

## ***“World Class” Crown and Bridge Technique***

***A Review of Tooth Preparation, Provisionalization, Impression Making, and Cementation for Optimal Clinical Results***

1

## ***Anatomic Tooth Preparation for Proper Occlusion, Aesthetics, and Durability***

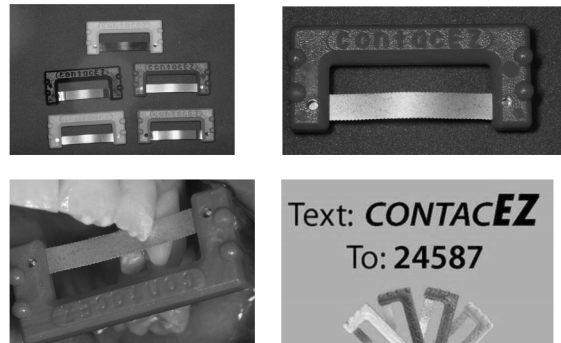
2



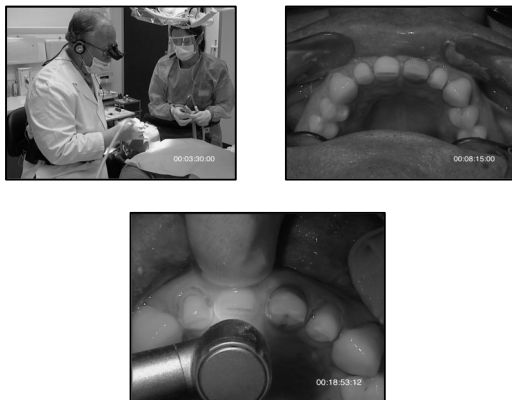
***Prep Sure – ContacEZ***

3

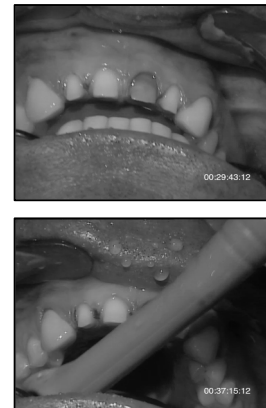
## ***ContacEZ***



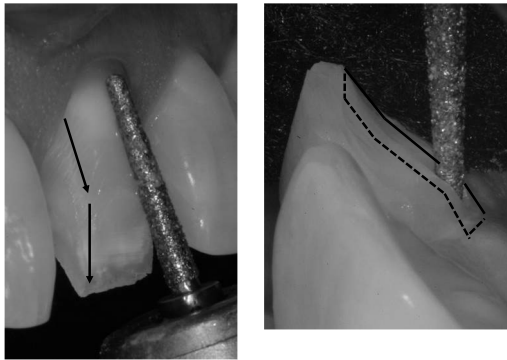
4



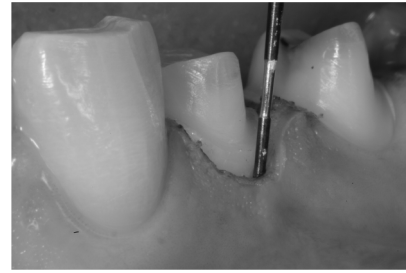
5



6



7



***Sounding During Tooth Preparation:  
Determination of Biologic Width Dimension  
For Determination Of Margin Position***

8

## ***Crown and Bridge Foundation Restorations***

***Post and Core Material Options***

9

## ***Bioactive Dental Materials: The Future Is Now!***



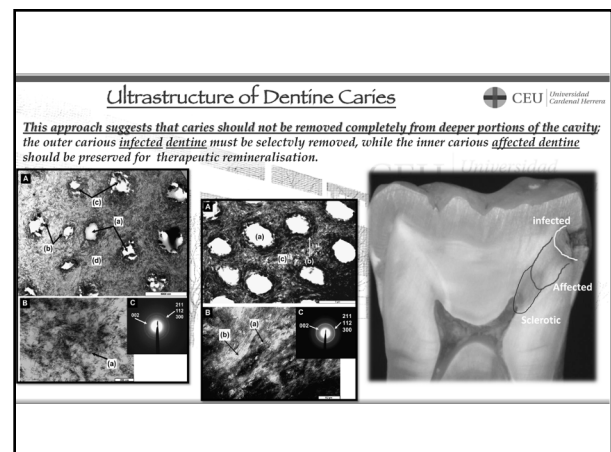
10



### **Why is Bioactivity Important?**

- Having an effect on or eliciting a response from living tissue
- Biologically Active
- Has interaction with or effect on cell tissue
- Biomaterialization: the exchange of calcium phosphate ions forming apatite

11



12

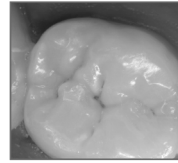


## ***Fissurotomy and Bioactive Restorative Materials***

### ***Early Diagnosis and Conservative Treatment of Dental Caries***

13

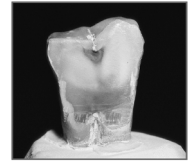
## ***Concern Over Hidden Caries?***



Non-Cavitated  
Stain?

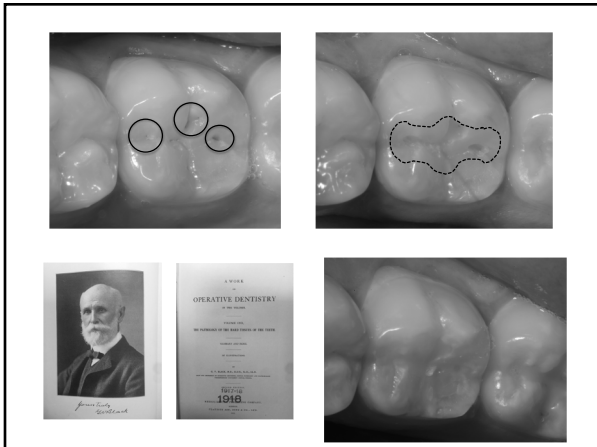


No Radiographic  
Evidence of  
Caries Present

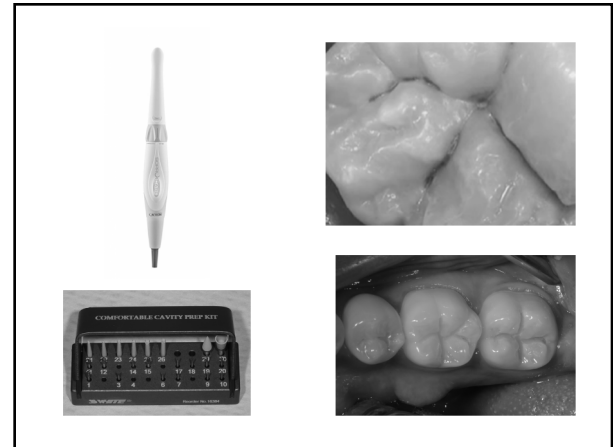


Decay  
Present

14



15



16

## ***Introducing ACTIVA Presto***

*ACTIVA Presto is the first light cure, mineral-enriched composite that mimics the properties of natural teeth. It is a universal stackable composite that holds its shape and does not slump, yet adapts intimately to tooth structure. Presto is strong, durable, and indicated for all restorative applications.*



**ACTIVA Presto**  
Universal Stackable Composite • Light Cure

17

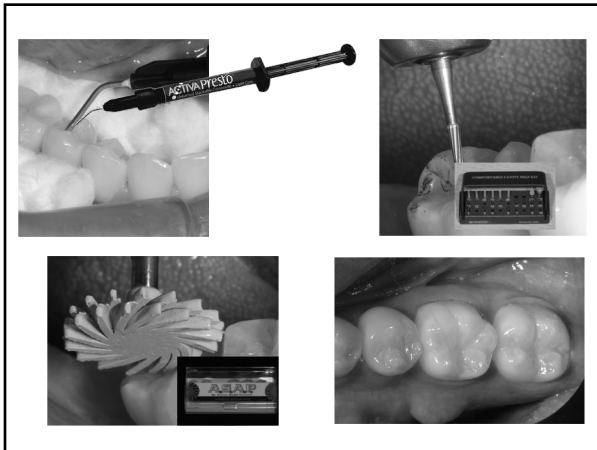
## ***Unique Properties that Mimic Nature***

*ACTIVA Presto has two unique properties that mimic natural dentition and set Presto apart from all other composites:*

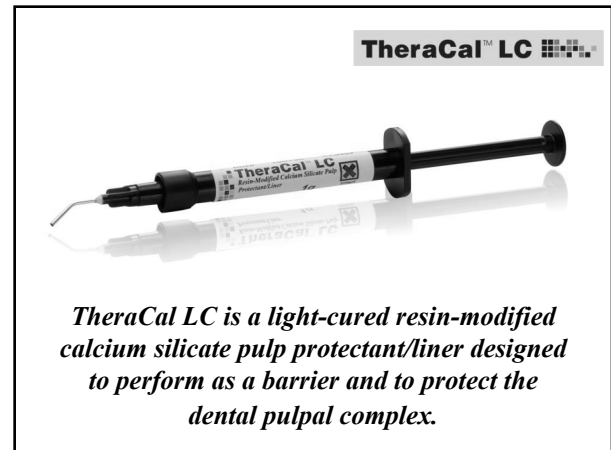
- *A mineral-enriched, moisture friendly ionic resin, rich in phosphates and looking for calcium to bind with.*
- *A rubberized-resin component that mimics the natural flexure of teeth.*

**ACTIVA Presto**  
Universal Stackable Composite • Light Cure

18



19



20

**Indications for Use** **TheraCal™ LC**

<p><b><u>DIRECT PULP CAPPING</u></b></p> <ul style="list-style-type: none"> <li>– Carious Exposures</li> <li>– Mechanical Exposures</li> <li>– Exposures due to trauma</li> </ul>	<p><b><u>INDIRECT PULP CAPPING</u></b></p> <ul style="list-style-type: none"> <li>– Under Amalgam restorations</li> <li>– Under Class I &amp; II composite Restorations</li> <li>– Under other base materials</li> <li>– Under cements</li> <li>– As an alternative to:               <ul style="list-style-type: none"> <li>• Calcium Hydroxide</li> <li>• Glass Ionomer/RMGI</li> <li>• Cavity Varnish Sealer</li> </ul> </li> </ul>
---	--

21

**Unique Benefits and Clinical Significance** **TheraCal™ LC**

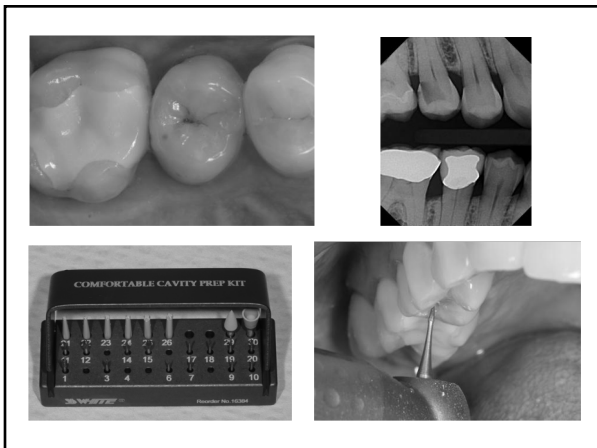
*Calcium Release affects:*

1. Mechanical Sealing of the pulp
2. Hydroxy apatite formation
3. Secondary bridge formation

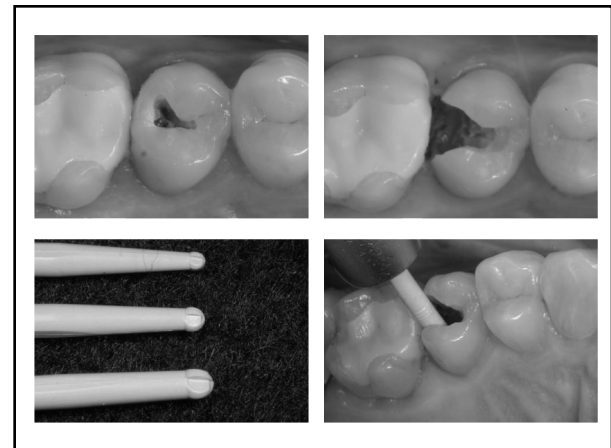
*Alkaline pH promotes Healing and Apatite formation*

