



Simply Better Composite Restorations

David Clark DDS

Disclosures:
Dr. Clark has financial interest in Bioclear





BIOCLEAR LEARNING CENTER

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Dental schools/GPR integrating the Bioclear Method



For a copy of today's presentation,
Learning Center info or the essential
Bioclear Library



Modern Method for Composite Restorations

Bioclear Anatomic Matrices

- Anterior & Posterior Matrices designed to mimic or improve nature



Injection Mold Composite

- Injection mold warmed Restorative materials
- Industry leading polish, esthetic, strength & wear

Rock Star Polish

- 3M™ Sof-Lex™ XT coarse discs for reduction
- “Rock Star” polish with Bioclear Magic Mix & RS Polisher

Preparation Design

- I.C.E. Infinity edge, Compression based, Enamel driven
- Maximizes enamel involvement by going “around the tooth”

Biofilm Removal

- Bioclear Blaster removes biofilm before bonding
- Allows bonding to uncut enamel
- Allows infinity edge margins



Systematic restorative protocol for esthetic long-term clinical outcomes



The Matrix and Method Matter

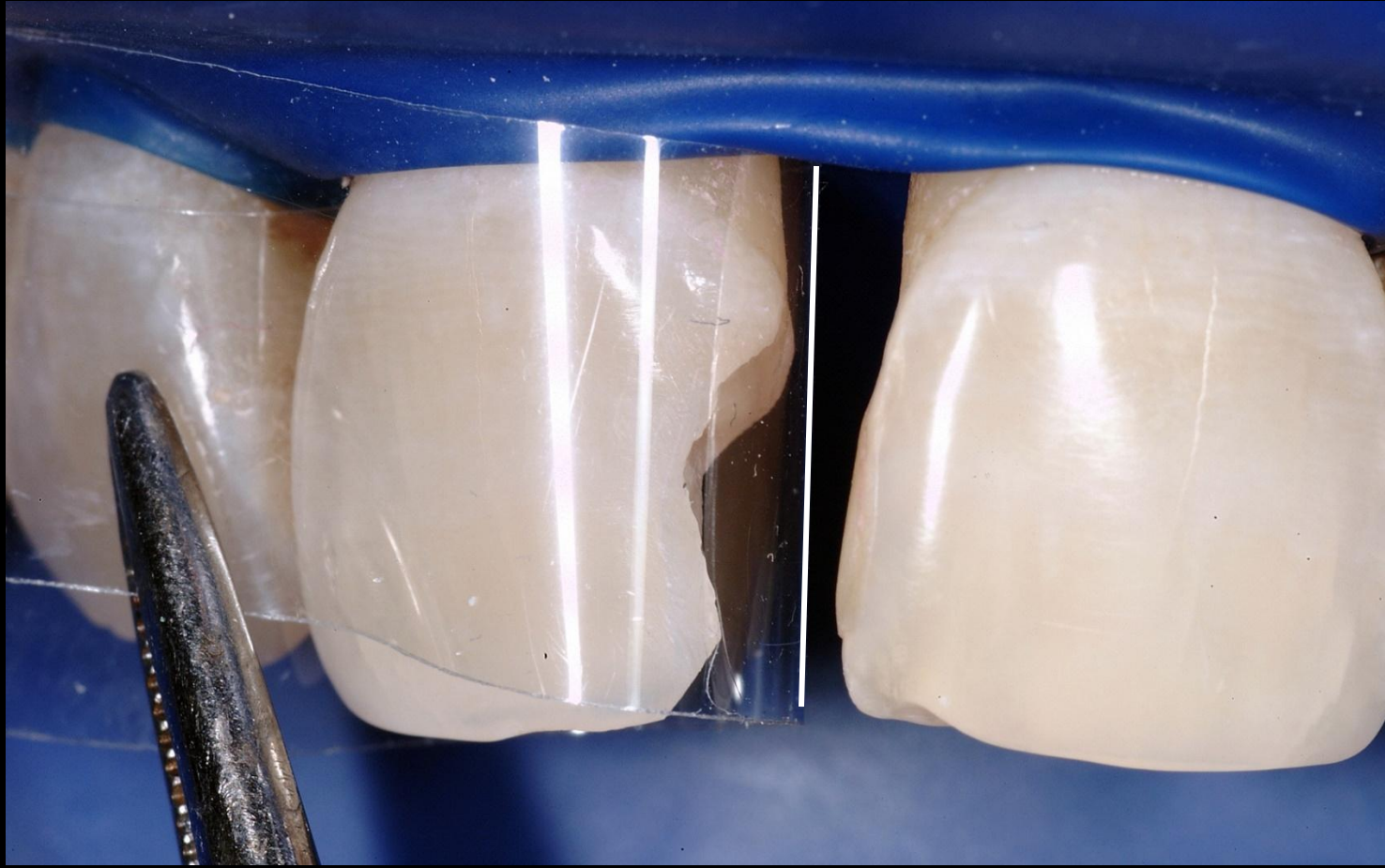


Modern Method

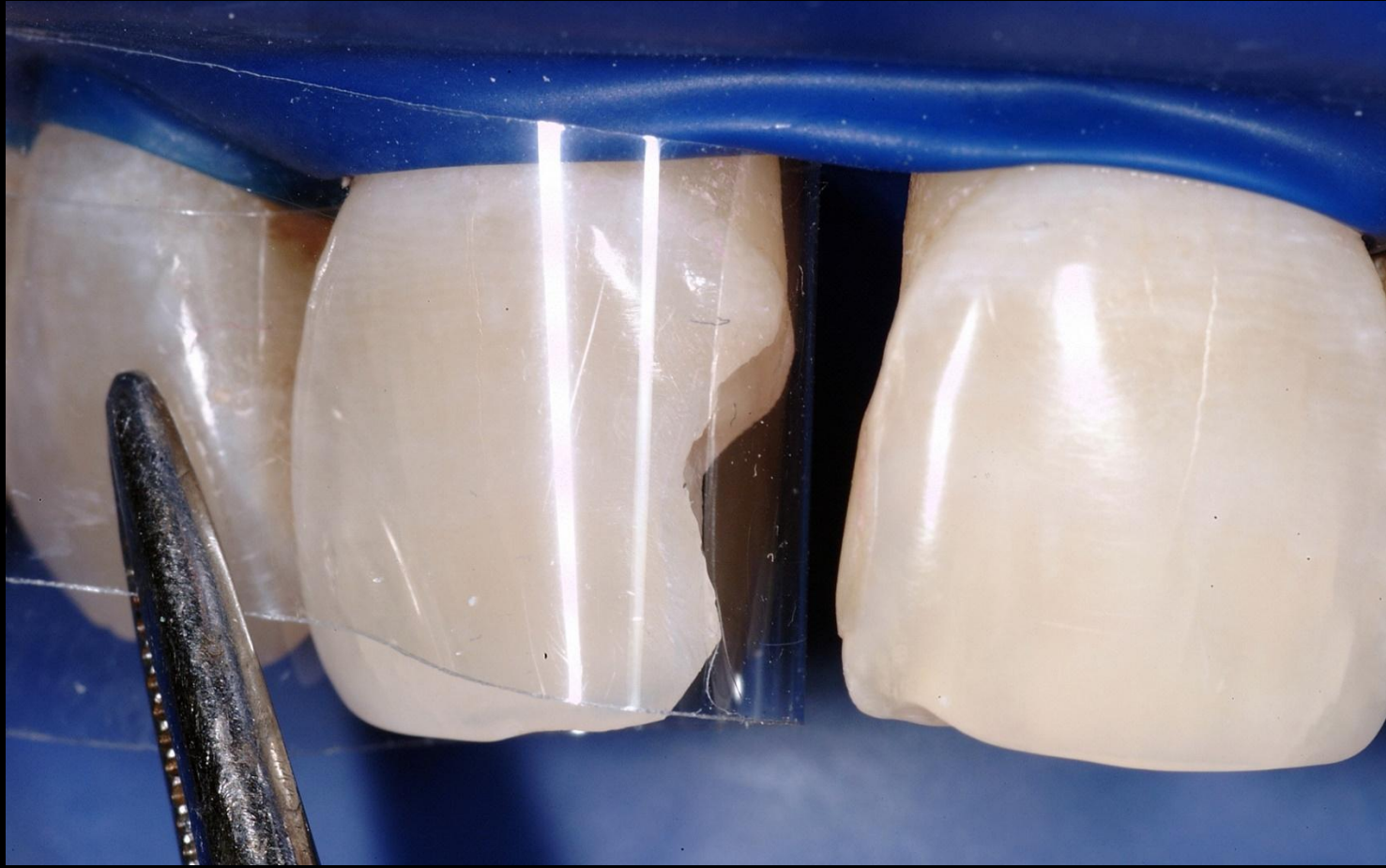


Tragic Outcome

Traditional composite technique



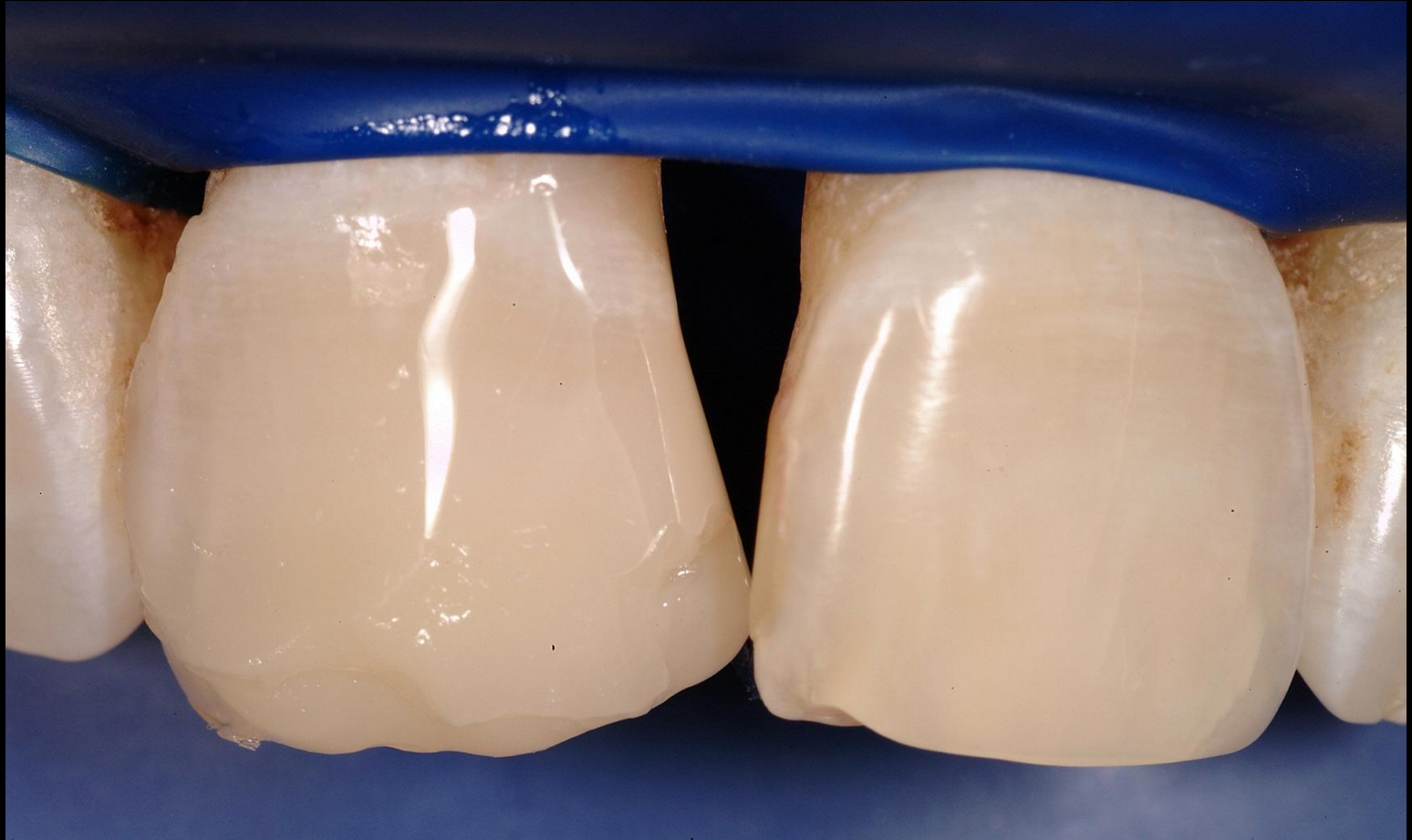
Traditional composite technique



Traditional composite technique



Traditional composite technique



Traditional composite technique



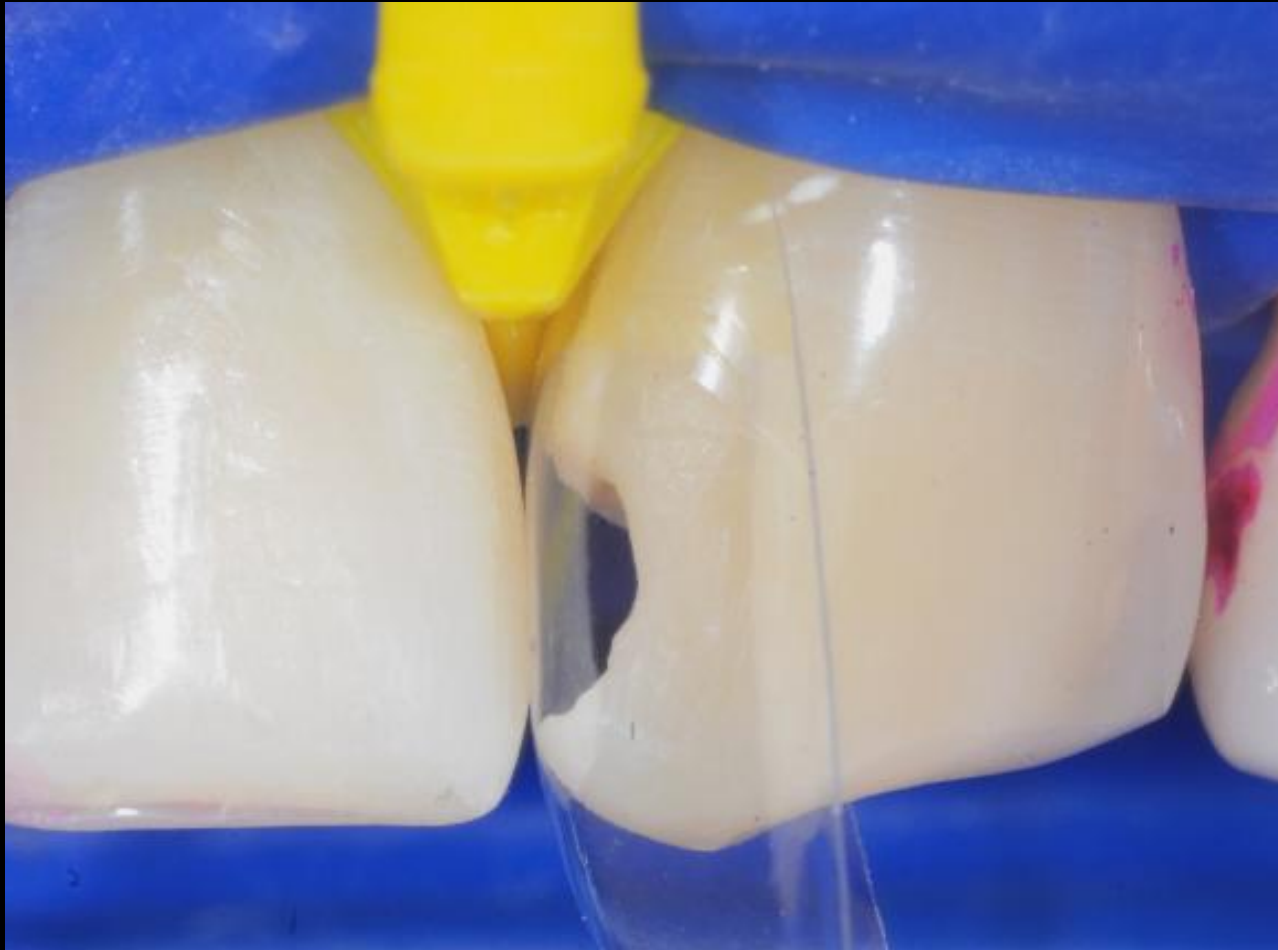
flat matrix + flat wedge = flat tooth

It is 2026. Why are we
still using flat Mylar and
flat wedges?

Teeth are not flat

Teeth are not flat!

