Sept 17 CE PROGRAM
will begin shortly

Posterior Direct Restorations: Contacts, Complications, Cosmetics & Occlusion

CE Speaker:
Todd C. Snyder, DDS, FAACD

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1

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HARBOR

Sept. 17 CE PROGRAM

OCDS

Posterior Direct Restorations: Contacts, Complications, Cosmetics & Occlusion

CE Speaker:

Todd C. Snyder, DDS, FAACD

Dr. Todd C. Snyder received his doctorate in dental surgery at the U.C.L.A. School of Dentistry. Dr. Snyder is an Accredited Fellow of the American Academy of Cosmetic Dentistry. He has trained at the F.A.C.E. institute for complex gnathological (functional) and temporomandibular joint disorders (TMD). Dr. Snyder lectures both nationally and internationally on numerous aspects of dental materials, techniques, equipment, use of the internet, software and business marketing tools. He has been on the faculty at U.C.L.A. and is currently on the faculty at Esthetic Professionals.

Academy of General Dentistry PACE

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LECTURE HANDOUT

www.DENTOOLZ.com

Digital Handouts, Products I Use & Special Offers

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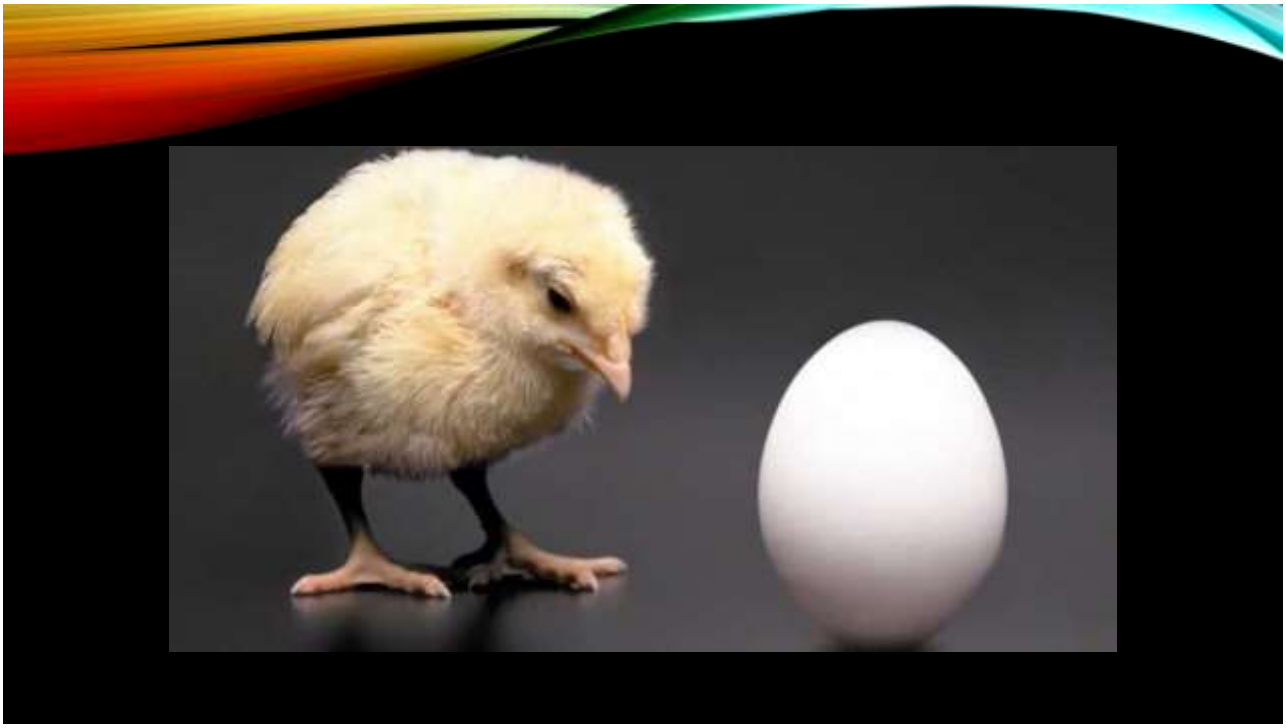

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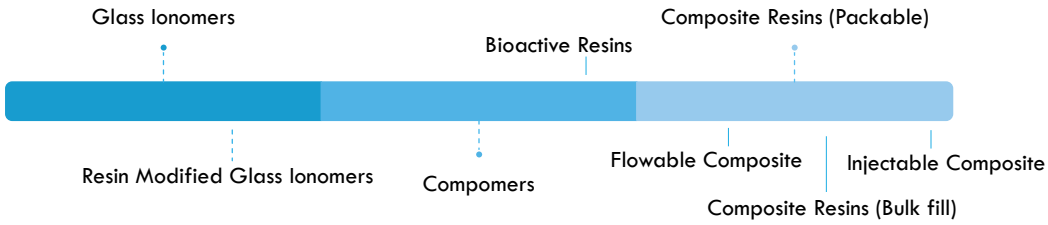
DIRECT RESTORATIONS: MATERIALS CHART



11

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VISUALIZATION ***DRIVES*** US!

Knowledge & Emotion solidifies need

13

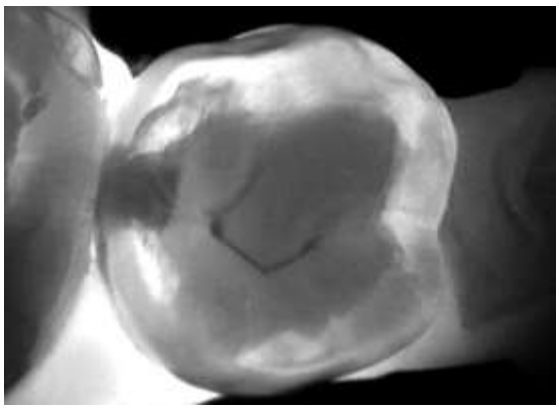
How do you diagnose decay??

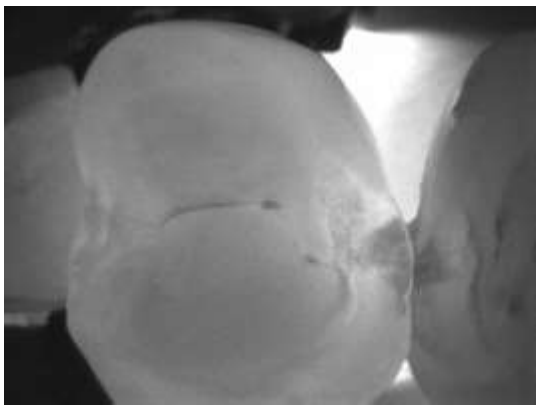
Thru intraoral visual interpretation?

14

CariVu Fiber Optic Transillumination

15





Early Diagnosis that can be Visualized

16

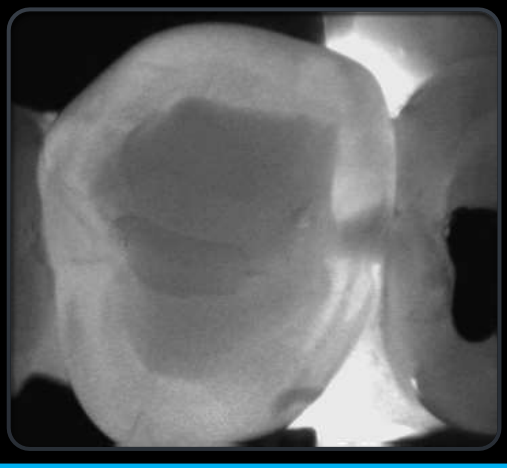
19

CariVu: Transillumination

- Near Infrared light…no radiation
- Enamel appears transparent or light
- Porous lesions appear **darker** by trapping and absorbing the light: these include cracks and caries
- Video capture….live scans
- Stored in DEXIS, excellent for communication to patient and yes…to insurance companies

20

A BETTER STANDARD OF CARE?



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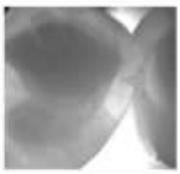
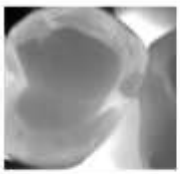
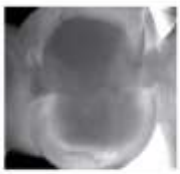
Short Learning Curve

What does a caries lesion really look like? The transillumination technology of DEXIS™ CariVu™ can reveal its shape and size!

Healthy ⟷ **Established**







Diagnosis					
Sound surface	First detectable signs of an enamel caries lesion	Established enamel caries lesion	Established enamel caries lesion which reached the DEJ at a single point	Dentin caries due to an established enamel caries lesion with extended involvement of the DEJ	Established dentin caries

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ANOTHER EXAMPLE

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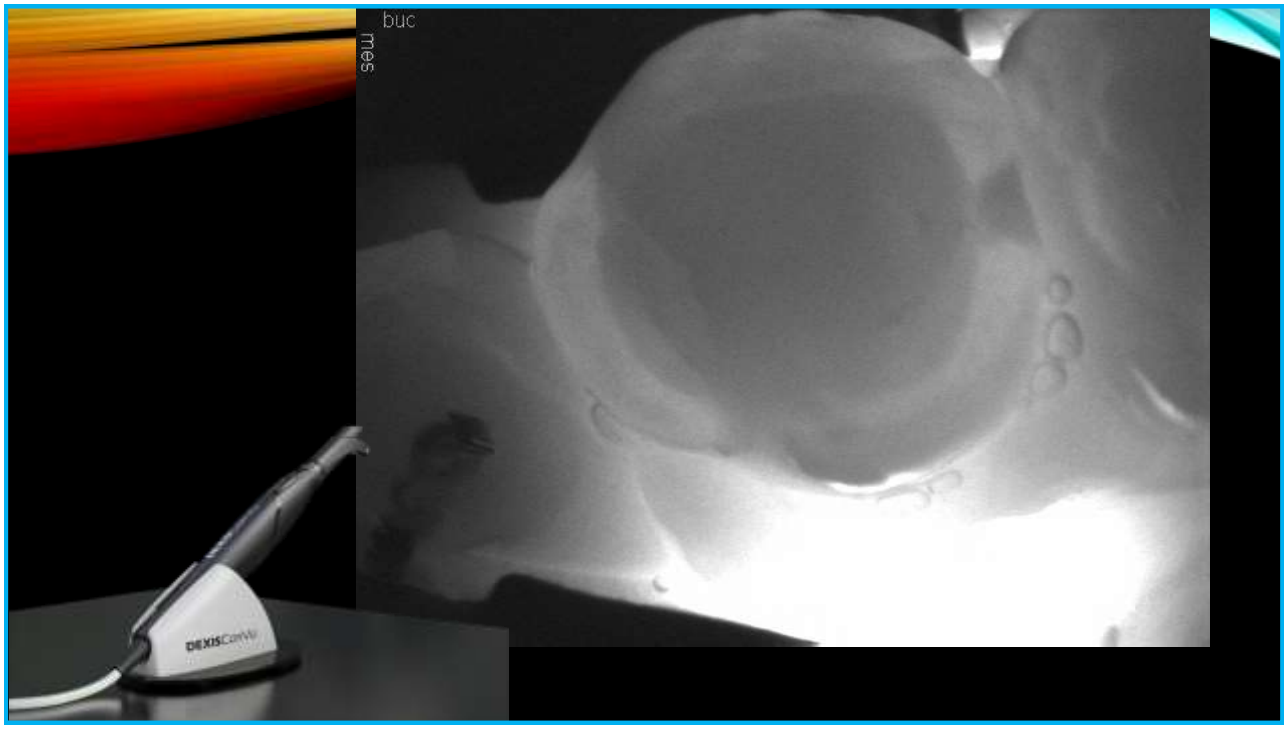

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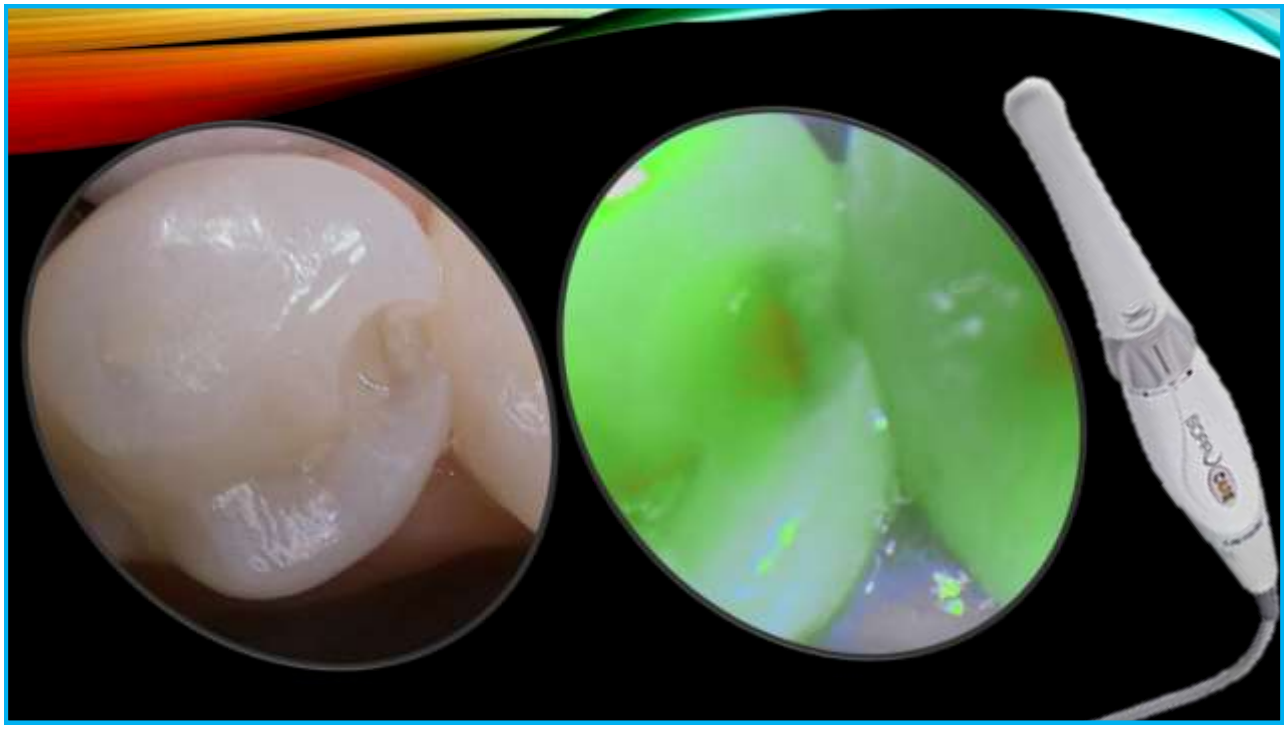

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CRYSTAL STRUCTURE DIAGNOSTICS

30

Crystal Structure Diagnostics

The Canary System Detects Cracks & Cavities not Visible on X-rays

+ Around & beneath intact margins of fillings & crowns
+ Under sealants (including opaque sealants)
+ On proximal surfaces
+ On smooth surfaces, pits & grooves
+ Around orthodontic brackets

Measures tooth structure breakdown, allows for early treatment

+ Restore conservatively
+ Remineralize back to health
+ Seal with confidence

Research claims validated by 60+ papers

15+ case reports & 2 FDA CFR 21 clinical trials

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The Science Behind The Canary System

- Pulses (2 Hz) of laser light hit the tooth surface.
- Tooth glows (Luminescence, LUM) and releases heat (Photo-Thermal Radiometry, PTR).
- Defective tooth crystal structure affects the retained heat and luminescence signatures.

➢**Energy Conversion Technology**

Temperature increase < 1°C ***not harmful***

- Detected signals reflect the tooth's condition.
- Detects 50 micron lesion up to 5 mm below the surface.