*Moisture tolerant - improves the ability to form a durable seal*

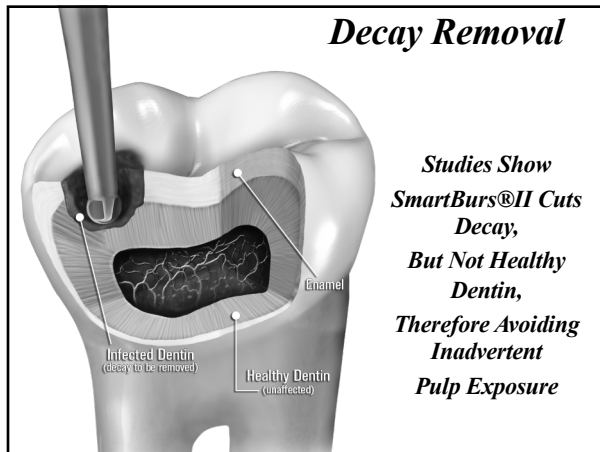
22



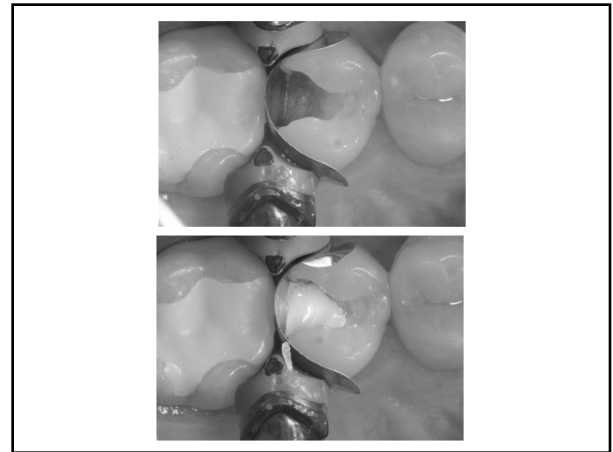
23



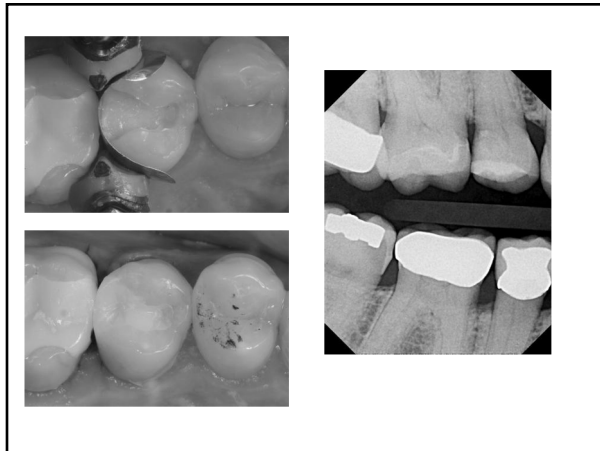
24



25



27



28

## Crown and Bridge Foundation Restorations

**Post and Core Material Options:  
Glass Ionomer Dentin  
Replacement**

29

### ***Benefits Of Using Glass Ionomer Cement As A Dentin Replacement In Deeply Excavated Lesions***



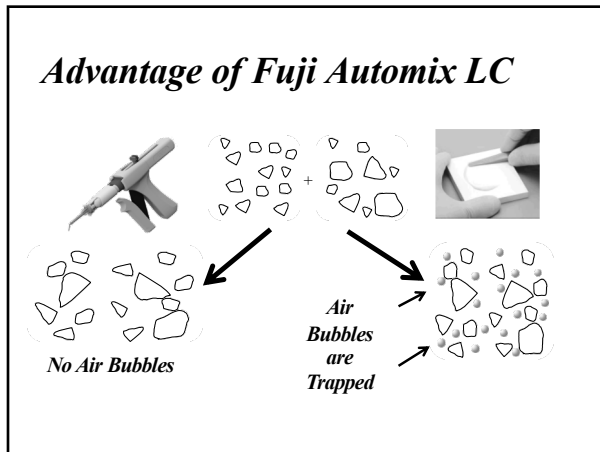
- *More tubules exposed, less peritubular dentin to bond to. Glass Ionomer Cement forms a “chemically fused seal” (Ngo)*
- *High Fluoride Release For Internal Remineralization*
- *Negligible Shrinkage – Same CTE as Dentin*

30

### ***New Delivery - Fuji Automix LC***



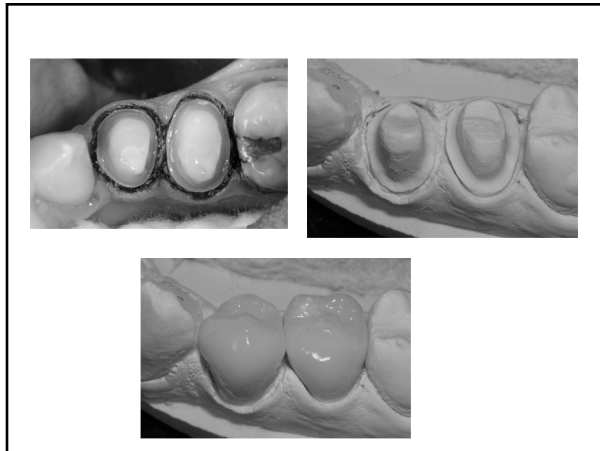
31



32



33

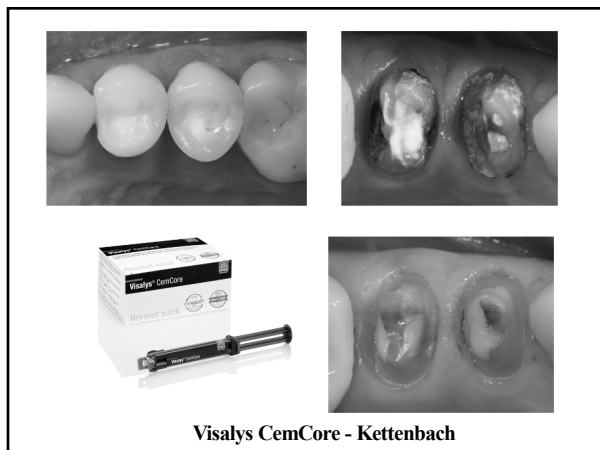


34

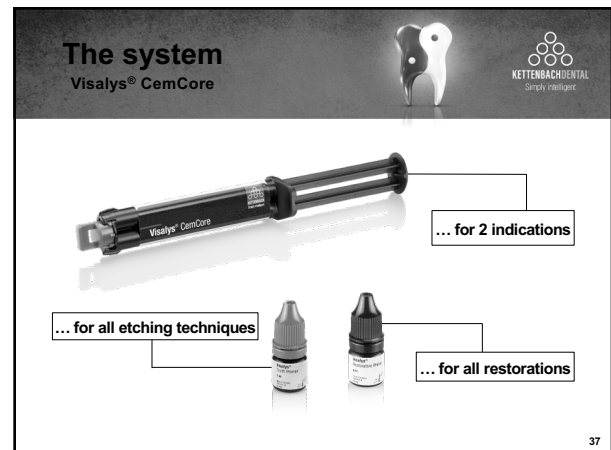
## Crown and Bridge Foundation Restorations

