



# Closing the Gaps: Treating Diastemas, Black Triangles, and Peg Laterals

David Clark DDS

*featuring*

 **BIOCLEAR**

Disclosures:  
Dr. Clark has financial interest in Bioclear





# BIOCLEAR LEARNING CENTER

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Seoul Korea · Madrid/Barcelona  
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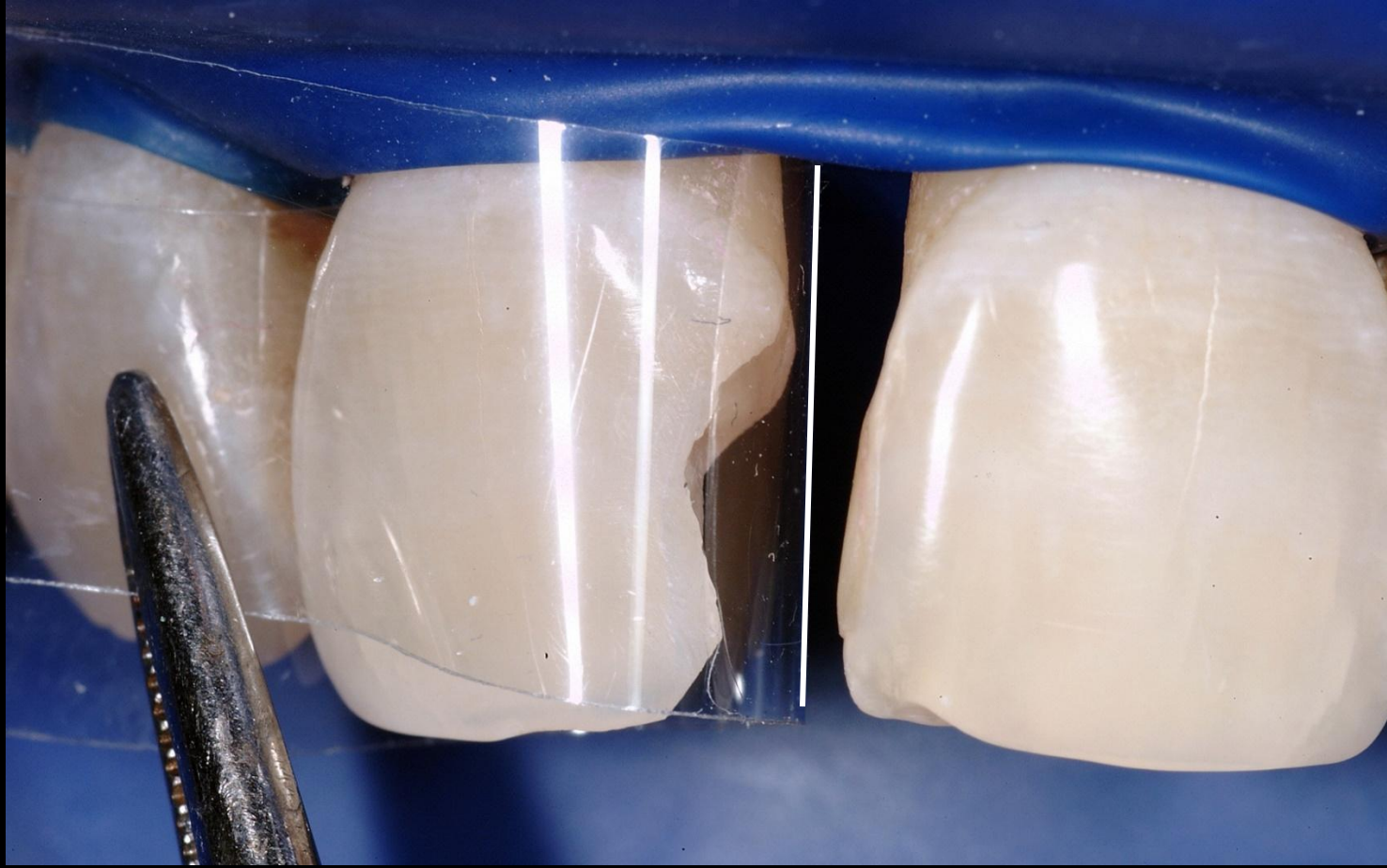
# Dental schools/GPR integrating the Bioclear Method



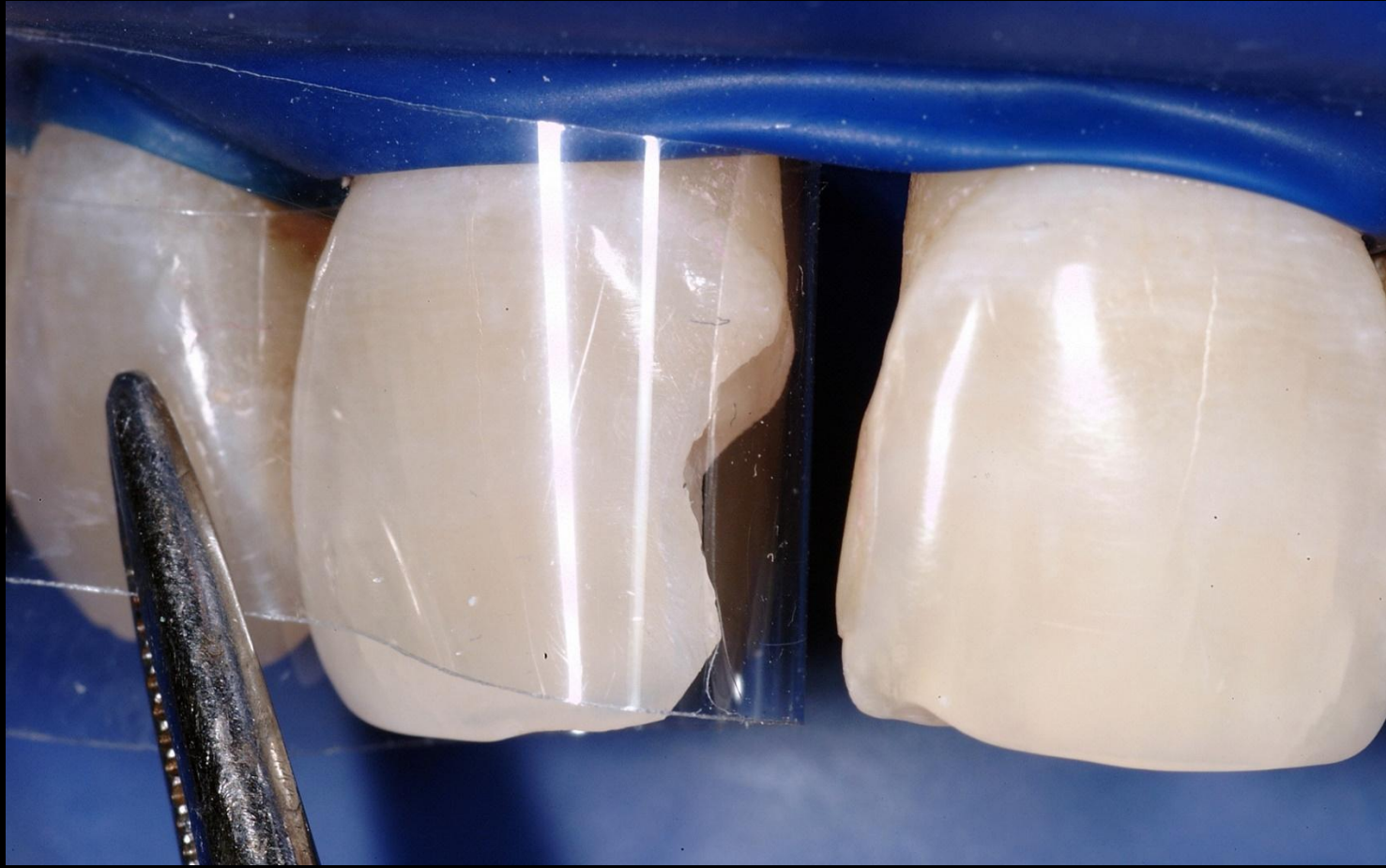
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# Traditional composite technique