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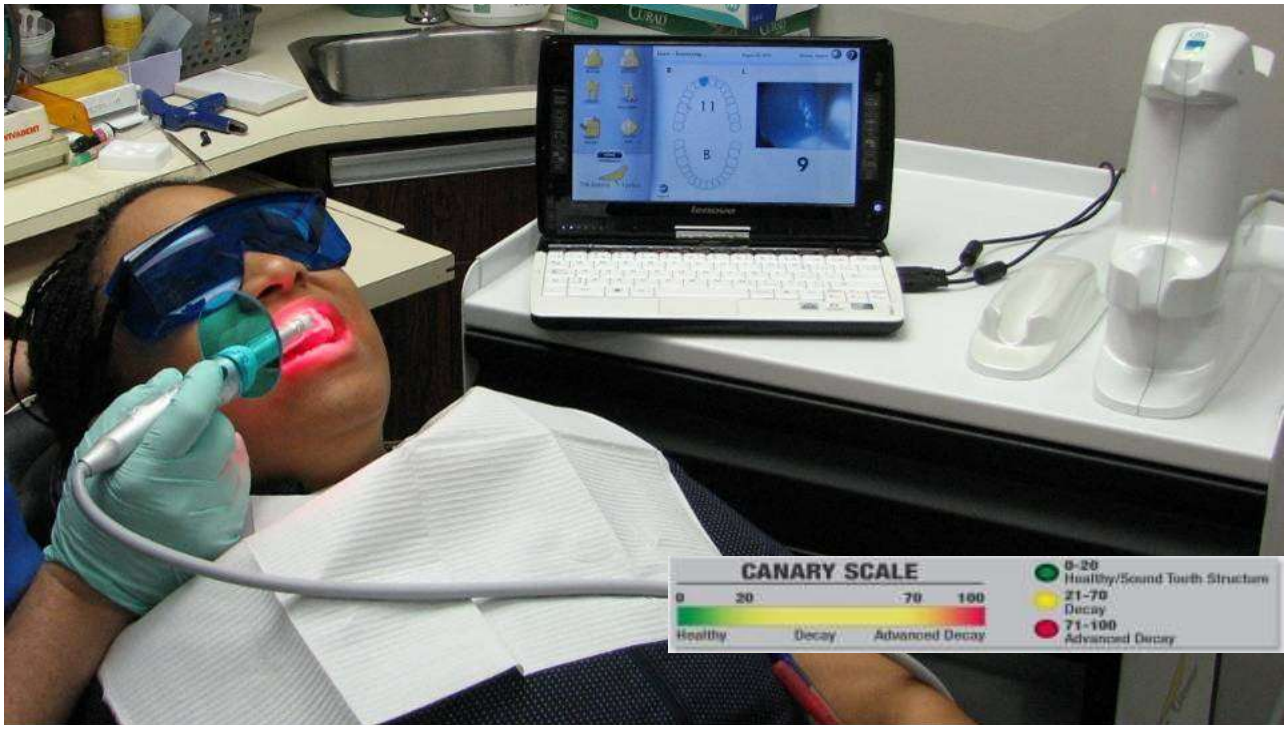

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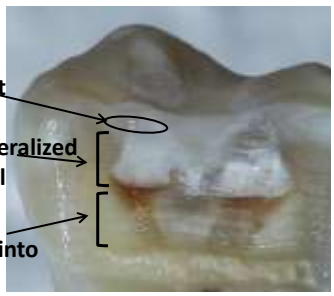
Detection of Caries Beneath Sealants

- Canary Numbers >20 when scanning sealants (3M™ ESPE™ Clinpro™ Sealant) placed over pit & fissure caries.
- The caries detection ability of the Canary System was not affected by sealant & was more accurate than DIAGNOdent.

Pre-sealant

Post-sealant



Cross-section

Sensitivities and specificities for pit & fissure caries detection after sealant placement.

Caries Detection Method	The Canary System	DIAGNOdent
Sensitivity	83%	64%
Specificity	79%	46%

34

CANARY IS SUPERIOR TO X-RAYS FOR PROXIMAL CARIES DETECTION

Jan J et al. Caries Res 2014;48:384–450 DOI: 10.1159/000360836

Objective:

To compare the accuracy of The Canary System, ICDAS-II and bitewing radiographs in detecting proximal caries *in vitro*.

Methods:

Conclusion:

- **BW radiographs could only identify 26.7% of the lesions which questions its ability to be the gold standard**
- **The Canary System is the only method examined with both high sensitivity and high specificity.**
- **The Canary System is more sensitive than bitewing radiographs in detecting interproximal caries**

Parameter	The Canary System	ICDAS-II	BW Radiograph
Sensitivity	0.93	0.73	0.27
Specificity	0.83	0.65	0.88

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After using diagnostic technology, what if you find something?

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TOPICAL THERAPIES

- More caries resistant
- Remineralization

37

Minimally Invasive

- Apply MIPaste Plus for 3 minutes
- Patient applies at home 2x/day

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How will you diagnose this?

How will you prepare and treat this?

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Problem

Varying tooth substrates

Enamel & Variable Dentin Bonding

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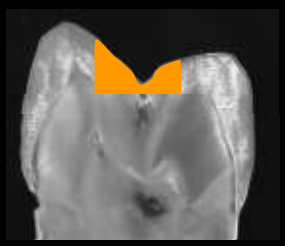
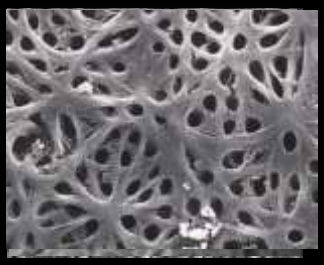
What substrate are we treating?

:Composite Preparation





Class I or II

3x Tubule Density Equals Higher Fluid & Increased Difficulty for Bonding
30% Decrease in Bond Strengths with most bonding systems.

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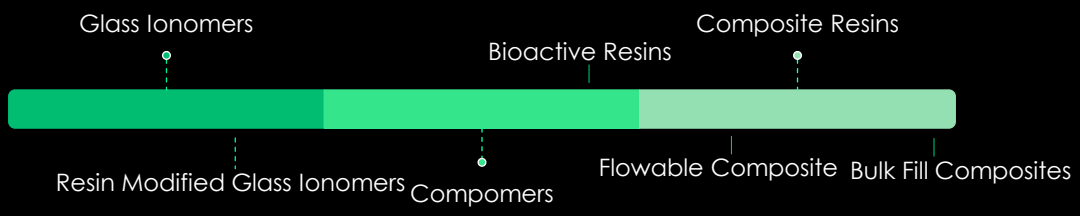
MATERIALS CHART



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FILLING MATERIALS

Traditional Composites
Flowable Composites
Flowable Dentin Replacements
Bulk Fill Composites
Resin Modified Glass Ionomers
Glass Ionomers

48

FILLING MATERIALS

Traditional Composites

Flowable Composites

Flowable Dentin Replacements

Bulk Fill Composites

Resin Modified Glass Ionomers

Glass Ionomers

- Great Compressive Strengths
- Lower Flexural Strengths than a flowable
- Good Wear Characteristics
- Layering in 2mm increments
- Light Cured
- Require a dry environment
- Require an adhesive
- Have technique issues
- Sensitivity
- Microleakage
- Good C-Factor when layered incrementally

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FILLING MATERIALS

Traditional Composites

Flowable Composites*

Flowable Dentin Replacements

Bulk Fill Composites

Resin Modified Glass Ionomers

Glass Ionomers

- Typically Offer Lower Compressive Strengths
- Higher Occlusal Wear
- Higher Flexural Strengths
- Good adaptability
- Light Cured
- Higher shrinkage due to less filler
- Require a dry environment
- Require an adhesive
- Have technique issues
- Sensitivity
- Microleakage
- Higher C-Factor

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4525629/

50

FILLING MATERIALS

Traditional Composites
Flowable Composites
Flowable Dentin Replacements
Bulk Fill Composites
Resin Modified Glass Ionomers
Glass Ionomers

- Compressive Strength similar to Dentin
- Needs a capping composite
- Low shrinkage
- Bulk filled up to 4-5mm
- Good adaptation
- Light Cured
- May have bubbles
- Require a dry environment
- Require an adhesive
- Have technique issues
- Sensitivity
- Microleakage

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FILLING MATERIALS

Traditional Composites
Flowable Composites
Flowable Dentin Replacements
Bulk Fill Composites*
Resin Modified Glass Ionomers
Glass Ionomers

- Compressive Strength similar to Conventional Composites
- Low shrinkage
- Bulk filled up to 4-6mm
- Good Wear Characteristics
- Good adaptation
- Lower C Factor
- Dual Cured or Light Cured
- Higher fracture resistance
- May have bubbles
- Require a dry environment
- Require an adhesive
- Have technique issues
- Sensitivity
- Microleakage

https://www.sciencedirect.com/science/article/pii/S0300571215300476

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FILLING MATERIALS

Traditional Composites
Flowable Composites
Flowable Dentin Replacements
Bulk Fill Composites
Resin Modified Glass Ionomers
Glass Ionomers

- High flexural strength
- Good compressive strength 242mpa
- Good polishability
- Excellent wear on facials but high occlusal wear
- Hydrophilic
- Light cured/Dual cured
- Fluoride release
- Low/no microleakage
- No adhesives
- Acid resistant layer
- Reduces sensitivity
- True chemical adhesion
- No C Factor stress

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FILLING MATERIALS

Traditional Composites
Flowable Composites
Flowable Dentin Replacements
Bulk Fill Composites
Resin Modified Glass Ionomers
Glass Ionomers

- High compressive strength
- True chemical adhesion
- Minimizes microleakage
- No sensitivity
- Acid Base Resistant Zone
- Decreased gap formation & no C Factor
- Coefficient thermal expansion similar to dentin
- Hydrophilic
- Chemical cured
- Fluoride release
- Low/no microleakage
- No adhesives

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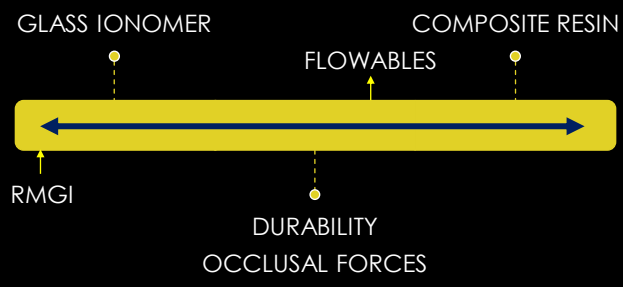
OCCLUSAL LOADING



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COMPRESSIVE STRENGTHS

- GC Equia Forte Compressive Strength 219mpa
- Equia Forte HT 233-250mpa
- Voco Ionolux 182-199mpa
- Surefil SDR compressive strength 220mpa
- Dentin 280mpa-297mpa
- Enamel 384mpa
- Kerr Harmonize 366mpa
- Grandio SO HF composite has compressive 417mpa
- Fuji II LC 242mpa (RMGI) Compressive strength

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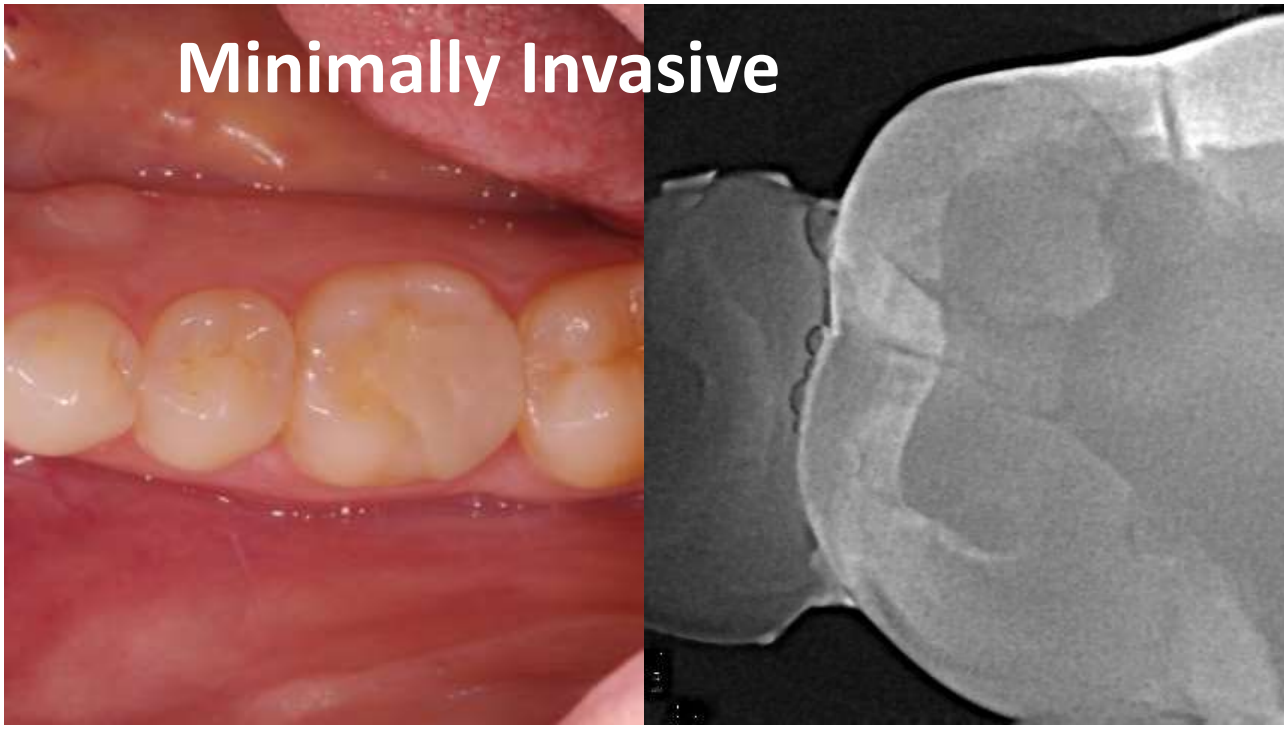
2MM DEPTH PREPARATION MATERIALS FOR USE

- Conventional Glass Ionomer
- Traditional Composite
- *Injectable Composite*
- Bulk Fill Composite
- Not a flowable typically at this point

- Why?
  - Lots of occlusion
  - No layering
  - Superficial dentin or enamel

63



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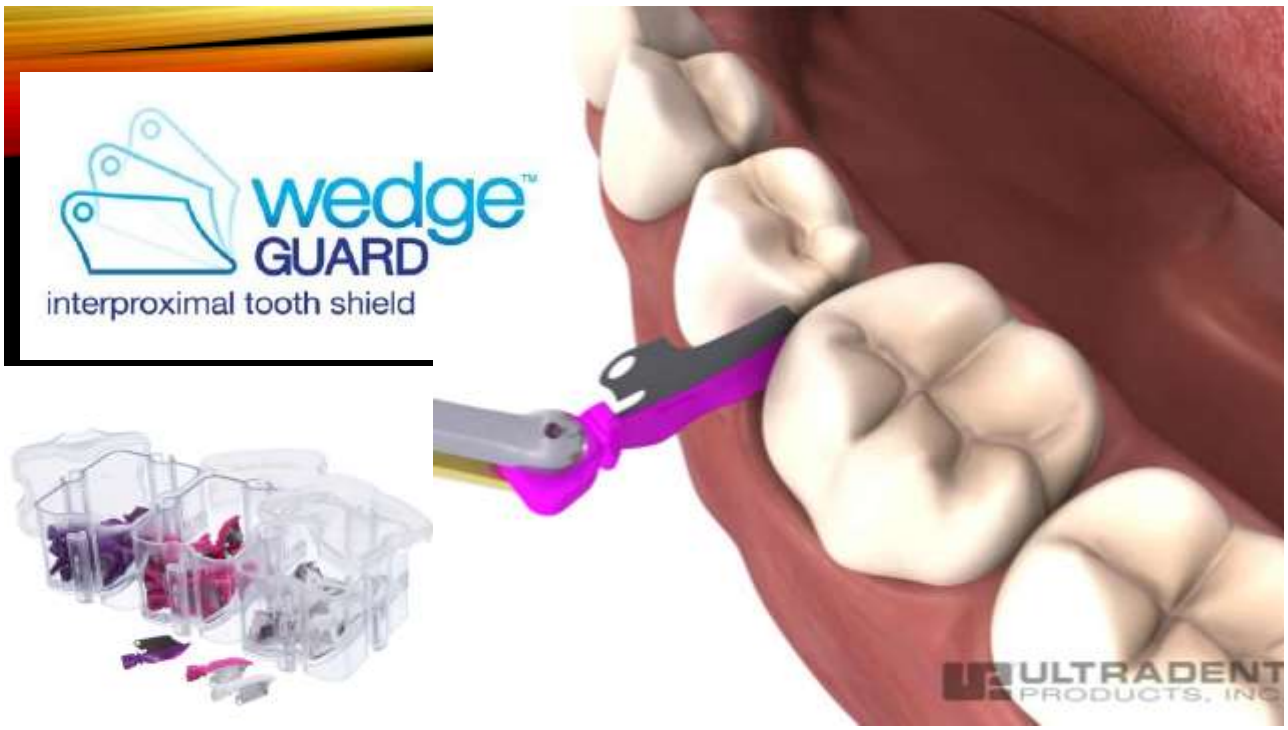
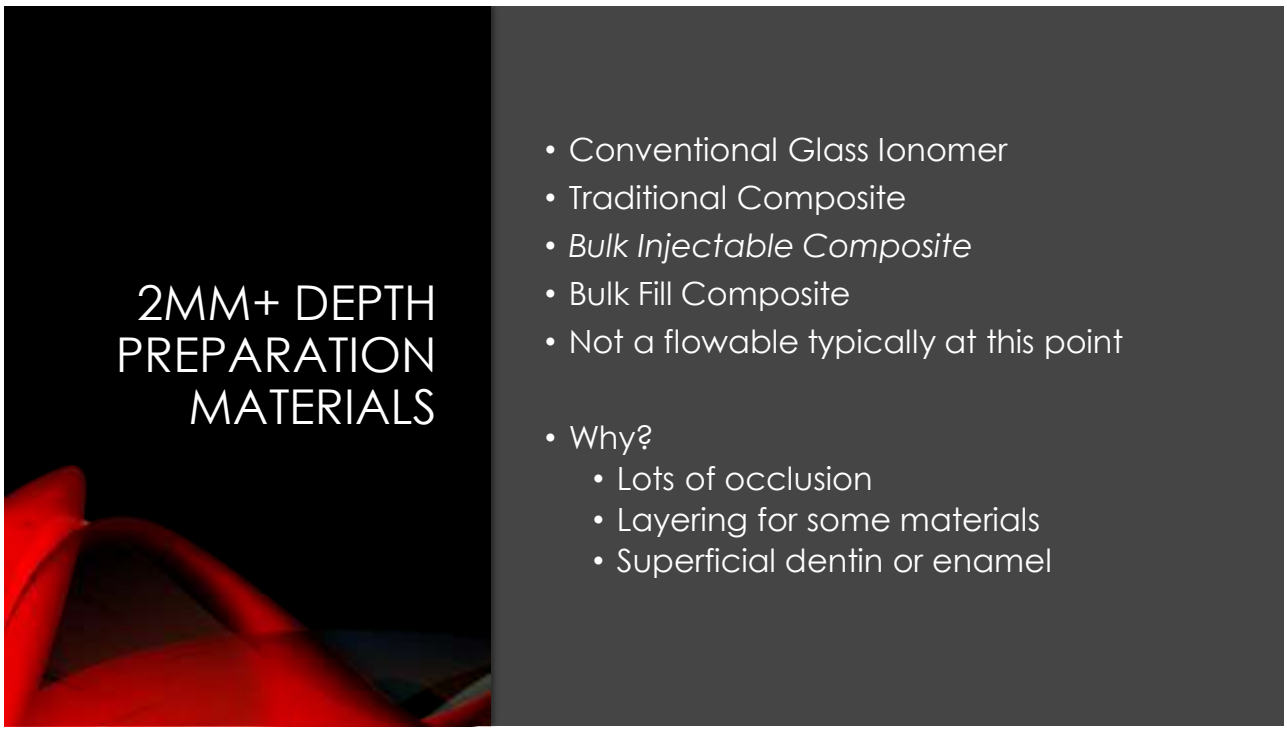