Post and Core Material Options:  
Resin Core Materials

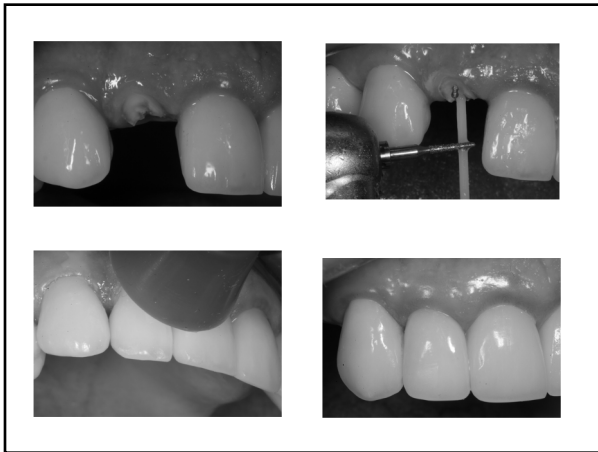
35



36



37



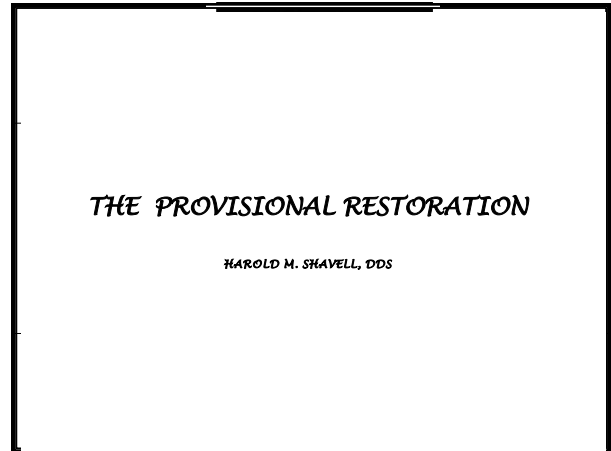
38



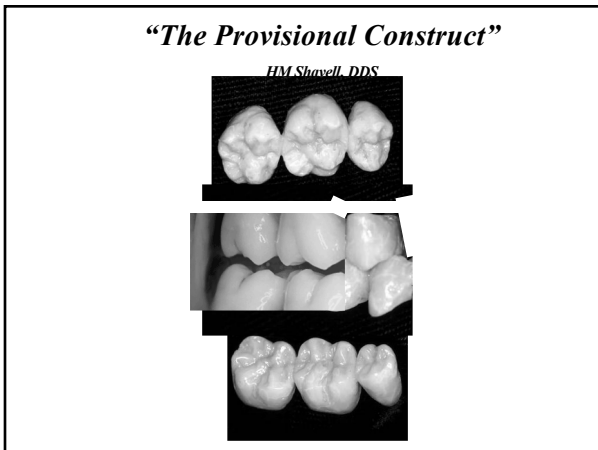
39



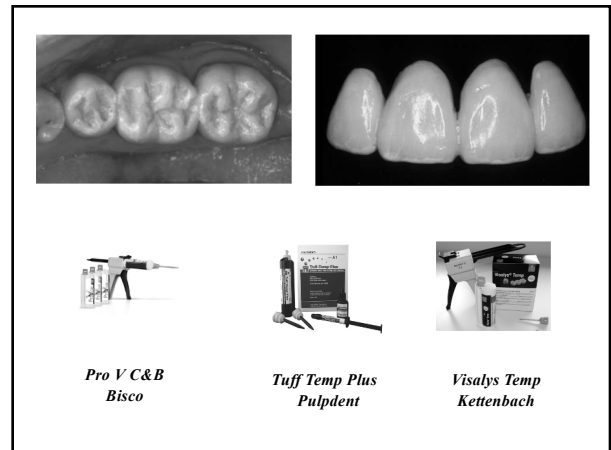
40



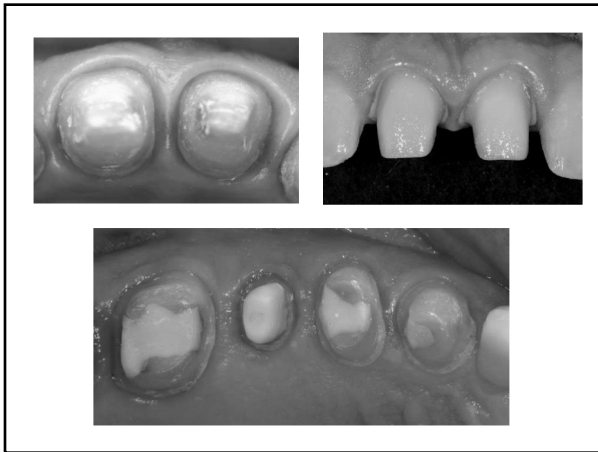
41



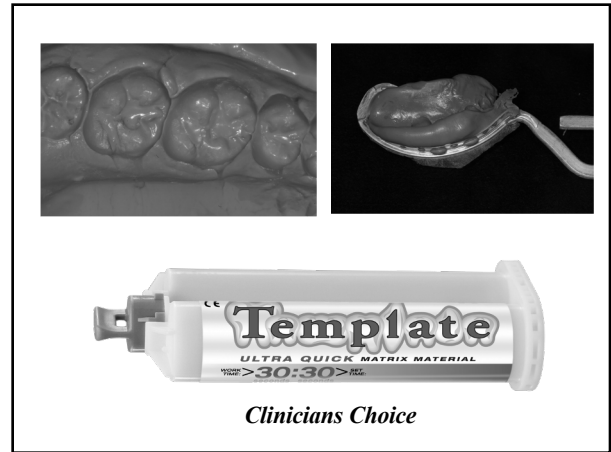
42



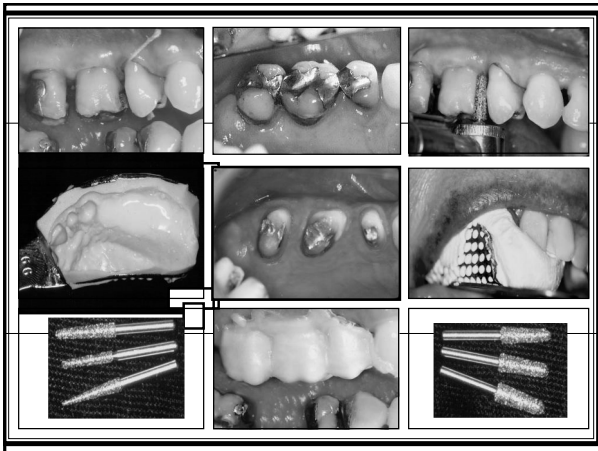
44



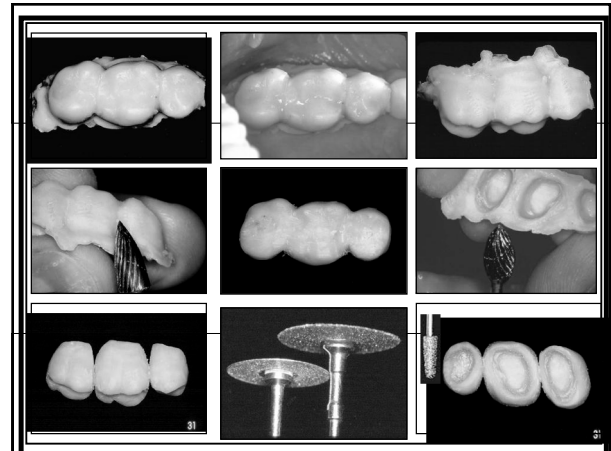
45



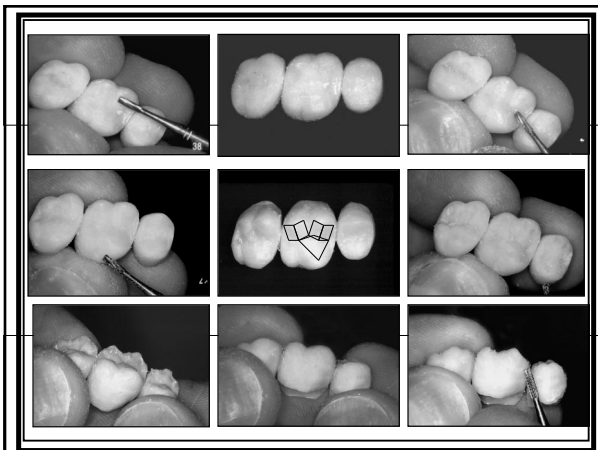
46



47



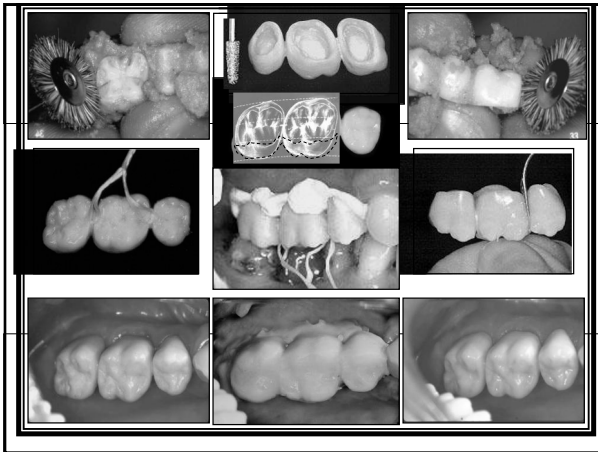
48



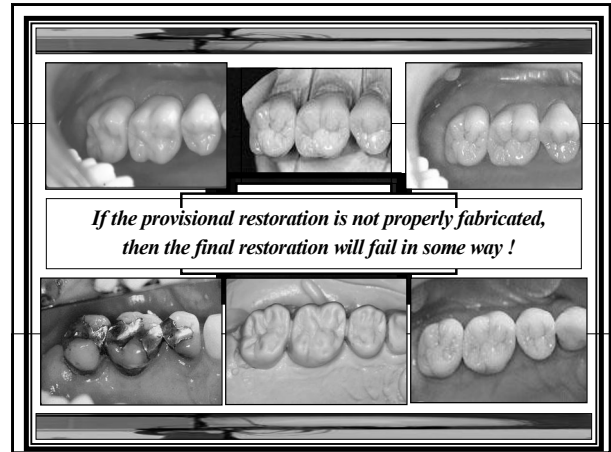
49



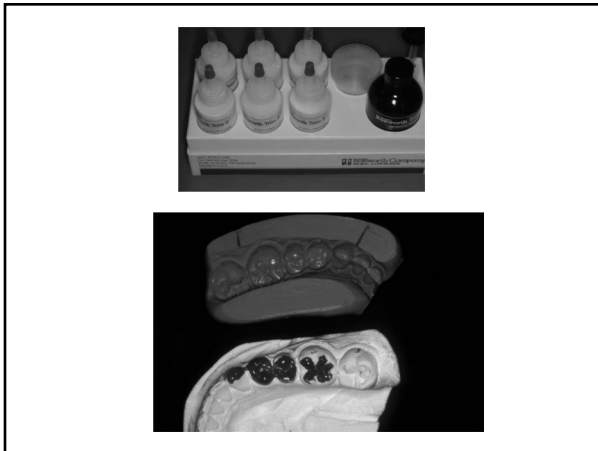
50



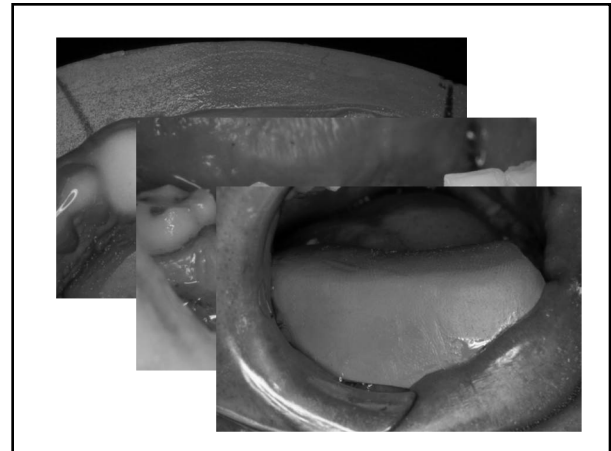
51



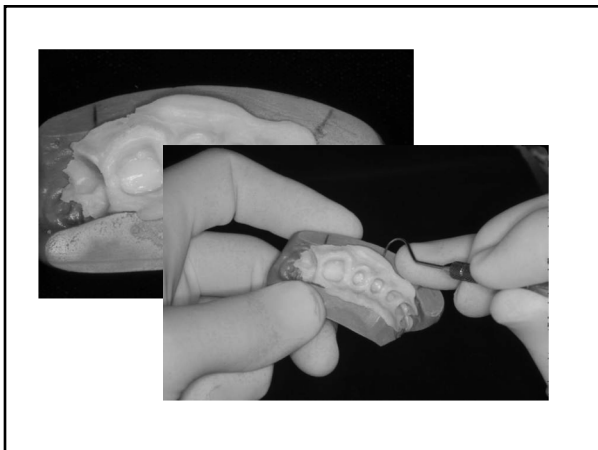
52



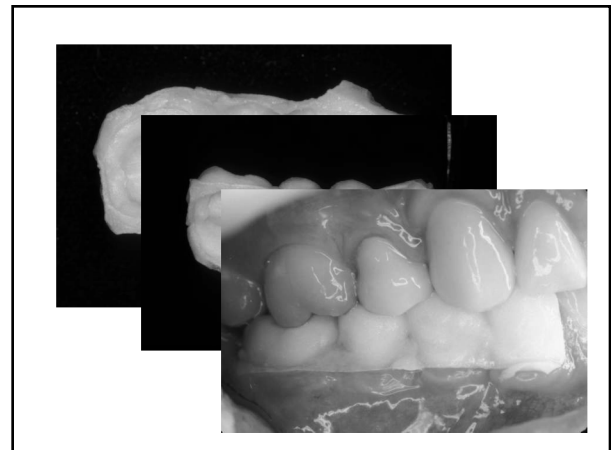
53



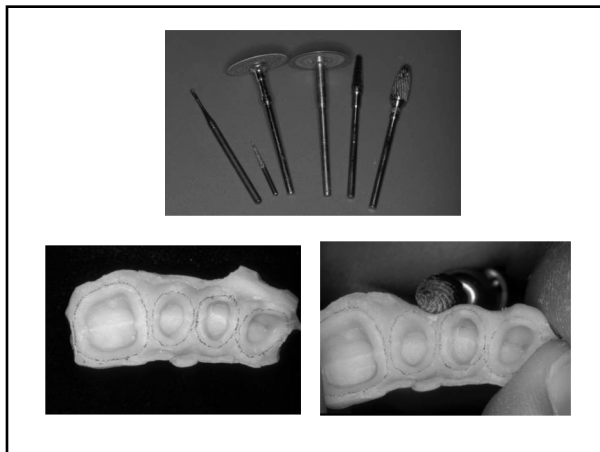
54



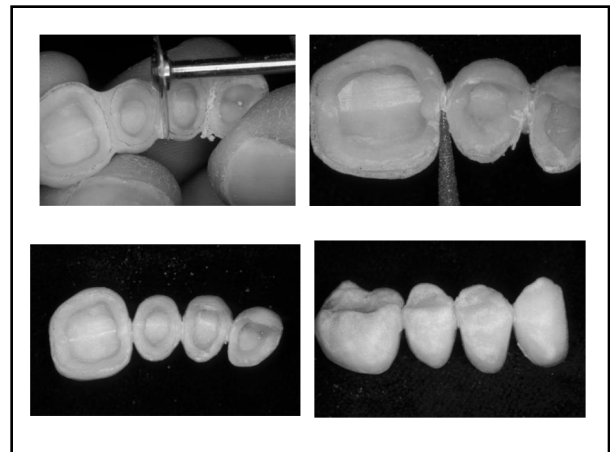
55



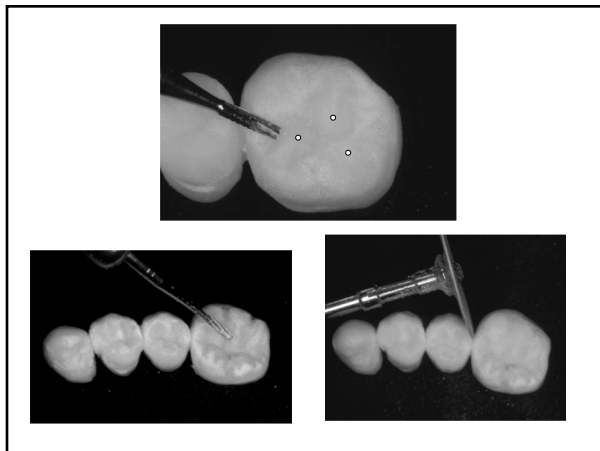
56



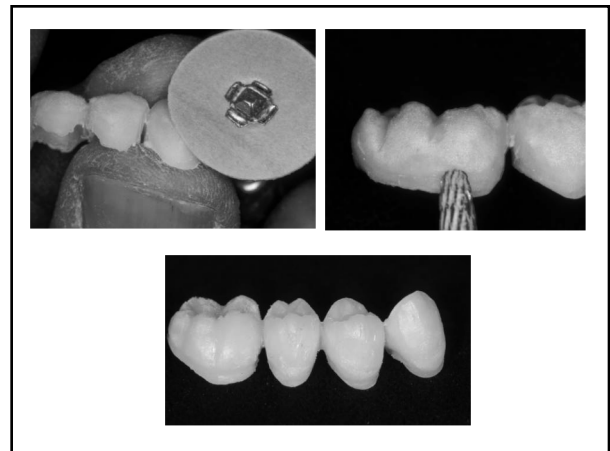
57



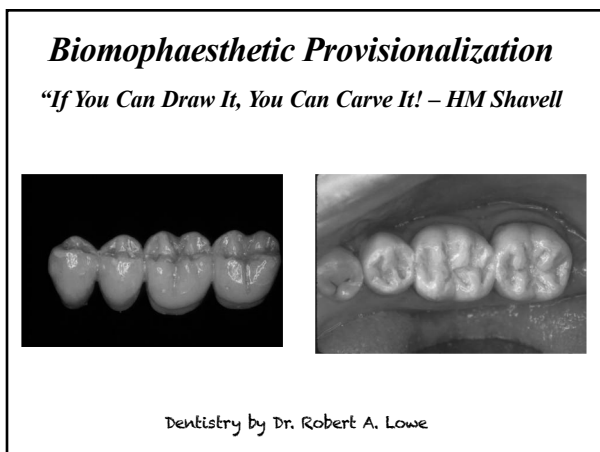