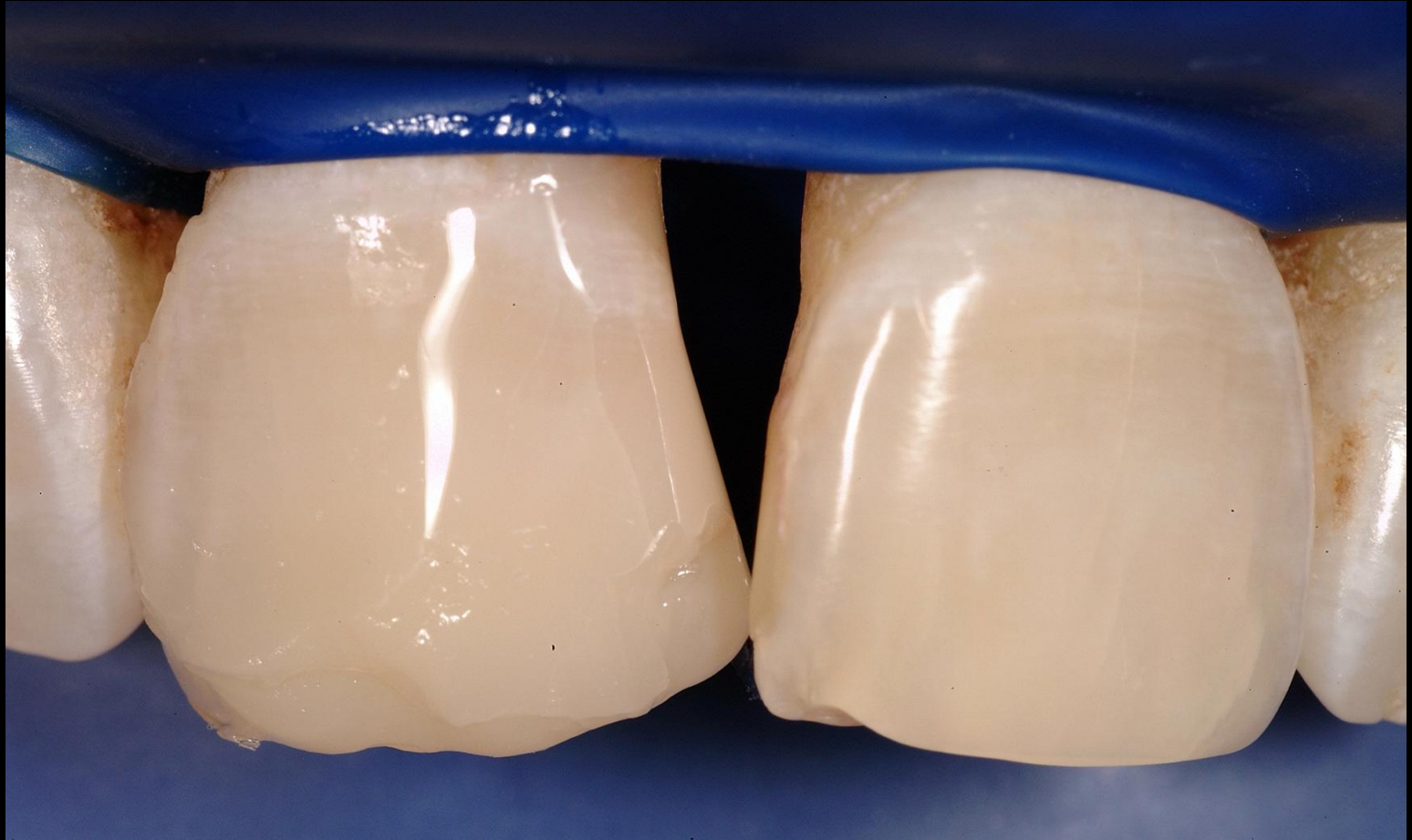
# Traditional composite technique



# Traditional composite technique



# Traditional composite technique



# Traditional composite technique



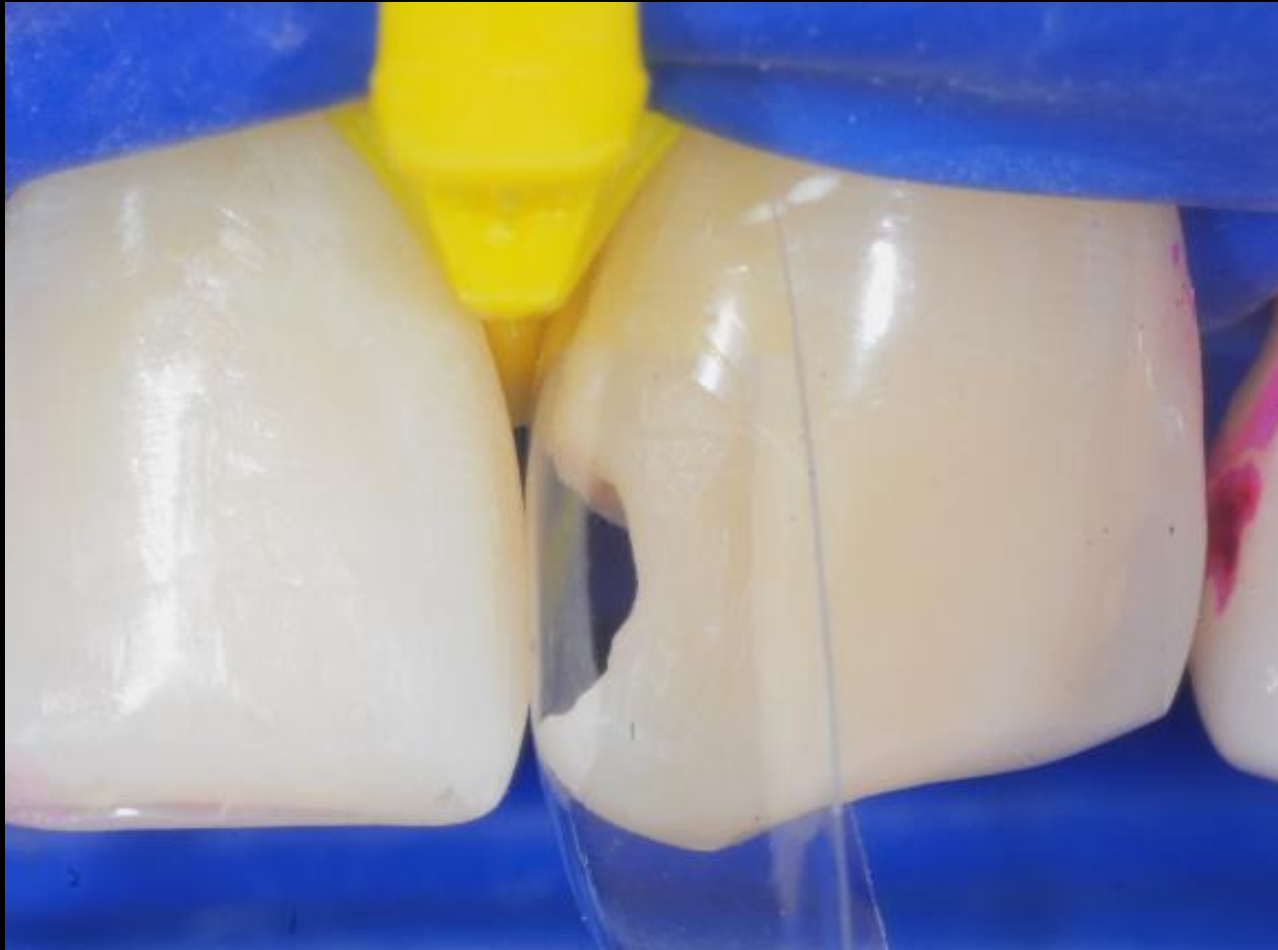
flat matrix + flat wedge = flat tooth

