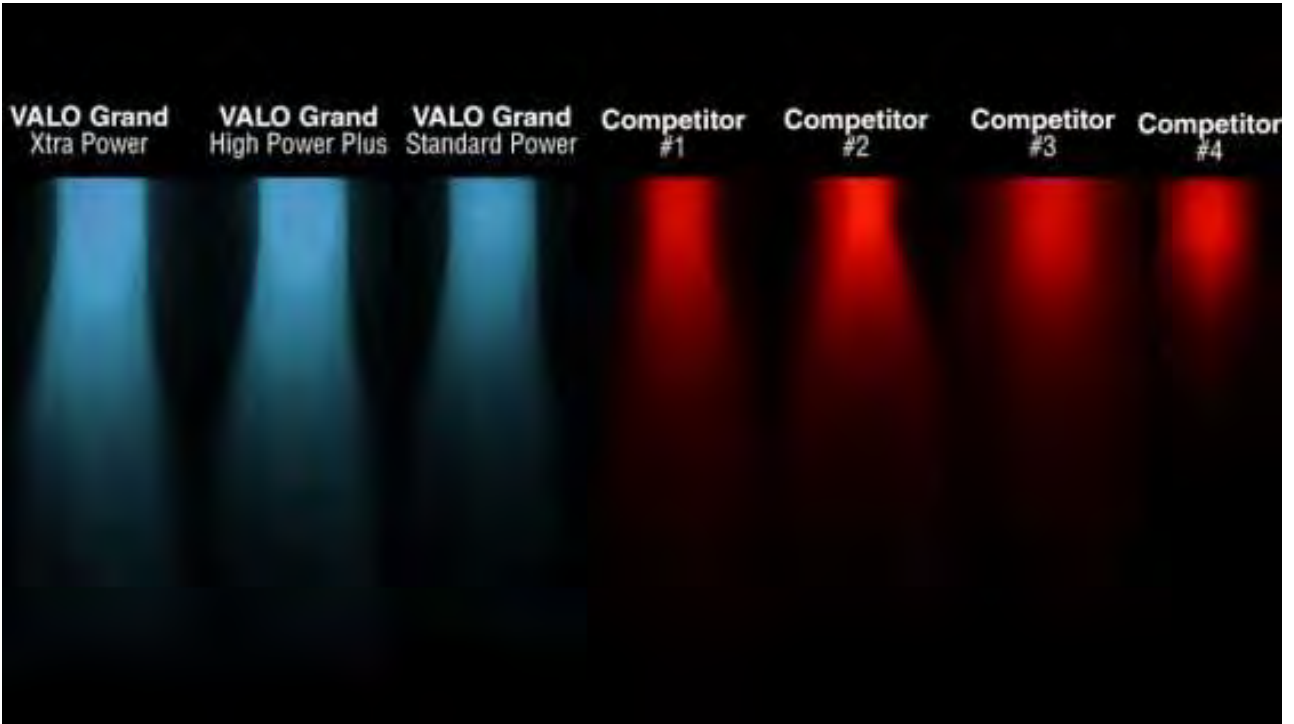
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## POWERFUL BROAD-SPECTRUM CURING

Spectral Comparison Curing Wavelength Beam

WAVELENGTH (nm)

A lot of curing lights only have a single LED chip that operates on one wavelength. This can create hot and cold spots in the beam, which makes uniform curing nearly impossible. The original VALO curing light was created to answer that problem. With four powerful LEDs that deliver a uniform light over a broad spectrum, you know that you are getting a powerful, uniform cure that will last. The VALO Grand has that same uniform power you expect, plus a larger lens.

COMPETITOR 1

COMPETITOR 2

VALO

The VALO Grand light's custom LED pack emits three wavelengths, enabling the light to activate composite resin and the entire range of premix photoinitiators.

Unlike the intense coloration the VALO light offers, competitor lights produce beams that are uneven or dimmed even at distances as short as 4 feet.

330



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## VALO X LED CURING LIGHT (ULTRADENT)



- 12.5 mm lens aperture
- Long-lasting custom LEDs include 8 curing and 4 white lights
- Low-profile wand head easily reaches posterior restorations
- Durable aerospace-grade aluminum body
- Standard Power and Xtra Power modes
- White Light and Black Light Diagnostic Aid modes
- Simplified design for one-button activation
- Accelerometer Function cycles through modes with a flick of the wrist
- Corded and cordless functionality
- VALO X-brand batteries can last up to 120 curing cycles without recharging
- VALO X-brand batteries can last up to 500 recharging cycles before replacement
- 5 accessory lenses included
- 5-year manufacturer's warranty

332

## Veneer Finishing System



333

## ContacEZ Restorative Strip System (Directa Dental)



The Gentle Saw - Interproximal Cement Cleaner – No Diamond – Double-serrated.