58



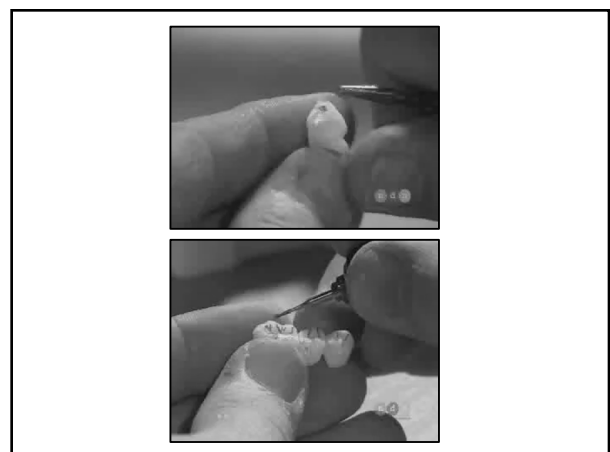
59



60

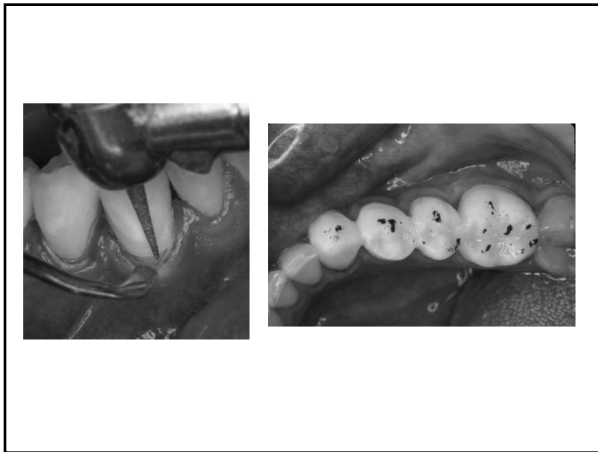


61

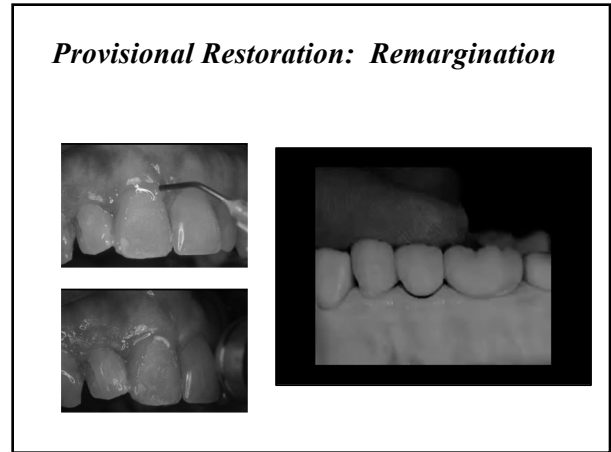


62

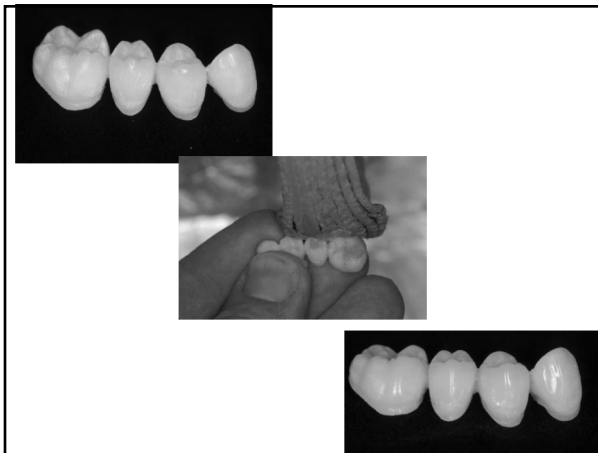




64



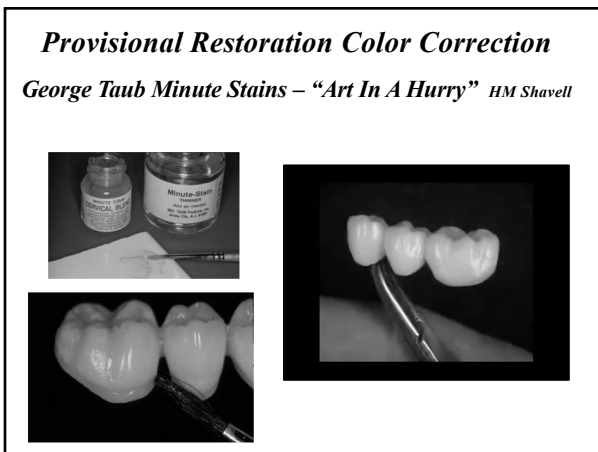
65



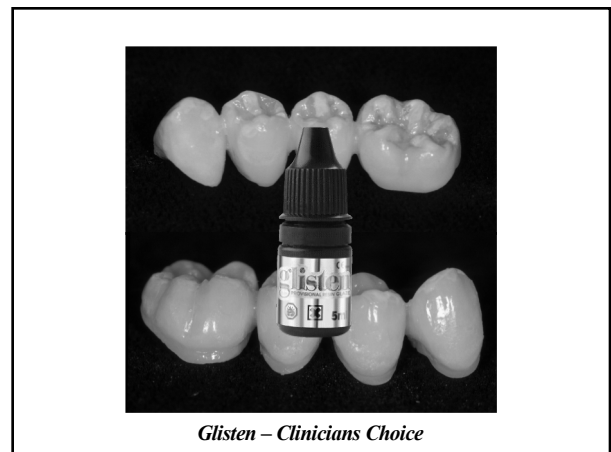
66



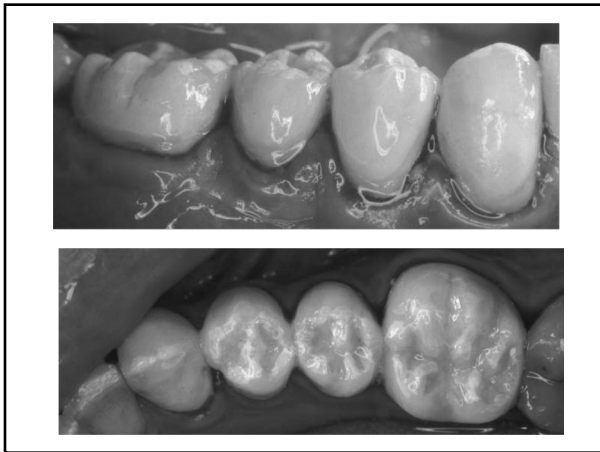
67



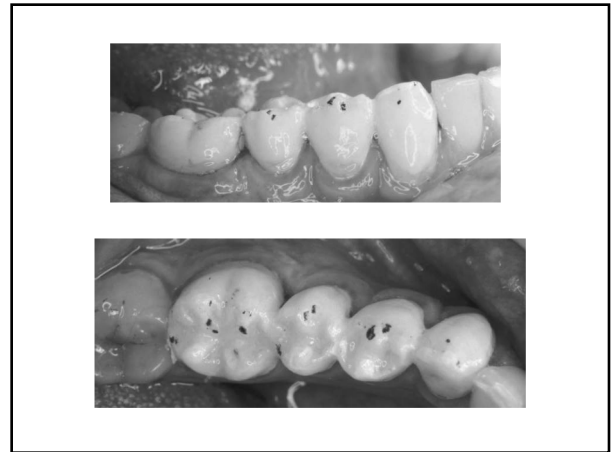
68



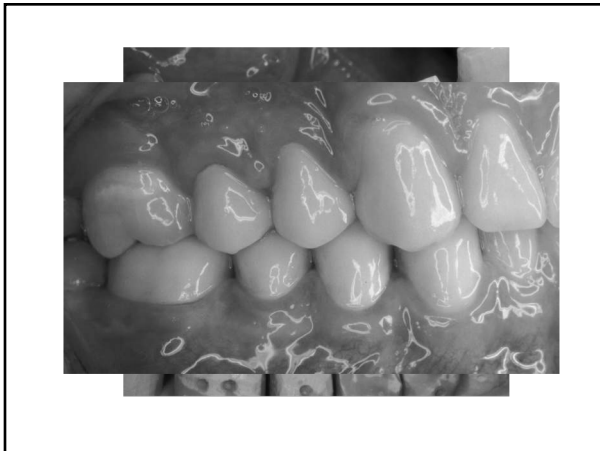
69



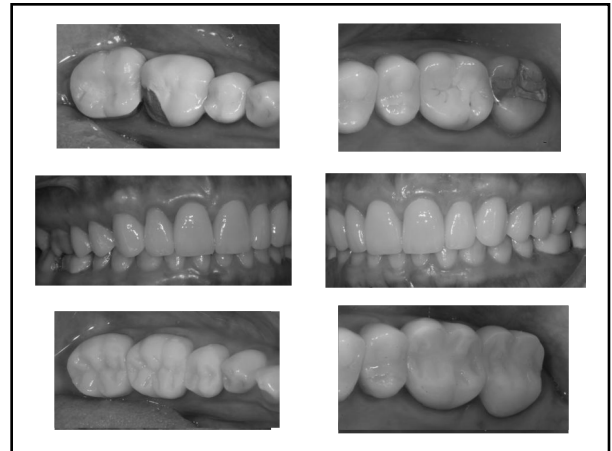
70



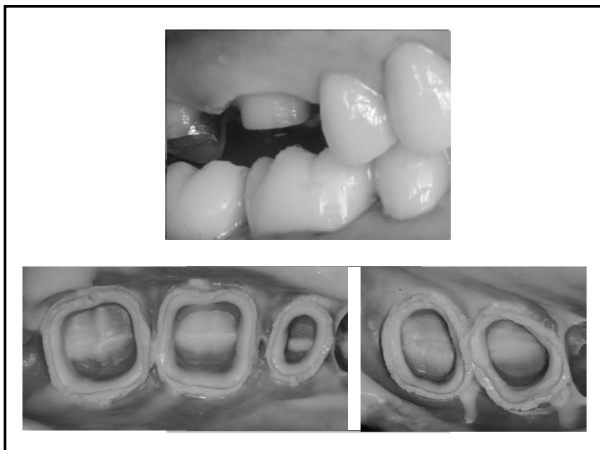
71



72



73



74



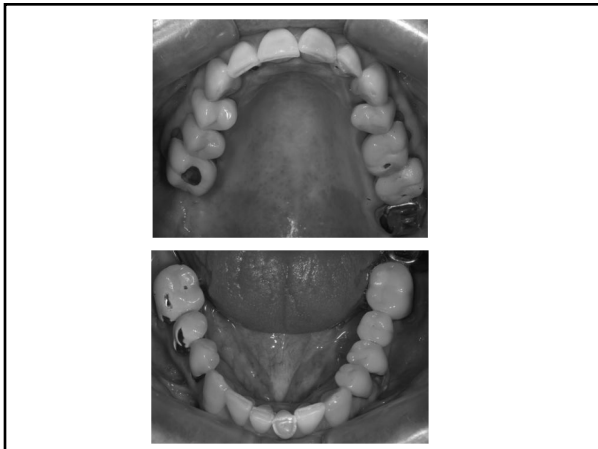
75

***Provisional  
Restorations as an  
Integral Part of  
Reconstructive Therapy***

86



87



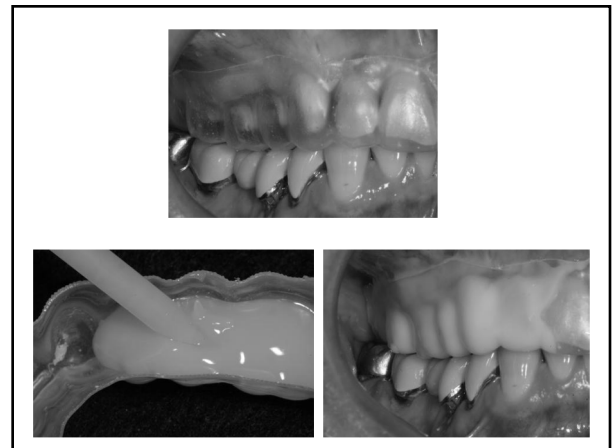
88



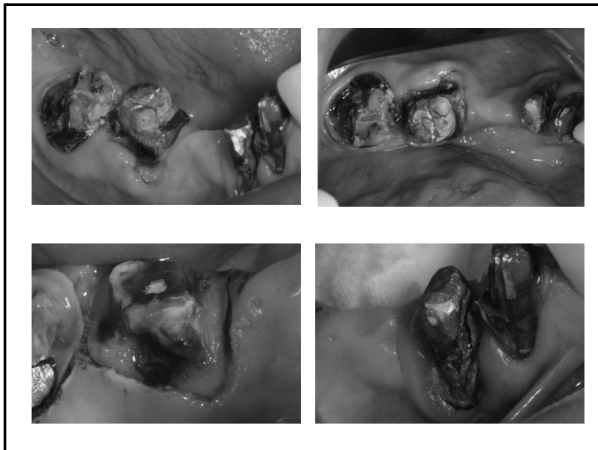
89



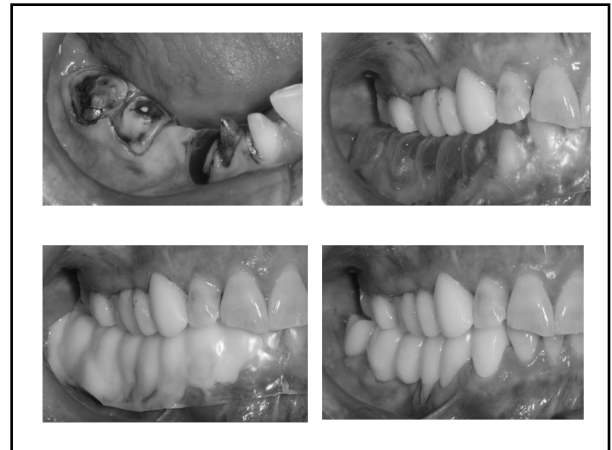
90



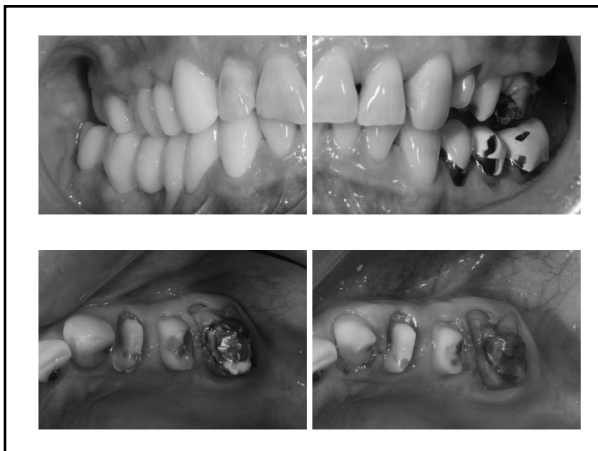
91



92



93



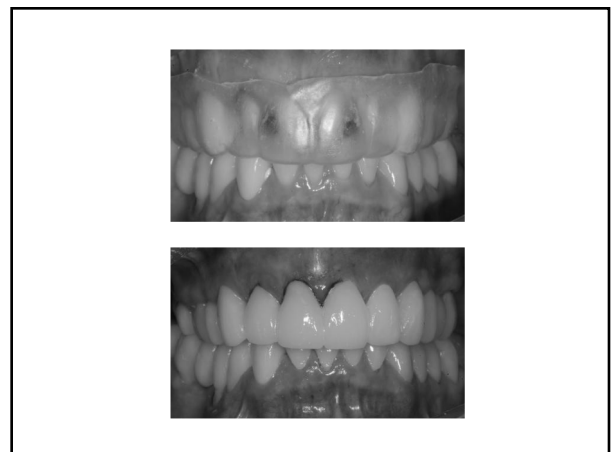
94



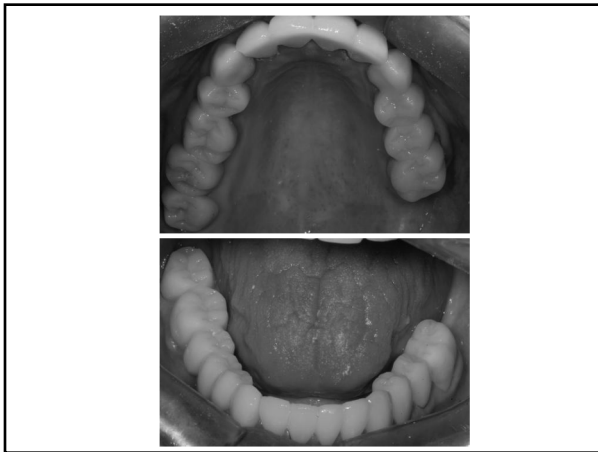