It's 2026. Why are we  
still using *flat Mylar*  
and *flat wedges*?

Teeth are not flat

**Teeth are not flat!**

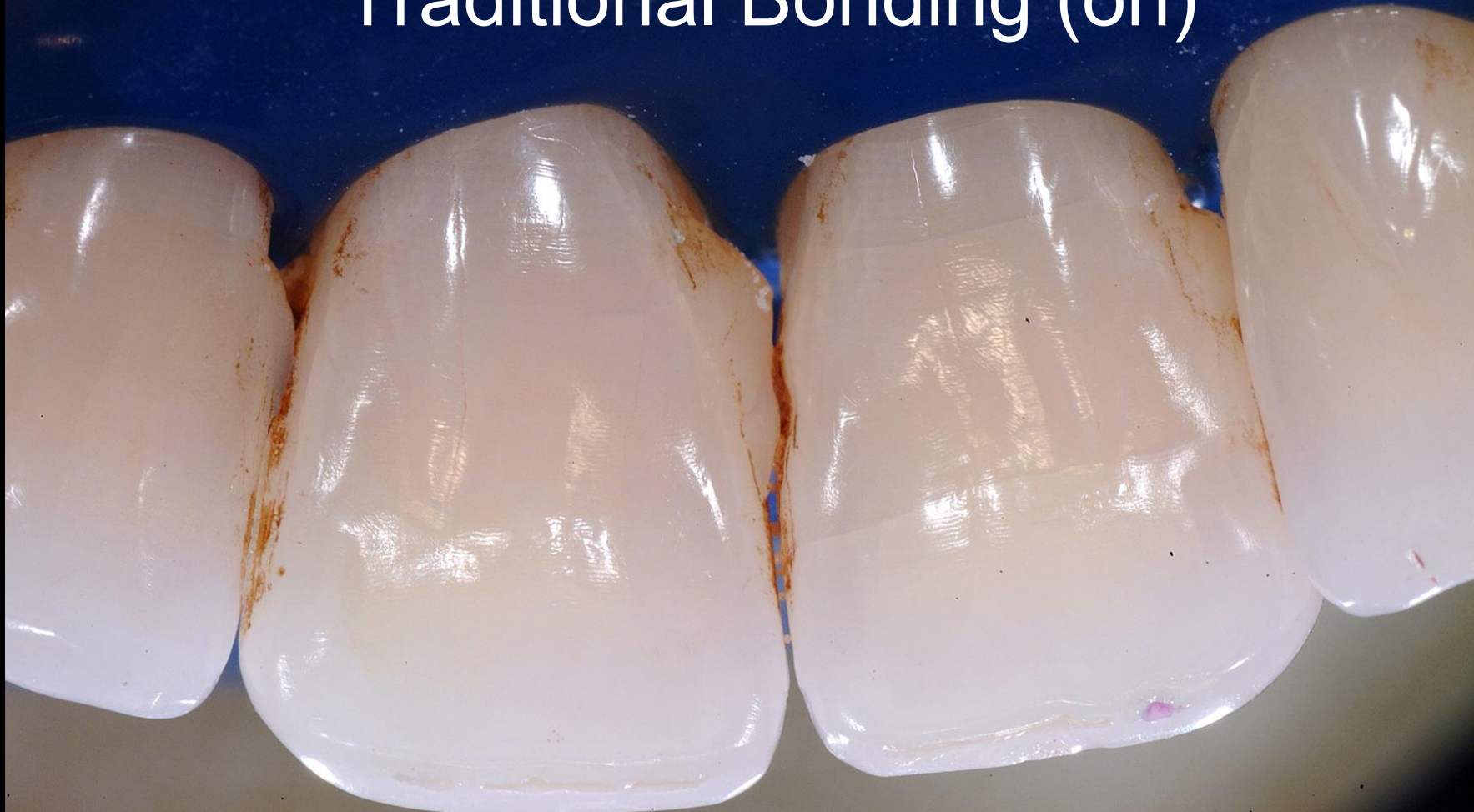




Anatomic  
Bioclear Anterior  
Matrix plus  
Bioclear  
Diamond Wedge  
(yellow-large)

“On” versus “Around”