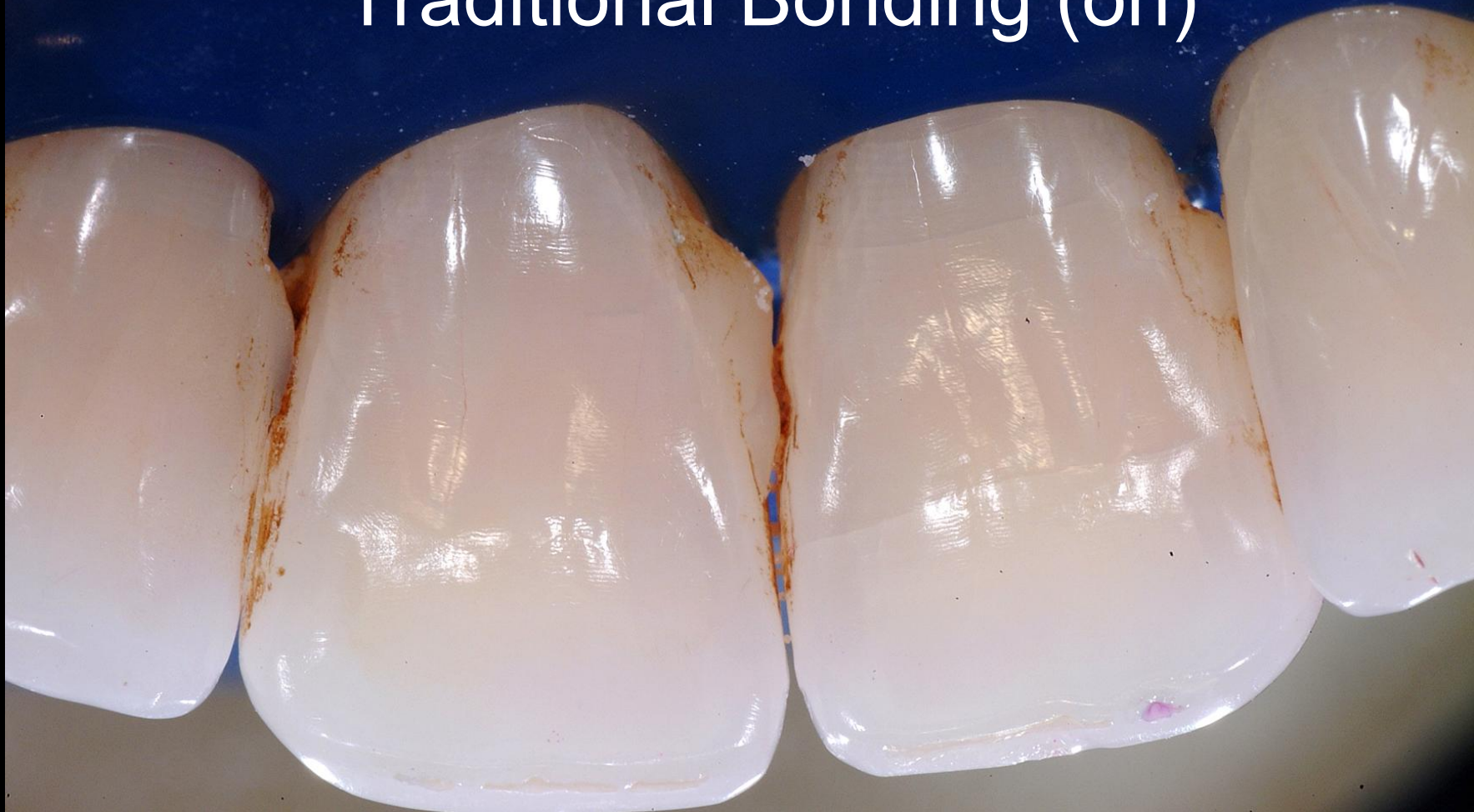




Anatomic
Bioclear Anterior
Matrix plus
Bioclear
Diamond Wedge
(yellow-large)

“On” versus “Around”

Traditional Bonding (on)



Bioclear Method (around)



Composite
Heating: Trend
or the future of
placing the
material?

Composite Heater pre-set
to 155° F



Conclusions

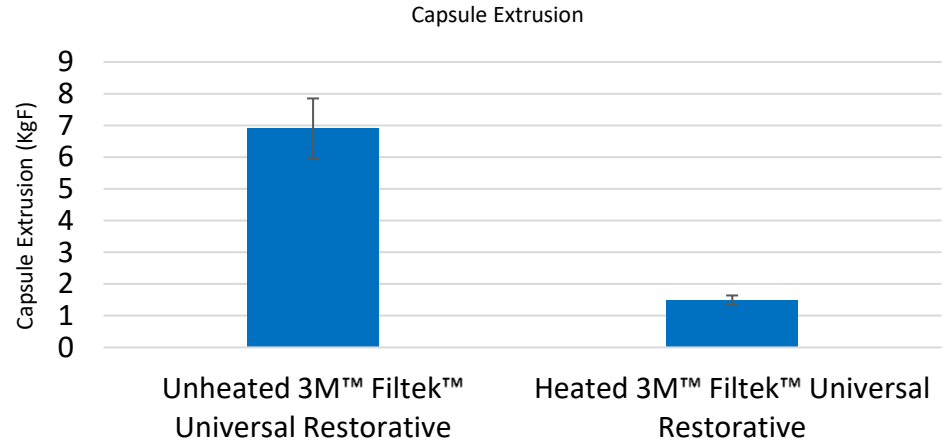
- Preheating a syringe of Filtek™ Bulk Fill Posterior to 60 °C for twenty 1 hour increments does
 - NOT harm mechanical properties such as
 - Diametral tensile strength
 - Flexural strength
 - NOT harm cure properties such as
 - Depth of cure
 - Cusp deflection (polymerization shrinkage stress)
 - NOT harm esthetic properties such as
 - Color and opacity
 - Polish retention

From: Does Preheating a Dental Composite Degrade its Post-Cure Properties?
T.D. Dunbar et al., *J Dent Res* 95 (Spec Iss A):952, 2016 (www.iadr.org).

Composite warming

Why warm?

- Handling preference
- Lowers capsule extrusion force by 75-80%



3M internal data

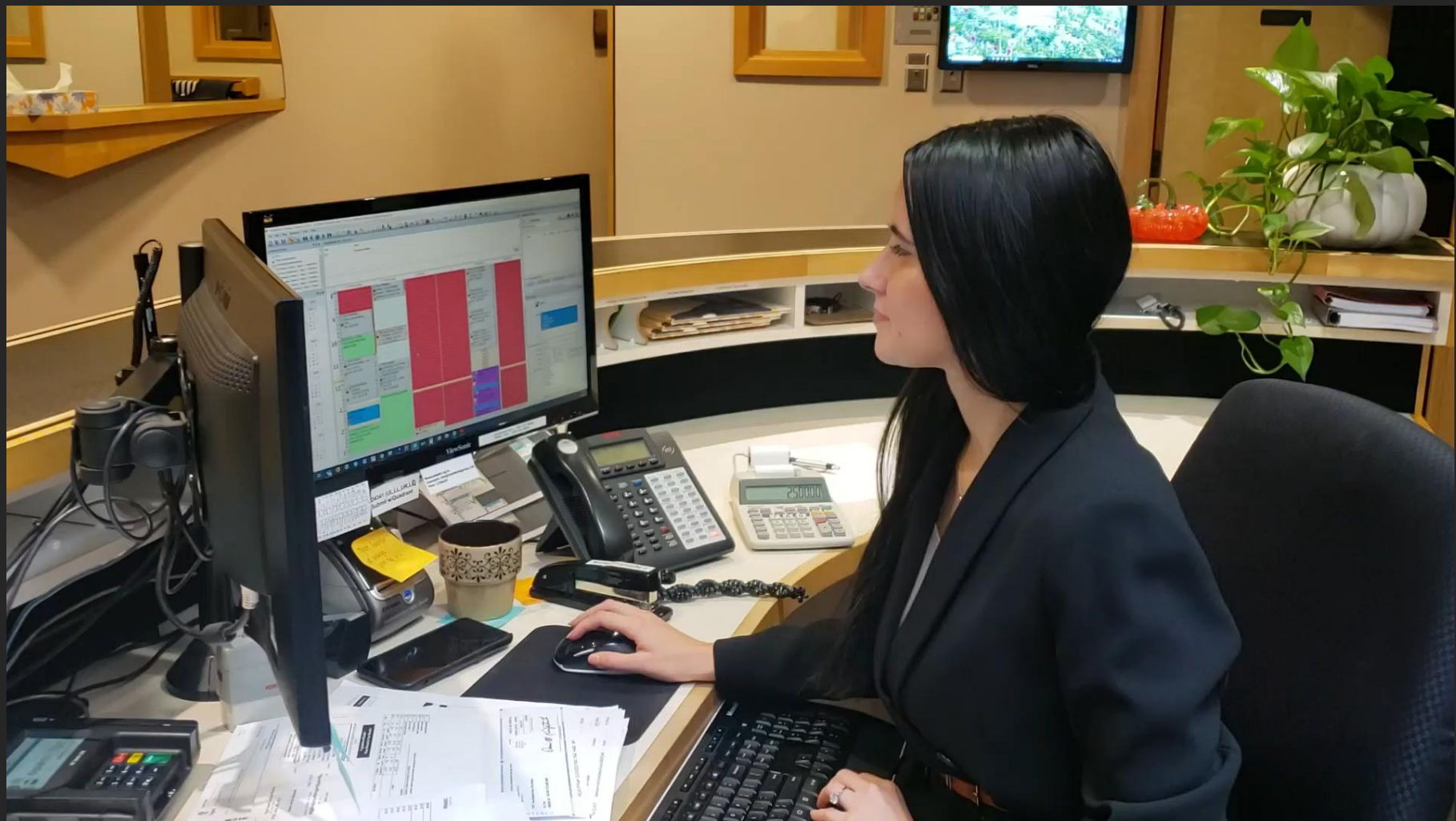
14% of dentists survey stated they use some type of device to warm their composite prior to placement.

3M Market Research, January, 2018 N=304 Dentists (US, Russia, UK, Brazil, Germany)





What is Liana's biggest fear?





What is Liana's biggest fear?

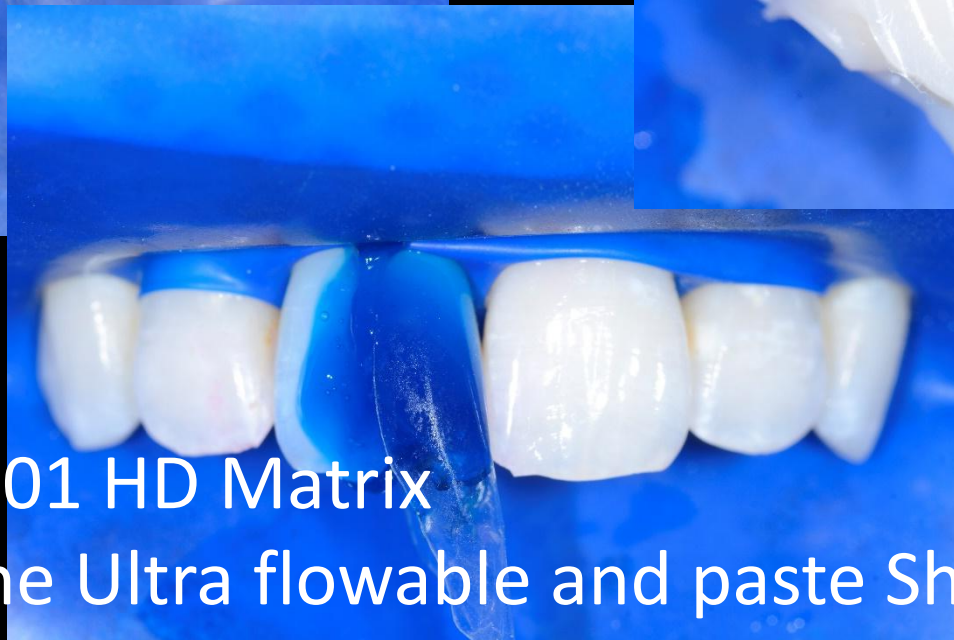




Radius Bevel

Tooth-Restoration-Interface





Bioclear A-101 HD Matrix

Filtek Suprme Ultra flowable and paste Shade "W" Body











Recommended Bioclear Matrices by Indication

For more information contact us
Bioclear Matrix Systems
1-855-712-5327



360 Veneer

Class V and to significantly increase overjet or correct anterior open bite.



TSS Kit

Anterior Teeth:

Class III, Class IV, Class V
Fractured Incisors
Severe Wear
Composite Veneer
Full Composite Crown



BT (Black Triangle) Kit

Anterior Teeth:

Black Triangles
Peg Laterals
Diastema Closure
Instant Ortho
Class V



Evolve Matrix Kit

Posterior Teeth:

Class I, Class II, Class V

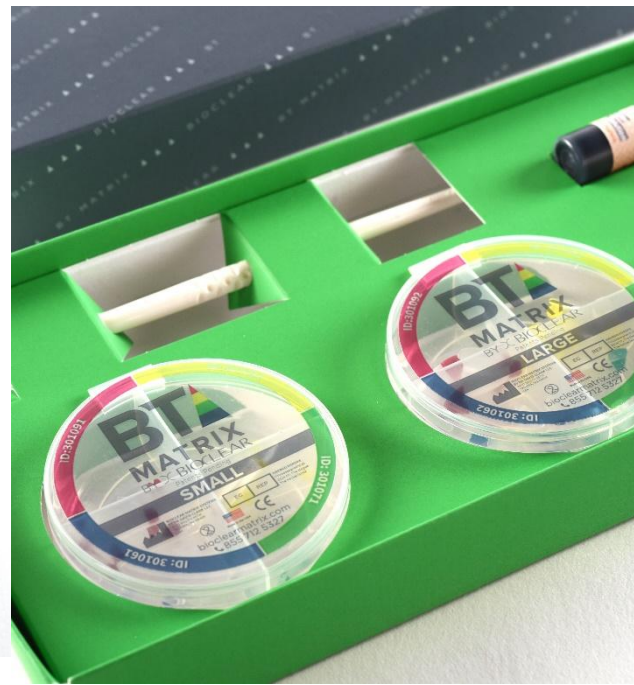


∞ BIOCLEAR

Bioclear Black Triangle Restoration

with Kuraray Majesty ES-2 Flowable

BT
MATRIX
BY ∞ BIOCLEAR





What are Erica's chief complaints?



➤ Injection Overmolding can fix almost everything if you follow the method



- Take photos from a lateral view. The patient doesn't see this (but everyone else in the room does)





➤ Gauge the triangle space **before** the rubber dam









- “Aquarium” matrices and “Shield” matrices









Acid etch like
an Invisalign
button

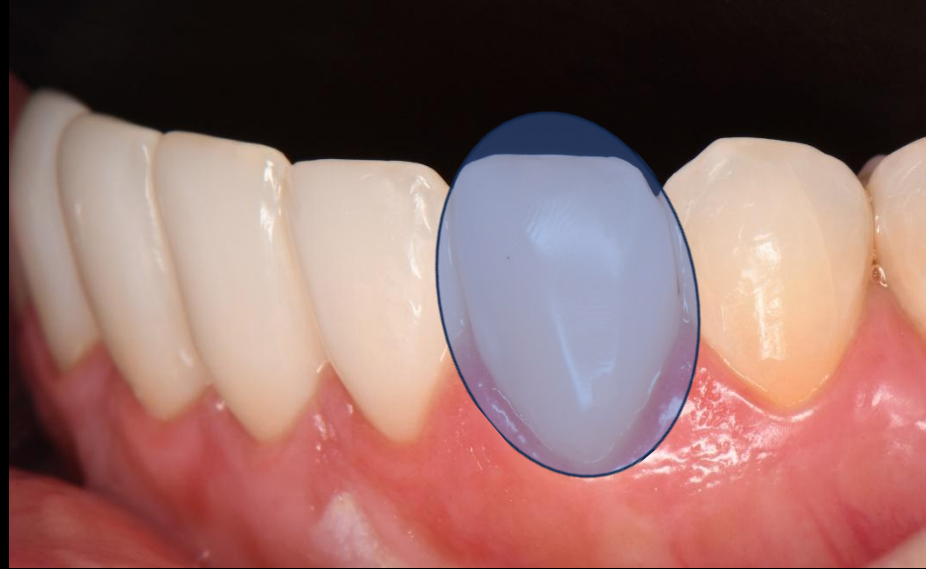
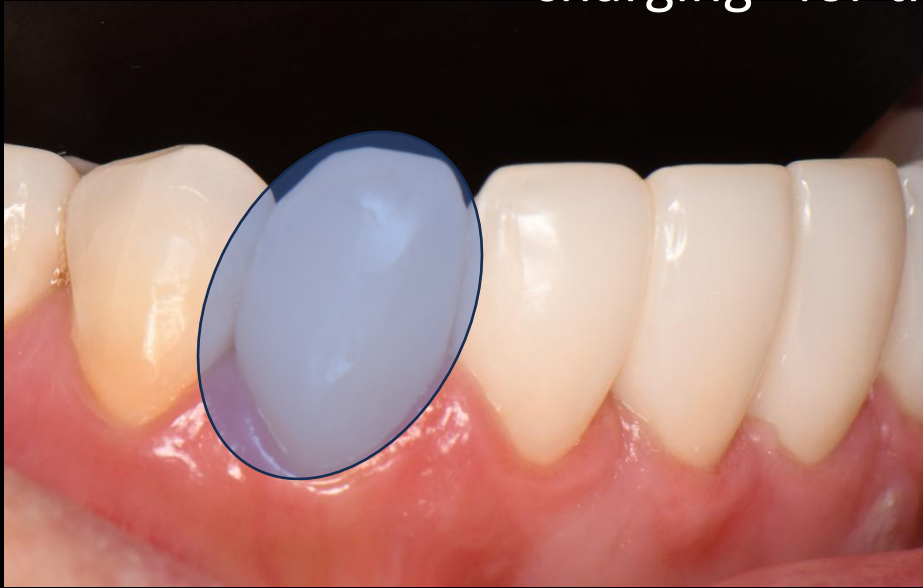


The temporary
“flowable
clamp”

If you are doing more than one BT, consider overmolding the entire tooth, even when we are not “charging” for that triangle area



If you are doing more than one BT, consider overmolding the entire tooth, even when we are not “charging” for that triangle area

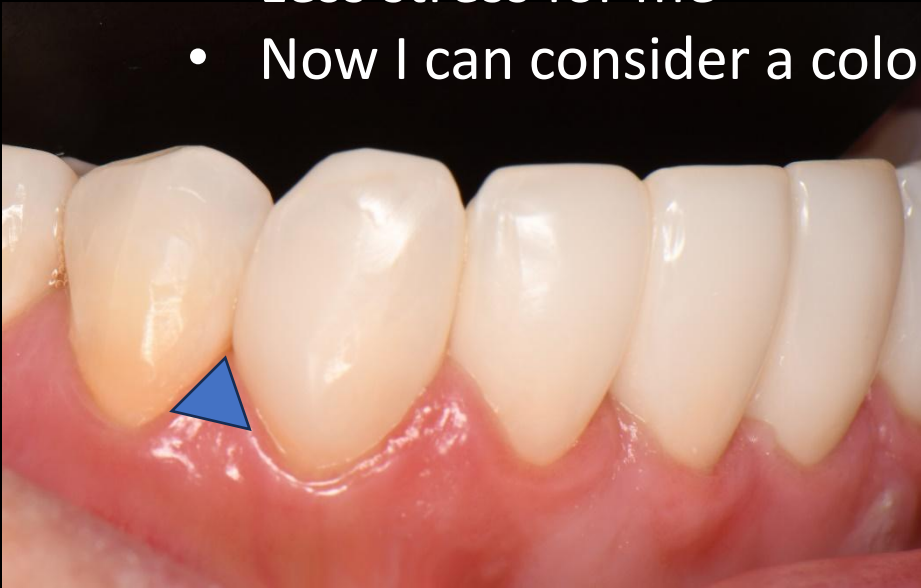


If you are doing more than one BT, consider overmolding the entire tooth, even when we are not “charging” for that triangle area



Why cover the WST (Whole Stinking Tooth)

- Easier than marginating
- Less stress for me
- Now I can consider a color upgrade

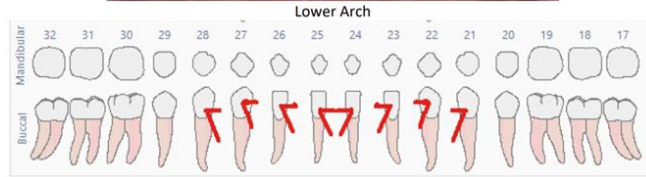




3402 South 38th Street, Tacoma, WA 98409
O: 253-474-7635 E: Patient@BioclearClinic.com

Date: 03-08-2021


Patient Name: Erica
Consultation Date: 03-08-2021
Treating Doctor: David Clark



Appointment time required to complete treatment One Day: 7am to 4pm with 10 day follow appointment.