95



96



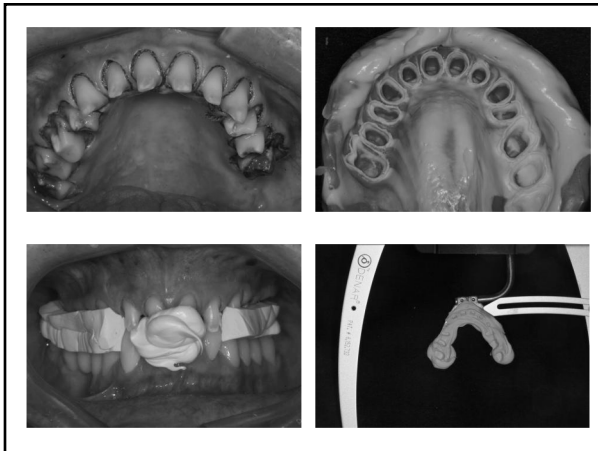
97



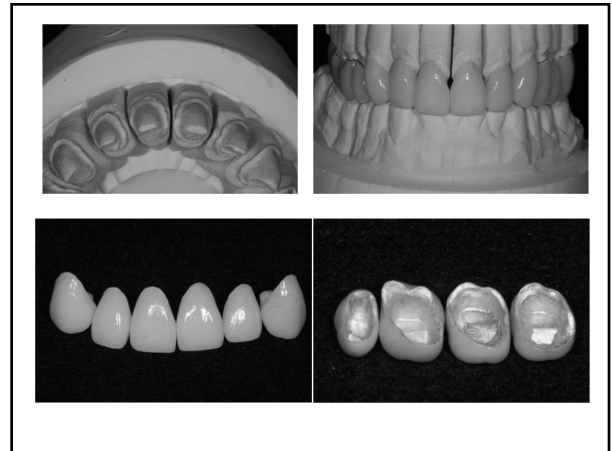
98



99



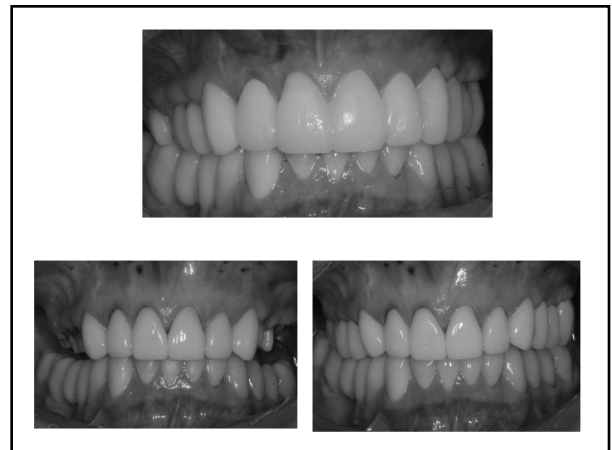
100



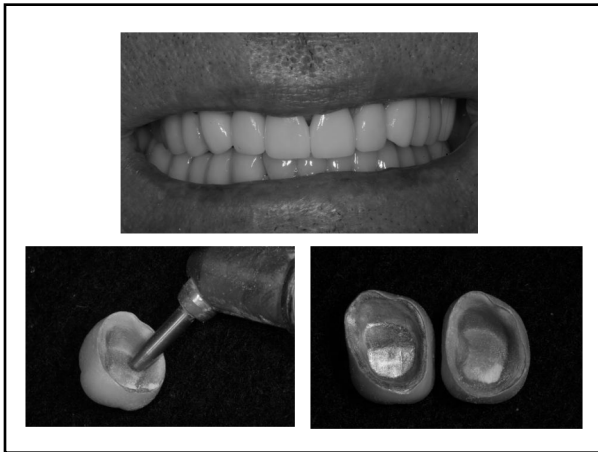
101



102



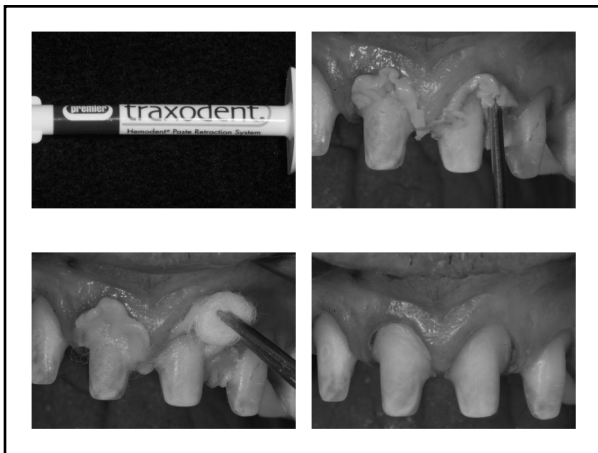
103



104



105



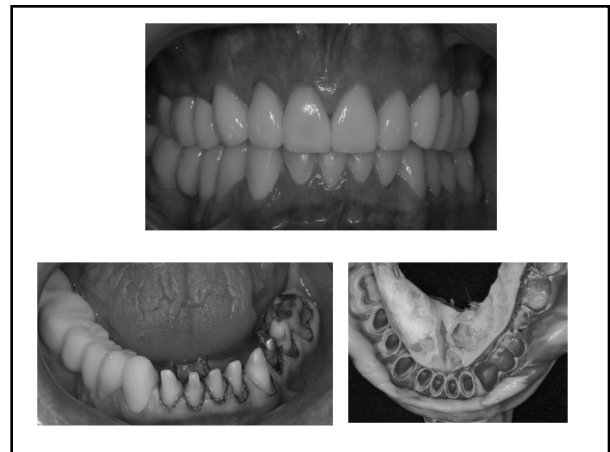
106



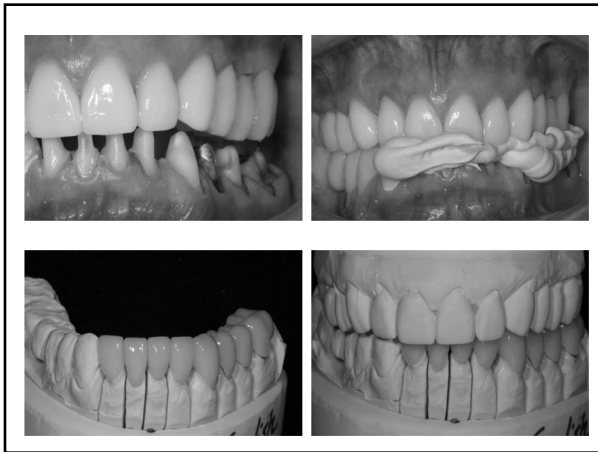
107



108



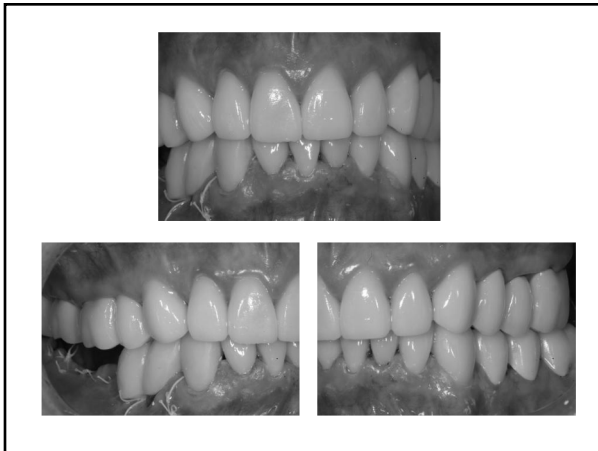
109



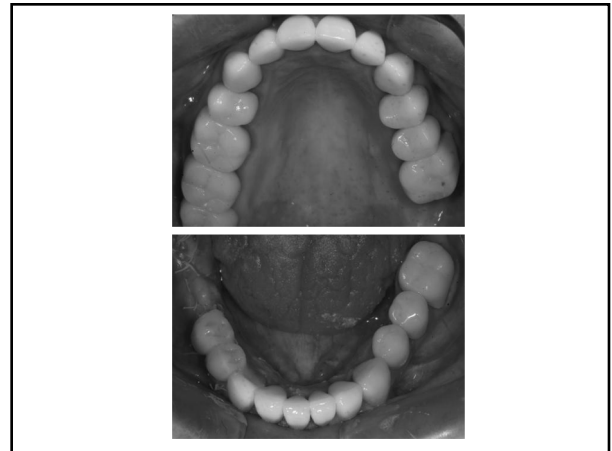
110



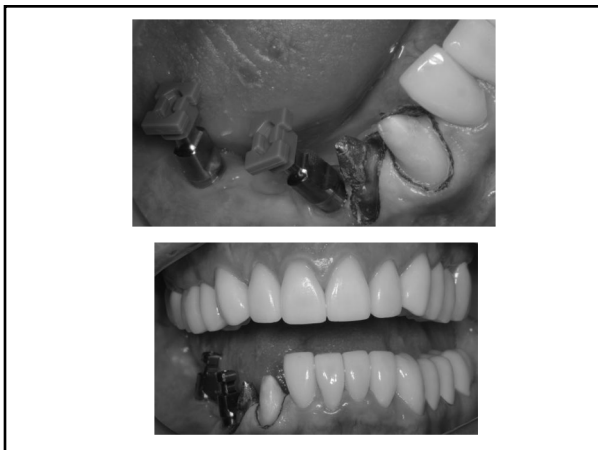
111



112



113



114



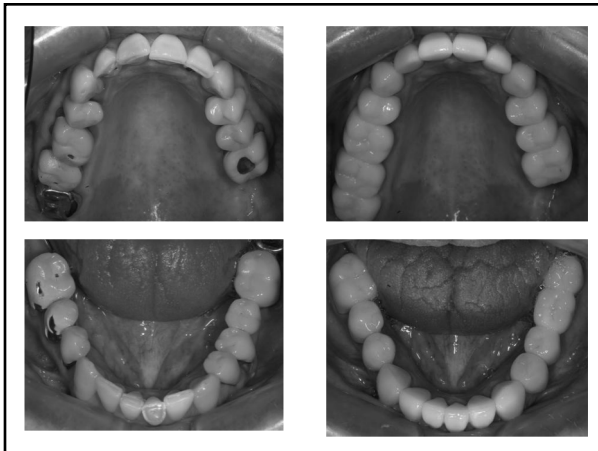
115



116



117



118



119

***Biomorphaesthetics With Composite .....***

***The “Additive” Placement of Composite Materials***

***Part 2: Anterior Direct Composite Restorations***

120

nano-enhanced  
***Evanesce™***  
universal restorative

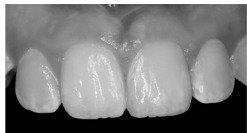
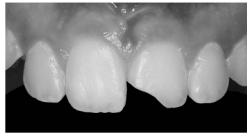
ev • a • nesce:  
To disappear gradually; vanish; fade away