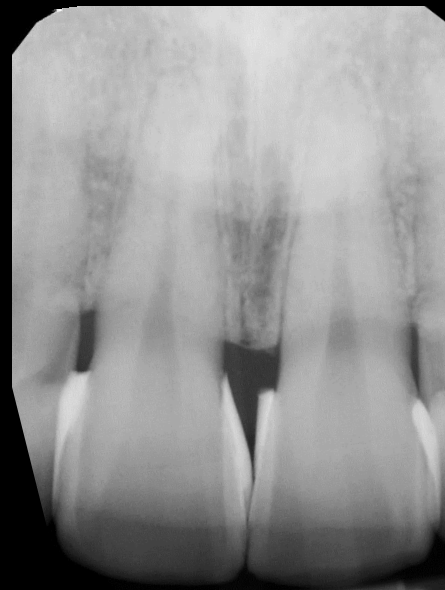
# Traditional Bonding (on)



# Modern Method (around)



# The Matrix and the Method Matter



# Modern Method for Composite Restorations

## Clear Anatomic Matrices, Powerful Separation

- Anterior & Posterior Matrices
- Designed to mimic nature

## Preparation Design

- Designed for composite
- Minimizes stress concentration
- Maximizes enamel involvement

## Biofilm Removal

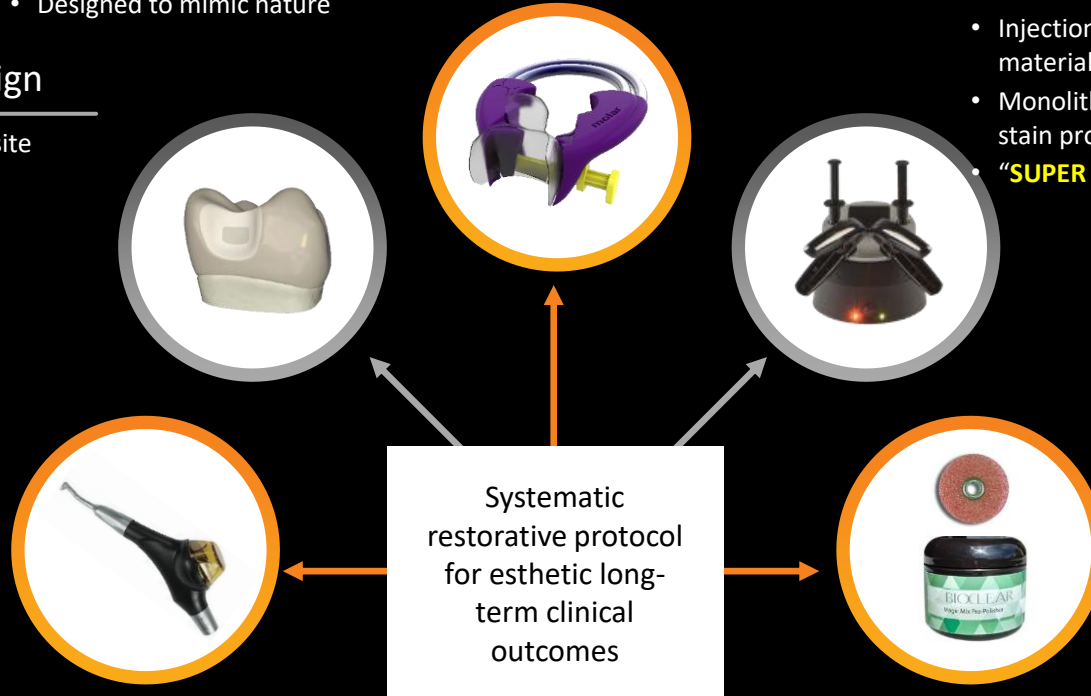
- Remove biofilm before bonding
- Allows bonding to uncut enamel
- Allows infinity edge margins

## Injection Molded Composite

- Injection mold warmed Restorative materials: **Which brand is color stable?**
- Monolithic strength and Infinity Edge stain proof margins
- **"SUPER FLOWABLES"**

## Final Polish

- "Rock Star" polish with Bioclear Magic Mix & RS Polisher





## 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



6-year postop

∞ BIOCLEAR

**Bioclear Black Triangle Restoration**  
*with Kuraray Majesty ES-2 Flowable*

---

**What is a *super-flowable*?**

Meet Erica: 35-year-old female  
finishing her 2<sup>nd</sup> round of orthodontics



Erica just finished her ortho and she's not happy



What are Erica's chief complaints?



What were the options given when she complained to her orthodontist?



What was the TX Plan when she got back to her  
General Dentist?



What were the TX Plans when she consulted with the periodontist?



➤ Bioclear 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











Pre-Operative



1-Year Post-Operative



Pre-Operative



1-Year Post-Operative



Pre-Operative



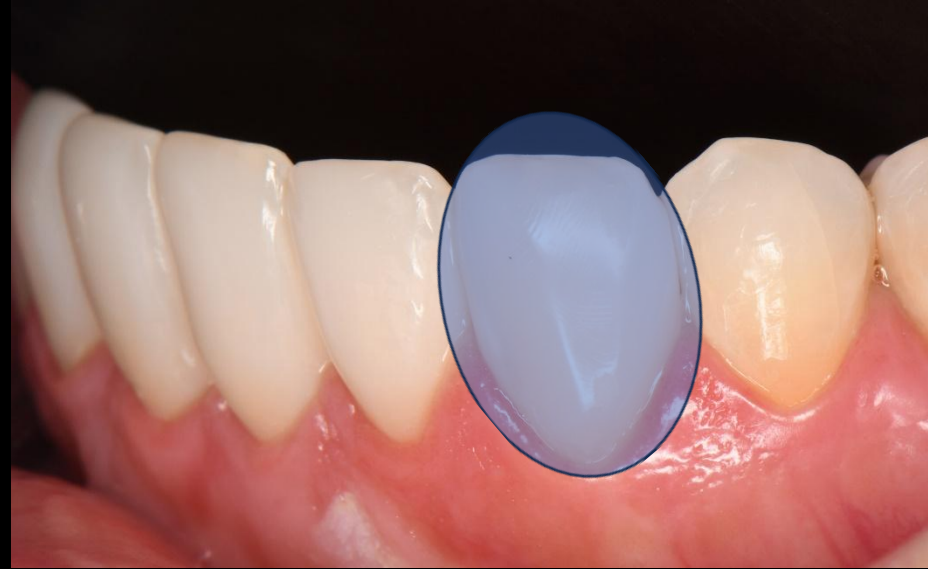
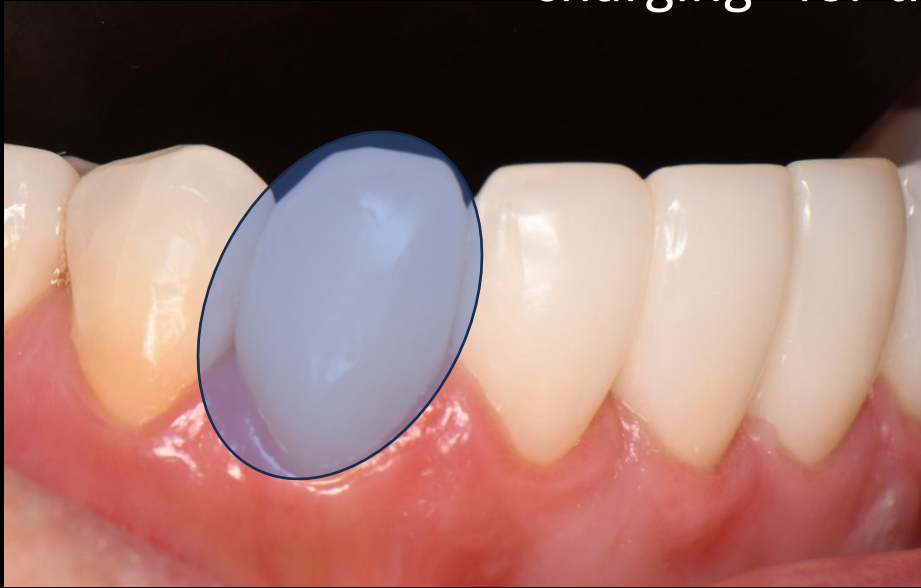
1-Year Post-Operative