- **Lunch and Breaks:** We provide a protein liquid drink for lunch. Be sure to eat breakfast prior to appointment. You will receive breaks to rest your jaw and use restroom.
- **Night Guard:** To protect your Bioclear restorations. Requirement for 5 yr. warranty of restoration. REFERRED: Night guard to be fabricated by your local dental provider.
- **Whitening Tray Options:** 1 Kit: (Kit include: custom upper and lower trays and bleach) Following Bioclear restoration placement for take home maintenance. Cost: \$250

Tooth #	Description	Fee
Comprehensive Evaluation: complete oral evaluation, color, size determination, photos.		
• Bioclear Comprehensive Evaluation		\$289

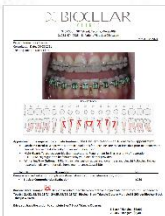
Bioclear Black Triangle:  To close negative space between teeth and rejuvenate tooth to youthful appearance.
Tooth # 21/22, 22/23, 23/24, 24/25, 25/26, 26/27 Bioclear Black Triangle Closure Multiple \$1,200 per Bioclear Black Triangle Closure.

Erica, you have the option to complete 5 or 7 Black Triangle Closures.

- **Lunch and Breaks:** We provide a protein liquid drink for lunch. Be sure to eat breakfast prior to appointment. You will receive breaks to rest your jaw and use restroom.
- **Night Guard:** To protect your Bioclear restorations. Requirement for 5 yr. warranty of restoration. REFERRED: Night guard to be fabricated by your local dental provider.
- **Whitening Tray Options:** 1 Kit: (Kit include: custom upper and lower trays and bleach) Following Bioclear restoration placement for take home maintenance. Cost: **\$250**

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Erica, you have the option to complete 5 or 7 Black Triangle Closures.



5 Black Triangles @ \$1,450 each = \$7,250
7 Black Triangles @ \$1,450 each = \$10,150





Pre-Operative



1-Year Post-Operative



Pre-Operative



1-Year Post-Operative



Pre-Operative



1-Year Post-Operative



Key Takeaways from Erica's case:

- Use a shield matrix or shield matrices when possible
- What's a shield matrix?
- What are aquarium matrices?
- Doing the whole tooth is easier than half a tooth
- The "flowable clamp" for anterior rubber dams
- Use very small hole punch on your rubber dam



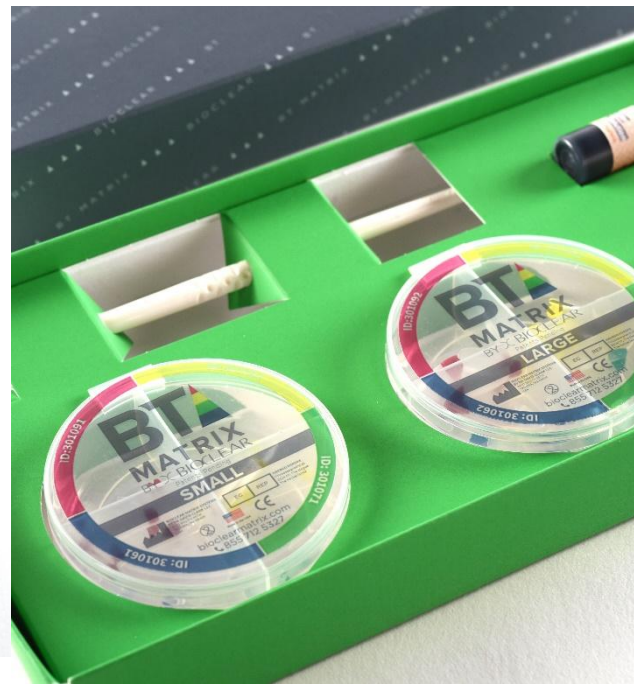
Pre-Operative



1-Year Post-Operative



BT
MATRIX
BY ∞ BIOCLEAR

























2-year follow up



2-year follow up

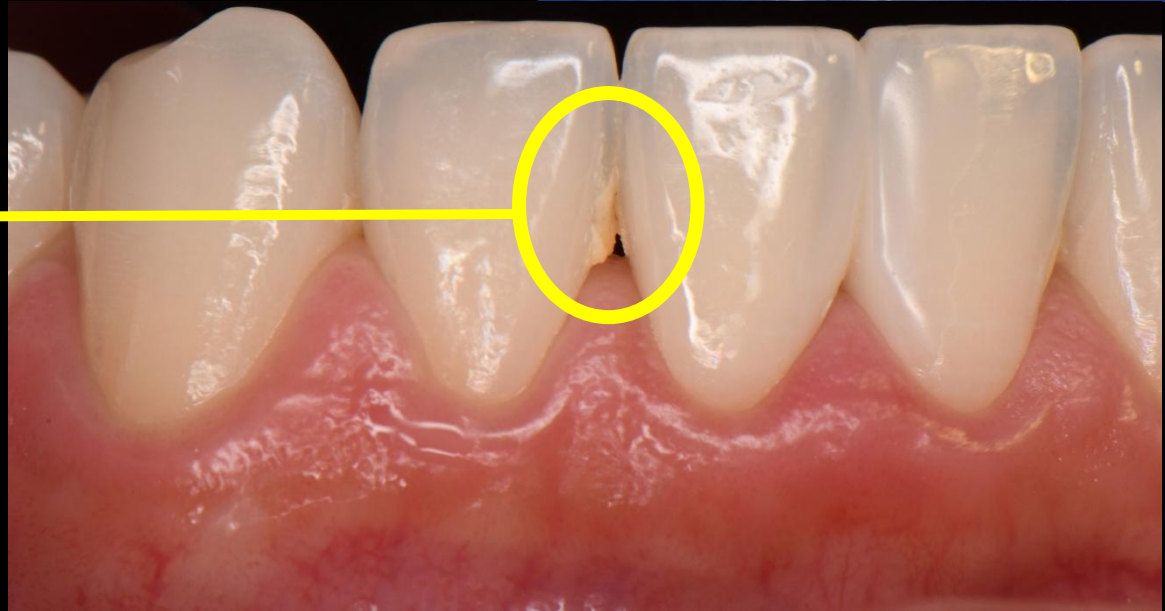


2-year follow up

➤ The new Bioclear BT matrices have a specific shape i.e. shoulder blades that deflect bacterial accumulation



unrestored



- The new Bioclear BT matrices have a specific shape i.e. shoulder blades that deflect bacterial accumulation



Injection over -
molded





Dr. Michael Scott
Lubbock, TX

Before



After



Dr. John Yun
Toronto, ON





Dr. David Carroll,
Prosthodontist,
Aventura FL





Dr. Scott Kollen
Vancouver, BC



Dr. Scott Kollen
D.M.D.






Dr. Antonio
Mendoza,
Barcelona
Spain





 vnsdentistry

Bioclear Matrix System

8 HOURS AGO



Courtesy Dr. Charles Regalado



Courtesy Dr. Charles Regalado



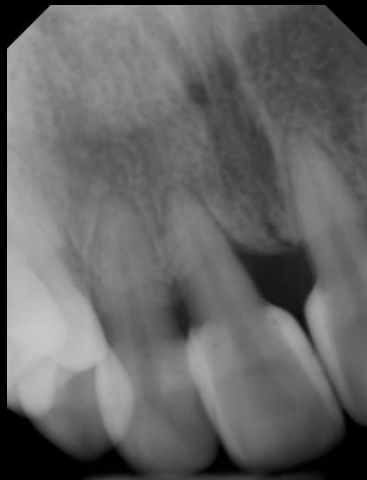


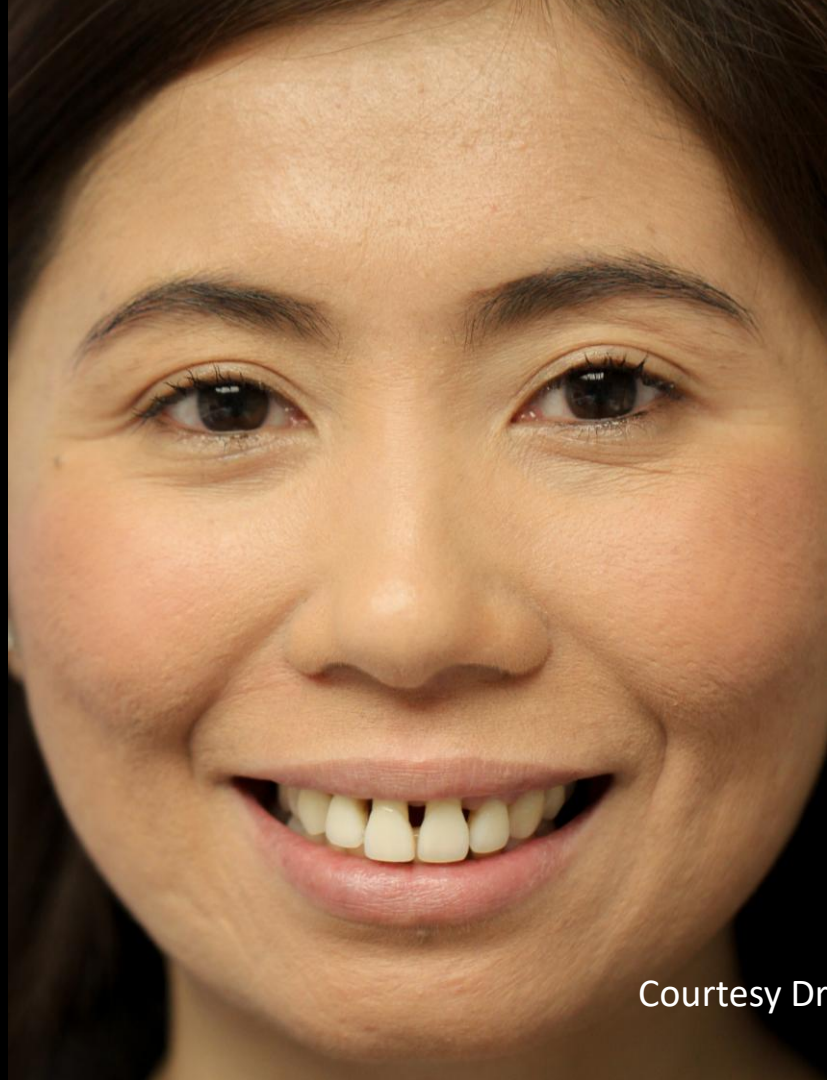


Courtesy Dr. Charles Regalado



Courtesy Dr. Charles Regalado





Courtesy Dr. Charles Regalado

To achieve a tight contact we need to temporarily displace the tooth/teeth to a distance \geq the thickness of the matrix

- If the contact is intact (anterior teeth) the matrix can act like a wedge
- Use a wedge
- Use a powerful separator
- The Direct Contact Strut



The Bioclear Direct Contact Strut

Creating Contacts for Diastemas, Peg Laterals, and Bioclear 360° Veneers

- Abbreviated Version -

Dr Jose Moura 5/2025 Taubate Brazil















So which composites turn yellow over time, and which composites maintain their color better?

If you use A-1, B-1, W, or XW it matters... a lot

If you are using A-2 or darker, you don't see the change



Filtek™ EW Body 2020

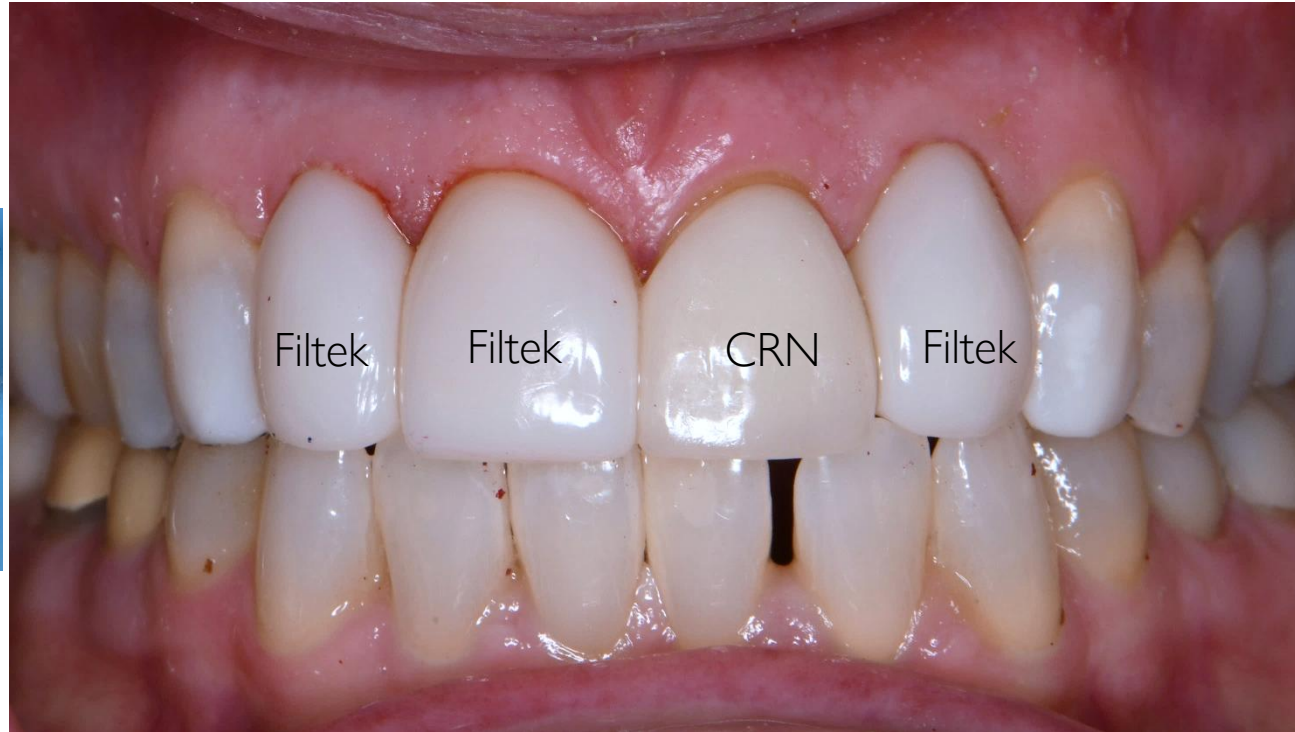


Filtek™ EW Body 2024

Immediate post-op with Filtek B-1



Pre-polish



2-year post-op, there is noticeable yellowing



Filtek 9-year post-op, there is catastrophic yellowing



Filtek™ B1
Body 2016

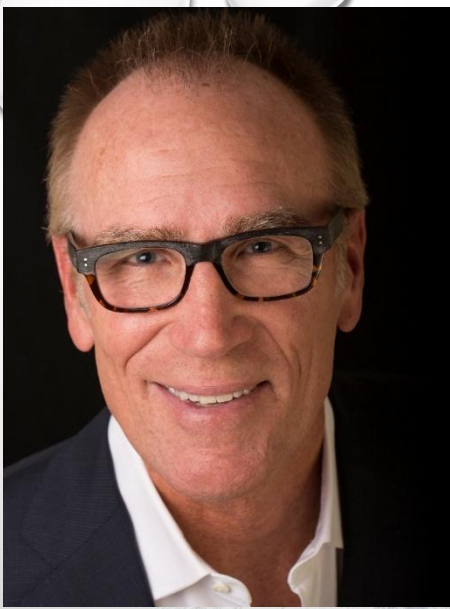


Filtek™ B-1
Body 2018



Filtek™ B-1
Body 2025





Dr. Richard
Young

Bioclear Cases 4 Year
Post-op
Untouched-NO refresh
on either case
Majesty ES Flow



[@dr.young.esthetics](https://www.instagram.com/dr.young.esthetics)



@dr.young.esthetics



@dr.young.esthetics



[@dr.young.esthetics](https://www.instagram.com/dr.young.esthetics)



@dr.young.esthetics





4 Years Post-Op



Kuraray Majesty ES Classic Flow Only

CLEARFIL™

Injection Molded Composites



DENTAL BONDING AGENTS
CLEARFIL™ Universal Bond Quick 2



DENTAL LIGHT-CURED RESTORATIVE COMPOSITE
CLEARFIL MAJESTY™ ES Flow



DENTAL LIGHT-CURED RESTORATIVE COMPOSITE
CLEARFIL MAJESTY™ ES-2
Classic
(Body Shades)

Color stability and surface roughness of novel single-shade universal composite resins exposed to staining solutions: an in vitro study

Malin Janson¹, Anja Liebermann², Christoph Matthias Schoppmeier³

Received: 26 March 2025 / Accepted: 29 June 2025 / Published online: 15 July 2025
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Abstract
 This study investigated the color stability and surface roughness of three novel single-shade universal composites after exposure to common staining solutions. A total of 120 specimens (n = 40 per composite) were fabricated from Transcend Universal Composite (TRA), Essie One (ECO), and Clearfil Majesty ES-2 Universal (CLA). Specimens were stored at 37 °C in four different staining solutions (artificial saliva, coffee, red wine, matcha tea). Color changes (ΔE_{45}) were assessed at five time points using the e-LAB system, and surface roughness (Sa, Sr) was analyzed via 3D laser scanning microscopy. Statistical analysis was performed using a linear mixed model and post-hoc test (Tukey) ($p < 0.05$). Composite type, staining solution, and exposure duration significantly affected discoloration ($p < 0.001$). Red wine induced the most pronounced color change ($\text{ECO } \Delta E_{45} = 38.9 \pm 1.56$), while coffee and matcha tea caused similar discoloration ($p = 0.164$). TRA showed the greatest surface roughness increase; no correlation with color change was observed. The color stability of single-shade composites is influenced by resin matrix composition and staining agent exposure. Tri-modal or multi-modal composites showed greater color stability than the micro by hybrid composite. Surface roughness did not impact discoloration susceptibility.