121

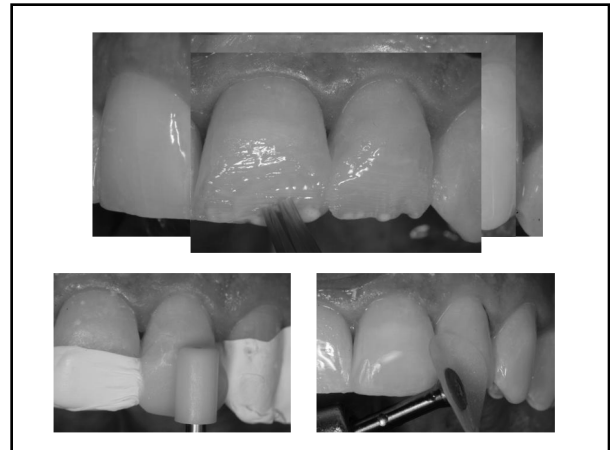


### ***“EVANESCE EFFECT”***

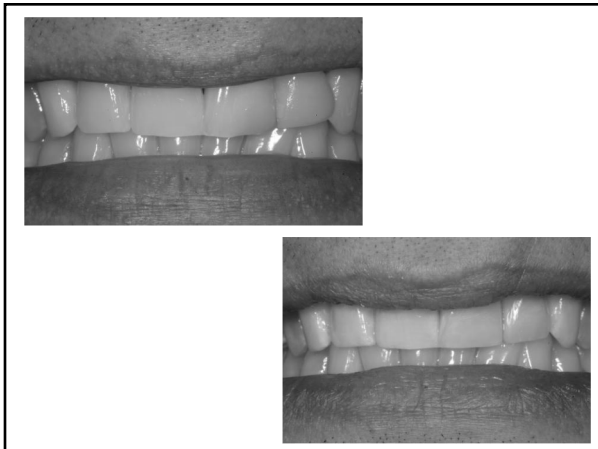
- *Chameleon effect - Evanesce disappears*
- *Handling, Highly sculptable, no slumping*
- *Beautiful Long Lasting Polish*
- *Complete System for Single Shade or Multi Shade cases, Anterior or Posterior*



122



123



124

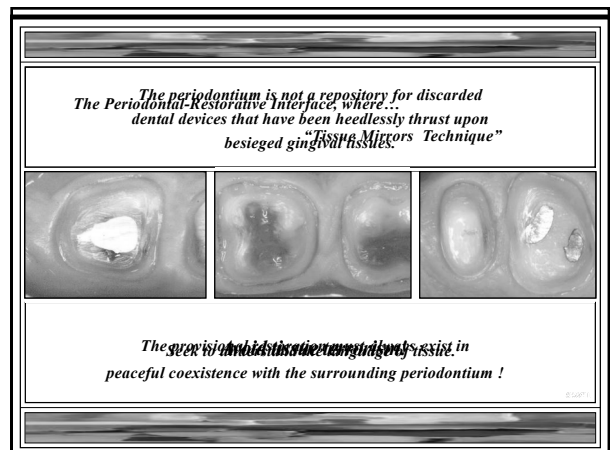


125

### ***The Art Of Master Impression Making***

***Tissue Management Is The Key To Success!***

129



130

## ***Two Cord Retraction Technique***

***Equicrevicular or  
Intracrevicular Margins***

135

## ***Impression Materials***

- 1) Affinity – Clinicians Choice***
- 2) Panasil – Kettenbach***
- 3) Therma Clone - Ultradent***



136

***Kettenbach  
Tray Putty Soft  
Initial Contact Light***



137

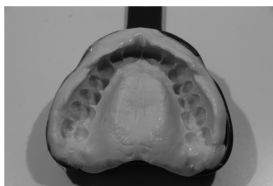
## ***Alginate Alternative Silginat - Kettenbach***



***Silginat is an VPS impression material***

138

***PowerMix™***  
Automatic Impression Material Dispenser



***Counter Fit and Power Mix – Clinician's Choice***

139

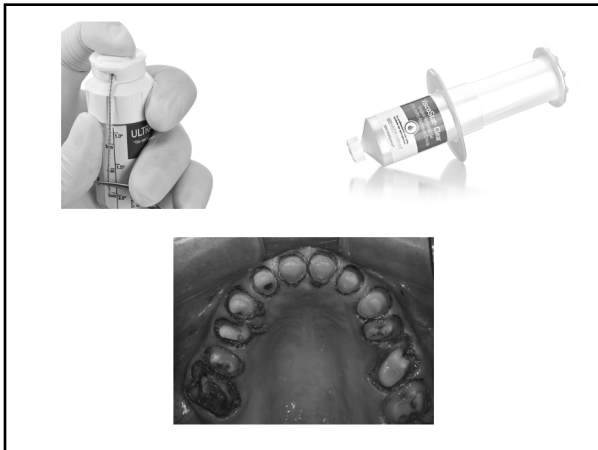
***Astringent  
Viscostat  
Viscostat Clear  
UltraPak  
Ultradent Products***