The Heavy-Duty Dental Saw – No Diamond – Double-serrated

334

## ContacEZ Restorative Strip System (Directa Dental)



The Proximal Contact Adjuster with Sawtooth – Extra-Fine Diamond – Single-sided – Double-serrated



The Proximal Contact Adjuster – Fine Diamond – Single-sided



The Proximal Surface Polisher – Extra-fine Diamond – Single-sided

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## Resin Clean Up:

- ◆ Periodontal Knives
- ◆ Gold Foil Knives
- ◆ Tungsten Carbide Carvers
- ◆ Ninja Composite Instrument
- ◆ Sickle
- ◆ 12 Fluted and 30 Fluted Carbides
- ◆ Interproximal Saws / ContacEZ

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## FINAL RESTORATIONS



337

## ADHESION REVIEW

- Check the etch from lab (etch if needed)
  - Clean tooth/teeth
  - Water soluble try-in gel
  - Clean and decontaminate ceramic
  - Silane/Ceramic Primer
  - Isolation
- ◊ **Etch, selective or self etch tooth**
  - ◊ **Adhesive**
  - ◊ **Porcelain bonding resin on veneer**
  - ◊ **Light cured resin cement on veneer**
  - ◊ **Cure**
  - ◊ **Clean up**

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## Legal Documentation

Signed treatment plan

I.C. RBAs

Arbitration agreement

**Driver's License**

Headshot in your office

Paid prior to starting appointment

Waxup signed off as approved

Temps signed off as approved

Final appearance at tryin approved giving consent to cement as final.

Document discussion of wearing a clear aligner or night guard and having discussed OSA, OHI, Eating and Habits.

339



# Legion Trifecta Framework



340

Dr. Todd Snyder  
Attendees Receive:

**20% OFF\***  
All BISCO Products

Promo code: 23SNY

Expiration date: 12/31/23



341

DIRECTA Dental is giving away \$300 of free goods.



342



343

# Ultimate Veneer Virtual & Live Training Online.

[www.Legion.dentist/armory](http://www.Legion.dentist/armory)



LEGION

- 30 Days of Online Content
- Weekly Live Group Meeting / Review / Q & A
- In Depth Discussion & Technique on Each Step
- Learn About Materials to Use
- Access to 24/7 Group Chat
- Photography Guide
- Legal Documents
- Access to Training Content for LIFE
- 30 CE Units
- Optional Hands On with Cases and Materials



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Marketing Training Unlike Anything Else In Dentistry

# SINGULARITY

YOU'Nique Marketing Skills

<https://www.legion.dentist/singularity>



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## Communication & Case Acceptance Training

Learn how to help patients answer  
yes to treatment and financing



<https://www.legion.dentist/inception>

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Get a handout with every  
slide from the lecture at  
[www.LEGION.dentist](http://www.LEGION.dentist)



LEGION

LEGION

LEGION was founded by Dr. Todd Springer to help dentists remove  
frustrations and become more successful in business.

The Goal is to strengthen and empower dentists by giving them  
the systems, skills, tools and training that they never received in  
school so that they can be more financially successful in both  
business & life!

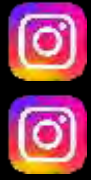
Running a Business, High Performance Marketing, Strategic Sales  
Skills, Business Systems, Team Training, Technology, Habits &  
Goals, Cosmetic & Restorative Dentistry, Crowns &  
Photography

IF YOU ARE READY FOR SOMETHING BETTER ...  
Get After It Now!

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# YOUR FUTURE BEGINS NOW!



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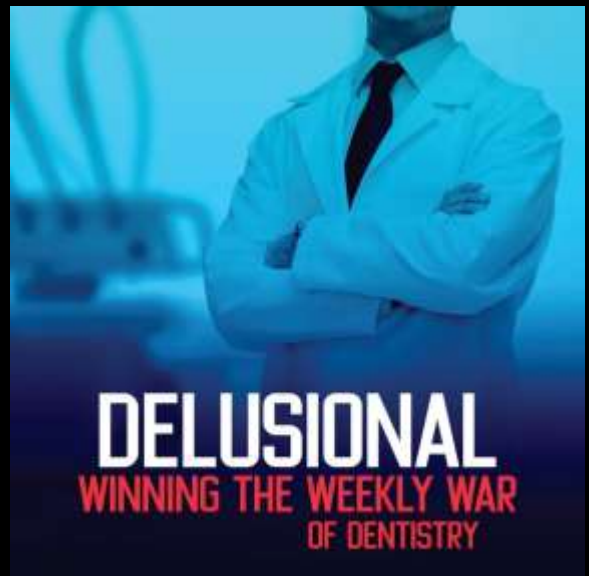
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WWW.LEGION.DENTIST

TODD C. SNYDER, DDS, FAACD

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