Keywords Single-shade universal composites · Color stability · e-LAB system · Staining solutions · Surface roughness

1 Introduction

The long-term color stability of restorative materials is a critical factor in esthetic reconstructive dentistry, as it significantly impacts both the durability and visual longevity of restorations (Parvina et al. 2015). Among the various restorative materials, resin-based composites must withstand continuous exposure to chromogenic substances found in foods, beverages, and saliva, which can compromise their optical and mechanical integrity over time (Cicchetti et al. 2024; Catalan et al. 2011; Kuchman et al. 2020). Multi-shade composites traditionally achieve esthetic outcomes through stratified layering and customized pigmentation techniques (Chen et al. 2024; Enobé et al. 2022). While effective, these procedures are time-consuming, technique-sensitive, and require a wide inventory of materials. Single-shade universal composites have been developed to overcome these limitations, offering simplified color selection while maintaining essential aesthetic and functional properties such as strength, durability, and adaptability (Lei et al. 2024). The primary advantage of these materials lies in their dynamic color adjustment. The chameleon effect enables a harmonious integration with the tooth structure by scattering and

Effects of different curing methods on the color stability of composite resins

Massimo Pisano¹, Alfredo Iandolo¹, Dina Abdelatif¹, Andrea Chiacchio¹, Marco Galdi¹, Stefano Martina¹

Department of Medicine, Surgery and Dentistry "Scuola Medica Salernitana", University of Salerno, Salerno, Italy

ABSTRACT

Objective: The aim of this study was to compare the effects of different polymerization strategies and the effectiveness of finishing and polishing procedures of composite resins on color stability.

Materials and Methods: The samples were divided into 4 main groups according to the polymerization strategy, and all groups except the control group received surface treatment. Each group was subsequently divided into 3 subgroups respectively: Kuraray Clearfil Majesty ES-2 Classic, Premium and Universal. Approximately 24 hours after preparation of the samples, they were immersed for 7 days in a coffee solution. A first color measurement was performed after the preparation of the samples, the second measurement was performed after 7 days in the coffee solution. All measurements were carried out using a dental spectrophotometer to assess the CIE L*, a*, b* color parameters.

Results: There was a statistically significant difference between ΔE values for different procedures ($p = 0.003$); in particular, the differences were found only between the groups that received surface treatment and the control group. In addition, a statistically significant difference was observed between the values of ΔE for different composites in the different procedure groups.

Conclusions: Spectrophotometric analysis showed that the additional photopolymerization and oxygen inhibition procedures did not yield better results in relation to color stability. In addition, finishing and polishing provided better color stability compared to not performing these procedures.

Keywords: Coffee, Color stability, Composite resin, Polishing, Surface treatment

Animal study

Discoloration of flowable and universal resin composites immersed in black tea for 30 days
 Ayaka Hori-Ishikawa, Yuka Ogawa, Ayako Okada, Nana Sakae, Daichi Aizawa, Masao Hanabasa, Kaoru Ohgami, Takatsugu Yamamoto

Department of Operative Dentistry, Tsurumi University School of Dental Medicine, Yokohama, Japan

Abstract
Purpose: This study evaluated the discoloration of current flowable and universal resin composites by immersing in black tea over 30 days.

Materials and Methods: Three flowable resin composites and three universal resin composites were evaluated. The composites were inserted into a disk-shaped stainless steel mold and properly cured. The surfaces of the composite disk were wet-ground and ultrasonically cleaned. Colors – L*, a*, and b* were measured at the center of disks on a gray background using a spectrophotometer. The disks were immersed in black tea at 37 °C for 30 days, and the colors were repeatedly measured at 1, 3, 5, and 30 days of immersion. Color differences ΔE_{ab}^* were calculated from the L*, a*, and b* values. Water sorption and solubility of the composites were also measured as per ISO 4049. The results were statistically analyzed, and regression analyses were done between ΔE_{ab}^* and ΔE_{ab}^* or sorption/solubility.

Results: All the composites showed observable increases of ΔE_{ab}^* within the first 5 days of immersion. Values of ΔE_{ab}^* ranged from 0.6 to 4.97, and three composites exhibited values above the clinically acceptable value, 3.3. L*, a*, and b* revealed strong correlations with ΔE_{ab}^* . Both water sorption and solubility had positive correlations with ΔE_{ab}^* at 30 days.

Conclusion: Tea immersion induced discoloration of the current resin composites. This discoloration was affected most by the change in brightness and difference in its blue-yellow chromaticity, and the level of discoloration was material-dependent.
 (Asian Pac J Dent 2025; 20: 9-15)

Key Words: discoloration, flowable composite, solubility, tea, universal composite, water sorption

Introduction

Adhesive restoration is a conventional technique for the reconstruction of tooth structure lost to dental caries fracture. Among the adhesive restorative materials, resin composites have wide ranges of clinical applications including direct restorations, core build-ups, and lining of indirect restoratives. Light-cured resin composites, in particular, are essential for direct restorations for their adhesiveness, mechanical and esthetic properties [1]. Resin composites first began to be supplied in the form of pastes (hereafter referred to as universal resin composite). Subsequent compositional alterations have produced less viscous resin composites, known as flowable resin composites since 1996 [2]. Flowable composites are dispersed by a syringe through a needle tip, achieving easy handling for filling relatively small cavities or cavities with large undercuts [3,4].

Initially, flowable composites contained hybrid-type fillers that were considerably larger than the current fillers [2]. The filler content was low with approximately 25 wt% to attain sufficient flowability of the composites, making them mechanical properties inferior to those of universal resin composites. Hence, flowable composites were mainly used for small cavities or as cavity liners [2,5]. Subsequent developments in filler technology, i.e., surface treatments and the dispersion techniques produced much smaller fillers [6], which improved the mechanical properties of composites. In addition, viscosity of composites became controllable due to filler/nanomer technology. The flowable composite became applicable in occlusal load bearing areas and allowed for contouring the anatomical forms under the direct syringe application. With such improvements, clinical usage of flowable composites has increased in present day [7].

As described earlier, low viscosity is an advantage of the flowable composites. Flowability is controlled by the comonomer – resin. The major comonomer is bisphenol A-glycidyl methacrylate (Bis-GMA) for current composite resins. Bis-GMA is a highly viscous resin that is used to adjust the viscosity of the resin. Bis-GMA is used to adjust the viscosity of the resin. Bis-GMA is used to adjust the viscosity of the resin. Bis-GMA is used to adjust the viscosity of the resin.

The Effects of Fresh Detox Juices on Color Stability and Roughness of Resin-Based Composites

İhsan Yıkılmaz, DDS, PhD.¹ Sinem Akgül, DDS, PhD.² Ahmet Hazer, DDS, PhD.² Cemile Kedici Altı, DDS, PhD.³ Serdar Başlar, DDS, PhD.³ & Oya Balta, DDS, PhD.³

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²Department of Restorative Dentistry, Faculty of Dentistry, Balıkesir Egeci University, Zonguldak, Turkey
³Department of Restorative Dentistry, Faculty of Dentistry, Ankara University, Ankara, Turkey

Keywords

Color stability, Resin-based composites, Resin-based composites, Surface roughness.

Correspondence

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 Email: ihsanyikil@gazi.edu.tr

The author declares no conflict of interest related to this study.

Accepted: November 18, 2025

doi: 10.1111/jor.12798

Abstract

Purpose: To evaluate the effects of three fresh detox juices, including an orange juice, and red beverage, on the color stability and surface roughness of three aesthetic resin-based composites (RBCs).

Materials and Methods: Disk-shaped specimens were prepared with three different color RBCs (Amaris, G-aerial Aesthetic, Clearfil Majesty ES-2) according to the manufacturers' instructions. Forty specimens were prepared for each RBC, and all specimens were stored in artificial saliva at 37°C for 24 hours. The initial color values and surface roughness measurements of the specimens were taken using a spectrophotometer and a profilometer. The specimens were then divided into 4 subgroups (n = 10). All specimens except the control specimens were immersed in their designated fresh detox juices (green, red, or orange) for 10 minutes twice a day. Color and surface roughness measurements were taken on day 15 and day 30, and the results were analyzed by one-way ANOVA and Tukey HSD test. The association between color change and surface roughness was evaluated by Spearman's Rank Correlation analysis.

Results: Color changes and surface roughness increased upon exposure to fresh detox juices for 15 and 30 days for all of the RBCs. All of the G-aerial and Amaris groups displayed color changes above the threshold of acceptability, whereas Clearfil Majesty ES-2 displayed a color change above the threshold of acceptability only after exposure to the red beverage for 30 days ($\Delta E_{ab}^* = 3.7$). With regard to surface roughness, Clearfil Majesty ES-2 outperformed the other RBCs ($p < 0.001$). According to Spearman's Rank Correlation analysis, there was no correlation between color change and surface roughness ($p > 0.001$).

Conclusions: Exposure to the fresh detox juices used in this study led to similar color changes in the RBCs used in this study.

Resin-based composites (RBC) are highly popular in restorative dentistry, but, as for the use of any restorative material, clinical failures are unavoidable. It has been reported that the reasons for replacing composite restorations include secondary/recurrent caries, marginal discoloration, bulk discoloration, marginal/finial factor of the restorations, fracture of tooth and pain or sensitivity. Unacceptable color change is the primary reason for replacing RBC restorations in anterior teeth.^{1,2} Color change certainly occurs in restorative materials, but it is the degree of the color change that is important. Because small color changes in restorative materials are largely undetectable by the human eye, restoration replacement is not required for materials that display small color changes, but it is important for materials that display large color changes, such as anterior teeth, when the color harmony between the restoration

and the dental tissues deteriorates, replacement of the restoration is inevitable. Different factors affect discoloration of RBCs by three basic mechanisms: intrinsic discoloration, surface/subsurface degradation, and extrinsic discoloration. Intrinsic discoloration is defined as the discoloration of materials independent of external factors. The chemical structure of the material, including the type of monomer, the filler size, and the distribution, as well as the degree of conversion and the physicochemical reactions of the material in the body affect intrinsic discoloration.³ Surface/subsurface degradation occurs when staining agents react with superficial composite layers. A rough restoration surface, such as bad finishing, and color change by consuming colored foods and beverage may cause extrinsic discoloration.^{4,5}

4 CLEARFIL MAJESTY ES Composites Tested in 4 Papers



Color Stability Results for Flowables:

ΔE ab (Value & Chroma Changes)

Hori-Ishikawa et al. Asian Pac J Dent 2020; 20: 9-15

Original article
Discoloration of flowable and universal resin composites immersed in black tea for 30 days

Ayaka Hori-Ishikawa, Yuka Ogawa, Ayako Okada, Nana Sakacada, Daichi Aizawa, Masao Hanabusu, Kaoru Ohmori, Takatsugu Yamamoto

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Results: All the composites showed observable increases of ΔE^*ab within the first 5 days of immersion. Values of ΔE^*ab ranged from 0.64 to 4.97, and three composites exhibited values above the clinically acceptable value, 3.3. ΔL^* and Δb^* revealed strong correlations with ΔE^*ab . Both water sorption and solubility had positive correlations with ΔE^*ab at 30 days.

Conclusion: Tea immersion induced discoloration of the current resin composites. This discoloration was affected most by the change in brightness and difference in its blue-yellow chromaticity, and the level of discoloration was material dependent.

(Asian Pac J Dent 2020; 20: 9-15.)

Key Words: discoloration, flowable composite, solubility, tea, universal composite, water sorption

Introduction

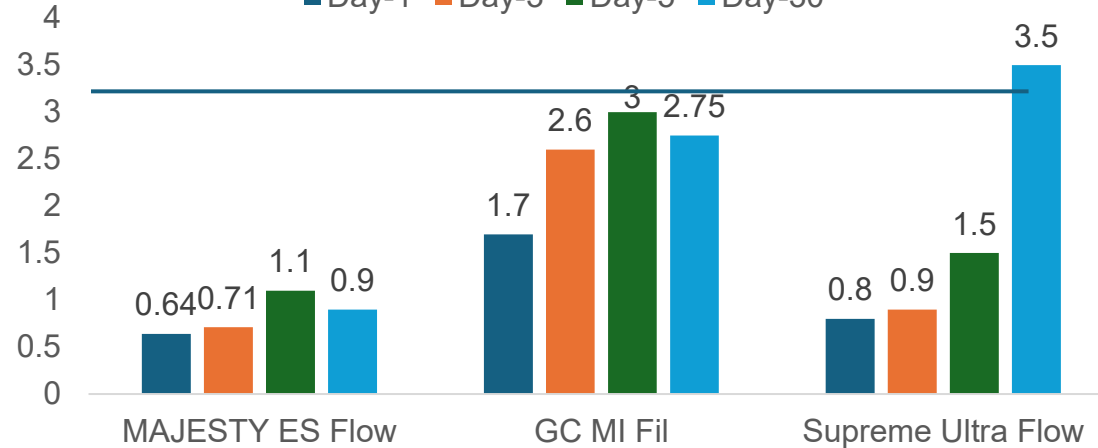
Adhesive restoration is a conventional technique for the reconstruction of tooth structure lost to dental caries/fracture. Among the adhesive restorative materials, resin composites have wide ranges of clinical applications including direct restorations, core build-ups, and lining of indirect restoratives. Light-cured resin composites, in particular, are essential for direct restorations for their adhesiveness, mechanical and esthetic properties [1]. Resin composites first began to be supplied in the form of pastes (hereinafter referred to as universal resin composite). Subsequent compositional alterations have produced less viscous resin composites, known as flowable resin composites since 1996 [2]. Flowable composites are dispensed by a syringe through a needle tip, achieving easy handling for filling relatively small cavities or cavities with large undercuts [3,4].

Initially, flowable composites contained hybrid-type fillers that were considerably larger than the current fillers [2]. The filler content was low with approximately 25 wt% to attain sufficient flowability of the composites, making their mechanical properties inferior to those of universal resin composites. Hence, flowable composites were mainly used for small cavities or as cavity liners [2,5]. Subsequent developments in filler technology, i.e., surface treatments and the dispersion techniques produced much smaller fillers [6], which improved the mechanical properties of composites. In addition, viscosity of composites became controllable due to filler/nanofiller technology. The flowable composites became applicable in occlusal load bearing areas and allowed for contouring the anatomical forms under the direct syringe application. With such improvements, clinical usage of flowable composites have increased in present day [7].

As described earlier, low viscosity is an advantage of the flowable composites. Flowability is controlled by the compounding base resins. The major monomer is bisphenol A-glycidyl methacrylate (Bis-GMA) for current composites due to its mechanical strengths. However, as Bis-GMA is too viscous to use alone in composite in terms of manipulation, other monomers such as urethane dimethacrylate (UDMA) and methylene glycol dimethacrylate (TEGDMA), and certain fillers are compounded to adjust the viscosity [6,8]. Different base resins are frequently utilized in flowable and universal resin composites. Several studies have investigated discoloration of resin composites [7,9-11]. Universal resin composites [10-13].

3.3 & Below Acceptable

■ Day-1 ■ Day-3 ■ Day-5 ■ Day-30



Re: Discoloration: “CLEARFIL MAJESTY ES Flow showed the lowest means at every interval of measurement”

Color Stability Results for Packable Universal Shades:

ΔE ab (Value & Chroma Changes)

Hori-Ishikawa et al. Asian Pac J Dent 2020; 20: 9-15
 Original article
Discoloration of flowable and universal resin composites immersed in black tea for 30 days
 Ayaka Hori-Ishikawa, Yuika Ogawa, Ayako Okada, Nana Sakaeda, Daichi Aizawa, Masao Hanabusa, Kiyori Ohmori, Takatsugu Yamamoto
 Department of Operative Dentistry, Tsurumi University School of Dental Medicine, Yokohama, Japan

Abstract
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(Asian Pac J Dent 2020; 20: 9-15)

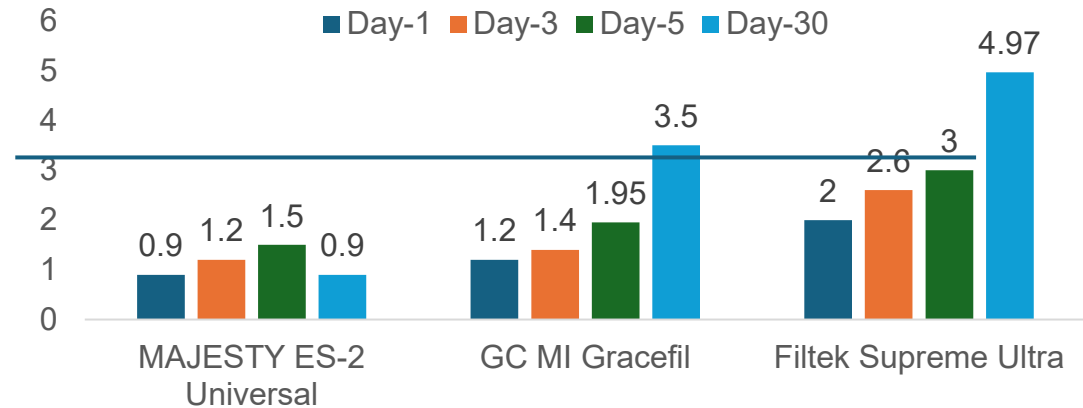
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Introduction
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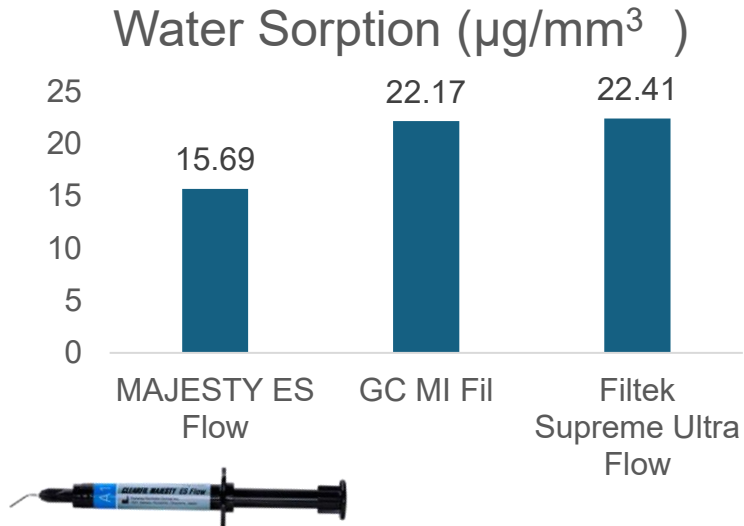
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3.3 & Below Acceptable

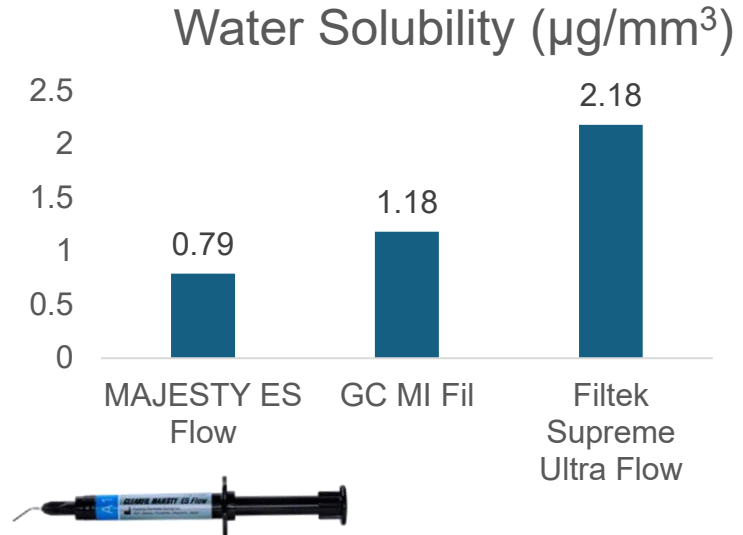


Water Sorption & Solubility:

Water Sorption W_{sp} (Flowables)



Water Solubility W_{sl} (Flowables)



As I see it: The race is on!