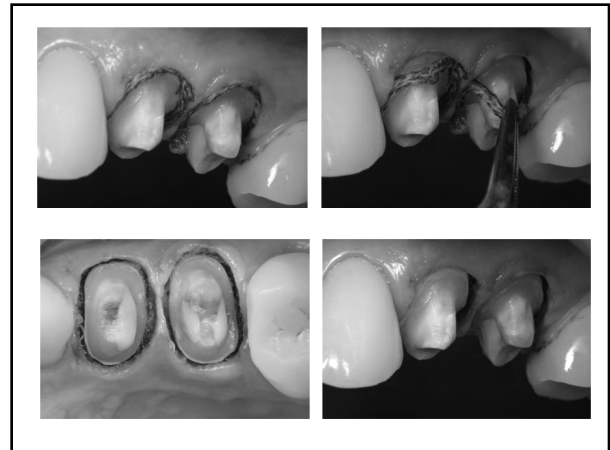
***PFI-A6  
Gregg 4-5  
HuFriedy***



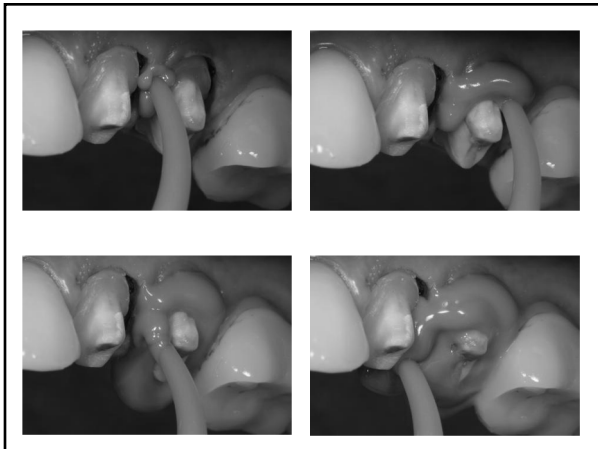
140



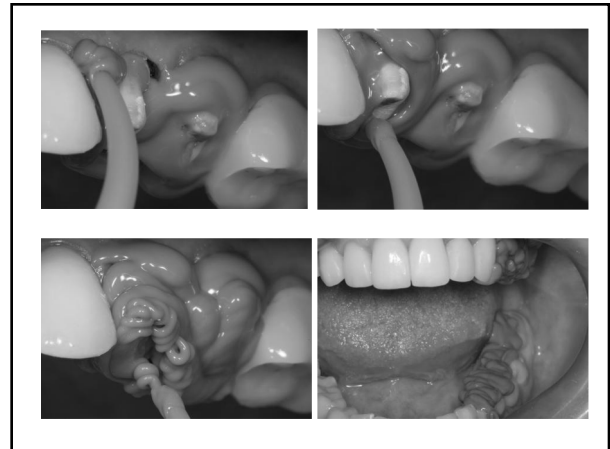
141



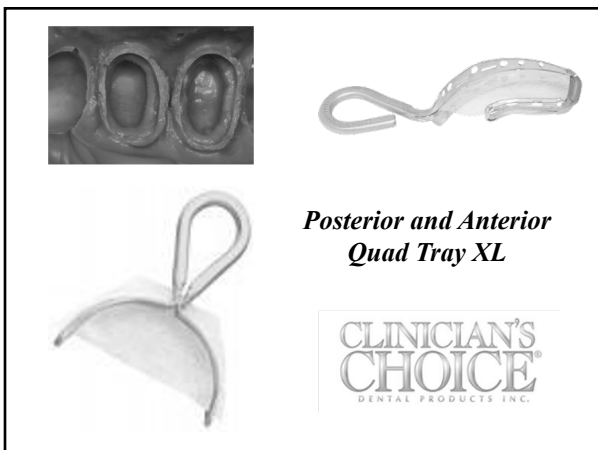
142



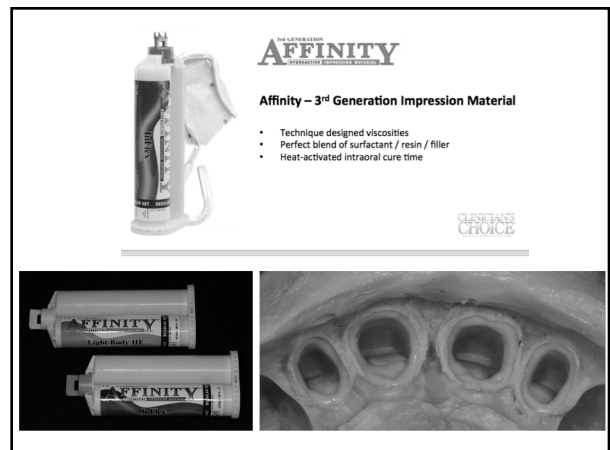
143



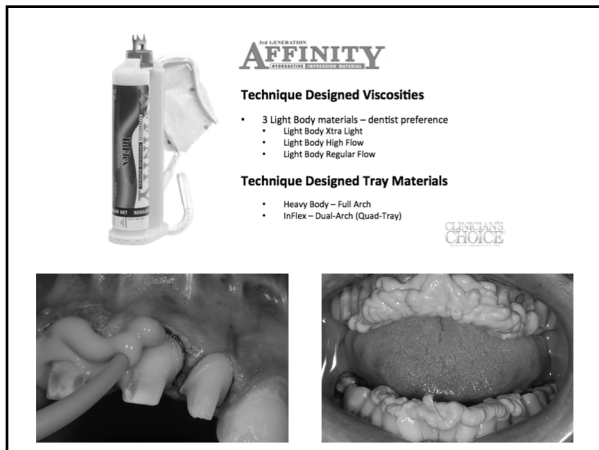
144



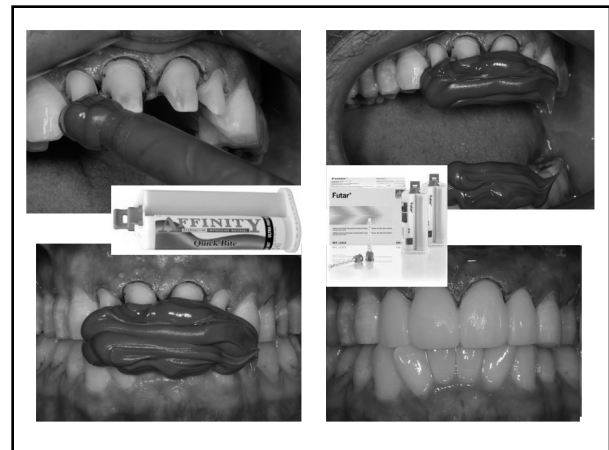
145



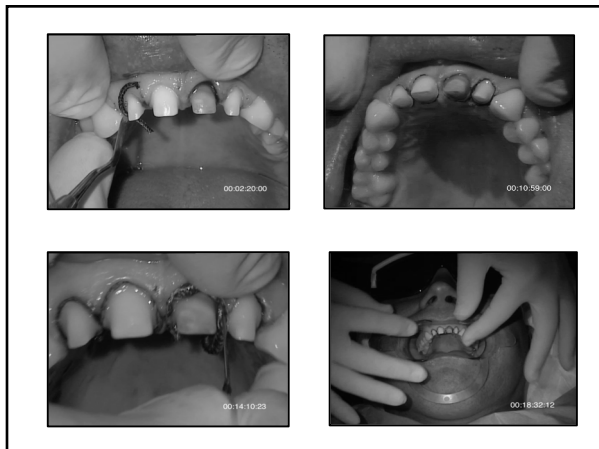
146



147



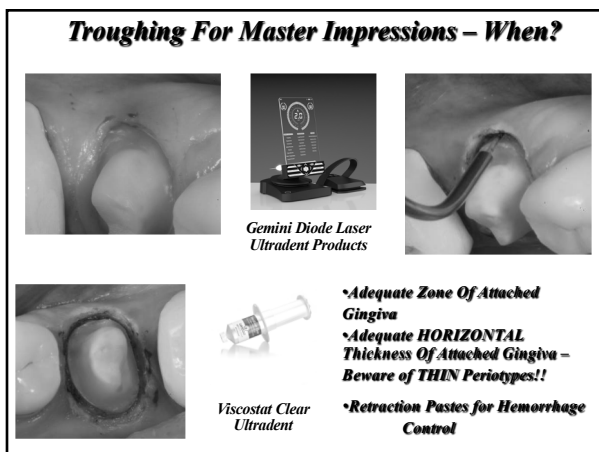
148



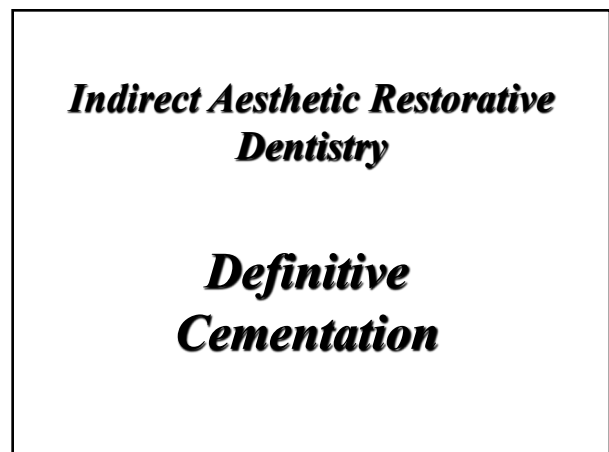
149



150



152



155

## Indirect Aesthetic Restorative Dentistry



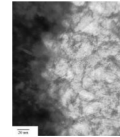
### Cementation: Using Ceramir Crown and Bridge

157

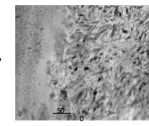
## Benefits of Ceramir Crown and Bridge

- Sealed interface – less risk of secondary caries
- Basic pH, chemical stability and no shrinkage gives a stable interface
- Microcrystals integrate with and form apatite

Enamel



Dentin



Ceramir

158

## Comparison of Ceramir C&B to other Dental Material Classes

	Ceramir C&B	Self-Adhesive Resin	Resin-Modified GI	Glass Ionomer
Sets at high pH, forms apatite	■			
No post-op sensitivity	■			
Exceptional retentive strength	■	■		
Superior biocompatibility	■			
No etching, priming, bonding or conditioning	■	■		
Easy clean-up	■		■	
Shown in preliminary study to close artificial marginal gaps <sup>1</sup>	■			

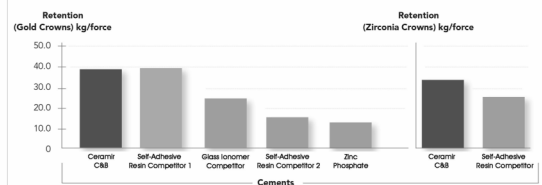
<sup>1</sup> Jeffries JR, Fuller AL, Boston DM. Preliminary evidence that bioactive cements occlude artificial marginal gaps. J Esthet Rest Dent. 2015; doi:10.1111/jerd.12118. [Link ahead of print]

159

## Exceptional Strength and Durability

► **PROVEN!** Resin-cement-like retentive strength that protects the tooth over time<sup>2</sup>

Ceramir Crown & Bridge's retention is equal or superior to self-adhesive resin cements.



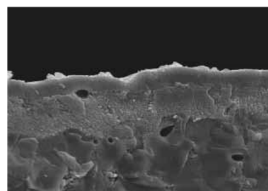
<sup>2</sup>Ch. Panagiotis et al. A comparative crown retention test using NanoCure™. J Dent Res. 2010; 89(10): 3089. Ceramir Crown & Bridge was previously called ResiCem.

161

## Bioactivity – Self Sealing Properties

•Ceramir C&B is bioactive, enabling the formation of a surface layer of hydroxyapatite crystals. Clinically, this may translate into a protective hydroxyapatite layer at the tooth-restoration interface\*

•In saliva Ceramir C&B promotes HA formation at its surface, and could be expected to promote natural HA formation at the restoration-tooth interface\*\*



\*A comparative study of the bioactivity of three materials for dental applications. Published by: J Löf, F Svahn, T Jørmann, H Engqvist, CH Pameijer. Published as: Dental Materials (2008) 24: 653–659

\*\*Hydroxyapatite formation on a novel dental cement in human saliva. Published by: J Engstrand, E Unosson, H Engqvist. Published as: ISRN Dentistry (2012): Article ID 6224056

162

## RESEARCH ARTICLE

### Preliminary Evidence That Bioactive Cements Occlude Artificial Marginal Gaps

STEVEN R. JEFFERIES, MS, DDS, PhD\*, ALEXANDER E. FULLER, DMD<sup>†1</sup>, DANIEL W. BOSTON, DMD<sup>‡</sup>

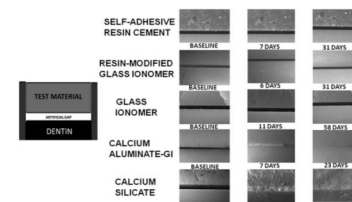
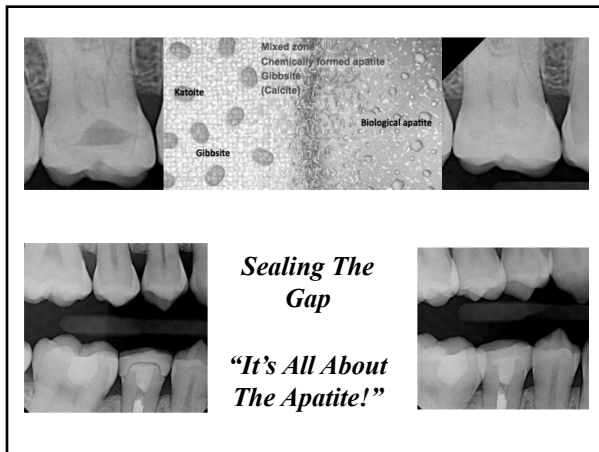


FIGURE 1. Basic experimental design for artificial gap (left) and microscopic photos of artificial gap changes over time during incubation in phosphate buffered saline (right).

163



164

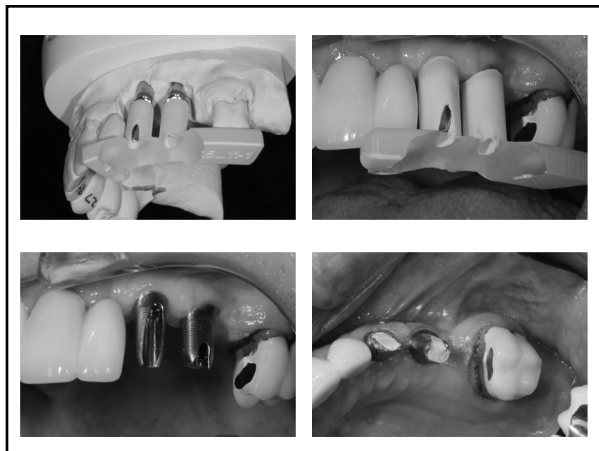
### ***Cementing With Ceramir Crown and Bridge on Implant Abutments\****

***•Cementing implant crowns with Ceramir C&B is a very good idea because...***

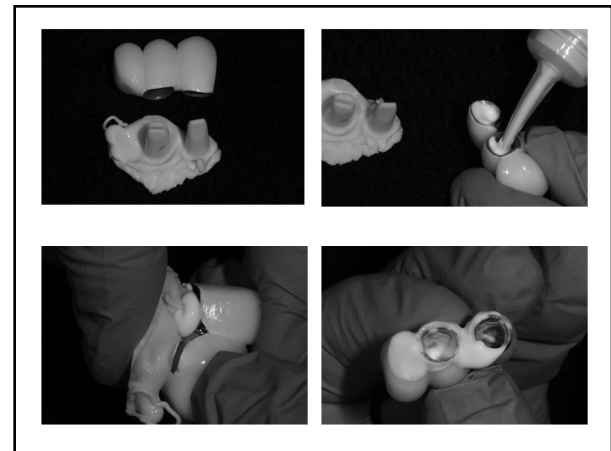
- The viscosity of Ceramir C&B ensures easy seating even at extremely good fit*
- The easy excess removal makes the procedure fast and clean*
- The very high level of biocompatibility and tissue friendliness minimizes soft tissue reactions*

\* These statements are based on customer feedback

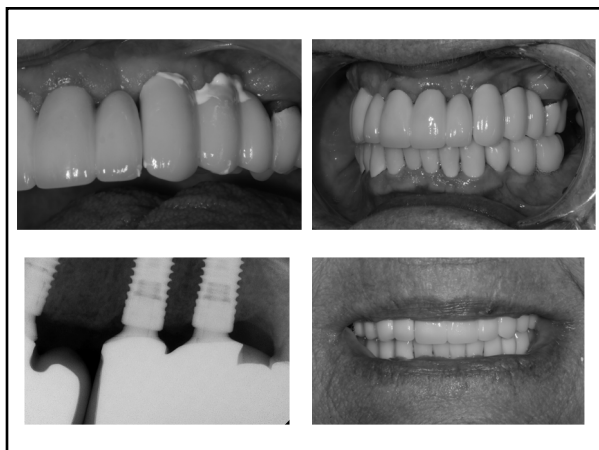
165



166



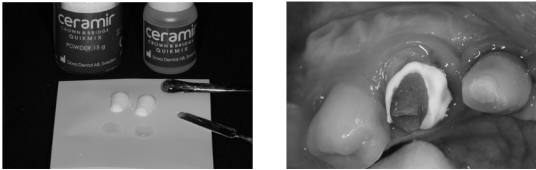
167




168



169



*1 scoop of Ceramir  
C&B Powder  
to 2 drops of  
Ceramir C&B liquid*



170

***Indirect Aesthetic Restorative  
Dentistry***

***Self Etch and Total Etch  
Cementation With Resin  
Cements***

172

**Self Etching Resin Cements**



**G-Cem Link Force**  
GC America

**TheraCem - Bisco**

**eCement - Bisco**




173



174

***G-Cem LinkForce:  
Three elements for a strong bond...***

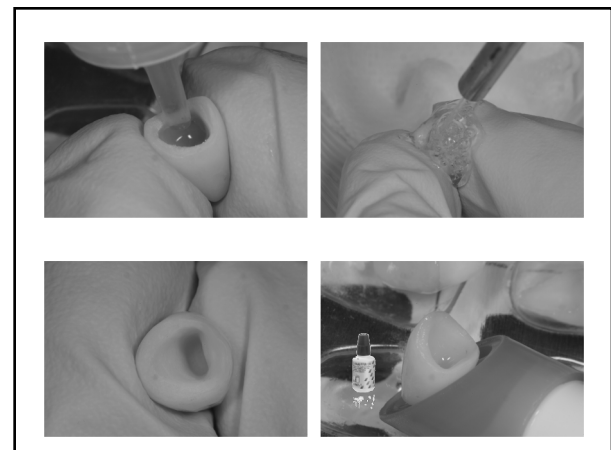


**1. G-Premio BOND:**  
Bonding to ALL preparations  
(tooth, core build-ups &  
implant abutments)

**2. G-Multi Primer:**  
Primer for ALL restorations

**3. G-Cem LinkForce:**  
Bond Strength in ALL  
indications

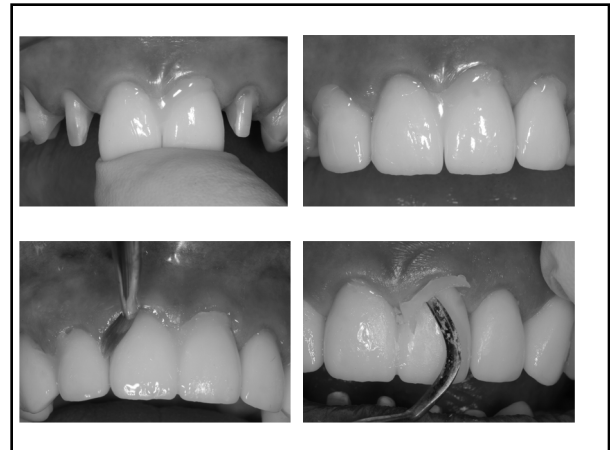
175



176



177



178



179



180

### ***eCement: Features & Benefits***

- **Complete Adhesive Cementation system kit with all components needed to successfully cement lithium disilicate restorations**
- **Universal, Versatile**
  - Compatible with veneers, crowns and bridges including all CAD/CAM blocks and press-able ingots made of lithium disilicate
- **Easy removal of excess cement**
  - Ease of use and great handling with less light sensitivity
- **Low film thickness**
  - Ensures the restoration will be completely seated as well as any lithium disilicate based veneers