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



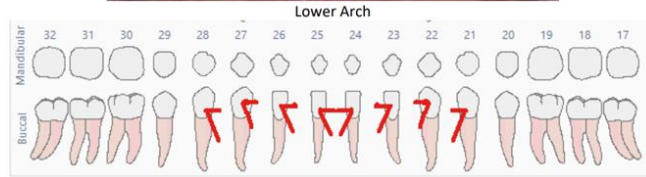


CLINIC

3402 South 38<sup>th</sup> 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
<b>Comprehensive Evaluation:</b> 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.

5 Black Triangles \$6,000  
7 Black Triangles \$8,400

- **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.
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**5 Black Triangles \$6,000**  
**7 Black Triangles \$8,400**

## 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



# Treating a Single Black Triangle























2-year follow up



2-year follow up

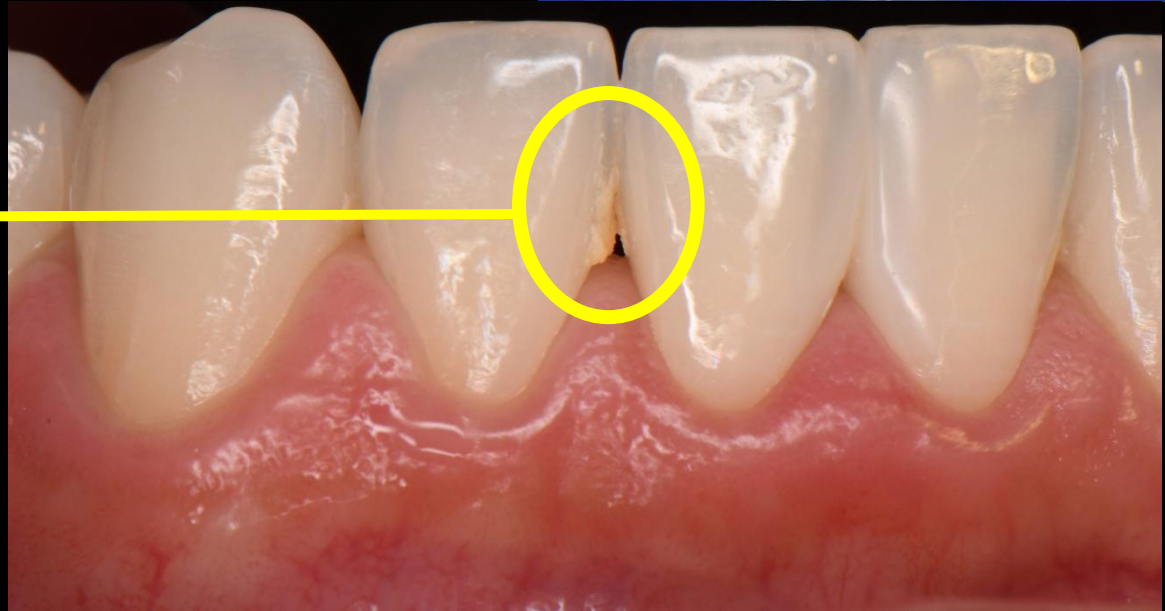


2-year follow up

➤ 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





*The*  
**BACHELOR**  **RETTE**



## *The* BACHELORETTE

The Bachelorette is a hugely popular American reality dating show where one woman dates about 25 men, eliminating them each week until she chooses a final partner—often ending in a proposal. It's a cultural staple in the U.S., famous for its romance, drama, and devoted fanbase.



Season 21 averaged 2.39 million viewers per episode.

The dentist will make several mistakes. Let's see if you can identify them. The case turned out ok though.



A recent Black Triangle patient that flew from  
Boston to Seattle for treatment

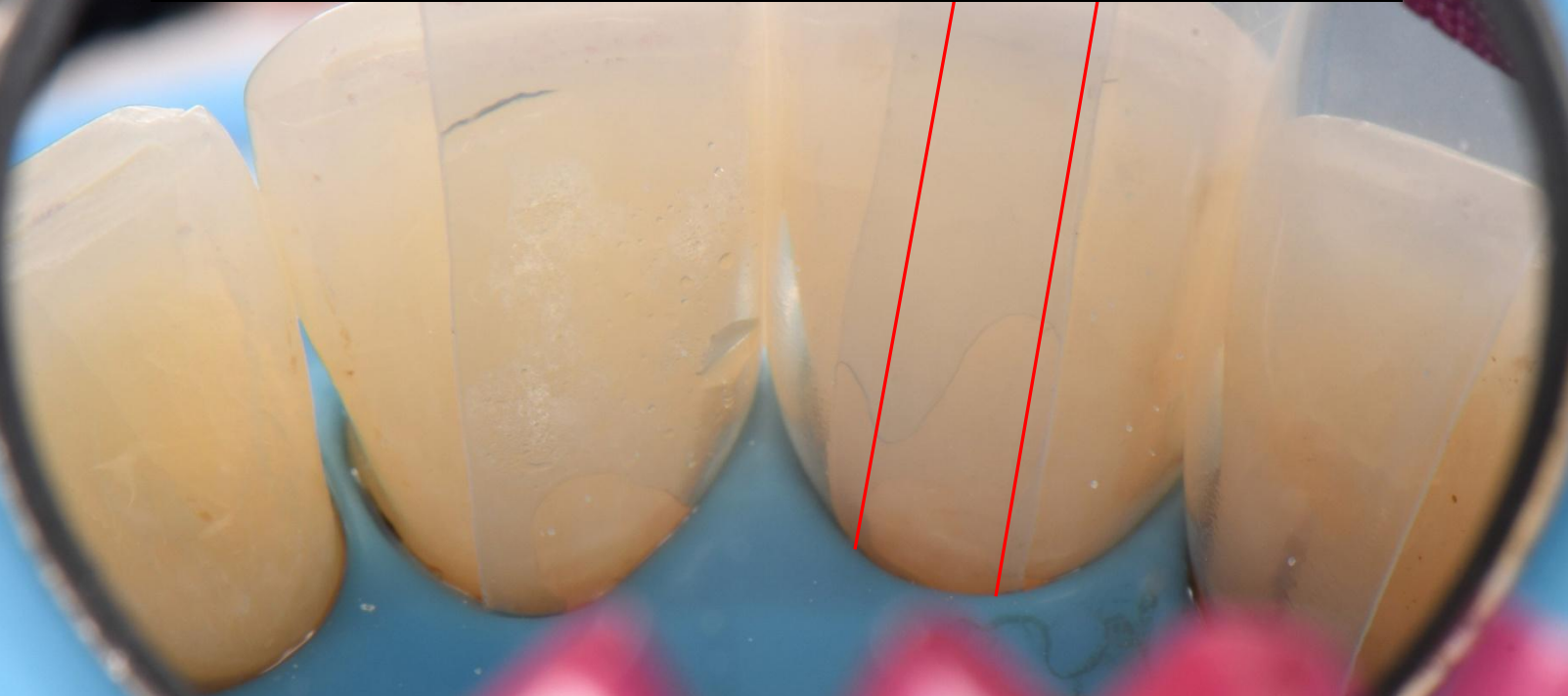
She wants more fullness and wants a color  
upgrade