We will see porcelain performance
from composite (color and polish
retention)

As I see it: The race is on!

We are moving away from hand manipulated paste composite and color unstable composite (Filtek Supreme Ultra) toward color-stable and injectable “Super Flowables” (Kuraray)





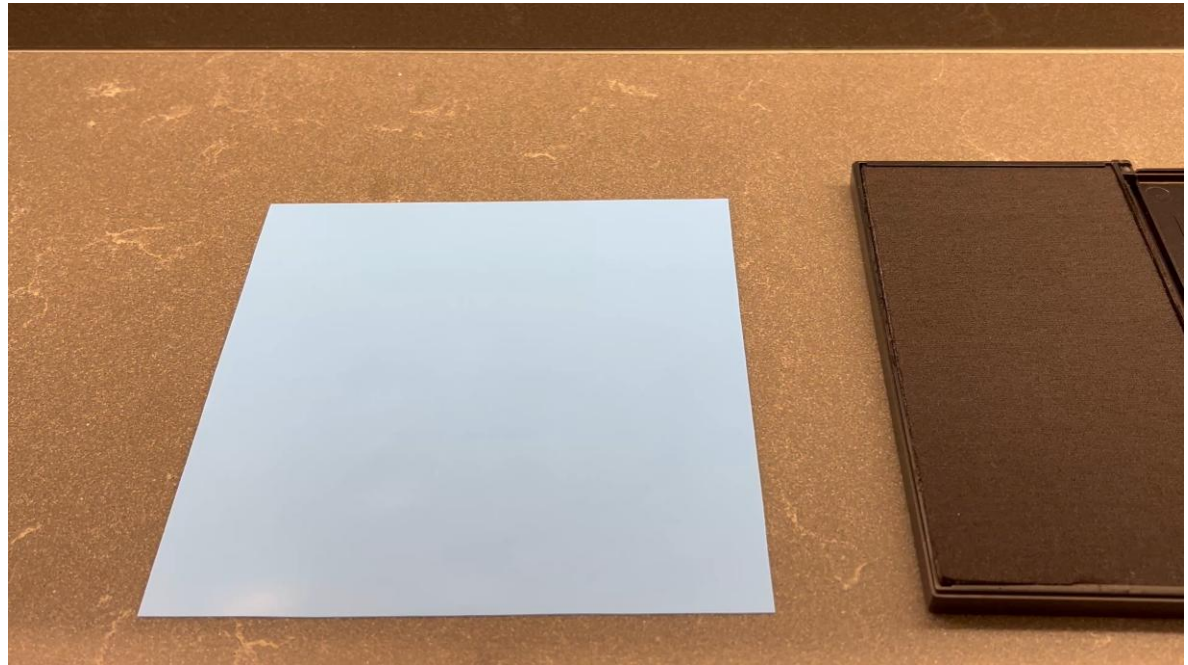








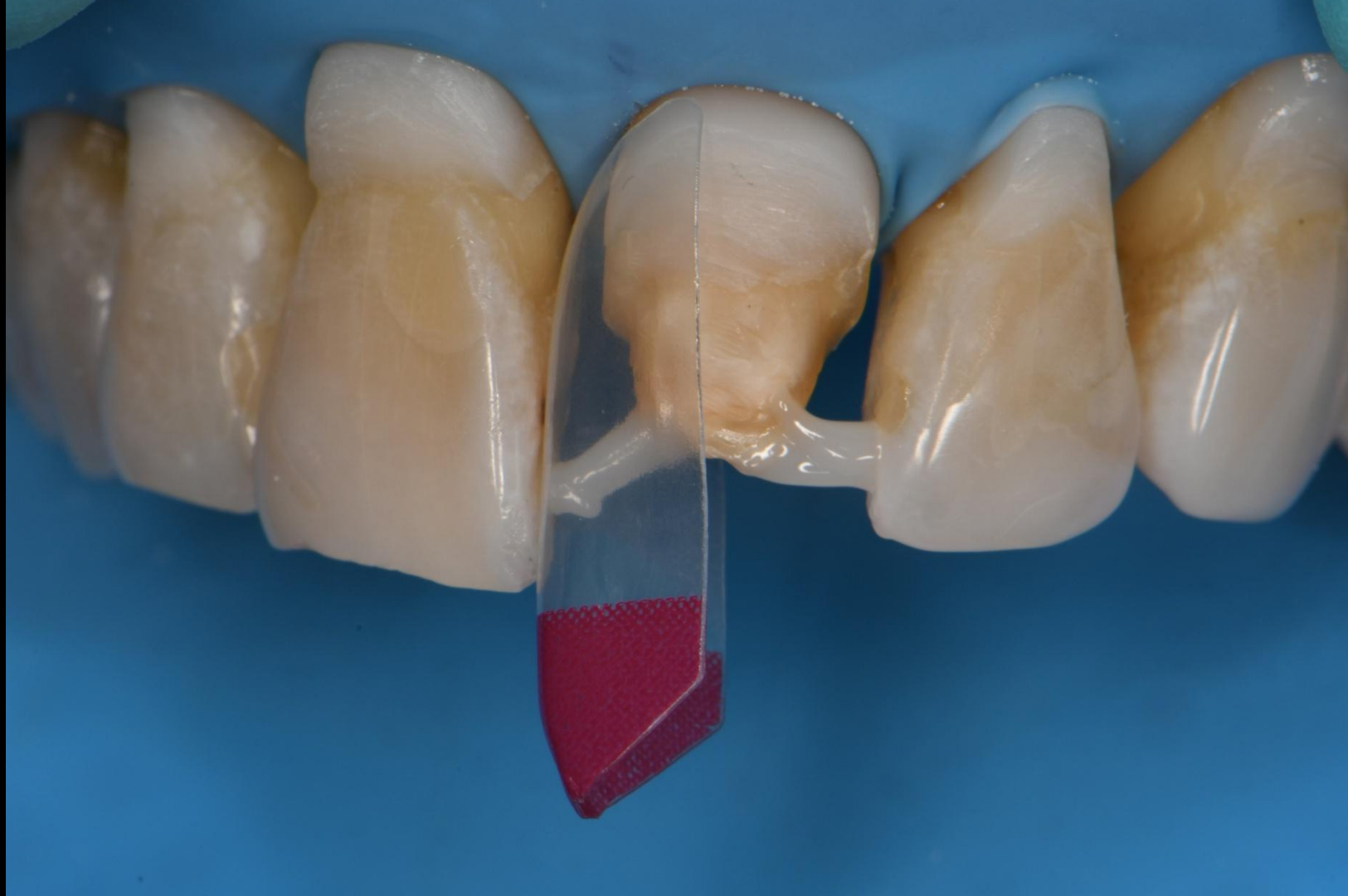
NEW Bioclear Rubber Dam Stamp Available for Purchase

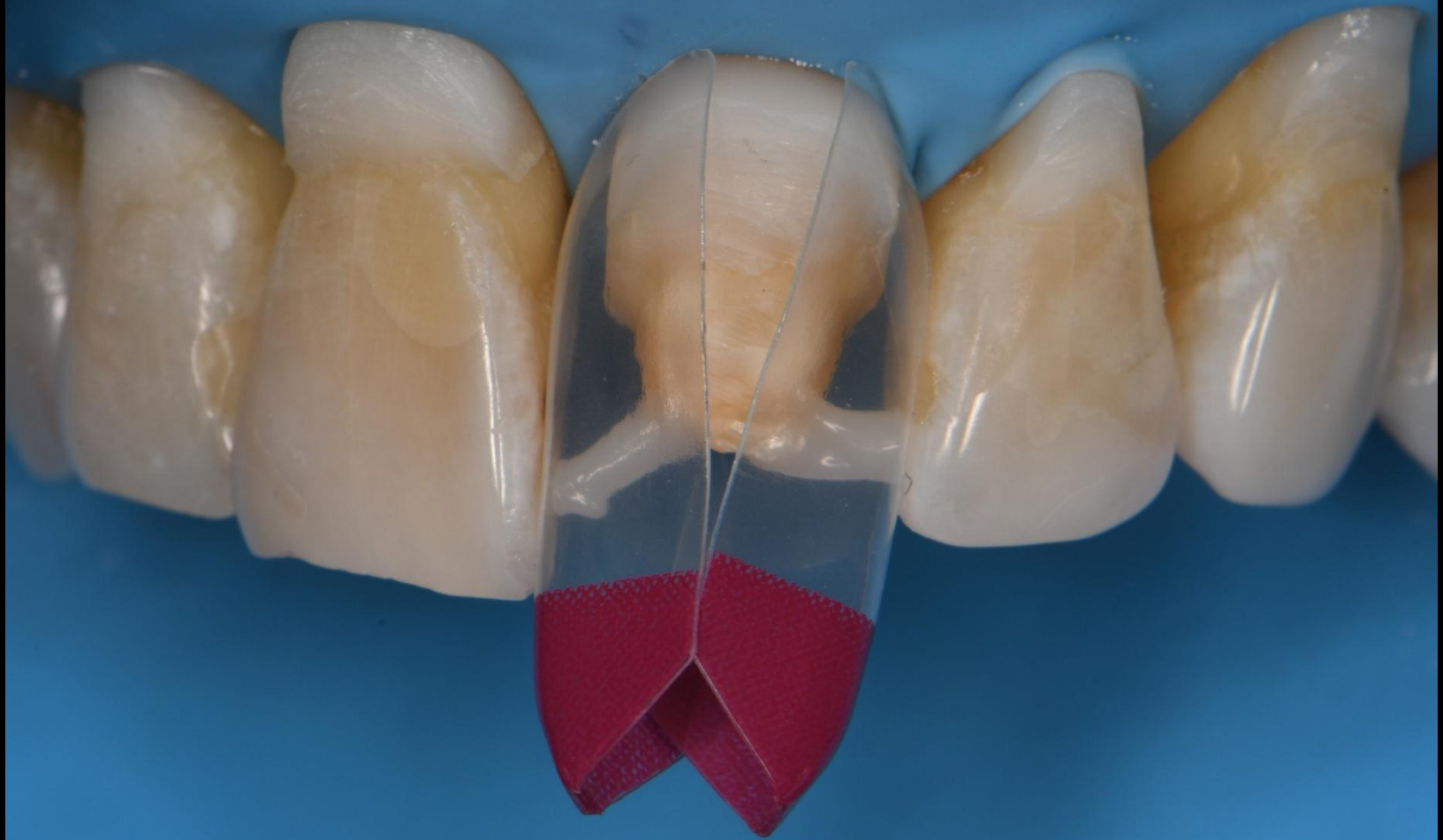
























Majesty ES Paste and Flow Shade: W

Majesty ES Paste and Flow. Shade: W





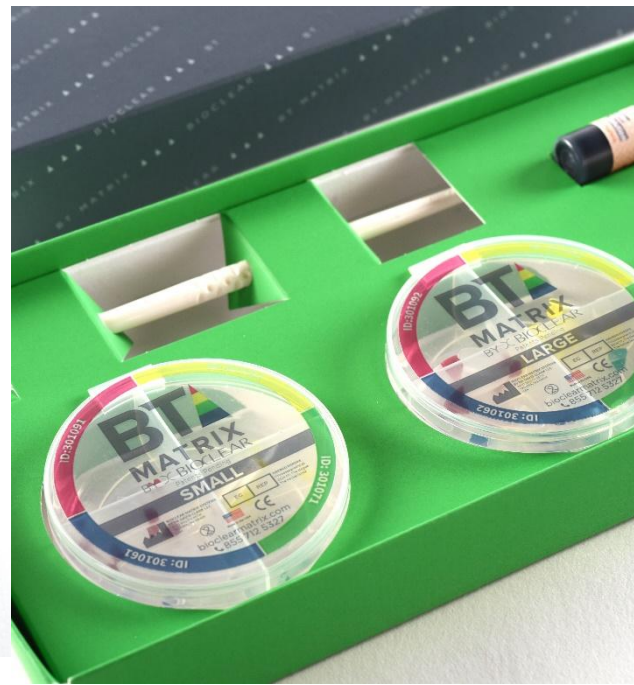


Now I've decided that I want to do the lower arch!

Now I've decided that I want to do the lower arch!



BT
MATRIX
BY ∞ BIOCLEAR





















3 year
follow up



7 year follow up



11 year follow up





Recommended Bioclear Matrices by Indication

For more information contact us
Bioclear Matrix Systems
1-855-712-5327



360 Veneer

Class V and to significantly increase overjet or correct anterior open bite.



TSS Kit

Anterior Teeth:

Class III, Class IV, Class V
Fractured Incisors
Severe Wear
Composite Veneer
Full Composite Crown



BT (Black Triangle) Kit

Anterior Teeth:

Black Triangles
Peg Laterals
Diastema Closure
Instant Ortho
Class V



Evolve Matrix Kit

Posterior Teeth:

Class I, Class II, Class V



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140 Anterior Matrices

#6 through #11 in Mesial & Distal
Small & Medium Lower Incisor

75 Wedges

25 Small Wedges
50 Medium Wedges

**The next generation
of anterior matrices:**

We're taking the
guesswork out of to
matrix selection

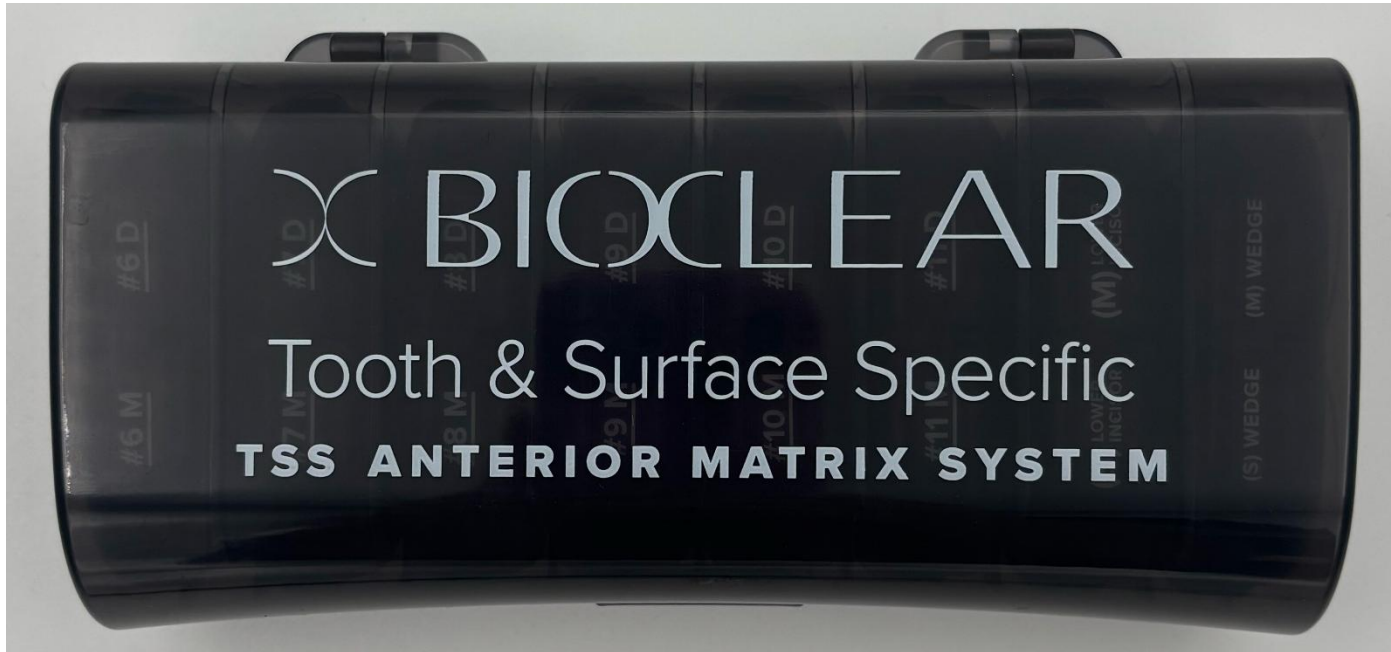


Contact your Bioclear Sales Rep to Pre-Order

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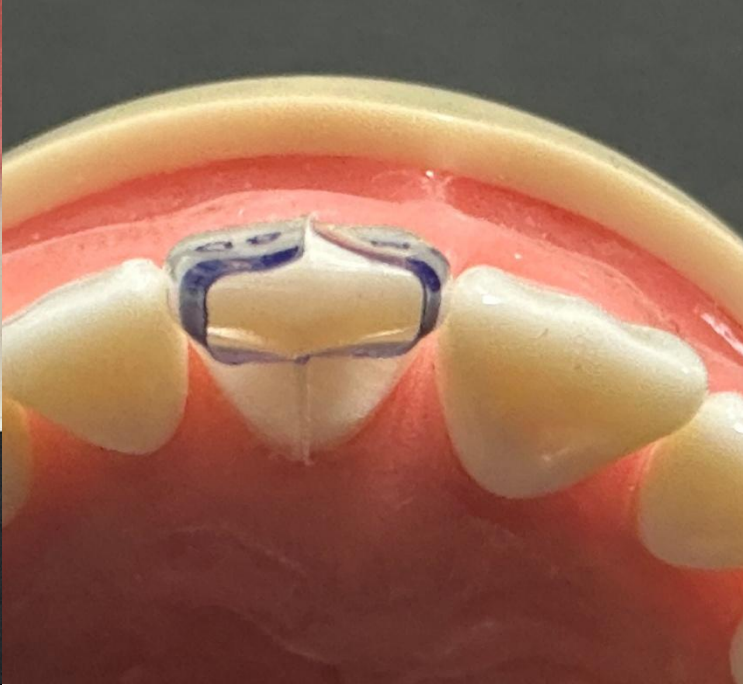
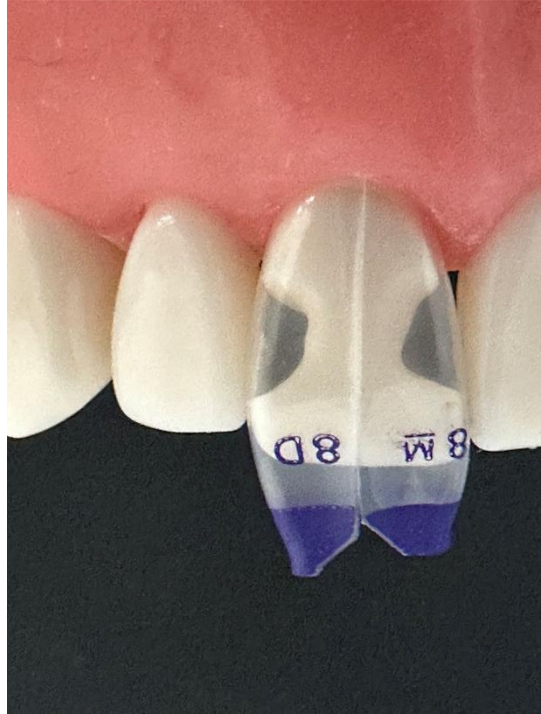
1.855.712.5327

The TSS system is for small and large anterior restorations, broken teeth and anterior esthetic veneering when you DO NOT have a black triangle or diastema















Dan placed a Direct Contact Strut which made his life way easier and the case much better.