wedge™
GUARD
interproximal tooth shield
ULTRADENT
PRODUCTS, INC

67

68


2MM+ DEPTH PREPARATION MATERIALS
• Conventional Glass Ionomer
• Traditional Composite
• *Bulk Injectable Composite*
• Bulk Fill Composite
• Not a flowable typically at this point
• Why?
  • Lots of occlusion
  • Layering for some materials
  • Superficial dentin or enamel

78

PLACEMENT TECHNIQUES

80

Dentin Replacement with Composite Cap?

- Dentin substitute
  - Flowable Resins
    - -3%-6% vol. shrinkage
    - -1.6-3mpa shrinkage stress
    - -What bonding agent?
  - Glass Ionomers
- Enamel Replacement
  - Modern Composite

ADA reports flowable resins are used by 82% of dentists as bases or liners.

81

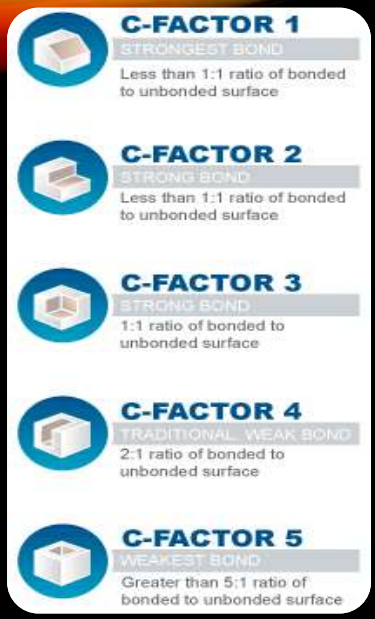
"C-FACTOR" DEFINITION

Configuration Factor:

"The ratio of bonded to un-bonded (free) surfaces"

Feilzer, DeGee, Davidson (1987), Universtiy of Amsterdam, ACTA

82



Lowest Stress

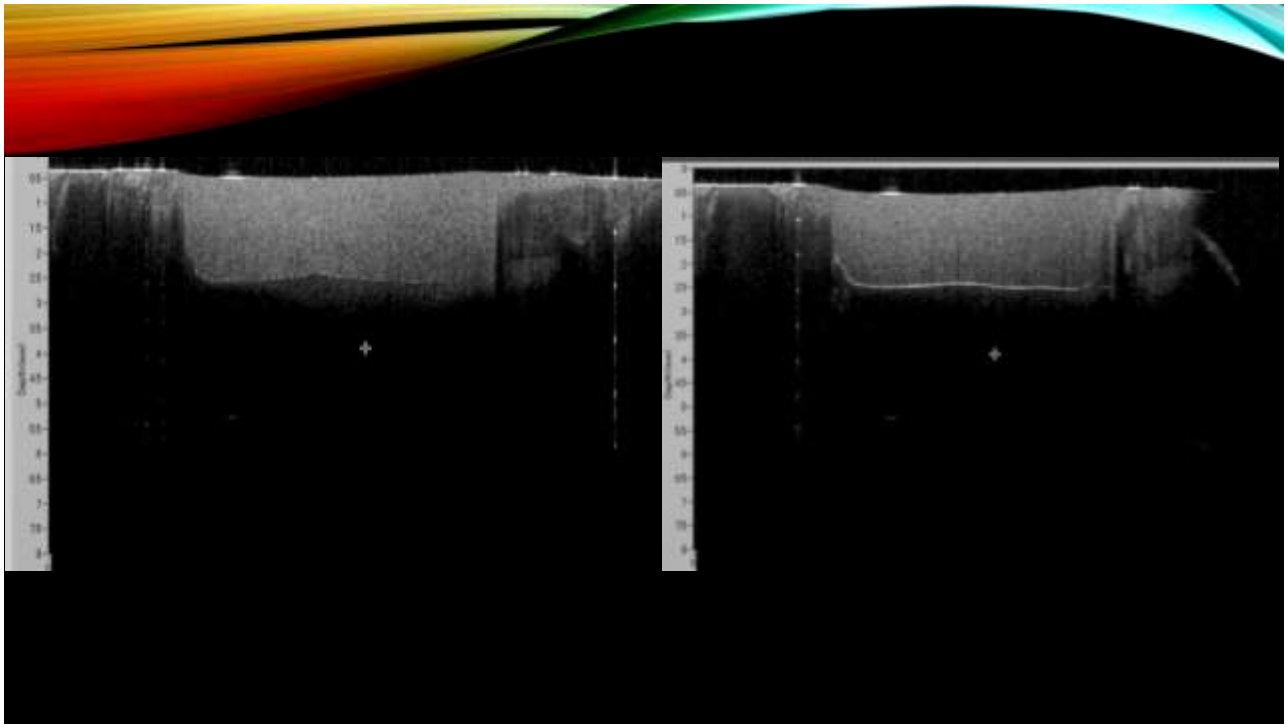
Low Stress

Medium Stress

High Stress

Highest Stress

83



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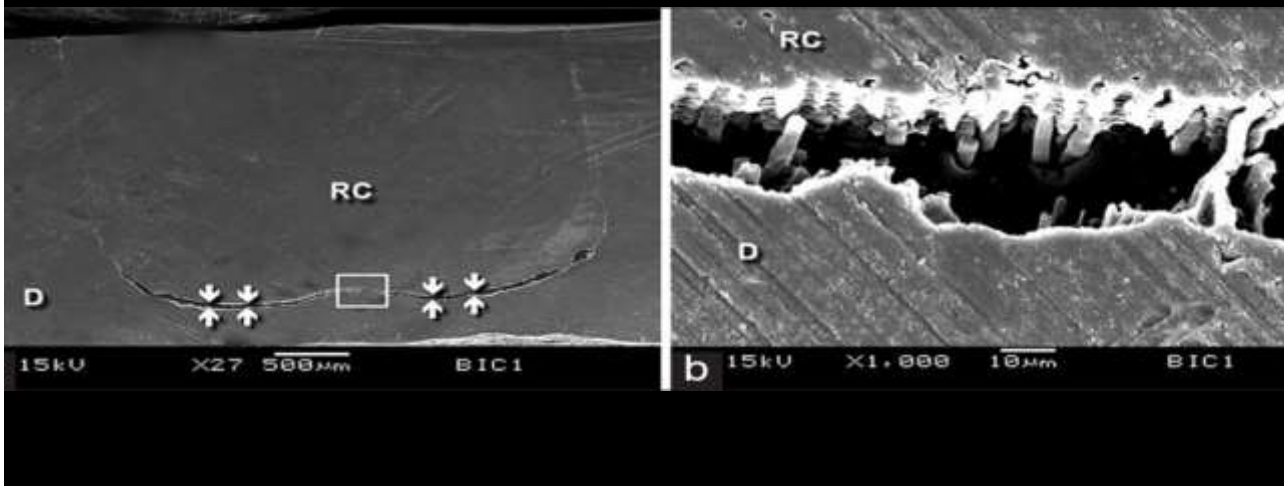
RESIN TO DENTIN HYBRID ZONE



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"Adhesive dentistry could be expressed as a simple relationship between bonds and stress. If the bonds can withstand the stress, the restorative technique will be successful."

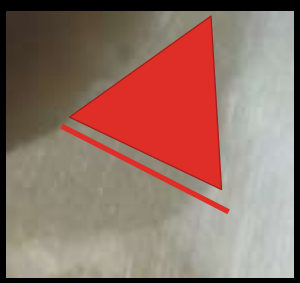
Unterbrink and Liebenberg (1999)

87

"C-FACTOR"

Base/ Lining

Excellent Flow & Handling



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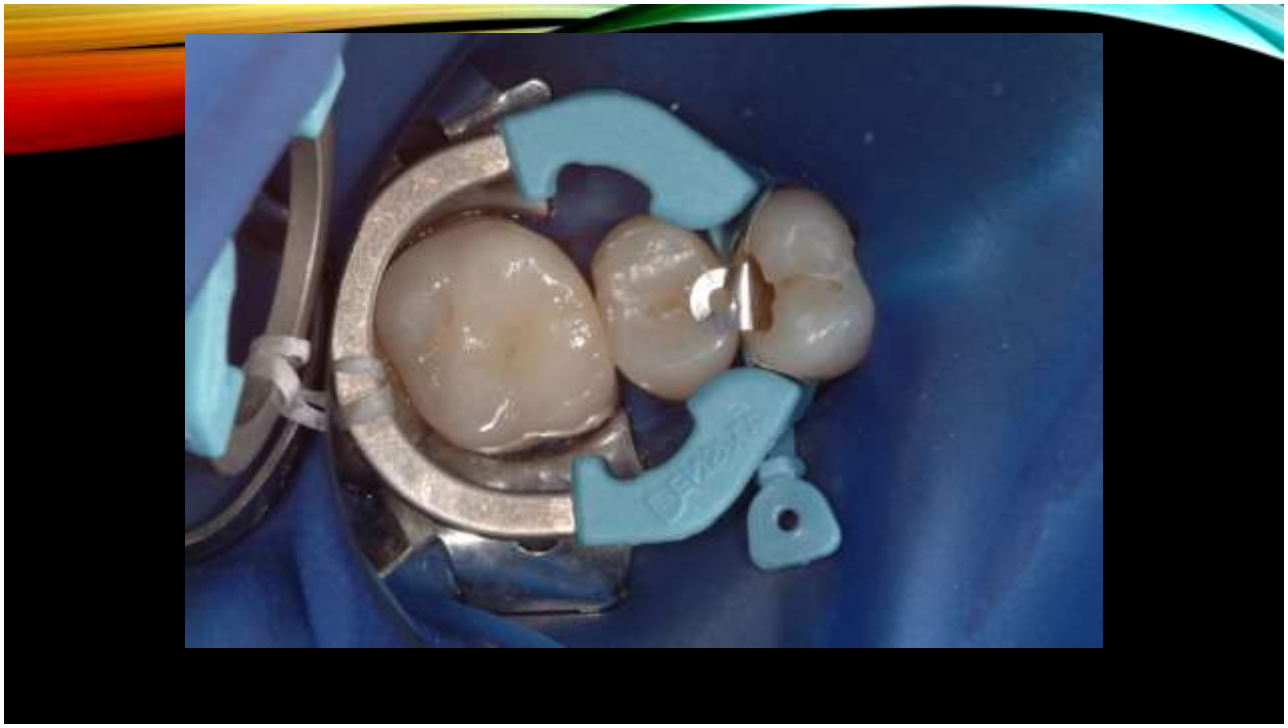

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BISCO's Cavity Cleanser is a 2% chlorhexidine digluconate aqueous solution intended for cleansing and moistening/re-wetting cavity preparations.

93

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- **Light-Cured Dental Adhesive**
  All-Bond Universal is a 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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98

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

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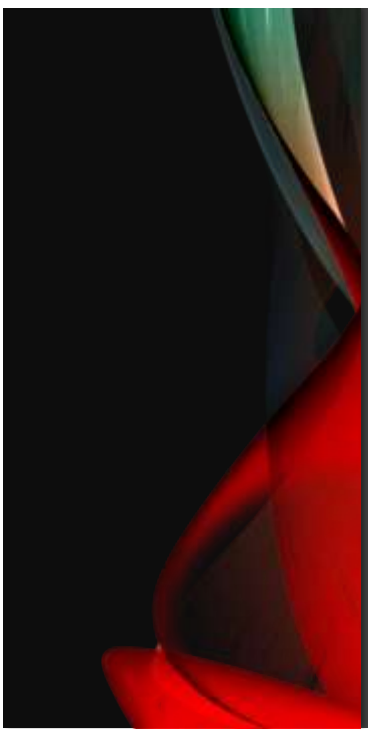
G-AENIAL BULK INJECTABLE – AVAILABLE SHADES

A1 & A2 shades available

101



G-AENIAL BULK INJECTABLE

- Injectable high strength nanoparticle composite with ideal viscosity handling and adaption characteristics that may be used as a one step application for bulk filling up to the occlusal surface without the need for capping or veneering with another composite

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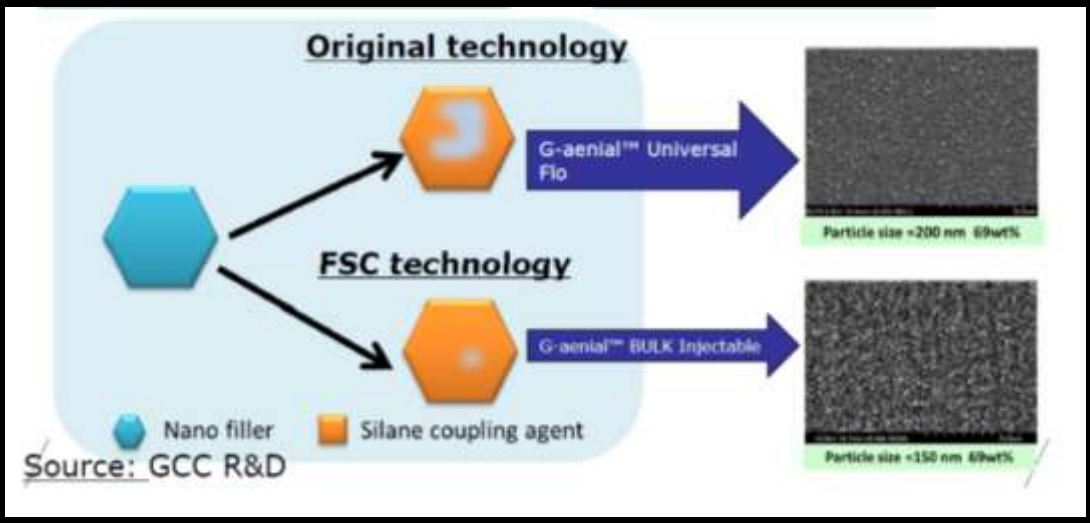
Original technology
G-aenial™ Universal Flo
Particle size <200 nm 69wt%
FSC technology
G-aenial™ BULK Injectable
Particle size <150 nm 69wt%
Nano filler
Silane coupling agent
Source: GCC R&D