Ideally, we want 2-3 mm overlap of matrices on lingual and about 1 mm of overlap on the facial









If you are committing to a color upgrade, i.e. from A-3 to B-1 or W, you will need at least 1 mm thickness when using the “body” shades.





Pre-op



Post-op



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

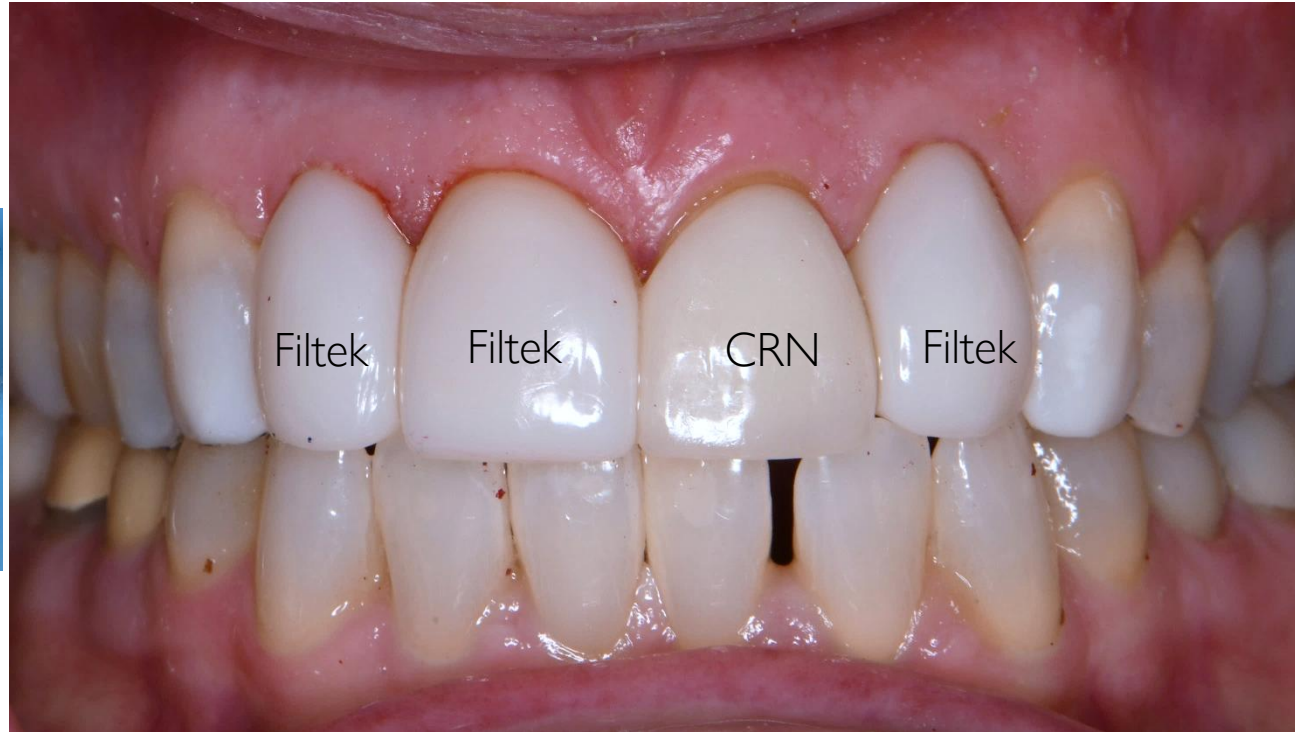


Filtek™ EW Body 2024

# 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

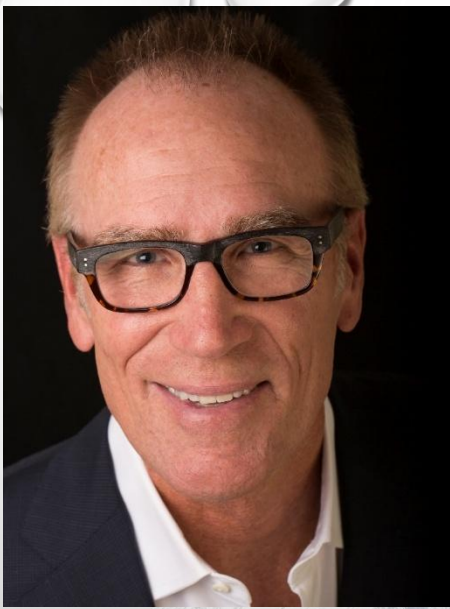


Filtek™ B-1  
Body 2018



Filtek™ B-1  
Body 2025





Dr. Richard  
Young

Bioclear Cases 4 Year  
Post-ops  
Untouched-NO refresh  
on either case  
Majesty ES Classic and Flow



@dr.young.esthetics



@dr.young.esthetics



@dr.young.esthetics



@dr.young.esthetics



@dr.young.esthetics





# 4 Years Post-Op



@dr.young.esthetics

Kuraray Majesty ES Classic (Paste) and Flow

# **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 Janson<sup>1</sup>, Anja Liebermann<sup>1</sup>, Christoph Matthias Schoppmeier<sup>2</sup>

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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 ( $\Delta E_{45}$ ) 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-hybrid 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; Enöz 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

Chiecho A.  
 rest curing  
 composite  
 5(6)33.  
 and  
 and  
 10.1007/s12576-025-1024-1  
 identity of  
 the author  
 is not  
 confirmed  
 in this  
 article  
 in its  
 entirety

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

Massimo Pisano<sup>1</sup>, Alfredo Iandolo<sup>1</sup>, Dina Abdelatif<sup>1</sup>, Andrea Chiacchio<sup>1</sup>, Marco Galdi<sup>1</sup>, Stefano Martina<sup>1</sup>

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  $\Delta E$  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  $\Delta E$  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, Polymerization, Finishing, Polishing

**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  $\Delta E_{ab}^*$  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  $\Delta E_{ab}^*$  and  $\Delta E_{ab}^*$  or sorption/solubility.