Dan placed a Direct Contact Strut which made his life way easier and the case much better.

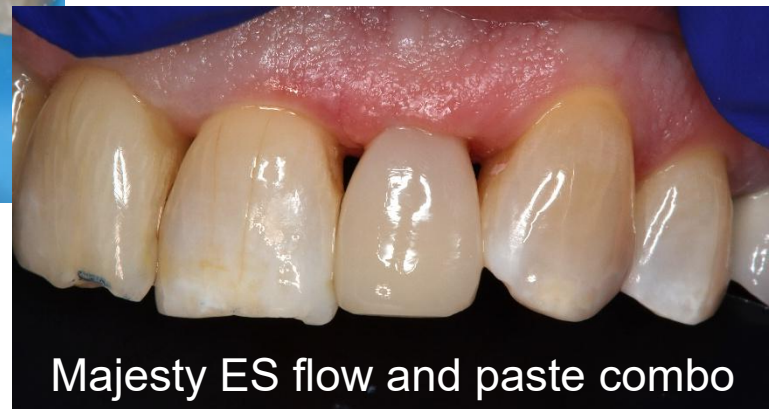








Courtesy of Dr.
Dan
Henricksen



Majesty ES flow and paste combo





Khairul's regular dentist restored the tooth, but the patient was unhappy with the outcome. Khairul had two major complaints and one major concern:

- The restoration shreds floss
- The restoration is the wrong shape
- He does NOT want a crown



Pre-Operative View





- The restoration shreds floss
- The restoration is the wrong shape
- He does NOT want a crown



TSS

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MATRIX SYSTEM
BY X BIOCLEAR



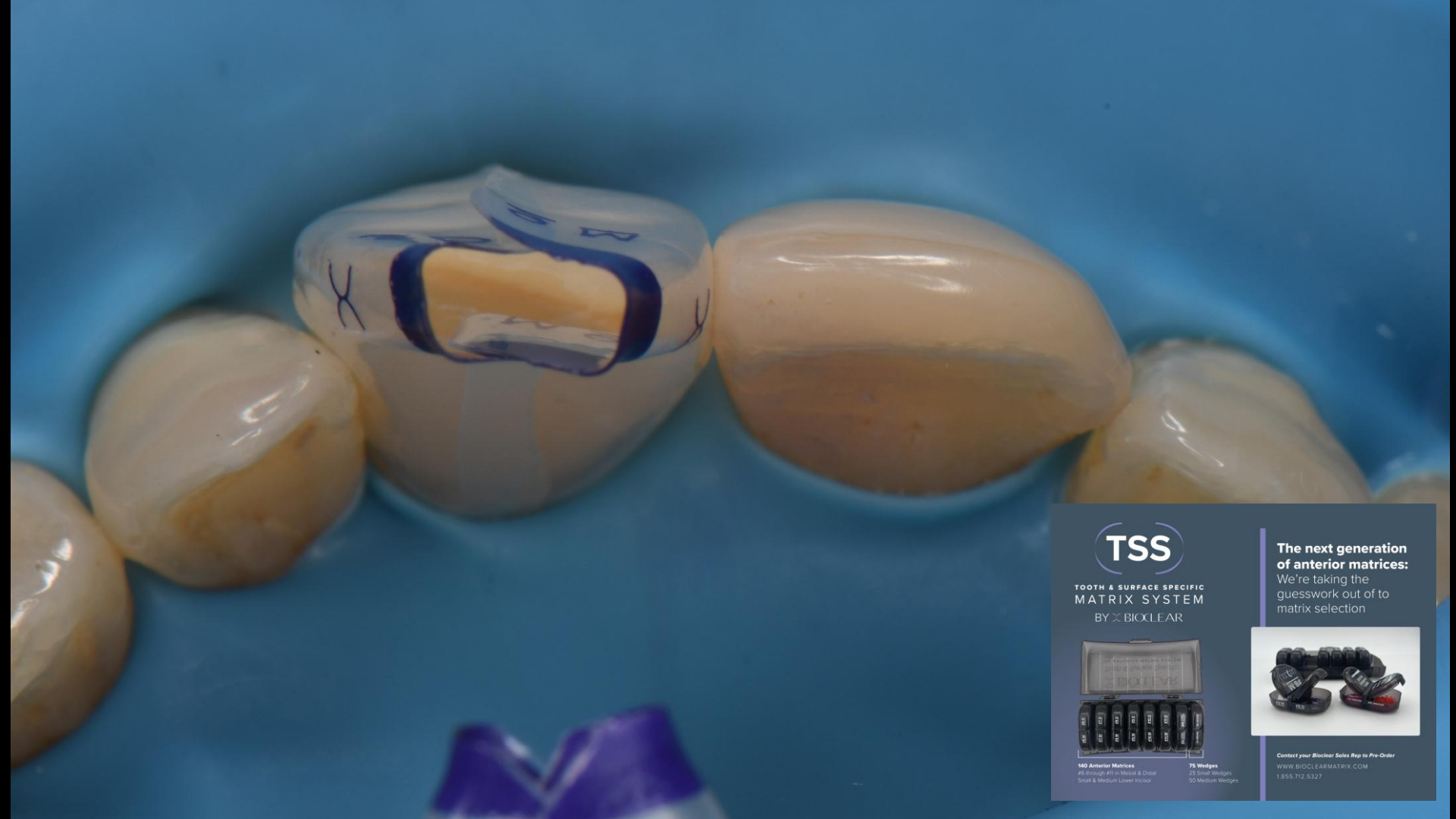
140 Anterior Matrices
#6 through #11 in Maxillary & Distal
Small & Medium Lower Incisor

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75 Wedges
25 Small Wedges
50 Medium Wedges

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#6 through #11 in Maxillary & Distal
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75 Wedges
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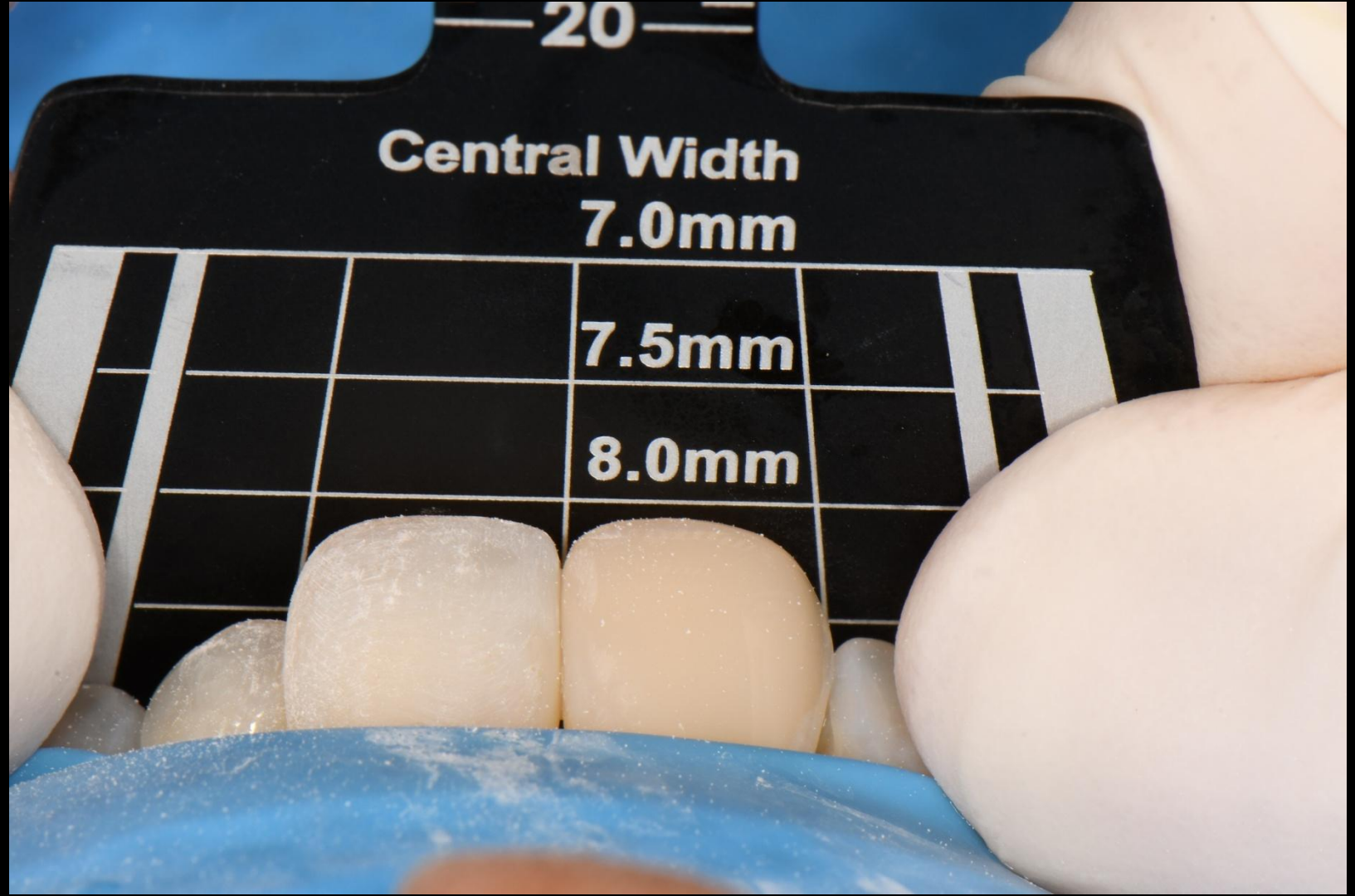


—20—

**Central Width
7.0mm**

7.5mm

8.0mm



- Before we started the procedure, I let Khairul know that the composite on the 11 had turned a bit yellow.
- I also let him know that it is impossible to get a perfect match to neighboring aged composite or natural teeth.
- I always ask the patient, “Do you want me to err on the light side or the dark side with shade? We can always bleach the natural teeth later and replace older yellowing composite on other teeth with a more color stable composite”.
- He chose to err on the light side in terms of shade selection.



Pre-Operative View



Immediate post-op. He asked for floss. It flossed perfectly. The patient loved it, hugged me and later posted marvelous reviews on Google



Kuraray Majesty ES: B1 flowable and paste



Is monolithic injection molded composite a viable alternative to full ceramic crowns in some cases?

You be the judge of that



The patient is a 35-year-old male. His original chief complaint was a discolored filling on the distal of tooth #8. The patient was given two treatment plans, one to simply replace a few defective restorations and remove caries with traditional fillings or in patient terms we said, "We can patch the holes, or I can rejuvenate your smile. The patchwork plan will be healthy but will not make a significant esthetic change. In addition, the severe wear and acid erosion present on the palatal surfaces could eventually lead to catastrophic problems later i.e. root canals, infection, and tooth loss." The patient opted for Bioclear rejuvenation versus simple fillings because he wanted a beautiful smile. He chose Bioclear in lieu of crowns because he understood that Bioclear is a more conservative and healthier approach to achieving his goals than traditional crowns.

Phase one of the treatment plan was to restore the anterior six teeth, simultaneously opening the vertical dimension to reduce the need for aggressive tooth reduction for material thickness. In addition, because the patient needed to have the teeth lengthened by 2 mm, opening the vertical dimension by 2 mm allowed the overbite to be more ideal. Because the patient could only commit to the cost of the six Bioclear restorations (\$11,600) we placed transitional occlusal flowable composites (thick sealants) on the four maxillary premolar teeth, and we will allow the molars to settle into occlusion utilizing the well-researched Dahl Technique.

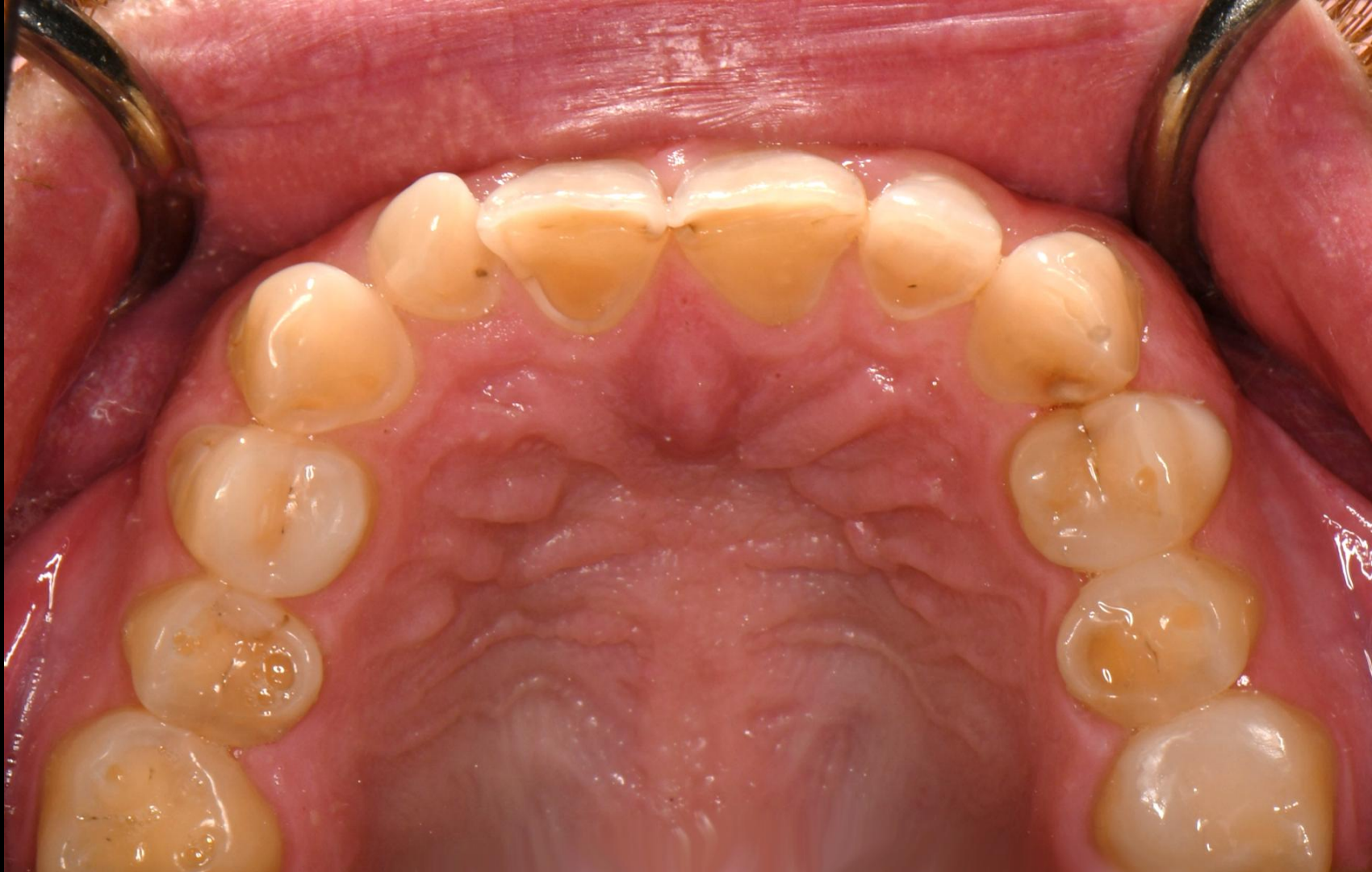
Phase two will be to restore the remaining teeth with Bioclear when the patient has his finances ready.

Treatment Summary Short Version:

Treatment was finished in a single 4-hour session. (Less experienced clinicians should plan to give one hour per tooth). Bioclear TSS Matrices were utilized on all the teeth except tooth #10. #10 required the Bioclear BT matrix system to create "instant ortho" and because a diastema was present there. Bioclear Diamond wedges were used as needed in areas where the contact was lost during caries removal or removal of old composites. Bioclear RSP X-course discs (Black) were used to shape the incisal edges and smooth the small seams present where the matrices meet on the facial and palatal. Final polish was achieved with Bioclear Magic Mix and then Rock Star Polish cups and cones.

One-week postoperative visit revealed healthy teeth and gingiva. The patient was ecstatic about his new smile, had zero post-operative pain or sensitivity, and expressed that his new bite with the increase in VDO felt more comfortable than before.