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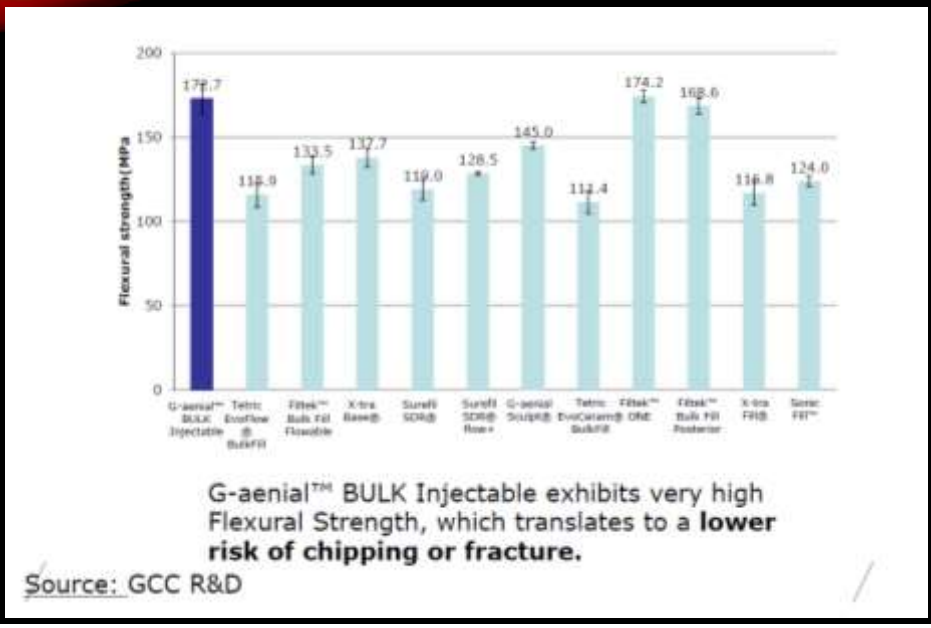
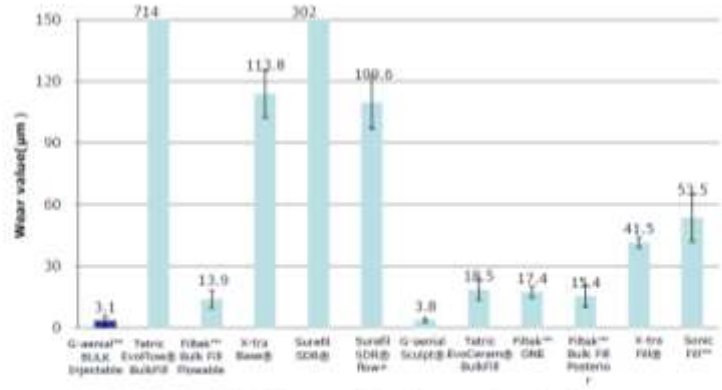

Flexural strength (MPa
200
150
100
50
0
177.7
116.9
133.5
132.7
119.0
128.5
145.0
112.4
174.2
168.6
116.8
124.0
G-aenial™ BULK Injectable exhibits very high Flexural Strength, which translates to a lower risk of chipping or fracture.
Source: GCC R&D

104



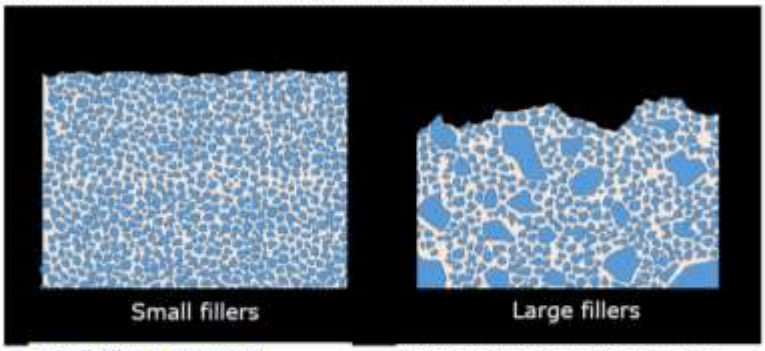
G-aenial™ BULK Injectable shows the highest wear resistance compared to the competitive set. This measure indicates that **the material will provide a highly durable and long-lasting restoration.**

Source: GCC R&D

105

WEAR RESISTANCE

GBI features **nano-particle filler technology.** When combined with Full-Coverage Silane Coating (FSC) technology, the result is a homogeneous, uniformly dispersed layer. Some competitive products feature larger particles which may be "plucked" from the surface when subjected to opposing forces within the mouth, leading to the deterioration of the restoration over time.



Small filler is dispersed uniformly, occlusal load is distributed equally and sustains less damage to the surface of material.

When high load is applied, large filler particles come off easily, causing an uneven surface which leads to a higher degree of wear.

Source: GCC R&D

106

107

108

109

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SELECT HV ETCH (BISCO) IS A 35% HIGH VISCOSITY PHOSPHORIC ACID ETCHANT AVAILABLE WITH BENZALKONIUM CHLORIDE (BAC) AND IS DESIGNED FOR PIN-POINT ACCURACY.

111

112

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G-aenial BULK Injectable

"operates like a flowable but performs like a restorative"

- Bis-GMA free / Radiopaque
- High Strength & Wear Resistance
- High density uniform dispersion nanofiller technology
- Sculptable

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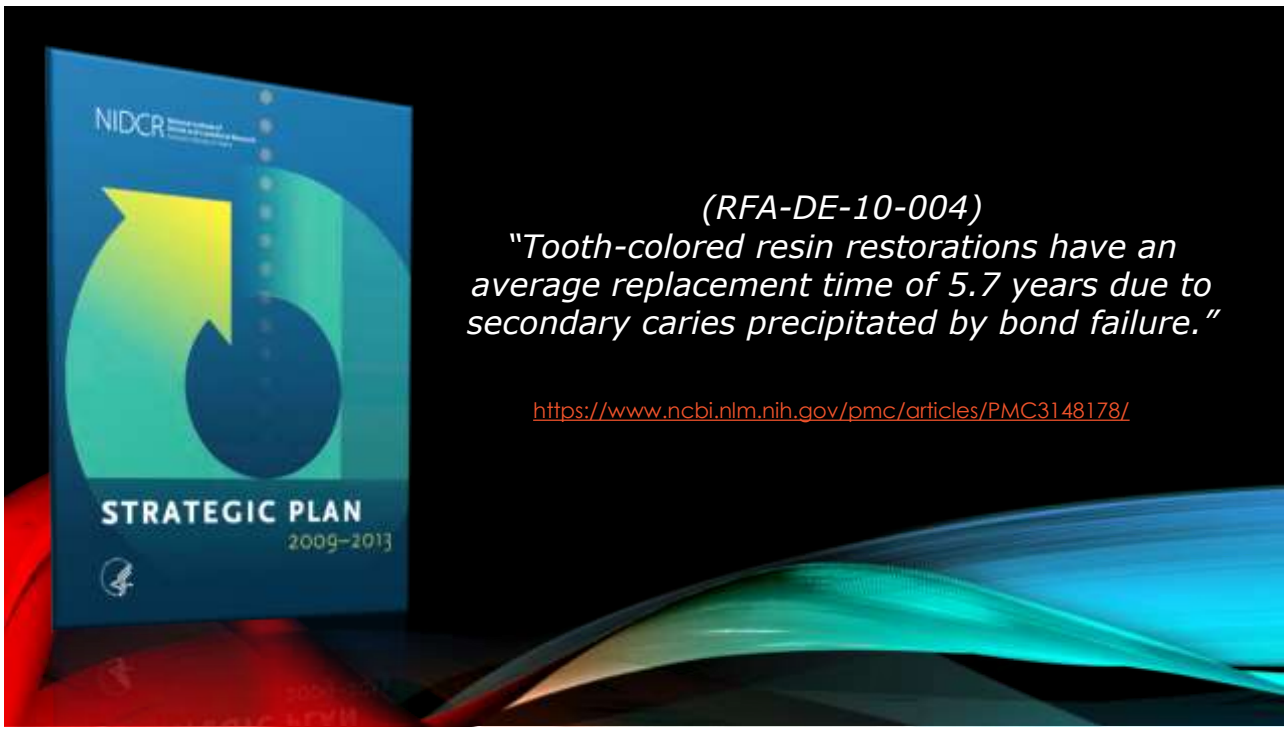
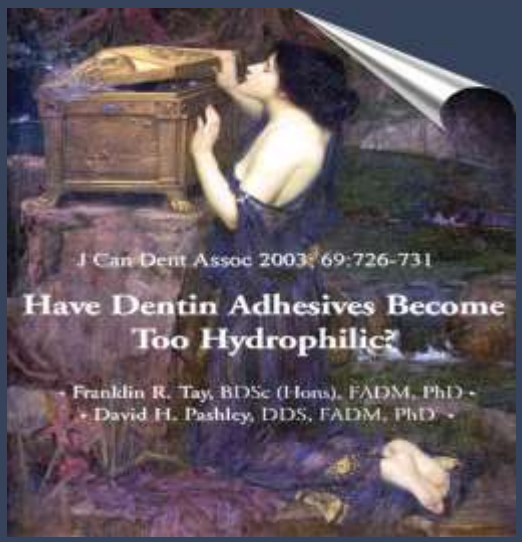

NIDCR
STRATEGIC PLAN
2009–2013
(RFA-DE-10-004)
"Tooth-colored resin restorations have an average replacement time of 5.7 years due to secondary caries precipitated by bond failure."
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3148178/

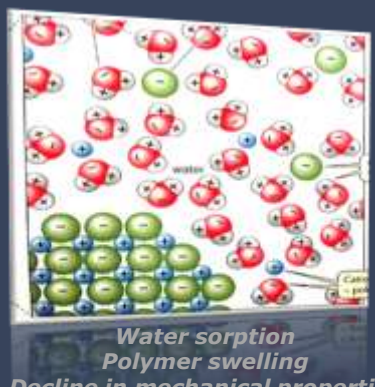
118

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

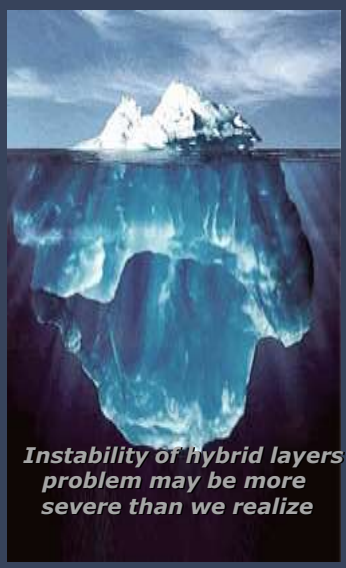


Water sorption
Polymer swelling
Decline in mechanical properties
Leaching of hydrolyzed resin components

119

Factors that compromise bond durability in restorative dentistry

Hydrophilic dentin bonding

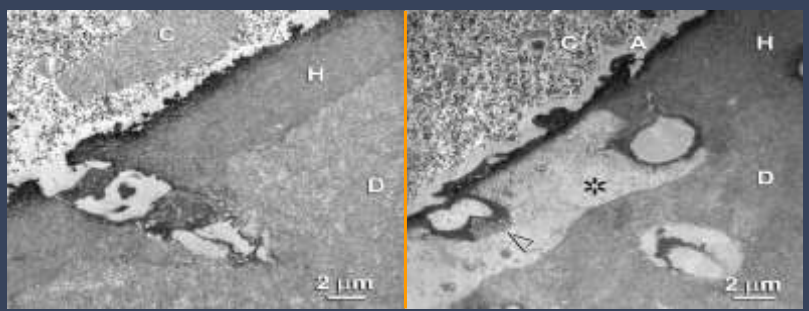


Instability of hybrid layers problem may be more severe than we realize

RESEARCH REPORTS
J Dent Res 2005; 4:741-746

J. Hebling[1], D.H. Pashley[2], L. Tjäderhane[3], and F.R. Tay[2,4]*

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



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

120

ⓘ *Factors that compromise bond durability*

Hydrophilic dentin bonding

RESEARCH REPORTS
J Dent Res 2004; 83:216-221

Collagen Degradation by Host-derived Enzymes during Aging

D.H. Pashley[1]*, F.R. Tay[2], C. Yiu[3], M. Hashimoto[4], L. Breschi[5], R.M. Carvalho[6], and S. Ito[4]

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

Sukala et al. (2007)
Mazzoni et al. (2007)

121

BOND DEGREDATION

- 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.

122

ranking of adhesives - micro-tensile data

		mean*	control SE**
4th	Optibond FL	48.2	3.1
6th	Clearfil SE Bond	41.0	1.9
5th	XPBOND	39.3	4.1
	Optibond Solo Plus	39.2	5.6
7th	Clearfil Protect Bond	39.2	2.7
	G-Bond	38.8	4.0
	Optibond Solo Plus Self-etch	37.4	1.5
	Hybrid Bond	37.3	0.3
	Scotchbond 1	35.7	1.7
	Adper Scotchbond 1 XT	35.7	2.4
	Clearfil S³ Bond	34.8	3.4
	Prime&Bond NT	32.3	2.9
	One-Step	32.1	2.4
	Adper Scotchbond Multi-purpose	31.3	2.9
	Fluoro Bond Shake One	29.2	4.0
	Clearfil Liner Bond 2V	28.6	8.7
	Syntac Single Component	28.1	7.2
	Prompt L-Pop	25.8	4.4
	Tyrian SPE/one-step Plus	25.8	2.3
	AdheSE	25.5	6.3
	Adper Prompt L-Pop	25.2	3.5
	One-up Bond F	24.9	2.1
	Xeno III	23.8	2.2
	iBond	23.5	2.9
	Etch & Prime 3.0	17.8	1.4

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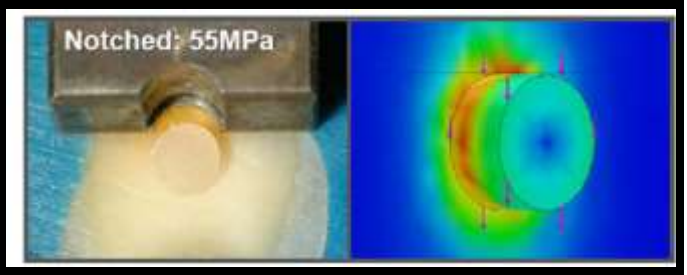
124

•Courtesy Pacific University (Dr Marc Guisberger)

125

INSTRON

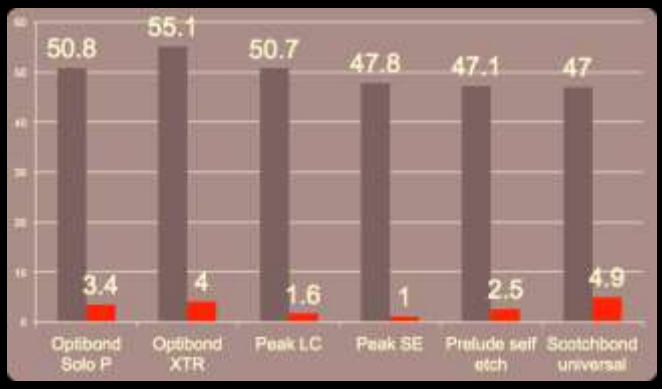
- Ultra Tester (Ultradent)
- Ultra Jig (Ultadent)



126

Courtesy Pacific University (Dr Marc Guisberger)

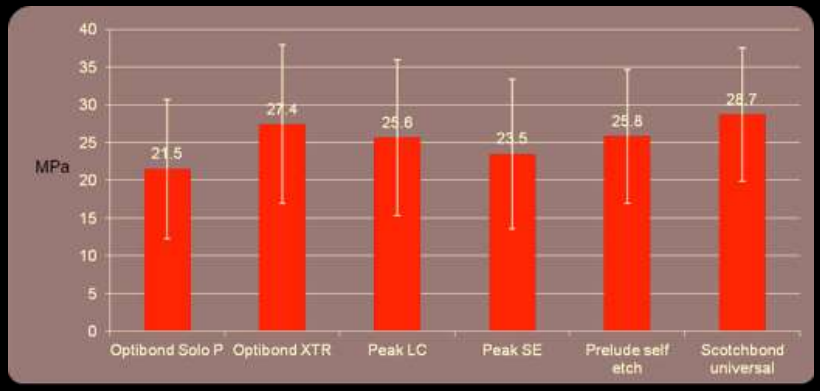
SHEAR BOND TEST RESULTS - 2012



127

Courtesy Pacific University (Dr Marc Guisberger)

SHEAR BOND TEST RESULTS - 2012



128

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

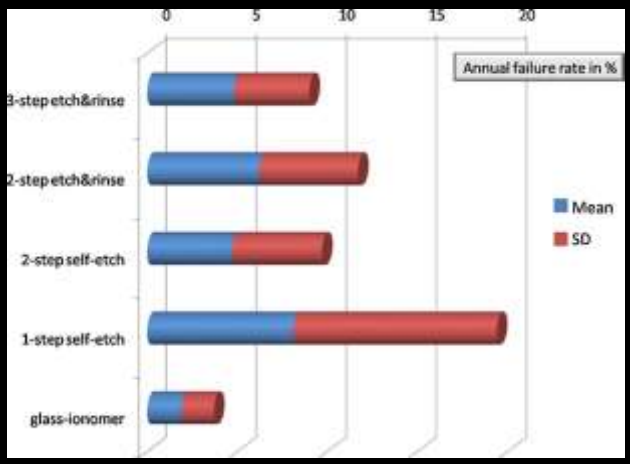


Fig. 15 – Graph representing the mean annual failure rates per adhesive class, determined according to a systematic review of Class-V clinical trials of adhesives during the period 1998–2004 [2].