**Results:** All the composites showed observable increases of  $\Delta E_{ab}^*$  within the first 5 days of immersion. Values of  $\Delta E_{ab}^*$  ranged from 0.6 to 4.97, and three composites exhibited values above the clinically acceptable value, 3.3. L\* and  $\Delta b^*$  revealed strong correlations with  $\Delta E_{ab}^*$ . Both water sorption and solubility had positive correlations with  $\Delta E_{ab}^*$  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 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 composites' resin. The major monomer is bisphenol A-glycidyl methacrylate (Bis-GMA) for current composite resins. Bis-GMA is viscous to use alone in composite in terms of manipulation and curing. To improve the flowability, Bis-GMA is often combined with other monomers such as triethylene glycol dimethacrylate (TEGDMA) and certain

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

İhsan Yıkılmaz, DDS, PhD,<sup>1</sup> Sinem Akgül, DDS, PhD,<sup>2</sup> Ahmet Hazer, DDS, PhD,<sup>2</sup> Cemille Kedici Altı, DDS, PhD,<sup>3</sup> Serdar Başlamir, DDS, PhD,<sup>3</sup> & Oya Balta, DDS, PhD,<sup>3</sup>

<sup>1</sup>Department of Restorative Dentistry, Faculty of Dentistry, Gazi University, Ankara, Turkey  
<sup>2</sup>Department of Restorative Dentistry, Faculty of Dentistry, Balıkesir Egeci University, Zonguldak, Turkey  
<sup>3</sup>Department of Restorative Dentistry, Faculty of Dentistry, Ankara University, Ankara, Turkey

**Keywords**

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

**Correspondence**

İhsan Yıkılmaz, Faculty of Dentistry, Department of Restorative Dentistry, Gazi University, 06510 Eskişehir, Ankara, Turkey. Email: ihsanyikil@gazi.edu.tr

The authors declare no conflict of interest related to this study.

Accepted November 18, 2017

doi: 10.1111/jopr.12749

**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 ( $L^*a^* > 3.7$ ). 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/blanket 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.<sup>1,2</sup> 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 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.<sup>3</sup> Surface/subsurface degradation occurs when staining agents react with superficial composite layers. A rough restoration surface, bad finishing, and poor curing by contaminating colored foods and beverage may cause extrinsic discoloration.<sup>4,5</sup>

**4 CLEARFIL MAJESTY ES Composites Tested in 4 Papers**



# Color Stability Results for Flowables:

## $\Delta E_{ab}$ (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

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.

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**Results:** All the composites showed observable increases of  $\Delta E^*_{ab}$  within the first 5 days of immersion. Values of  $\Delta E^*_{ab}$  ranged from 0.64 to 4.97, and three composites exhibited values above the clinically acceptable value, 3.3.  $\Delta L^*$  and  $\Delta b^*$  revealed strong correlations with  $\Delta E^*_{ab}$ . Both water sorption and solubility had positive correlations with  $\Delta E^*_{ab}$  at 30 days.

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

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

### Introduction

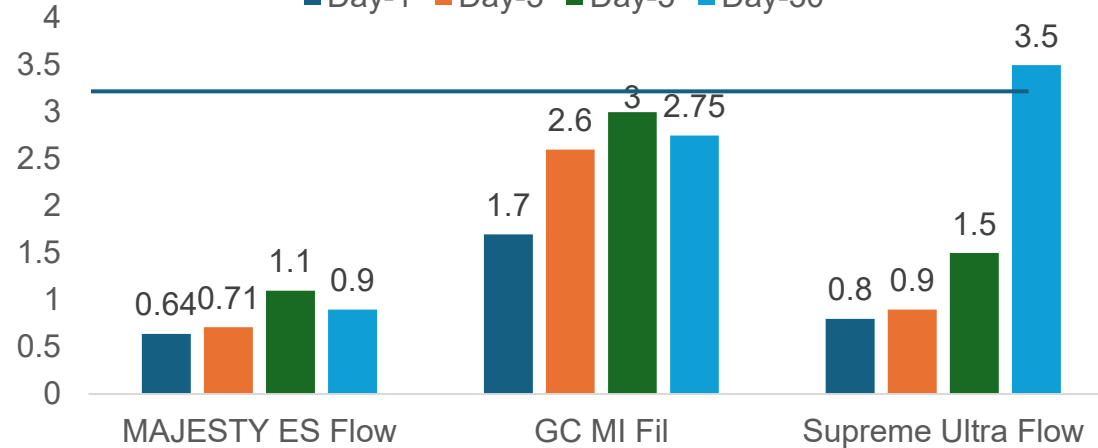
Adhesive restoration is a conventional technique for the reconstruction of tooth structure lost to dental caries/fracture. Among the adhesive restorative materials, resin composites have wide ranges of clinical applications including direct restorations, core build-ups, and lining of indirect restoratives. 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:

## $\Delta E$ 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**  
**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 disks 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 ( $\Delta E^*ab$ ) 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  $\Delta E^*ab$  and  $\Delta L^*$ ,  $\Delta a^*$ ,  $\Delta b^*$  or sorption/solubility.  
**Results:** All the composites showed observable increases of  $\Delta E^*ab$  within the first 5 days of immersion. Values of  $\Delta E^*ab$  ranged from 0.64 to 4.97, and three composites exhibited values above the clinically acceptable value, 3.3.  $\Delta L^*$  and  $\Delta b^*$  revealed strong correlations with  $\Delta E^*ab$ . Both water sorption and solubility had positive correlations with  $\Delta E^*ab$  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)