What percentage of the tooth is removed for a conservative crown prep?



Source: Google Images

What percentage of the tooth is removed for a conservative crown prep?



Source: Google Images



Wouldn't it be nice to preserve nearly all the healthy tooth structure and at the same time completely rejuvenate this guy's smile?

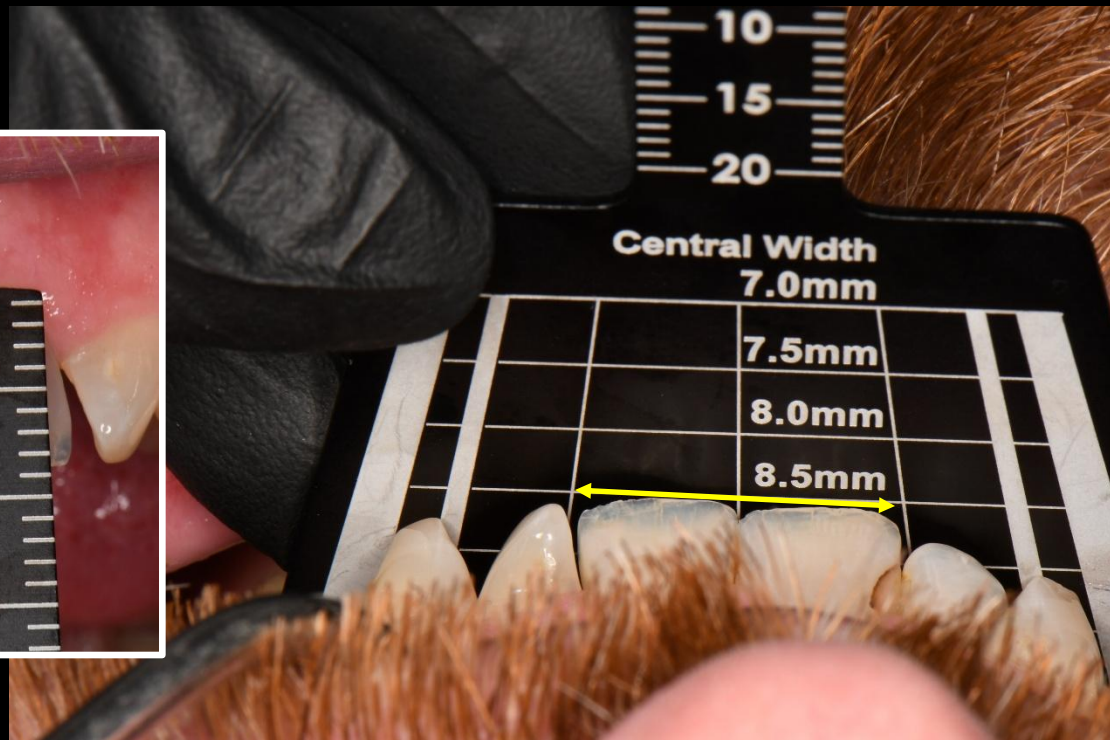


Simplified Smile Design!

How long are his
centrals currently? 8.5 mm



How wide are his centrals? 8.5 mm



5
10
15
20

Central Width
7.0mm

7.5mm

8.0mm

8.5mm

9.0mm

9.5mm

10mm

 **Panadent**
Esthetic Proportion
Gauge

Central Width | Central Height

8.0mm | 10.0mm

8.5mm | 10.6mm

9.0mm | 11.2mm

9.5mm | 11.8mm

10.0mm | 12.5mm













TSS

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BY BIOCLEAR



140 Anterior Matrices

20 Standard Anterior Matrix

Small & Medium Upper Incisors

76 Bridges

20 Small Bridges

20 Medium Bridges

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100 Anterior Matrices
100 Anterior Wax
100 Anterior Wax
100 Anterior Wax

100 Matrices
100 Anterior Wax
100 Anterior Wax
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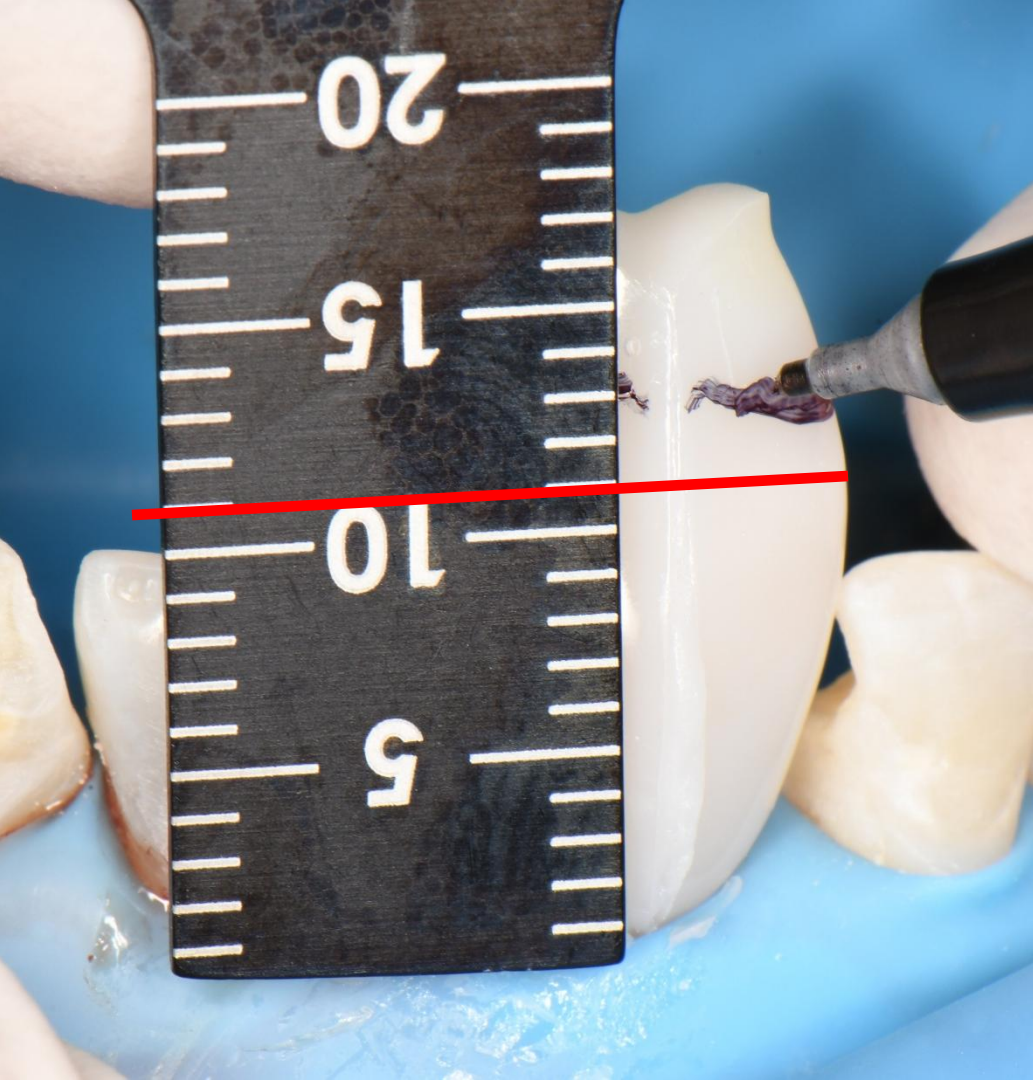


100 Anterior Matrices
In 10 sizes (1/2, 3/4, 1, 1 1/4, 1 1/2, 1 3/4, 2, 2 1/4, 2 1/2, 2 3/4)
100% BPA Free
100% Medical Grade
100% Recycled
100% Biodegradable

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100% BPA Free
100% Medical Grade
100% Recycled
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Pre-operative



Immediate Post-Operative



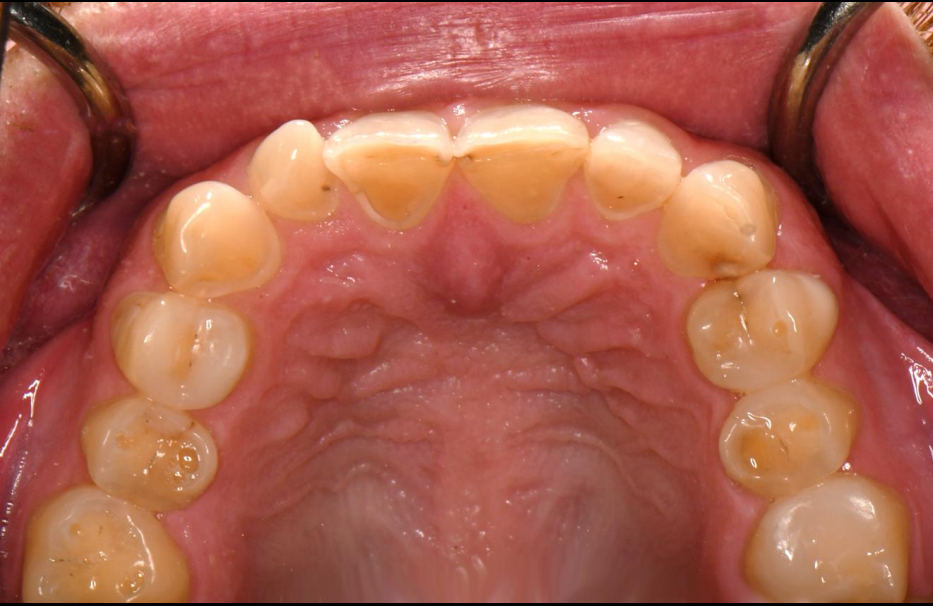
One Week Post-Operative













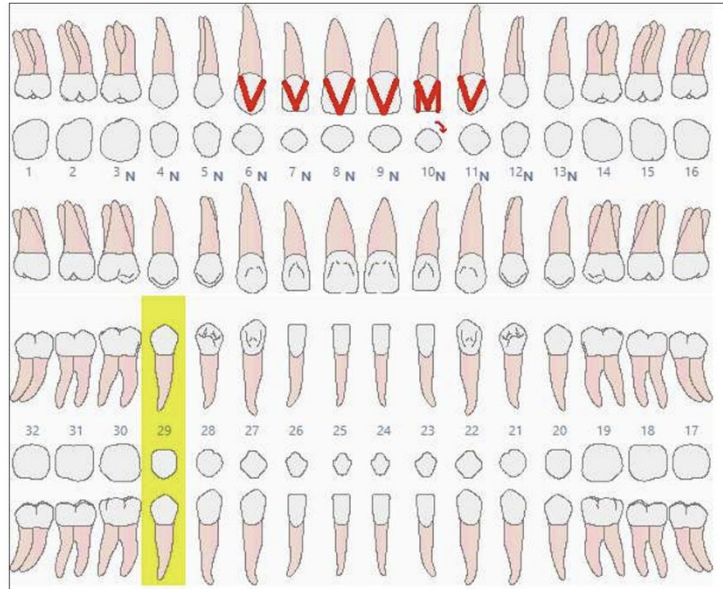
Day of treatment:
About 4 hours



1-week
post-op

Patient Chart

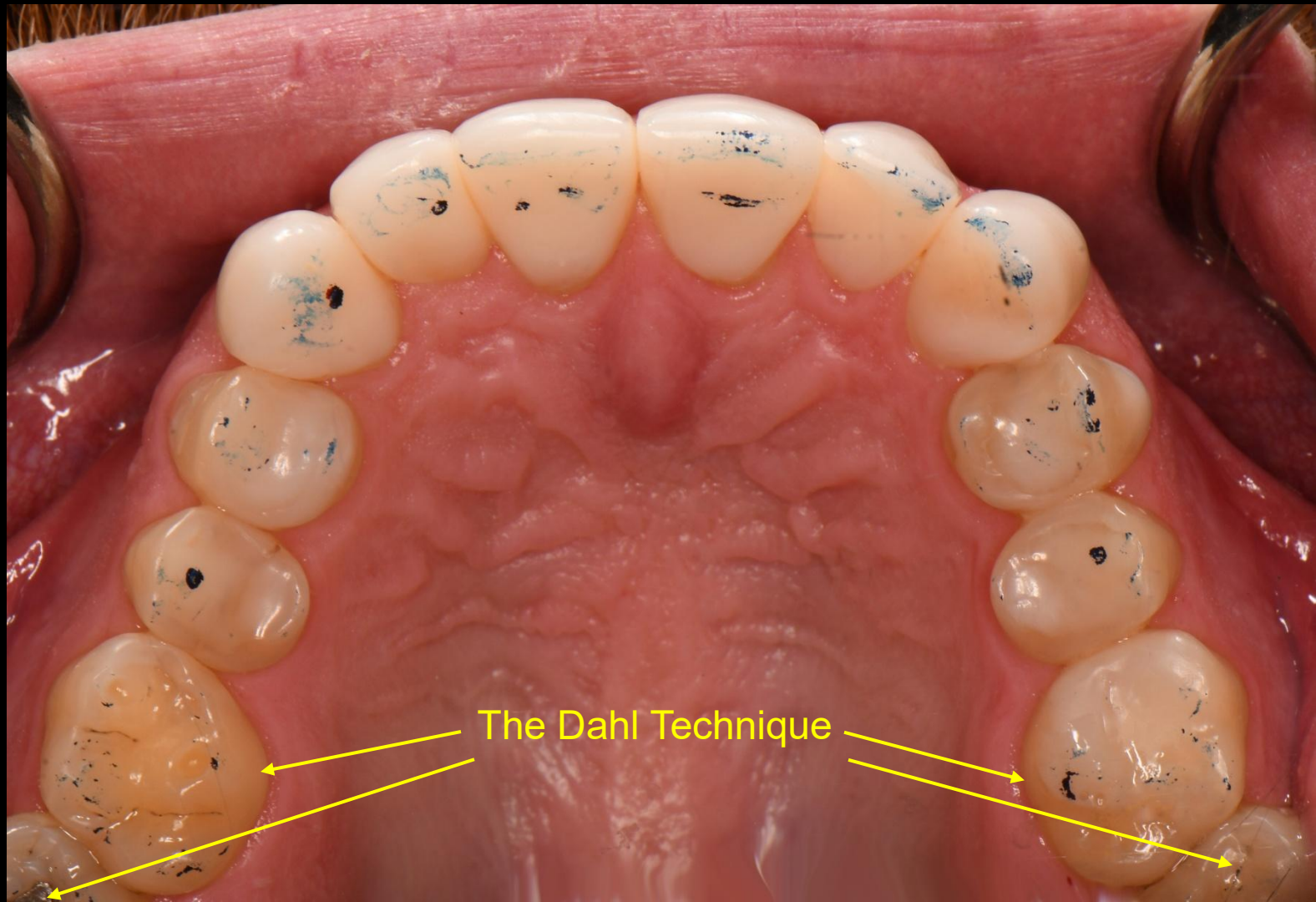
Patient Name [Redacted]
 Patient ID [Redacted]



Total Bioclear Case Fee?

\$11,631

Date	Description	Provider	Tth	Surf	Status	Fee
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	6		Proposed	\$1,840.00
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	7		Proposed	\$1,840.00
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	8		Proposed	\$1,840.00
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	9		Proposed	\$1,840.00
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	10		Proposed	\$1,840.00
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	11		Proposed	\$1,840.00
1/15/2026	199.2 - BIOCLEAR ORTHO CORRECTION PER TOOTH	David J. Clark, D.D.S.	10		Proposed	\$306.00
1/15/2026	299.5 - BIOCLEAR DIASTEMA CLOSURE	David J. Clark, D.D.S.	10	MD	Proposed	\$285.00



The Dahl Technique

Dahl Technique



The Dahl appliance was described nearly 30 years ago. This removable metal bite platform was used to create inter-occlusal space, in a localised part of the mouth, to facilitate the placement of restorations on worn anterior teeth. The Dahl concept is traditionally associated with the management of worn teeth. However, the same principles can be successfully and safely applied to a variety of clinical situations. This has simplified the management of historically complex problems. The advantages are the preservation of tooth tissue and the long-term benefits that brings. This paper reviews the literature related to the Dahl concept and how the concept has developed. There is a discussion regarding possible future applications and research.



The Dahl concept can be successfully applied to a variety of clinical situations other than the management of tooth surface loss.

Direct composite resin is an ideal material to use as an intermediate Dahl appliance as it is inexpensive, bondable, robust and can be modified with ease.

The success of the Dahl Concept

The literature reports that the objectives of the Dahl concept are achieved in the majority of cases (94%-100%), and that this space creation occurs irrespective of age and sex. These objectives are to either create sufficient inter-occlusal space for the placement of restorations or the re-establishment of occlusal contacts following the placement of restorations that have intentionally been placed in supra-occlusion.

The main reason for the failure of space creation is poor patient compliance associated with removable appliances.

The success of the Dahl Concept

It is our opinion that a conservative technique using adhesive principles will ensure that sufficient tooth structure with favourable pulpal health will remain for subsequent restorations and therefore more options should be available on failure. **The modern emphasis should be of 'tooth damage limitation' as patients embark on the 'restorative failure cycle'.**

The success of the Dahl Concept

How long does it take?