129

CLINICAL TIPS WITH UNIVERSAL ADHESIVES

1. Air Dry The Water Based Adhesive or Primer Fully To Evaporate Water. The Universal, Single-Bottle Adhesives Have Higher Concentration of Water & Alcohol, So Make Sure To Air Dry About 10's Until Water Is Evaporated.

2. Inadequate Drying Will Result in Lower Bond Strengths Water, Alcohol & Acetone Prevent The Resin From Curing So They Must Be Evaporated.

130

COMPOSITE PLACEMENT REVIEW

- Etch enamel and Self etch dentin
- OR Total Etch
- Flowable on just the pulpal floor 0.5mm
- Horizontal layering (2mm Increments) {Stay within similar dentin bond strengths}
- OR Dentin Replacement & Cap
- OR Bulk Fill
- Complete curing (use LED curing lights)

https://www.aegisdentalnetwork.com/id/2017/06/the-protocols-of-biomimetic-restorative-dentistry-2002-to-2017?page_id=296

131

DRAWBACKS OF ANY COMPOSITE RESIN

- Material placement techniques
- Variable substrate
- Polymerization stress & shrinkage
- Water absorption
- Hydrophobic bonding agents
- Decreased adhesive bond strength over time
- MMPs and Cathepsins
- Microleakage

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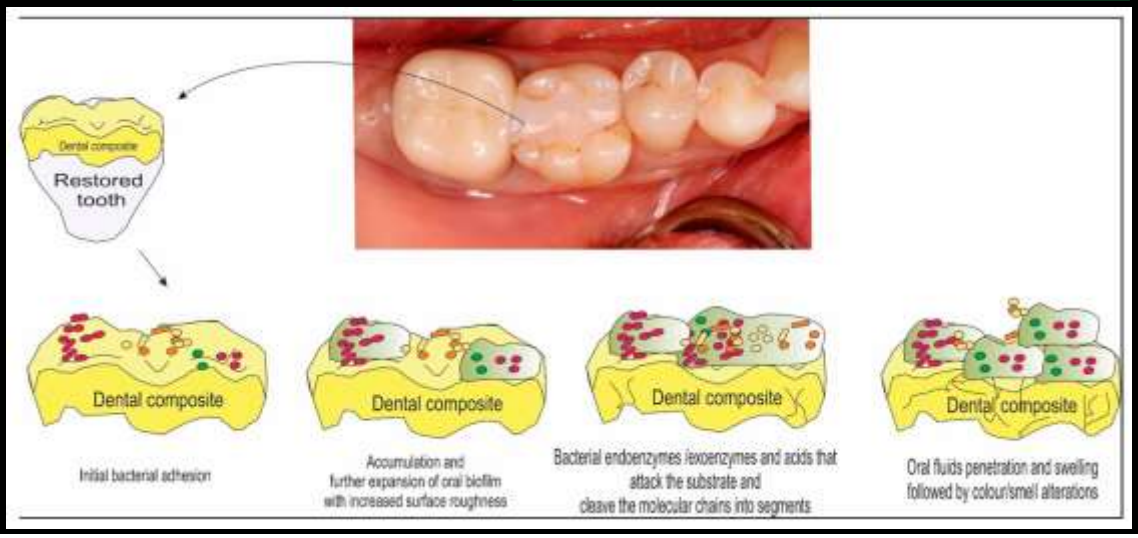
ORAL BACTERIA DEGRADATION OF RESIN RESTORATIONS



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MORE RESEARCH

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

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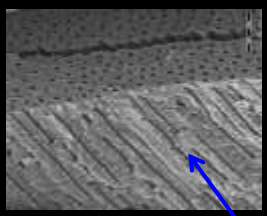
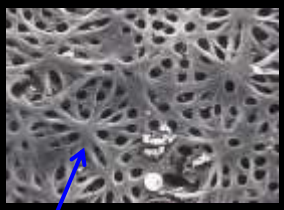
Deep Preparations

- Bonding Agent, Flowable & a Layered NanoHybrid Composite
- Conventional Glass Ionomer, Bonding Agent & then Composite

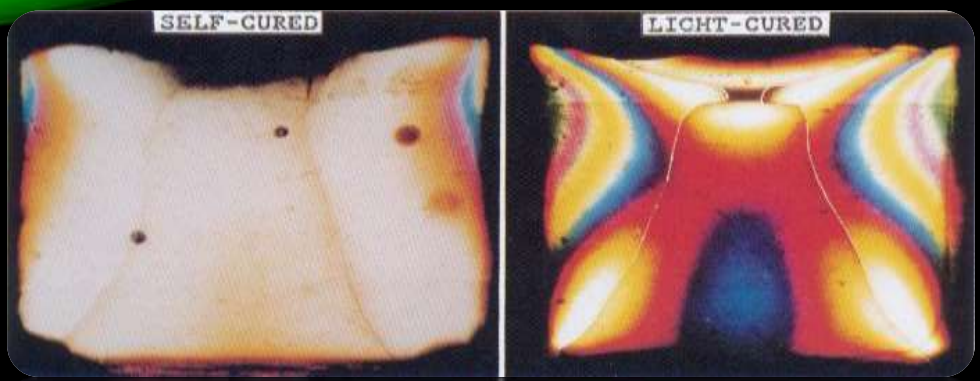




- Fluoride Release
- High compressive strength
- Hydrophillic
- Insoluble
- True chemical adhesion
- Minimizes microleakage
- No sensitivity
- Acid Base Resistant Zone
- Decreased gap formation & C Factor
- Coefficient thermal expansion similar to dentin

135

Internal (Polymerization) Stresses of Bulk Cured Composites



"A Simple Pain-Free Adhesive Restorative System by Minimal Reduction & Total-Etching
Takao Fusayma DDS,
Tokyo Medical & Dental University

136

SELF CURE BULK FILL….

- Danville-BulkEZ
- Coltene-Fill-Up!
- Parkelll-HyperFil

Competitive Bulk Fill Composites	Microleakage scores
Bulk fill -- M	2.8 ± 1.3
Bulk fill -- K	2.8 ± 1.1
Bulk fill -- D	2.8 ± 1.6
Bulk EZ™	0.2 ± 0.4

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BULK FILL SELF CURE MATERIAL

Releases/recharges calcium, phosphate and fluoride
Chemically bonds and seals tooth

138

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.

146

Why Glass Ionomers?

- They produce good marginal integrity.
- They shrink only one ninth the amount of composite material.
- They are fluoride-rechargeable.
- There are no free monomers in the material.
- The cavity preparation can be bulk-filled, making the materials easy to place.
- They exhibit excellent biocompatibility.

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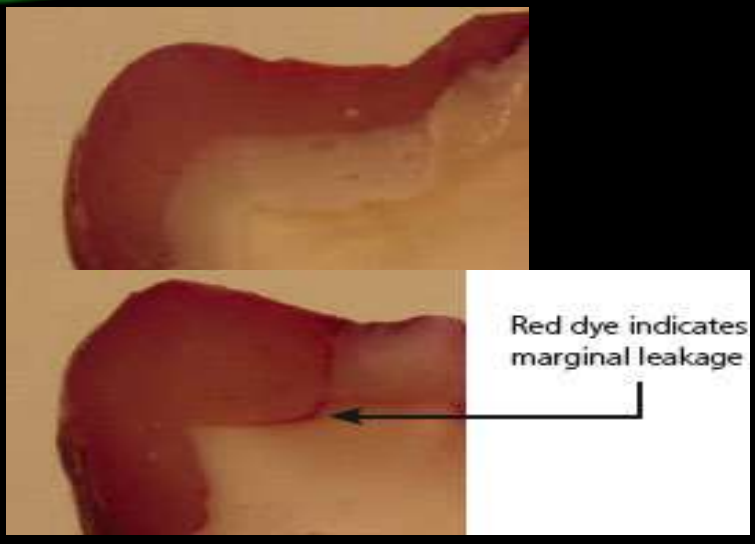
GLASS IONOMER SANDWICH



- 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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microleakage testing in vitro using three different bases under composites

T. DUONG, L. TRAN, R. PERRY , 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 MO/DO: 2mm occlusal depth, 2mm axial box depth, 3-5mm gingival box width, and 1mm gingival margin below CEJ. Teeth were randomly divided into three groups of twelve (groups 1-2 = glass ionomer; group 3 = flowable resin): Group 1-Riva Light Cure GI (SDI), Group 2-Riva Self Cure GI (SDI), Group 3-Esthet-X Flow (DENTSPLY Caulk). All groups were primed with Clearfil SE Bond Primer and Bond (Kuraray). All samples were then restored using ICE 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 fuchsin 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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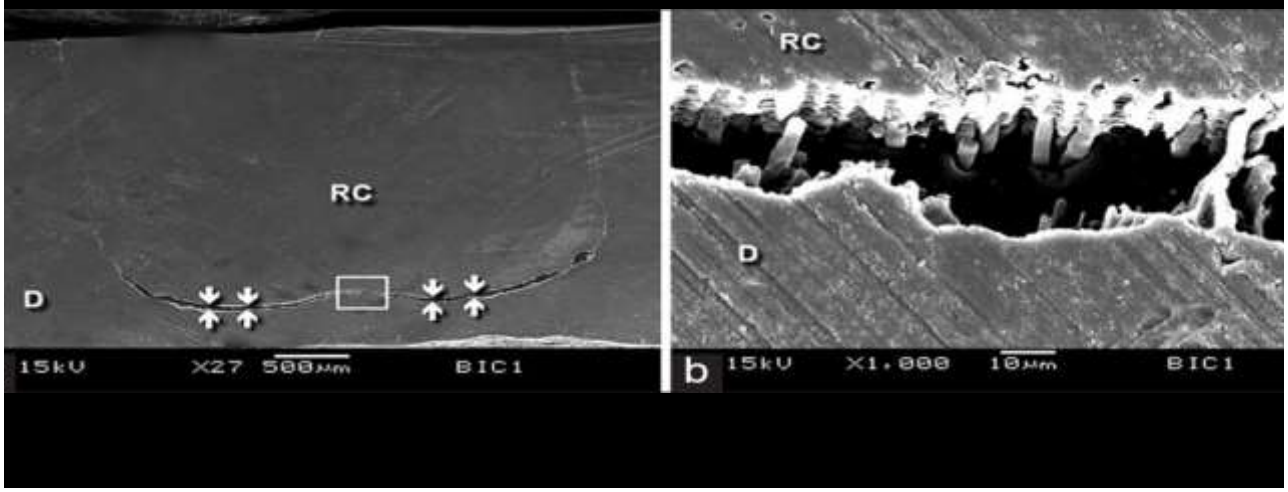
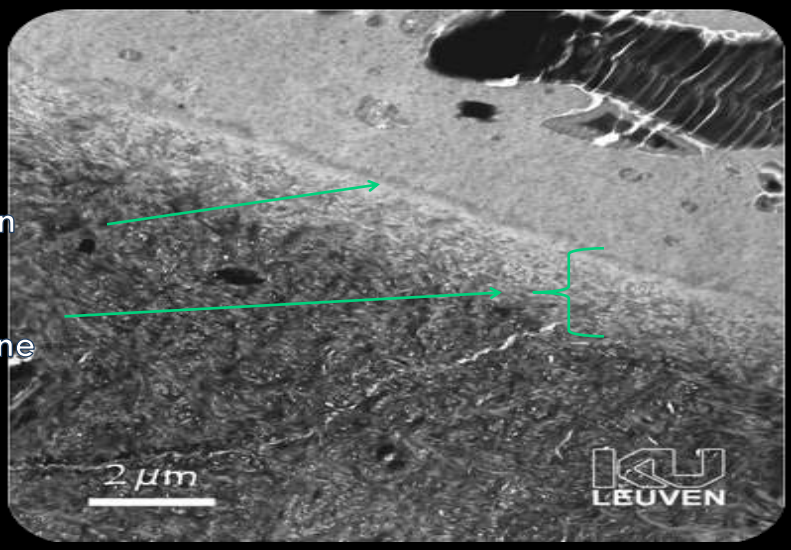
RESIN TO DENTIN HYBRID ZONE



150

GLASS IONOMER INTERFACE



Interface Analysis (TEM)

CARDOSO et al. J Dent 2010

151

Open Sandwich with glass ionomer & nanohybrid composite

152

When dentin is missing, use conventional glass ionomers to replace it. But it self hardens which will take a couple minutes. It is the best dental material available today that virtually mimics dentin. No adhesive is required, and sensitivity is non-existent. Like dentin, conventional glass ionomers have a very high compressive strength, ensuring it will withstand long term mastication forces.

If you want something faster you can place a thin layer of a resin modified glass ionomer as a first layer and then light cure, followed by your adhesive filling protocols.

154

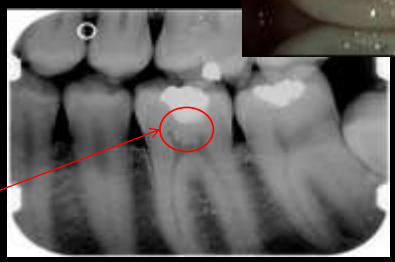
GLASS IONOMER MATERIALS

- Dentsply-ChemFil Rock Restorative
- SDI-Riva LC, light cure HV, Riva SC, self cure HV
- G.C. America-Fuji II LC, Equia Fil (Fuji IX)
- VOCO-Ionolux, Ionofil Molar AC
- 3M/ESPE-Ketac Nano, Photac Fil Quick, Vitremer, Ketac Molar Quick, Ketac Fil Plus
- Shofu- FX II

155

LARGE SIZED LESIONS (>2MM)

- Mostly dentin
- Dentin has more moisture and less substanc
- Open and Closed defects
- Complications & Risks are higher
- Porous, Wet, Dentin Available
- Interproximal concerns
- Increased Occlusal Loading
- Remaining Tooth Structure



Pulpal Proximity

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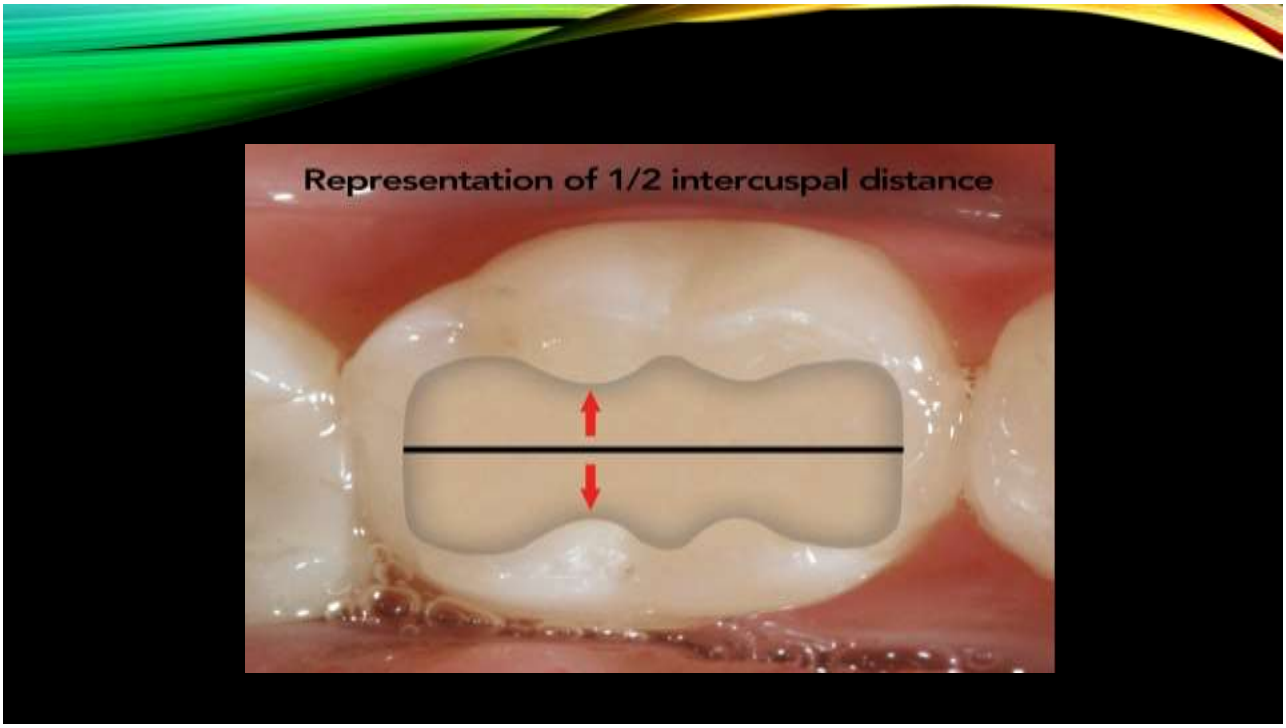