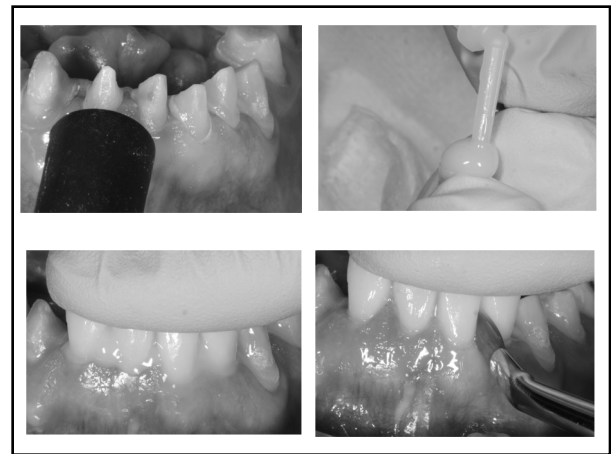
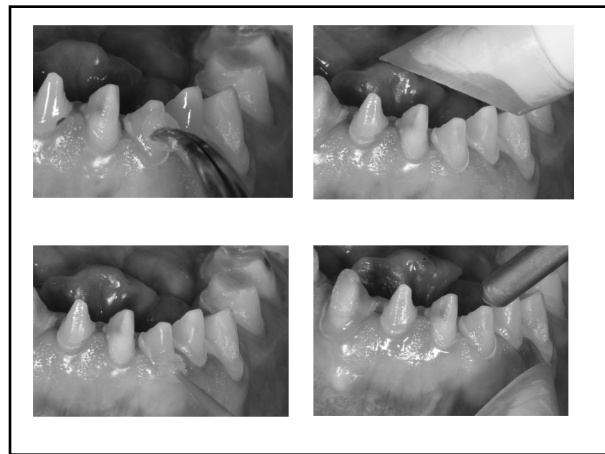


181



182



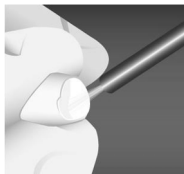


## ***Cementation of Zirconia with Z-Prime Plus***

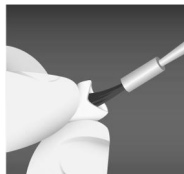
***Bisco***

212

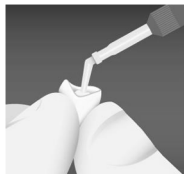
### *Technique For Placement*



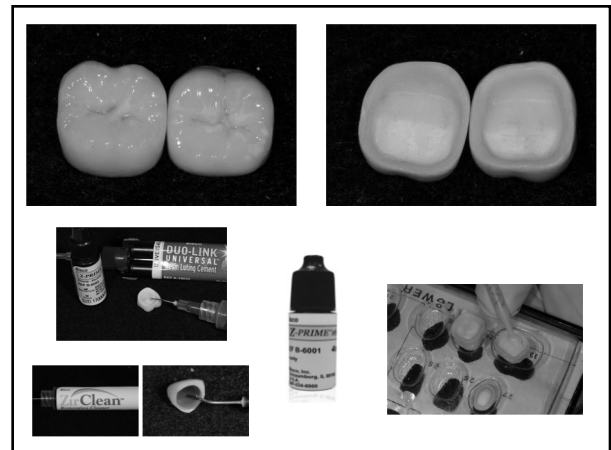
***Clean the internal surface of the restoration; rinse and air dry.***



**Apply 1-2 coats of Z-PRIME PLUS, uniformly wetting the internal surface. Dry with an air syringe for 3-5 seconds.**



***Proceed with  
cementation  
using a luting  
cement***



214

## ***Clinical Solutions:***

### ***Extending The Life of Existing Dental Restorations***

215

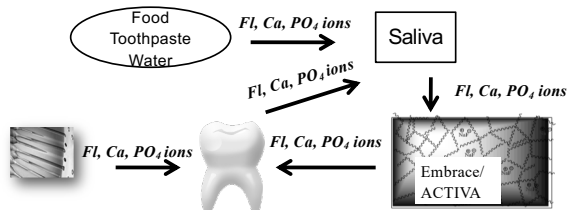
## ***Materials That Set A Standard For Bioactivity In Dental Materials***



### ***Activa Bioactive Restorative***

216

*There is a continuous cycle of Ionic release and Ionic uptake by the tooth. Ions in the saliva and dentinal tubular fluid recharge the Embrace/ACTIVA Ionic resin. Ions diffuse through the Embrace/ACTIVA Ionic resin and can recharge the dentin and enamel.*

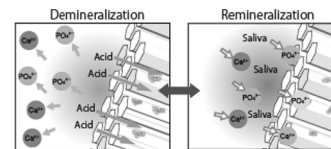


*The ion exchange between the acid groups of the ionic resin and the tooth structure occurs at a molecular level.*

217

## ***Overcoming the “Root” Cause of Restorative Failure***

*Traditional bonding agents can deteriorate over time leading to restorative failure at the margin due to micro-leakage. Bioactive materials stimulate mineral apatite crystal formation that fills micro-gaps and seals margins. This remineralization process forms a natural, protective layer at the tooth/material interface.*

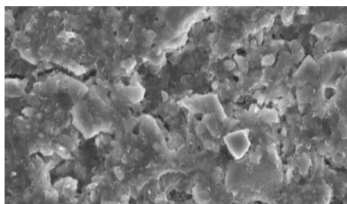


ACTIVA<sup>™</sup>  
BioACTIVE

218

## ***ACTIVA Apatite Formation***

*SEM of ACTIVA surface after 21 days in saline shows calcium-phosphate apatite formation*



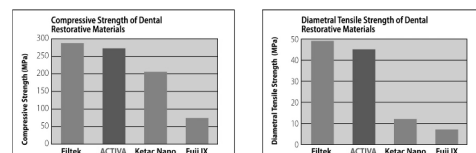
*SEM of ACTIVA Surface 3000x (Semtech, Billerica, MA)*

ACTIVA<sup>™</sup>  
BioACTIVE

219

## ***Strength of ACTIVA Compares with Composites***

*Compressive and Tensile Strength of ACTIVA BioACTIVE-RESTORATIVE is comparable to composites and greater than GIs and RMGIs*



*ACTIVA = BioACTIVE Restorative; Filtek = Composite; Ketac Nano = RMGI; Fuji IX = GI*

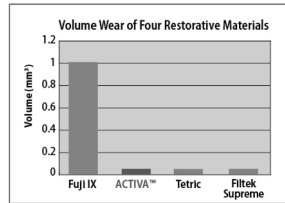
Comparison of Mechanical Properties of Dental Restorative Material. Girm V, et al. J Dent Res 93 (Spec Iss A) 1163, 2014 (www.iadr.org).

ACTIVA<sup>™</sup>  
BioACTIVE

220

### Wear of ACTIVA Compares with Composites

Volume wear of ACTIVA BioACTIVE-RESTORATIVE is comparable to composites and far less than glass ionomer.

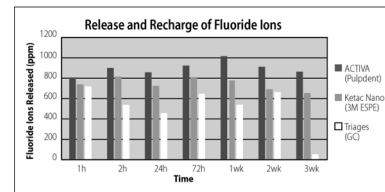


Bansal R. Wear of a Calcium, Phosphate and Fluoride Releasing Restorative Material J Dent Res 94 (Spec Iss A) 3797, 2015 ([www.iadr.org](http://www.iadr.org))



221

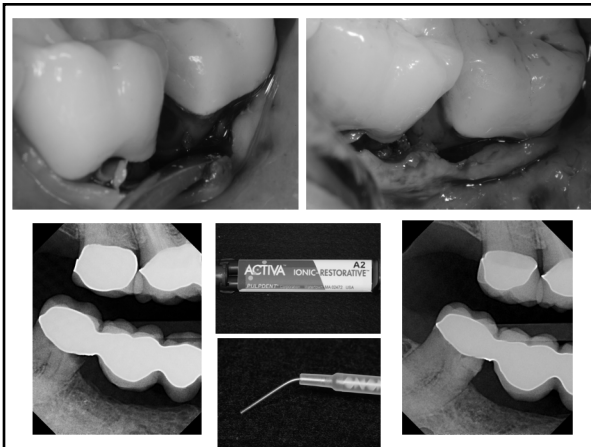
### Fluoride Release and Recharge of ACTIVA is Greater than GIs and RMGIs.



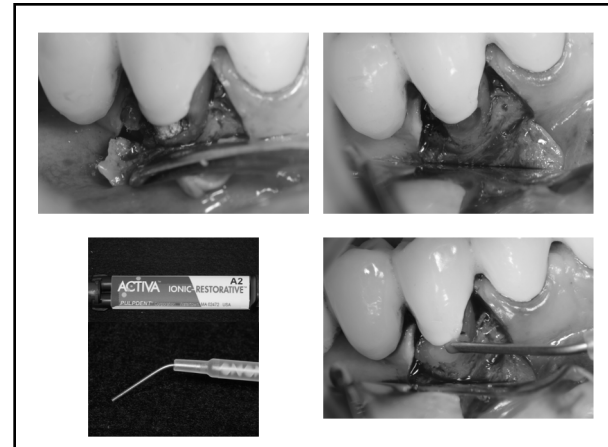
Slowokowski L, et al. Fluoride release and recharge over time in three restoratives. J Dent Res 93 (Spec Iss A) 268, 2014 ([www.iadr.org](http://www.iadr.org)).



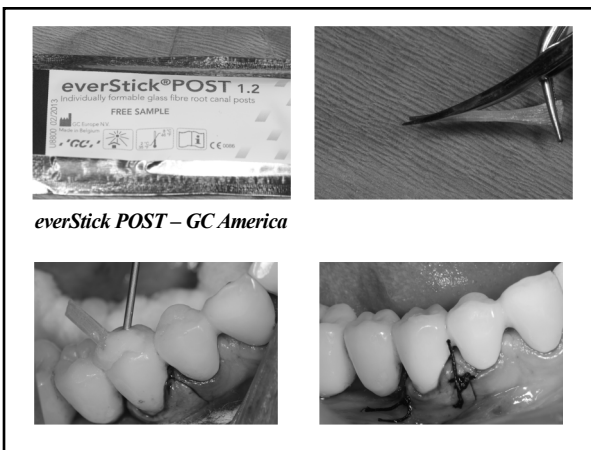
222



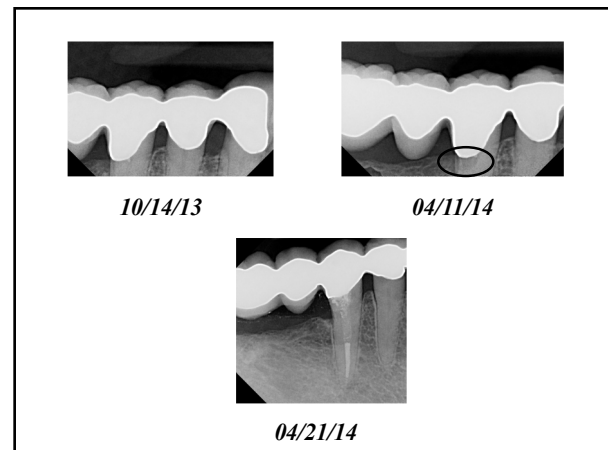
223



224



225



226



227