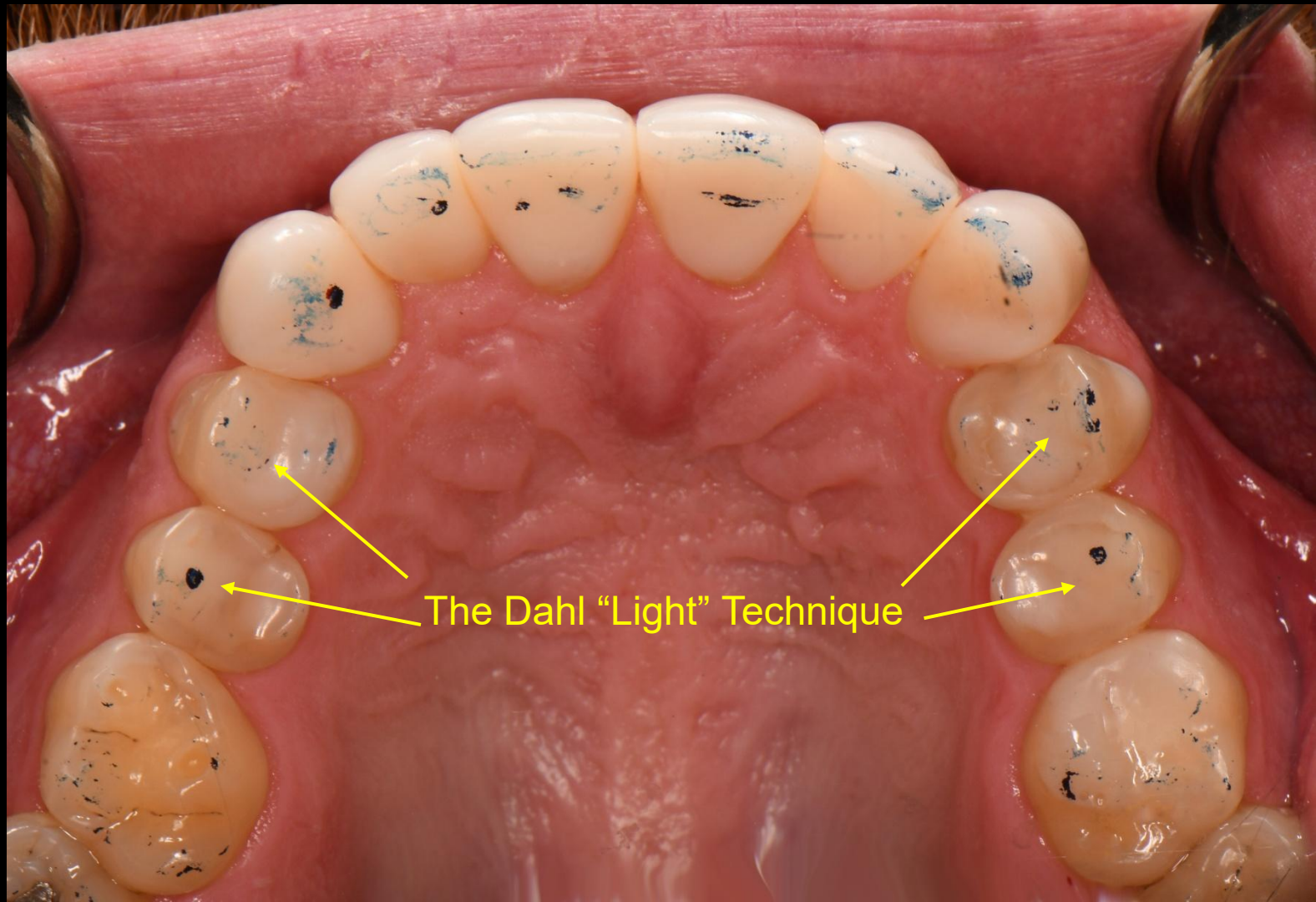
The occlusion tends to re-establish after about six months on average but it can take up to a period of **18-24 months**

Dahl and Krogstad's further publications of an implant-cephalometric study, using fixed tantalum implants placed in the basal bone of the maxilla and mandible, concluded that the inter-occlusal space was created by axial movement of the teeth rather than a change in their inclination. There was some relapse in the vertical dimension of occlusion during the first six months but this remained static after this period. The inter-occlusal space was obtained by a combination of intrusion of the anterior teeth in contact with the cobalt-chromium appliance and eruption of the separated posterior teeth.





“The Dahl Light Technique”



The Dahl "Light" Technique

Let's quickly review several types of anterior cases
and best matrix system for the case:

TSS (Tooth and Surface Specific) *or* **BT** (Black Triangle/Diastema Closure)



Recommended Bioclear Matrices by Indication

For more information contact us
Bioclear Matrix Systems
1-855-712-5327



360 Veneer

Class V and to significantly increase overjet or correct anterior open bite.



TSS Kit

Anterior Teeth:

Class III, Class IV, Class V
Fractured Incisors
Severe Wear
Composite Veneer
Full Composite Crown



BT (Black Triangle) Kit

Anterior Teeth:

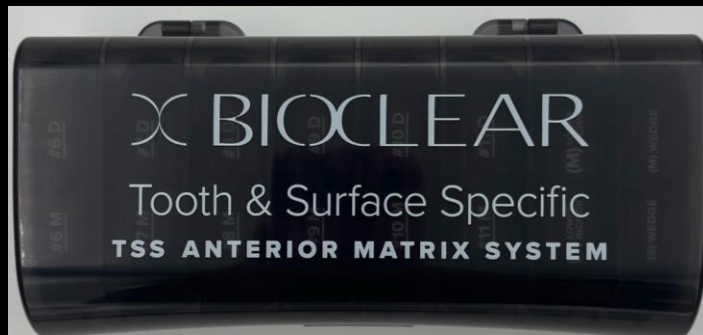
Black Triangles
Peg Laterals
Diastema Closure
Instant Ortho
Class V



Evolve Matrix Kit

Posterior Teeth:

Class I, Class II, Class V







The monolithic restoration can create adequate non-layered polychromaticity with **Body** shade



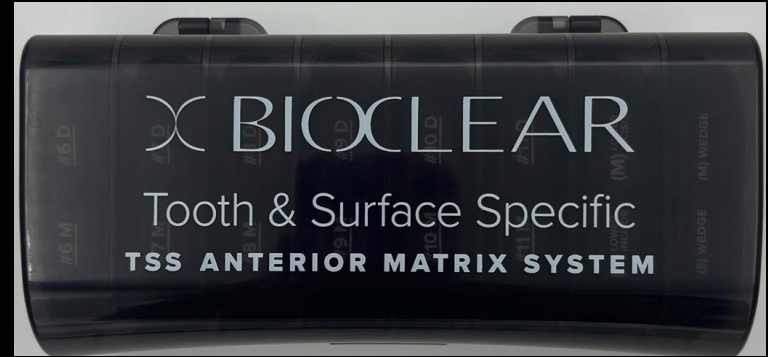
17 year old male. Had emotional Issues and had ortho brackets on for many years without returning to complete orthodontic care. Left with rampant decay. Injection molded A2 **BODY** composite



Which Matrix Type?



Which Bioclear kit?





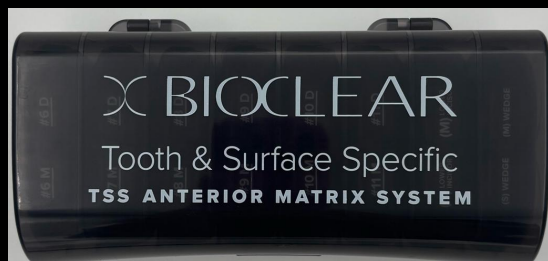
- If you think you will lose your contacts, you need to prep and then take each to 80% shape before you move to the next tooth.
- Bioclear method benefits from leverage and landmarks
- Creation of 3 facial planes is key
- Monolithic composite in the body shade is generally beautiful to the patient. Why?



Case by recent
attendee of
Learning Center 4-
day Certification
Course



Which Bioclear Kit?



Which Bioclear Kit?





Courtesy Dr.
Les Miller

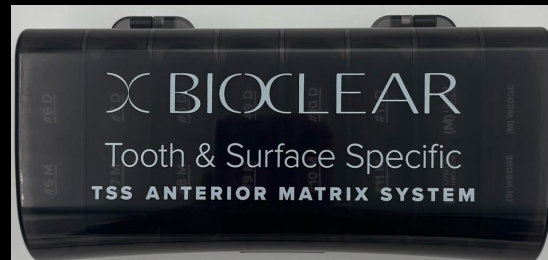


Which Bioclear kit or kits?





Both



**the Root Overlay
for a predictable non-surgical
gum lift**







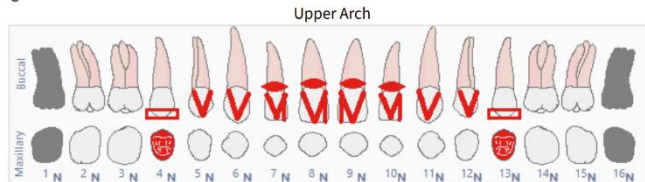




BIOCLEAR CLINIC

3402 South 38th Street, Tacoma, WA 98409
O: 253-474-7635 E: Patient@BioclearClinic.com

Date: May 5, 2021

Patient Name: **Francesca Heard**
Consultation Date: 5-5-2021
Treating Doctor: David Clark



Tooth #	Description	Fee
Comprehensive evaluation: complete oral evaluation, color, size determination, photos.		
•	Bioclear Comprehensive Evaluation	\$289
Full mouth series of radiographs: If you have within 5 years a Full mouth series of radiographs taken have them emailed to Joan@bioclearclinic.com		
•	Bioclear Full Mouth Series of Radiographs	\$252
Bioclear 360 Veneer:  To rejuvenate tooth to youthful appearance, worn edges, correct negative space, mask color, wraps 360 degrees encompassing the entire tooth.		
Bioclear 360 Veneer Overlay \$1,200 per tooth		
•	Tooth # 5, 6, 7, 8, 9, 10, 11, 12	\$9,600
Bioclear Diastema Closure:  Placed when the open contacts and/or open spaces on either side of the tooth is too large to allow the Bioclear black triangle, or Bioclear 360 veneer restoration alone to close the space.		
Bioclear Diastema Closure Per side \$279, per space \$558		
•	Tooth # 7 Mesial, 8 Mesial, 9 Mesial, 10 Distal	\$1,116

























BIOCLEAR LEARNING CENTER

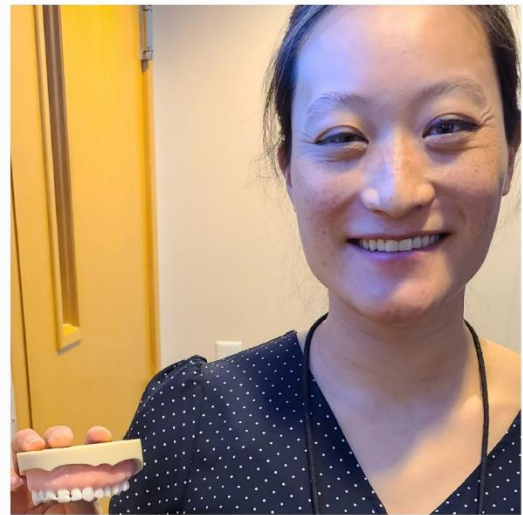
Tacoma USA · Solihull UK
Varberg Sweden · Cairo Egypt
Syracuse Italy · Taubate Brazil
Livermore CA (Bioclear pediatrics)
Seoul Korea · Madrid/Barcelona
Sydney Australia · Baghdad Iraq



BIOCLEAR
LEARNING CENTER



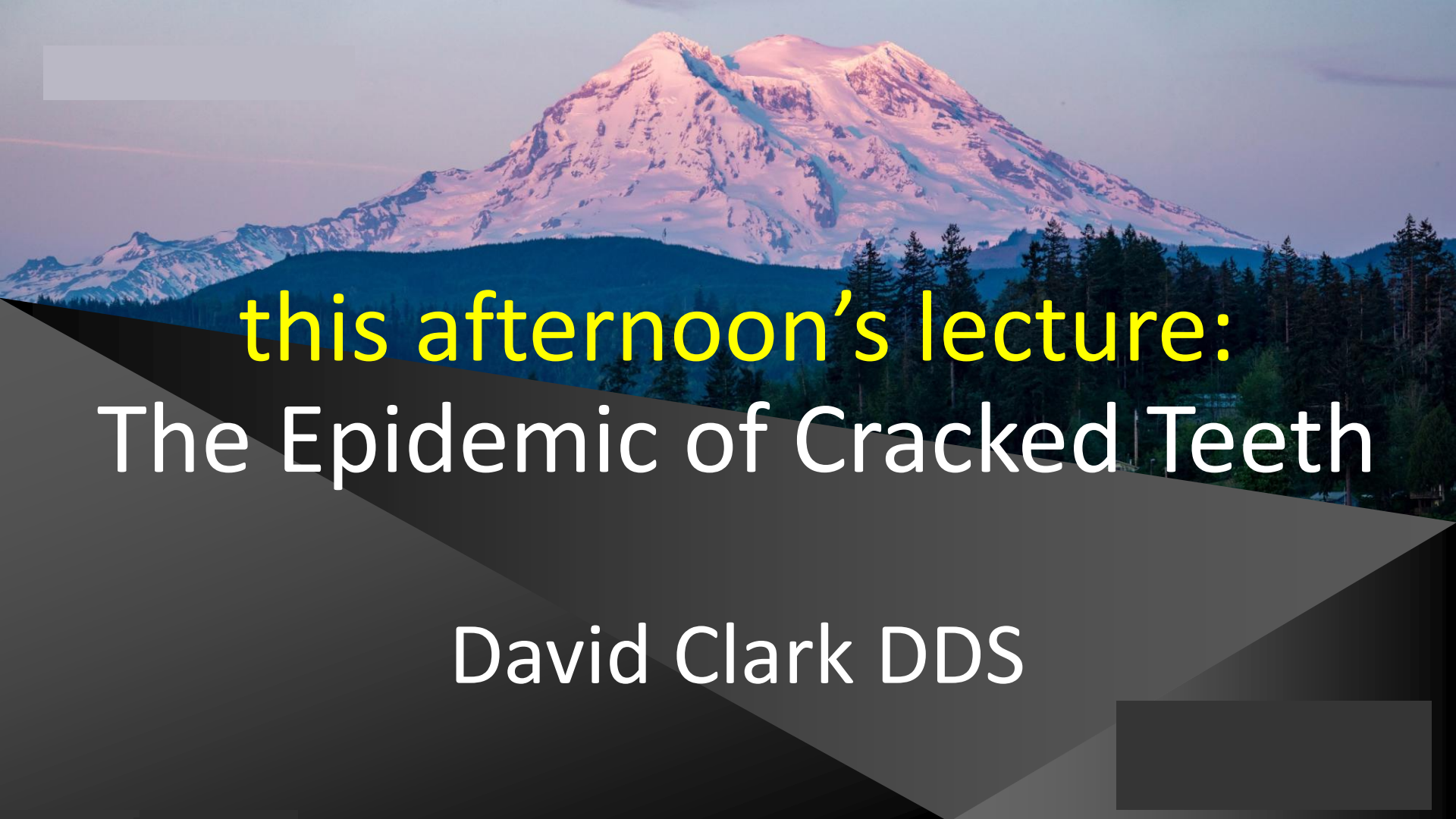




Last week's attendees at the certification course







this afternoon's lecture:

The Epidemic of Cracked Teeth

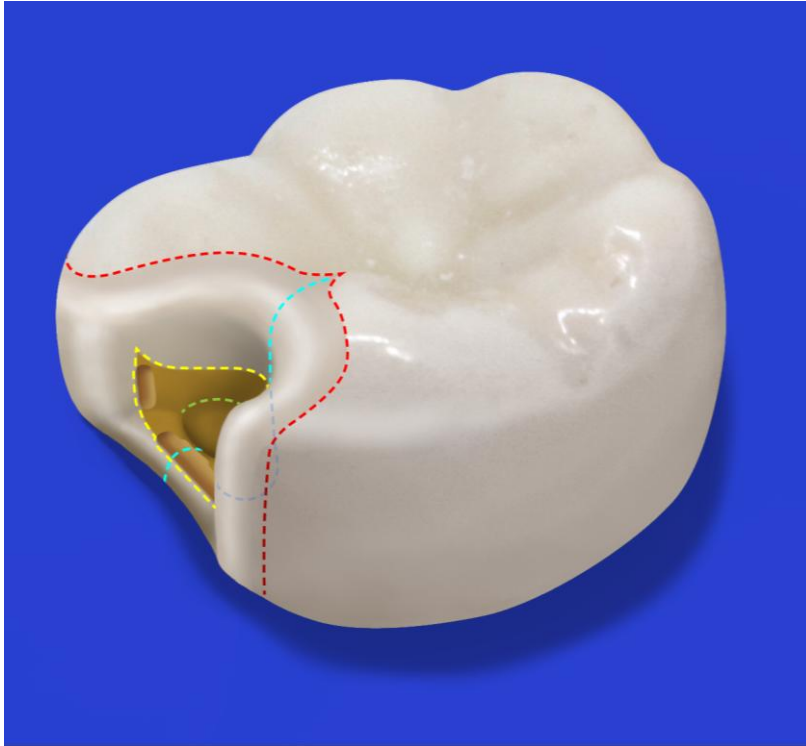
David Clark DDS





Step by Step Guide for Injection Molded Class II

Final views of completed Bioclear Class II Preparation.





before

The Bioclear method





Infinity edge
of the T.R.I.

The Bioclear Injection Molding Approach



Failing composite;
traditional preparation



Re-Restored using the
Bioclear Evolve System and Method

∞ BIOCLEAR

Stop by convention

booth **#1242**

to...

- ✓ Hear more about Bioclear courses
- ✓ Meet our team of Bioclear and Kuraray experts
- ✓ Order products
- ✓ Register for courses



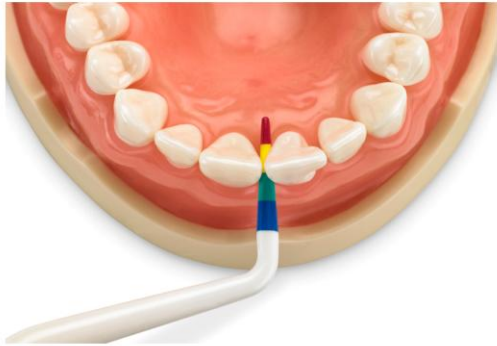
Treat yourself to a weekend with ∞ BIOCLEAR

BLACK TRIANGLE

CERTIFICATION COURSE

18 CE CREDITS

This three-part live hands-on certification course will teach you how to treat black triangles, gingival recession, root abrasions, and perform confident restorations. In becoming a certified Bioclear black triangle doctor, you'll increase your overall skill and knowledge of Bioclear and learn to market your new skills to patients.



Upcoming Dates:

Denver
October 9th
2026

Walnut Creek
August 21st 2026

Limited spots available!

Scan to learn more
& sign up for your
local BT Course!



www.bioclearmatrix.com/live-courses/



BEFORE



AFTER



BEFORE



AFTER

2026 Certification Courses



- Core Anterior + Core Posterior • Complex Cases & Problem Solving
- Smile Design & Comprehensive Anterior Rejuvenation • Bioclear Alumni Summit

January

S	M	T	W	T	F	S
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February

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March

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September

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November

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2027 Certification Courses



- Core Anterior + Core Posterior
- Complex Cases & Problem Solving
- Smile Design & Comprehensive Anterior Rejuvenation

JANUARY

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FEBRUARY

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OCTOBER

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MARCH

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JULY

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NOVEMBER

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APRIL

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AUGUST

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DECEMBER

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For a copy of today's presentation,
Learning Center info or the essential
Bioclear Library