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EQUIA FORTE HT

EQUIA FORTE™HT is a complete system that is an ideal solution for posterior restorations:

- *Class I, II, III and V posterior restorations*
- *Composite replacement*
- *Amalgam replacement*
- *High caries risk patients*
- *Pediatric patients*
- *Geriatric patients*
- *Special needs patients*
- *Buildups*
- *Long term provisionals/Emergencies***

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EQUIA FORTE HT

Caries control/quadrant dentistry

(Class II, III, V & core buildup)

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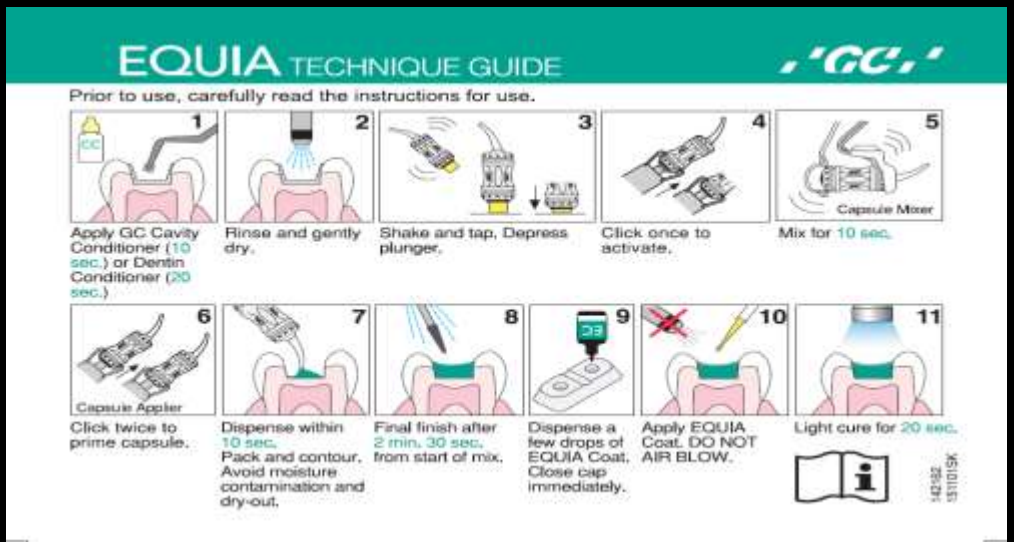
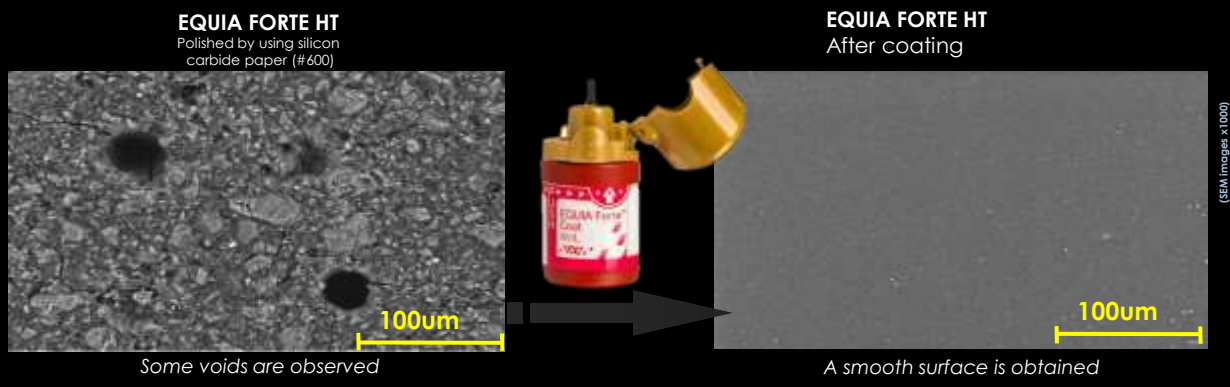


160

WHAT DOES EQUIA COAT DO?

Fill porosities to increase physical properties of the restoration and offers a much smoother surface…



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GLASS IONOMER VS. OPEN SANDWICH

162

GLASS IONOMER VS. OPEN SANDWICH

- 10 years later.

163

ABFRACTION LESIONS

164

Flowables?

165

TYPICAL COMPOSITE BREAKDOWN

Microleakage and missing fillings from high occlusal loads on teeth can cause large cervical stress concentrations resulting in disruption of the bonds between the hydroxyapatite crystals and the eventual loss of cervical enamel and dentin.

166

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.**

167

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

168

GC FUJI AUTOMIX LC

169

RESIN MODIFIED GLASS IONOMER RESTORATION

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

170

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.

171

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.

172

Restorative Therapy- Case

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

173

Restorative Therapy- Case

Eleven 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.

174

V3 RING®

NiTi only spring

Anatomically shaped tines

Built in lip for increased stability in forceps

V-Shaped glass reinforced autoclavable plastic tines (leaves room for the wedge)

175

176

Polydentia SA

QUICKMAT DELUX

Class II Direct Composite

QUICK RINGS & SILICONE RUBBER ADAPTERS
MICROTHIN MATRICES 0.025MM (0.001 IN)
WOODEN WEDGES

177

PALODENT PLUS-DENTSPLY

Identical except for color

178

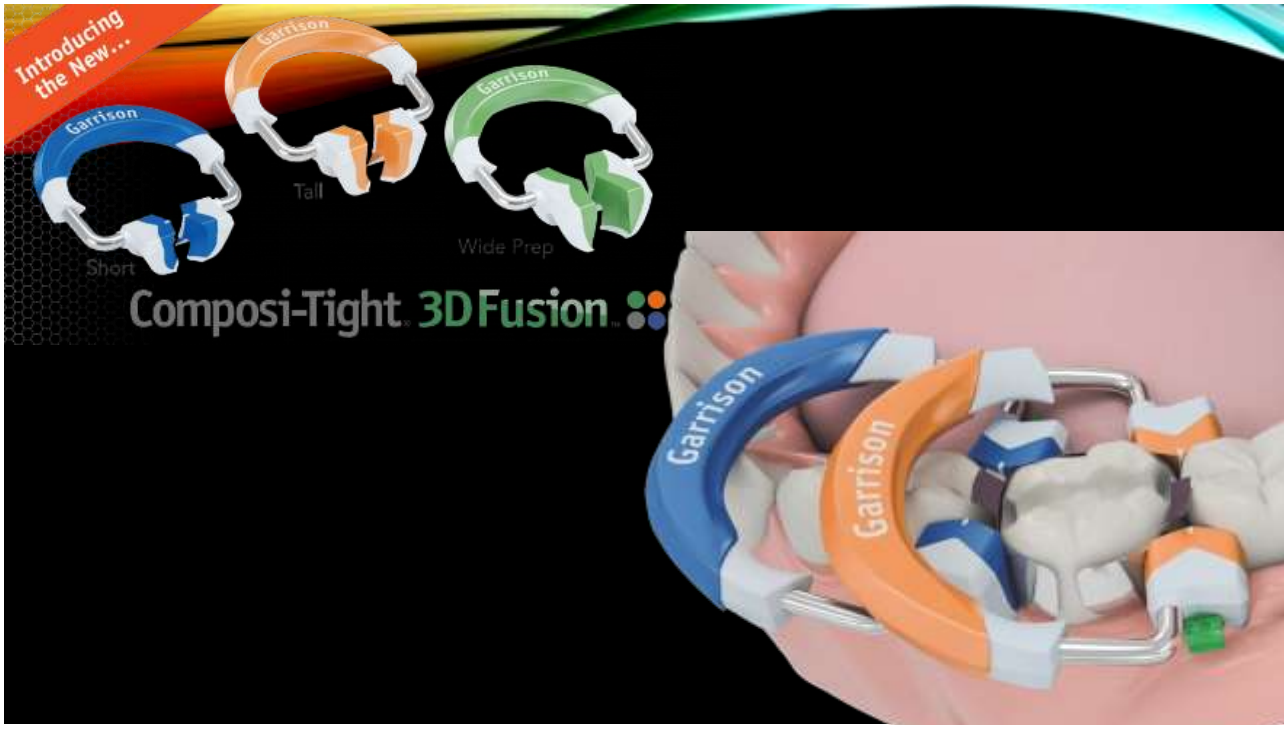
CLINICIAN'S CHOICE

DUALFORCE™
SECTIONAL MATRIX SYSTEM

179

Garrison Dental 3D Ring System

180



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REVIEW

Direct Restorations

- Modern Diagnostic Tools
- Minimally Invasive Preparation
- Isolation
- Occlusion
- Type of Substrate
- Caries Risk
- Select HV Etch, All Bond Universal, TheraCal LC, Cavity Cleanser
- G-aenial Injectable Composites
- Thin layer of flowable as first incremental layer on floor only
- Glass Ionomers as a restorative option with excellent long-term benefits to patients (Equia Forte HT, Fuji II LC)
- Matrix Options

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20% OFF!

Dr. Todd Snyder: **20SNYDER**

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Online Training For Dentists
www.LEGIONpride.com

- Reduce Your Stress & Build A Better Life & Business
- Better Business & Communication Skills
- Incredible Marketing & Advertising
- Front Office Simplification
- Office Metrics/KPI
- Responsive Websites, Social Media
- Enhance Diagnostic Skills & Procedures
- Photography
- Elective Dentistry / Less Insurance Dependence
- Cosmetic & Restorative Dentistry
- New Materials, Techniques, Technology & more..

LEGION

184

LECTURE HANDOUT

www.DENTOOLZ.com

Digital Handouts, Products I Use & Special Offers

185

@TODDSNYDERDDS

@legionpride

186

THANK YOU!

TODD C SNYDER, DDS, FAACD, FIADFE, ASDA, ABAD
doc@tcsdental.com

www.drtoddsnyder.com
@toddsnyderdds
@LEGIONpride

Questions?

187

Now it's time to play - Spin to Win

Everyone's name has automatically been entered for an opportunity to receive an e-gift card and product giveaways.

188

Thank you for attending

Tonight's CE Program

with Dr. Todd Snyder

LEARN ENGAGE EXCEL

189

191

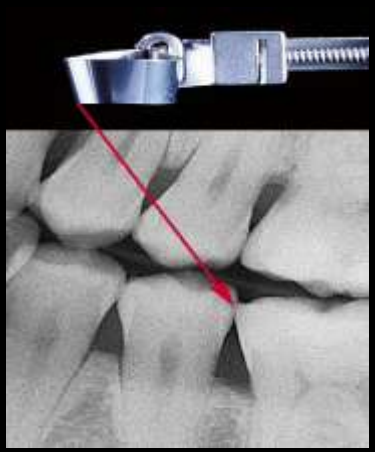
INTERPROXIMAL CONCERNS & ISSUES

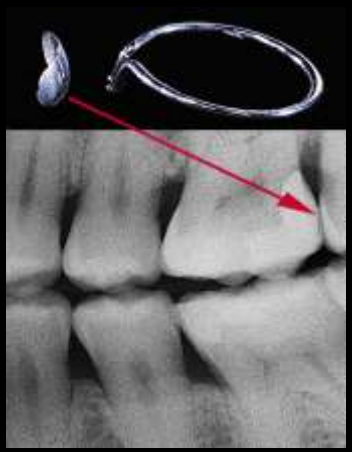
- Voids
- Sensitivity
- Condensing
- Shape
- Flash
- Contact
  - Position
  - Tightness

192

PROBLEM & SOLUTION

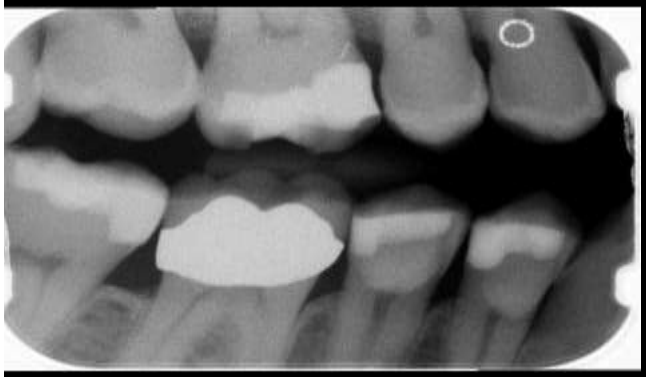
TOFFLEMIRE VS. SECTIONAL MATRICES





193

PROBLEMS
TOFFLEMIRE MATRICES OFTEN CREATE FLAT & OPEN CONTACTS



194

SOLUTION
SECTIONAL MATRICES

NiTi only spring

Anatomically shaped tines

Built in lip for increased stability in forceps

V-Shaped glass reinforced autoclavable plastic tines (leaves room for the wedge)

V3RING

195

V3 RING®

Universal V3 Ring *Narrow V3 Ring*

TrioDent has developed *Narrow V3 Ring* in addition to the *Universal V3 Ring* to ensure ideal separation on smaller teeth.

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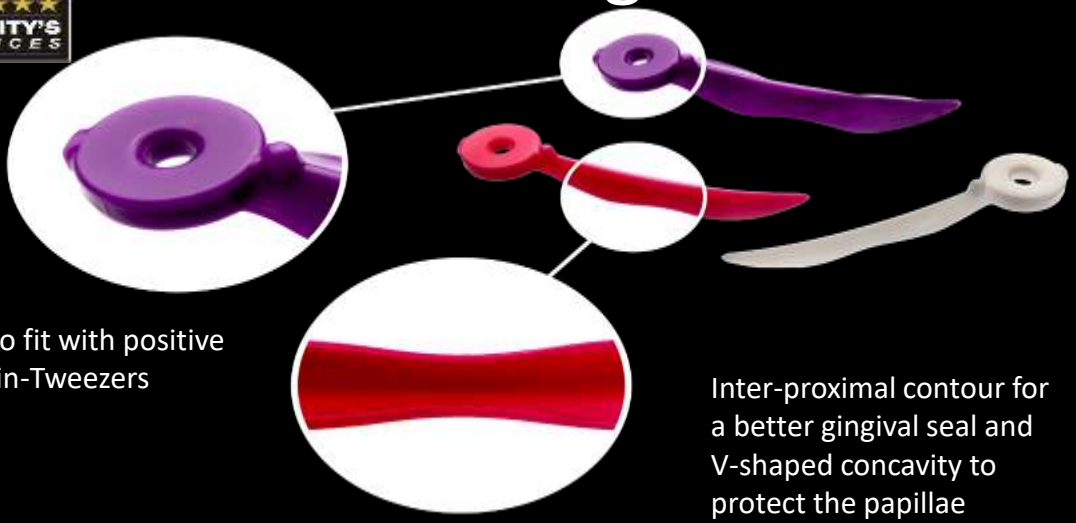
REALITY Five Star Award ★★★★★ REALITY'S CHOICES

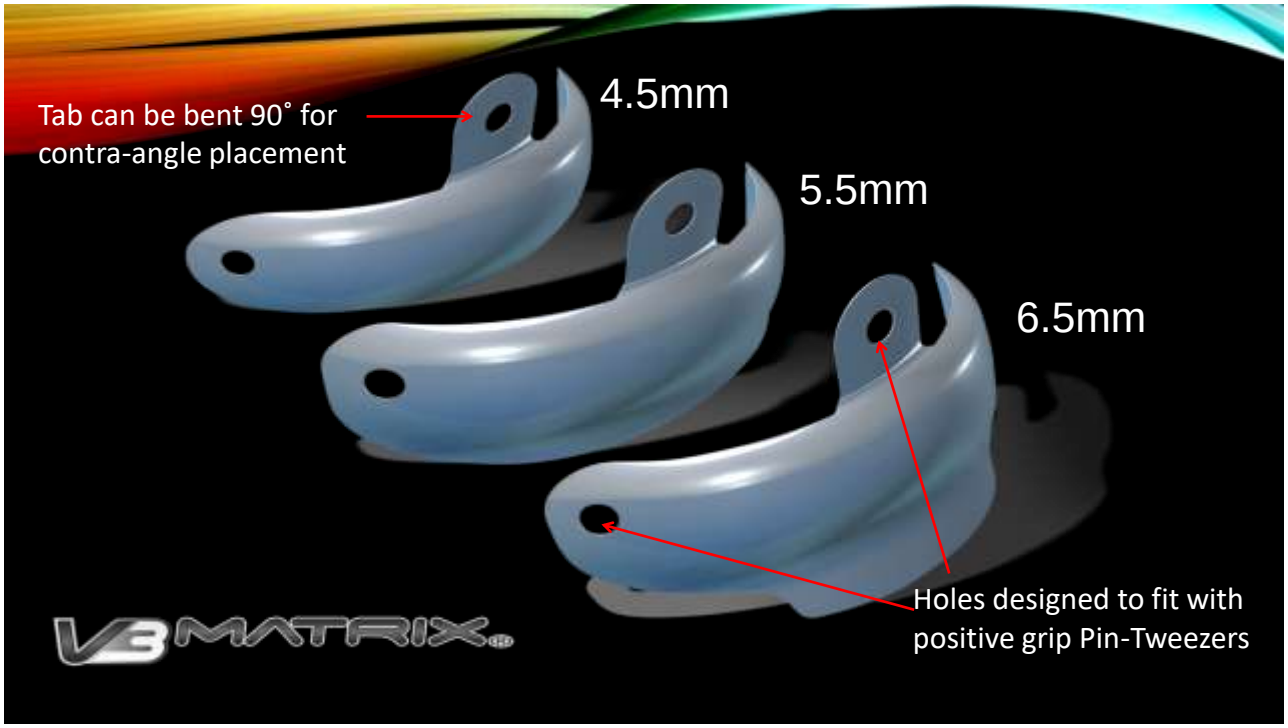
Wave Wedge



Hole to fit with positive grip Pin-Tweezers

Inter-proximal contour for a better gingival seal and V-shaped concavity to protect the papillae

198


Tab can be bent 90˚ for contra-angle placement
4.5mm
5.5mm
6.5mm
Holes designed to fit with positive grip Pin-Tweezers
V3 MATRIX

199

V3 SYSTEM
TrioDent

200

201

202

203

triodent

205

PALODENT PLUS-DENTSPLY

Identical except for color

206

SUPERCURVE

SUPER SNUG, NON-STICK

- Micro-thin – 35-38µ (0.0014”)
- Color-coded for easy recognition and re-ordering
- Matrix very stable after placement
- Less risk of catching matrix wings during ring placement, especially with a back-to-back MO/DO

208

SOLUTION
OMNI MATRICES (ULTRADENT)
STILL HAVE A PLACE IN DENTISTRY

209

210

Polydentia SA

QUICKMAT DELUX

Class II Direct Composite

QUICK RINGS & SILICONE RUBBER ADAPTERS
MICROTHIN MATRICES 0.025MM (0.001 IN)
FOR MY TINY PREPARATION DESIGNS

211

212

213

214

215

216

217

218

219

CLINICIAN'S CHOICE
VERY STRONG SEPARATION FORCE

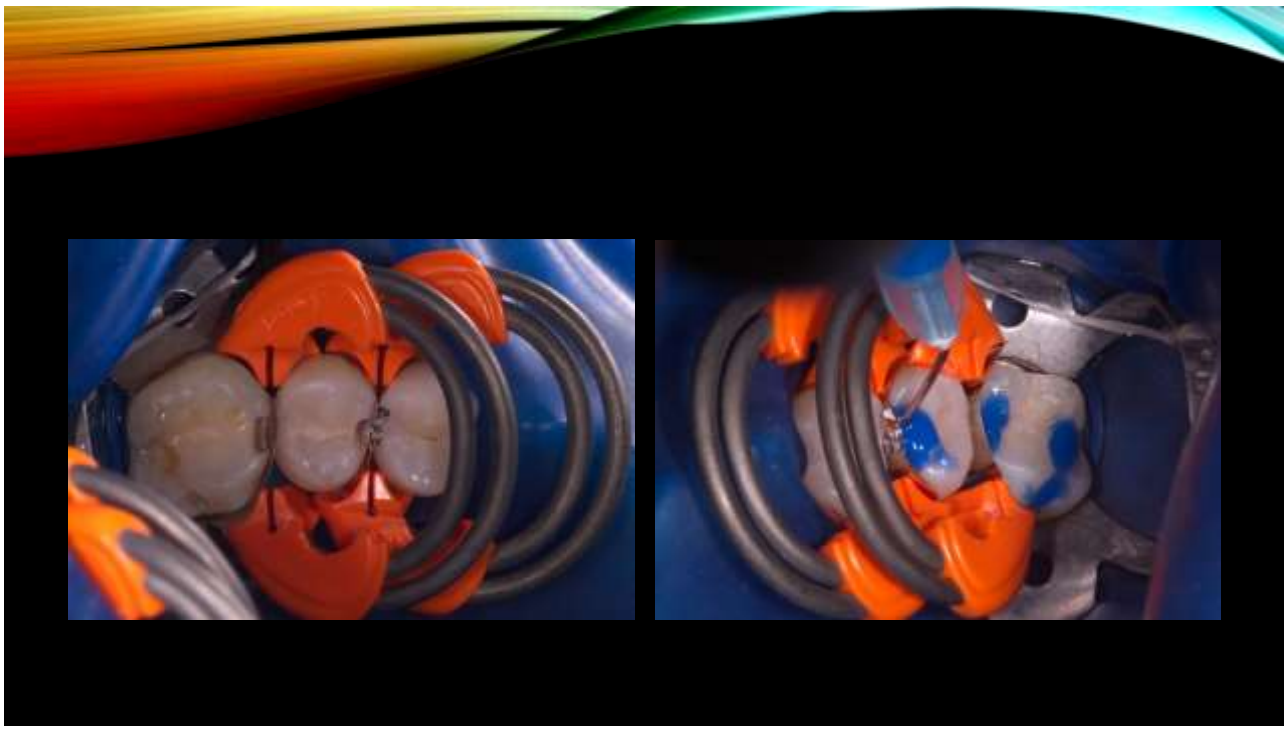
DUALFORCE™
SECTIONAL MATRIX SYSTEM

220

221

222

223



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225

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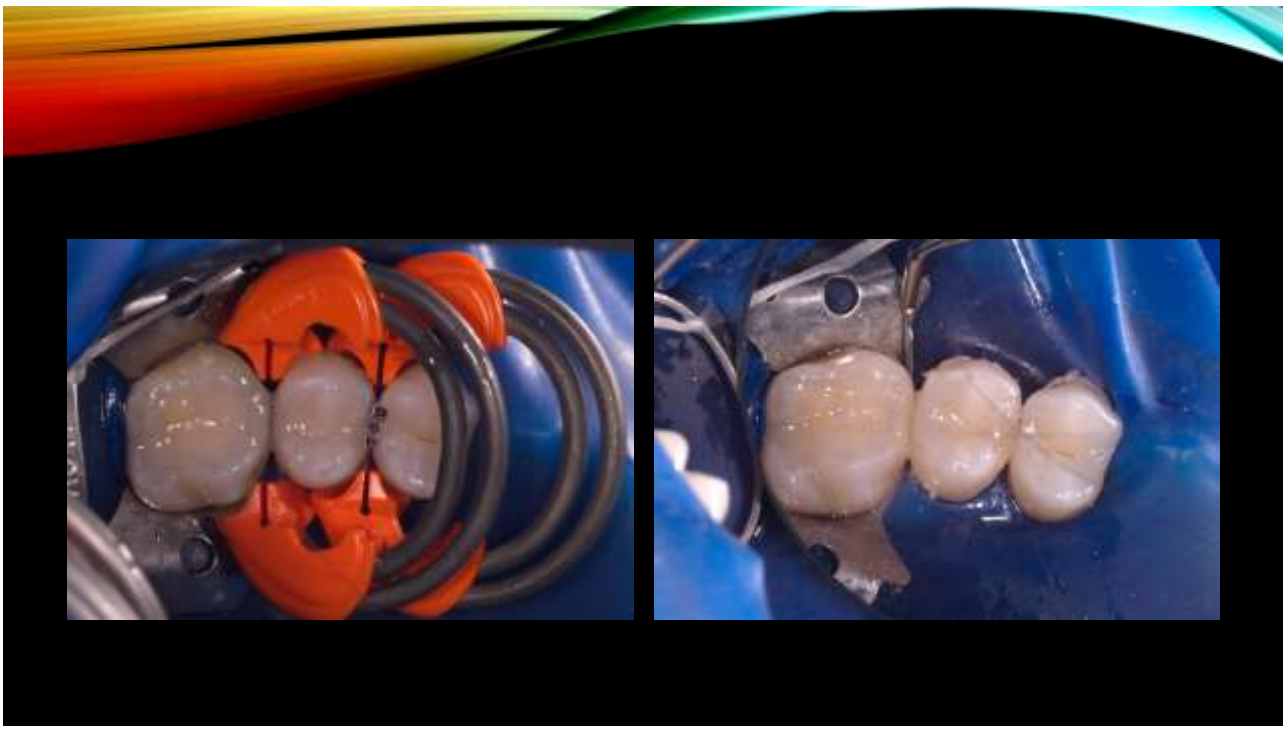
227



228

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Garrison
Garrison
Garrison
Older Garrison Dental Ring Systems

234

Introducing the New...
Garrison
Short
Garrison
Tall
Garrison
Wide Prep
Composi-Tight 3D Fusion
GARRISON
SECTIONAL MATRIX SYSTEM
Garrison
Garrison

235

Wide Prep?
No problem.
Garrison
Garrison
Garrison

236

Employee Education Technology Online

- Efficiency 24/7
- Accountability

ALL-STAR DENTAL ACADEMY
TRAINING WITH INTEGRITY

TIP

238

PHONE SUCCESS

- 14 Modules
- Quizes
- Exam

ALL-STAR DENTAL ACADEMY
TRAINING WITH INTEGRITY

Unit 1	Introduction Rapport
Unit 2	Foundation of Rapport
Unit 3	Fundamental Techniques in Handling People
Unit 4	Six Ways to Make People Like You
Unit 5	Mirroring & Matching
Unit 6	Outcome of Calls
Unit 7	How to Build Rapport
Module 5	**Rapport 2: Personality types**
Unit 1	The Know-it-All
Unit 2	The Storyteller
Unit 3	The Easy Peasy
Unit 4	The Rusher
Unit 5	The Informationalist
Unit 6	The Nervous Nelly
Unit 7	The Indecisive
Unit 8	The Price Shopper
Module 6	**Rapport 3: Advanced rapport**
Unit 1	Empathy
Unit 2	How Long to Build Rapport
Unit 3	VIP Process
Unit 4	Positive Language
Unit 5	Elements of the Rapport Process
Unit 6	Phone Success Quiz #02
Module 7	**Engage: Foundation**
Unit 1	Introduction to the Engage
Unit 2	What is Engage

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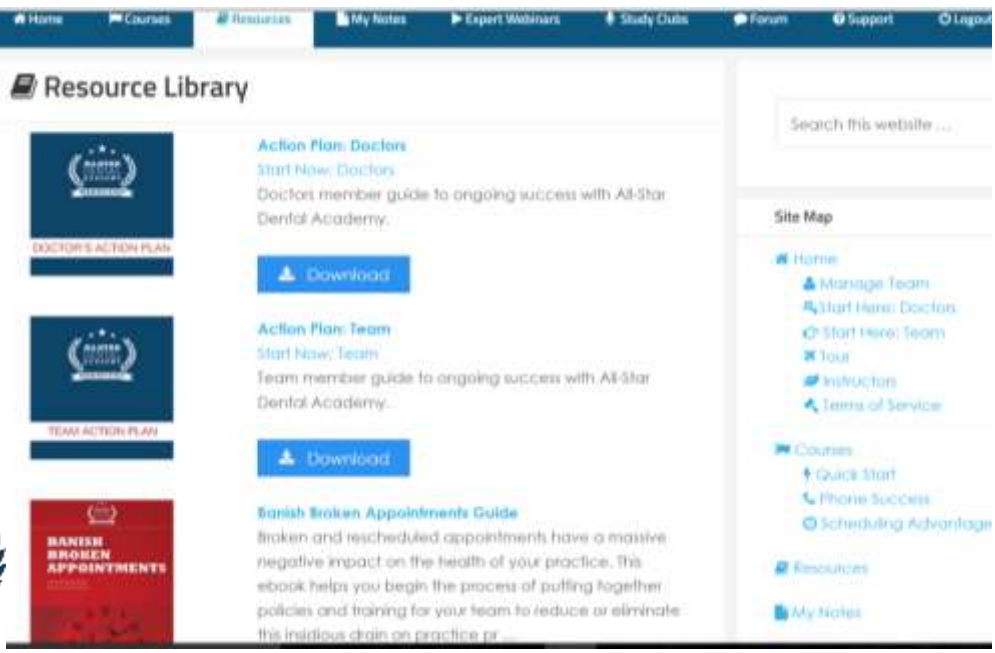
SCHEDULING ADVANTAGE

- 13 Modules
- Quizes
- Final Exam

ALL-STAR DENTAL ACADEMY
TRAINING WITH INTEGRITY

	Goal
Module 5	**Working with Emergencies**
Unit 1	Emergencies
Unit 2	Scheduling Quiz #01
Module 6	**Broken & Changed Appointments**
Unit 1	Introduction
Unit 2	Broken Appointment Policy
Unit 3	Handling Broken Appointments
Unit 4	Broken Appointments COSTS
Unit 5	What patients must know
Unit 6	Important Points
Module 7	**Confirmations**
Unit 1	Confirmations
Module 8	**Early and Late Patients**
Unit 1	Early and Late Patients
Unit 2	Scheduling

240



ALL-STAR DENTAL ACADEMY
TRAINING WITH INTEGRITY

241

97% of offices don't train.

1. Telephone Skills
2. Customer Care Protocols/Scheduling
3. Team's Role/Training
4. Resource Library
5. 24/7

(954) 323-2220

Ask for HEATHER

All-STAR DENTAL ACADEMY
TRAINING WITH INTEGRITY

242

TIP

VOIP SYSTEM INTEGRATES WITH YOUR PRACTICE MANAGEMENT SOFTWARE & MORE

243

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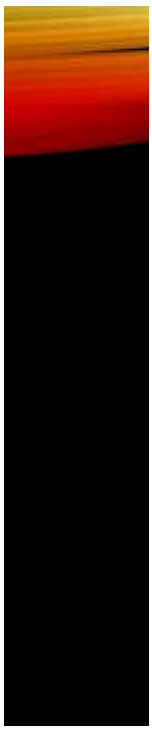

WEAVE MOBILE APP

-Same functionality on your cell phone

-From anywhere you have a wifi or cell connection.

Check it out for your self

http://try.getweave.com/automation/

245

248

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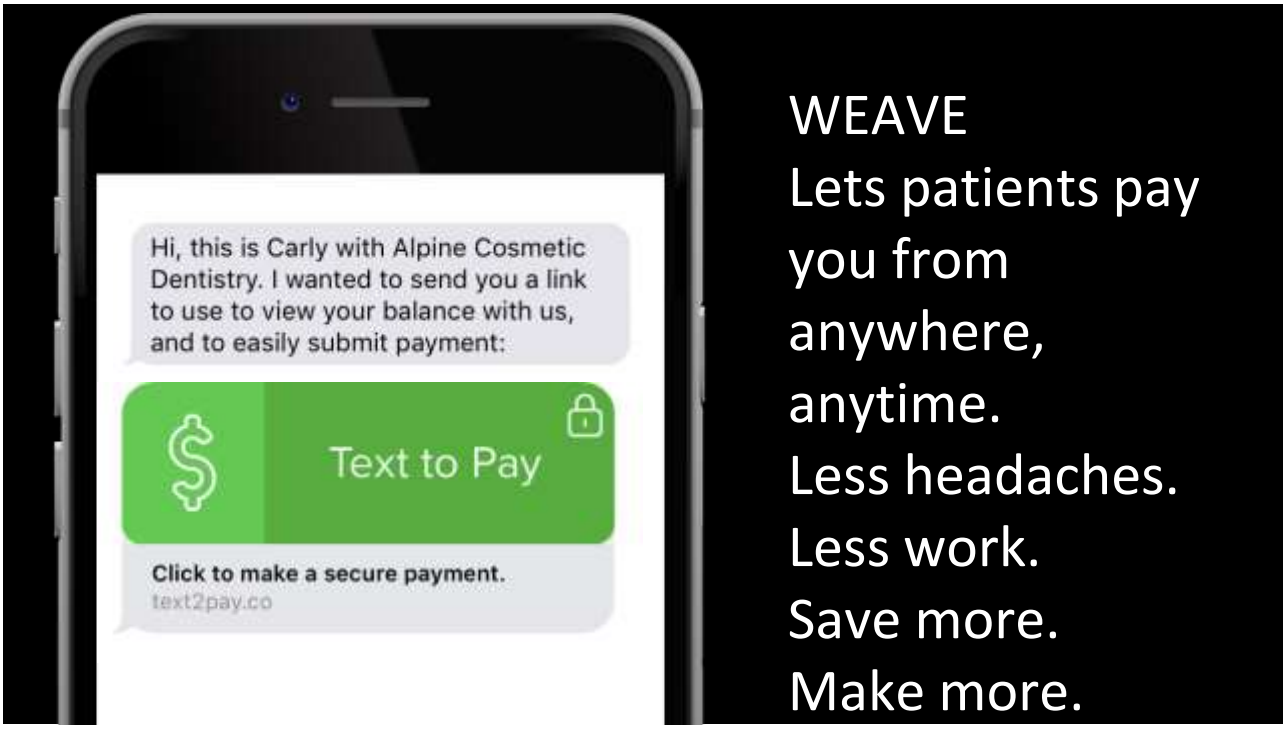
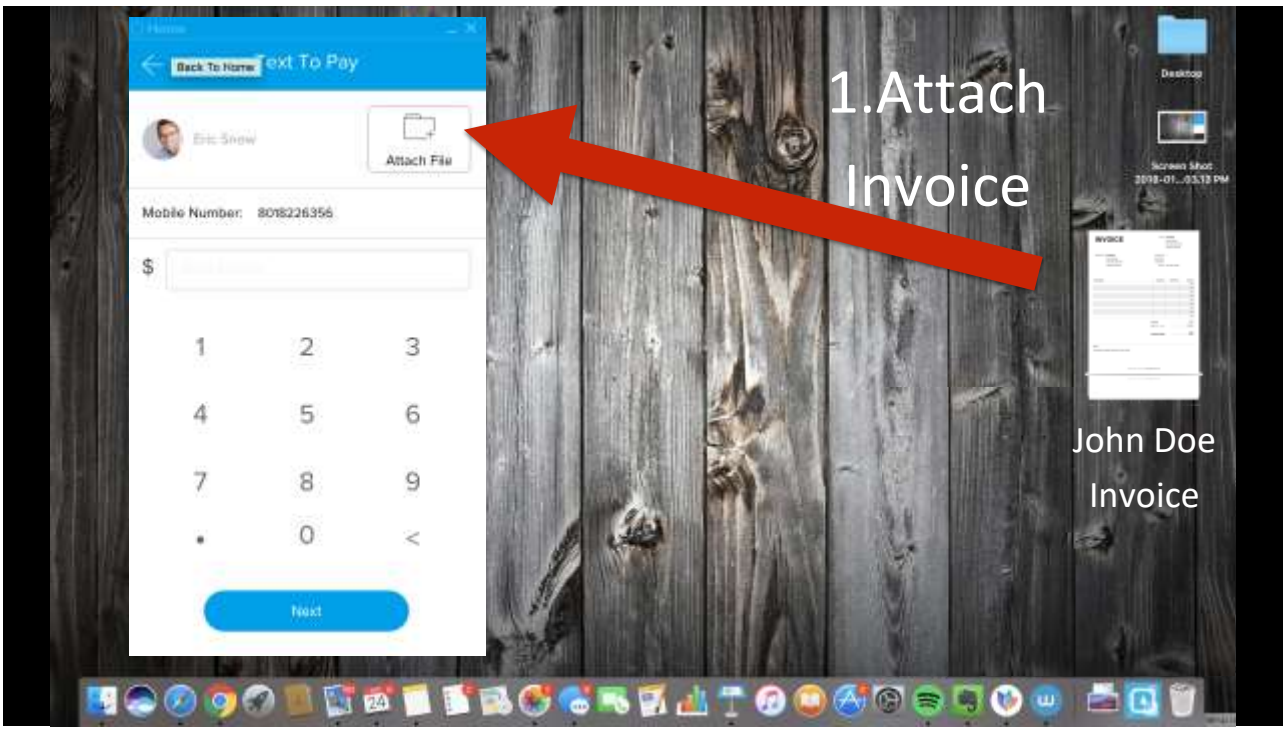

Hi, this is Carly with Alpine Cosmetic Dentistry. I wanted to send you a link to use to view your balance with us, and to easily submit payment:
Text to Pay
Click to make a secure payment.
text2pay.co
WEAVE
Lets patients pay you from anywhere, anytime.
Less headaches.
Less work.
Save more.
Make more.

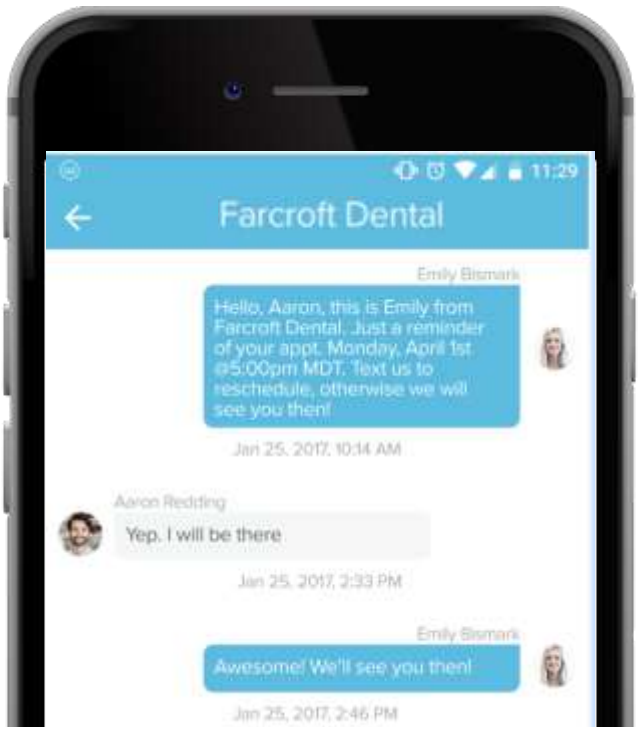
253


Back To Home
ext To Pay
Attach File
Mobile Number: 8018226356
$
1 2 3
4 5 6
7 8 9
. 0 <
Next
1.Attach Invoice
John Doe Invoice

254

weave

255



weave

256

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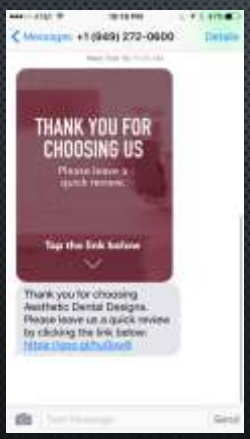
WEAVE REMOVES THE TEAM IN TEAMWORK

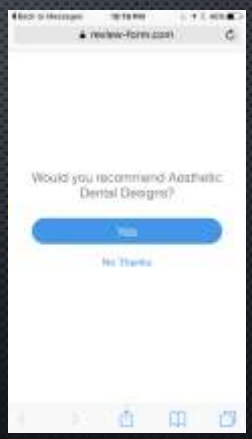
- AUTO CONFIRMS APPOINTMENTS AND ADDS TO THE PRACTICE MANAGEMENT SOFTWARE
- ANALYTICS
- MASS EMAILING, FAX, TEXT, PAY BY PHONE
- AUTO BIRTHDAY MESSAGES
- AUTO PROPAGATION OF MESSAGES
- EASY TO IMPLEMENT WITH MINIMAL TIME TO USE.
- IMPROVE BUSINESS OPPORTUNITIES DRAMATICALLY
- CUTS DOWN ON CURRENT EMPLOYEE TIME BY STREAMLINING MANY TASKS
- SAVES MONEY ON TRADITIONAL PROCEDURES
  - LESS POSTAGE
  - LESS PAPER GOODS
  - LESS EMPLOYEE TIME

263

weave

REVIEWS TEXT MESSAGE





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REVIEWS TEXT MESSAGE

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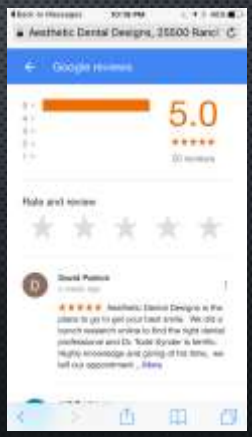
weave

REVIEWS TEXT MESSAGE



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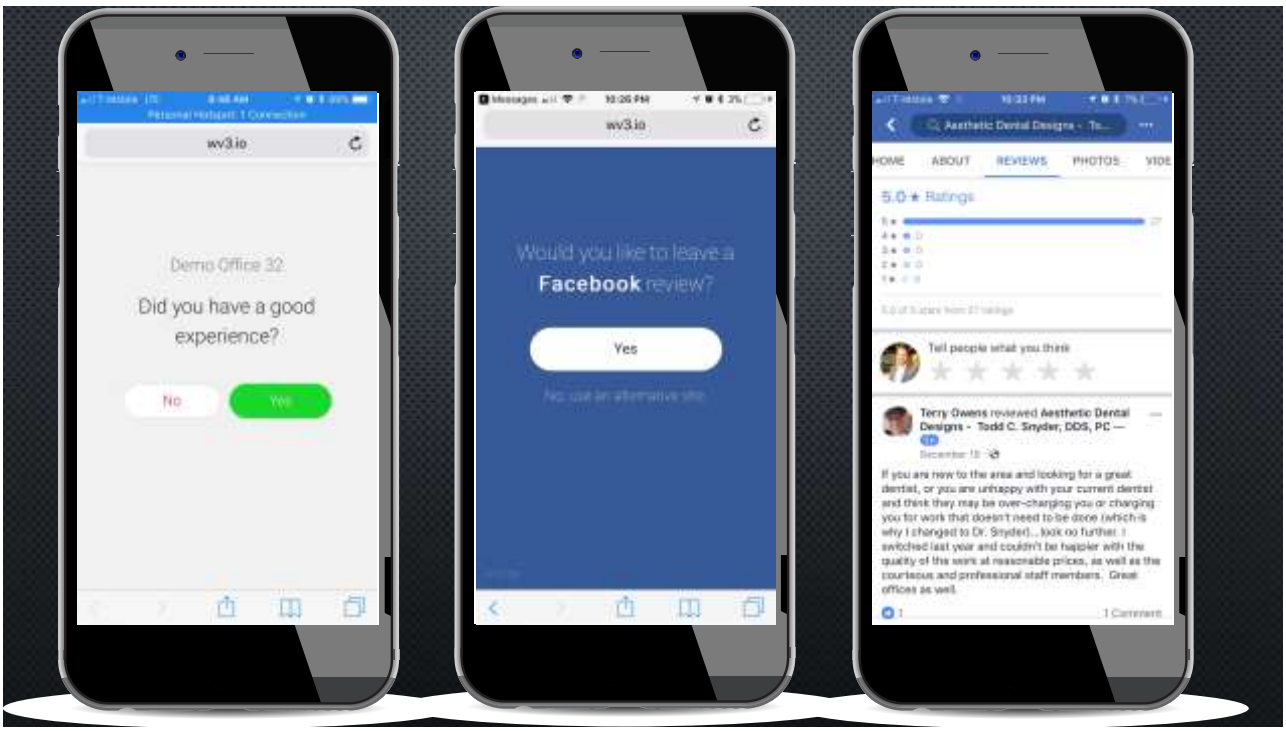

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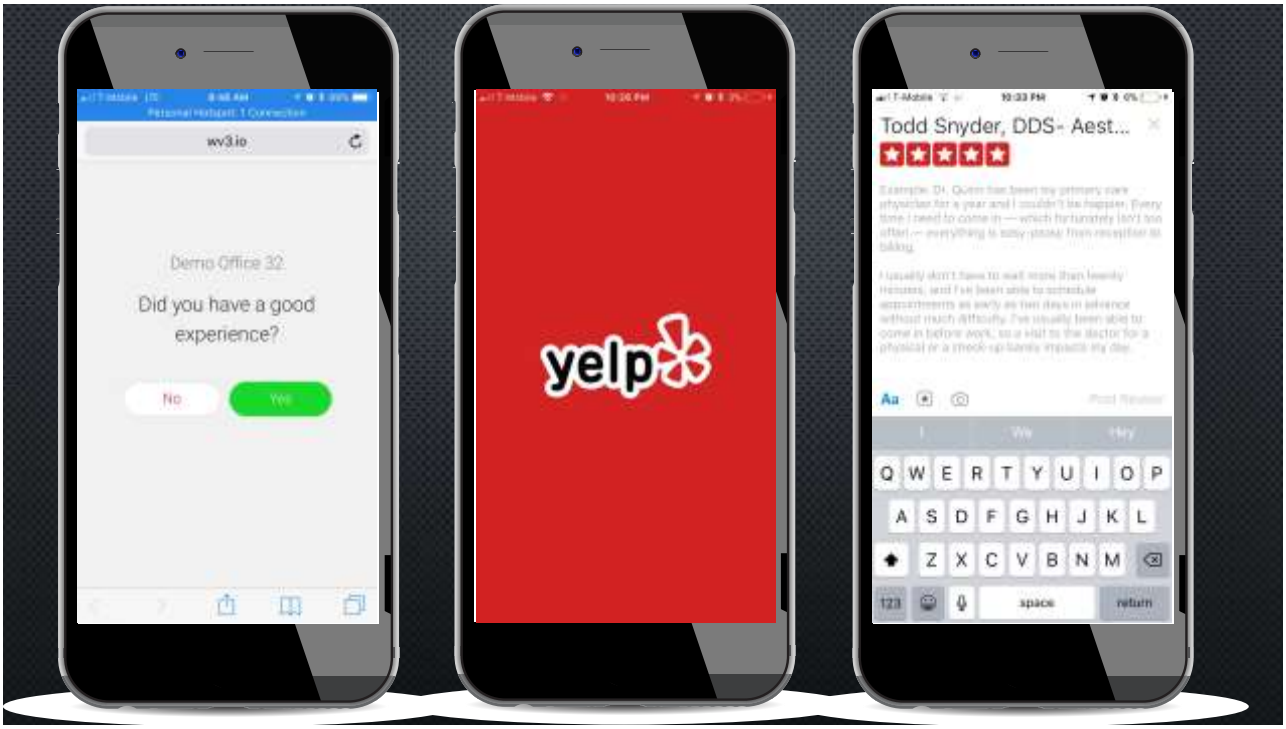
wv3.io
Demo Office 32
Did you have a good experience?
No
Yes
yelp
Todd Snyder, DDS- Aest...

268

269

5 Minute Plan

- EVERY new patient
- Pre-op Information
- Post-op Follow-up

270

5 Minute Plan

- EVERY new patient
- Pre-op Information
- Post-op Follow-up

271

5 Minute Plan

- EVERY new patient
- Pre-op Information
- Post-op Follow-up

272

WEAVE IS THE BEST SOFTWARE TOOL I OWN

- IT LETS ME DO MORE IN LESS TIME THAN WHAT IT WOULD TAKE THREE PEOPLE TO DO IN AN HOUR.
- IT REPLACES YOUR EXISTING PHONE WITH A VOICE OVER INTERNET PHONE THAT ATTACHES TO YOUR PRACTICE MANAGEMENT SOFTWARE.
- IT GIVES YOU THE ABILITY TO CUT YOUR PHONE BILL AND BE REPLACED WITH A MODERN PHONE PLATFORM THAT ALLOWS YOU TO.
  - TEXT YOUR PATIENTS
  - RECORD ALL PHONE CALLS
  - AUTOMATED APPOINTMENT REMINDERS, FOLLOW-PS, POST-OP NOTICES, BIRTHDAY GREETINGS, AND MORE
- COLLECT BALANCES INSTANTLY VIA TEXT
- SEE UNSCHEDULED PATIENTS AND HAVE THE ABILITY TO INSTANTLY SEND AUTOMATED TEXT MESSAGES TO FILL GAPS IN THE SCHEDULE
- NEWSLETTERS AND PROMOTIONS, ANALYTICS, FAX MACHINE
- SO MUCH MORE….. YOU HAVE TO GET A DEMO IT IS AMAZING!!

273

WEAVE makes me more successful” Todd Snyder, DDS

- My front office is so automated I have one employee that does not have much work to do!
- She has more time to focus on phone calls, new patients and creating treatment opportunities and making us more money!!
- If you want to be more successful and lower your overhead at the same time…. You need to evaluate it for yourself… you are welcome to write me any questions you have. I created a video with more info watch it NOW!!!

- http://try.getweave.com/automation

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Online Training/Mentorship For Dentists.

www.LEGIONpride.com
www.Legion.dentist

TIP

- **Reduce Your Stress & Build A Better Life**
- **Better Business & Communication Skills**
- **Incredible Marketing & Advertising**
- **Front Office Simplification**
- **Insurance Independence**
- **Office Metrics/KPI**
- **Responsive Websites, Social Media**
- **Enhance Diagnostic Skills & Procedures**
- **Photography**
- **Elective Dentistry & Sales Skills**
- **Cosmetic & Restorative Dentistry**
- **New Materials, Techniques, Technology & more..**

LEGION

275

Marketing Training Unlike Anything Else In Dentistry

276

Sales Training

Learn how to help patients answer YES to treatment

Become more successful & profitable

www.LEGION.dentist

LEGION

277

"YOUR FUTURE IS CREATED BY WHAT
YOU DO { TODAY }
NOT ~~TOMORROW~~"
LEGION

278