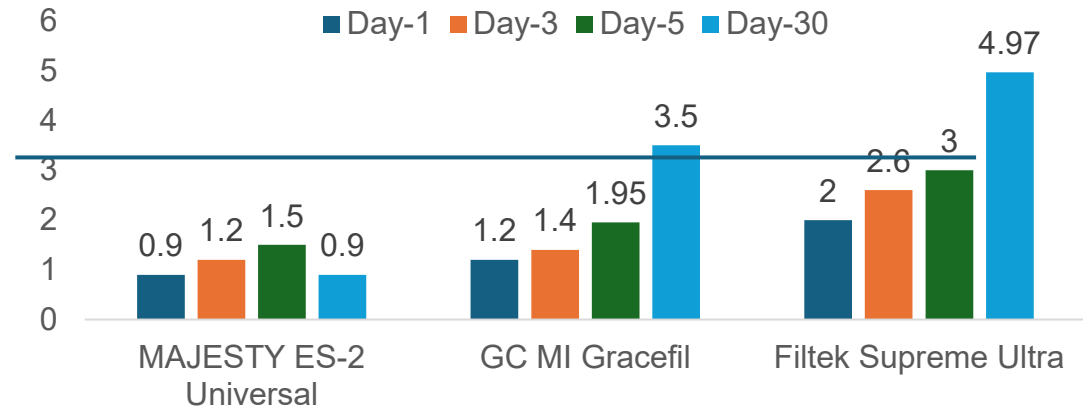
**Key Words:** discoloration, flowable composite, solubility, tea, universal composite, water sorption

**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 restorations. 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/anomomer 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 has increased in present day [7].

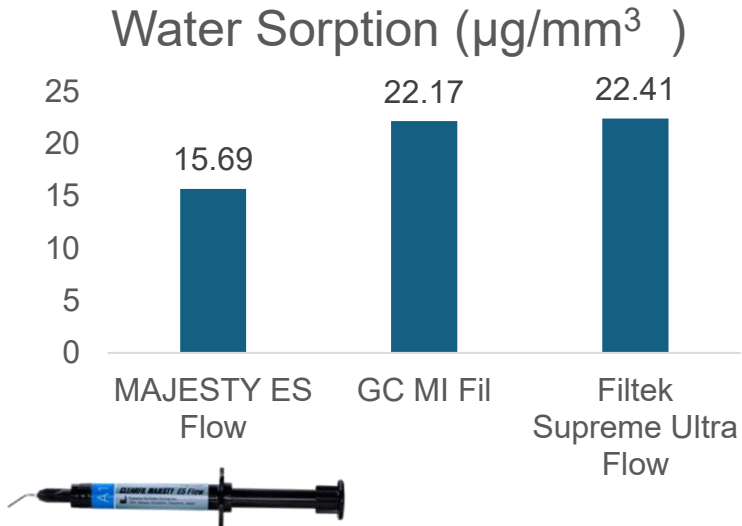
As described earlier, low viscosity is an advantage of the flowable composites. Flowability is controlled by the compounding base resins. The major monomer is bisphenol A-glycidyl methacrylate (Bis-GMA) for current composites due to its mechanical strength. However, as Bis-GMA is too viscous to use alone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

### 3.3 & Below Acceptable

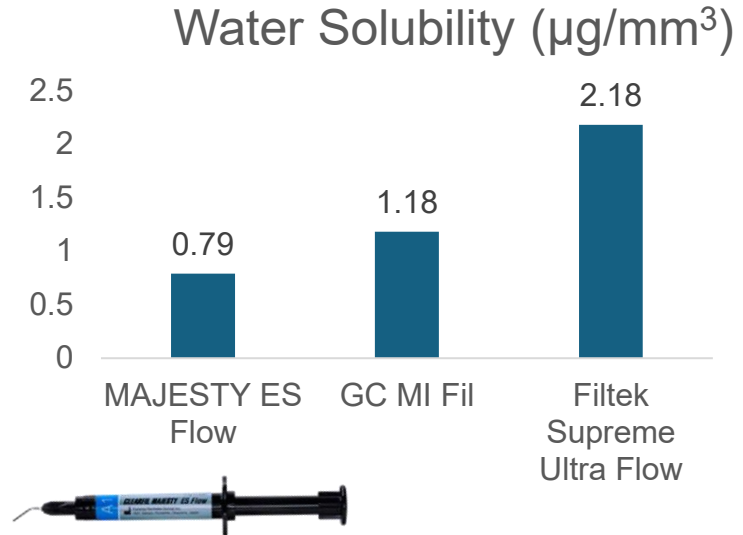


# Water Sorption & Solubility:

## 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 toward injectable “Super flowables” (Kuraray) or “Injectables” (GC).

# Transform the way you work

Start injecting with our strongest  
direct restorative ever\*

**G-ænial™ Universal  
Injectable**



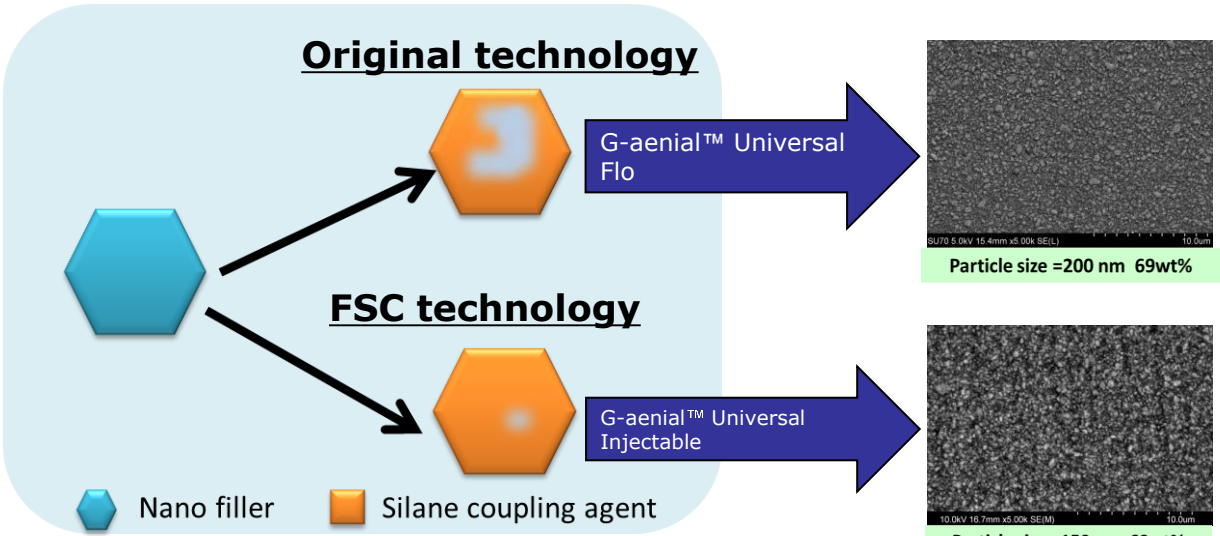
What is G-aenial™ Universal Injectable?

***“G-aenial™ Universal Injectable (“GUI”) is an injectable high-strength ultra-fine particle composite with ideal viscosity, handling, and adaptation characteristics that may be used for long lasting esthetic restorations.”***

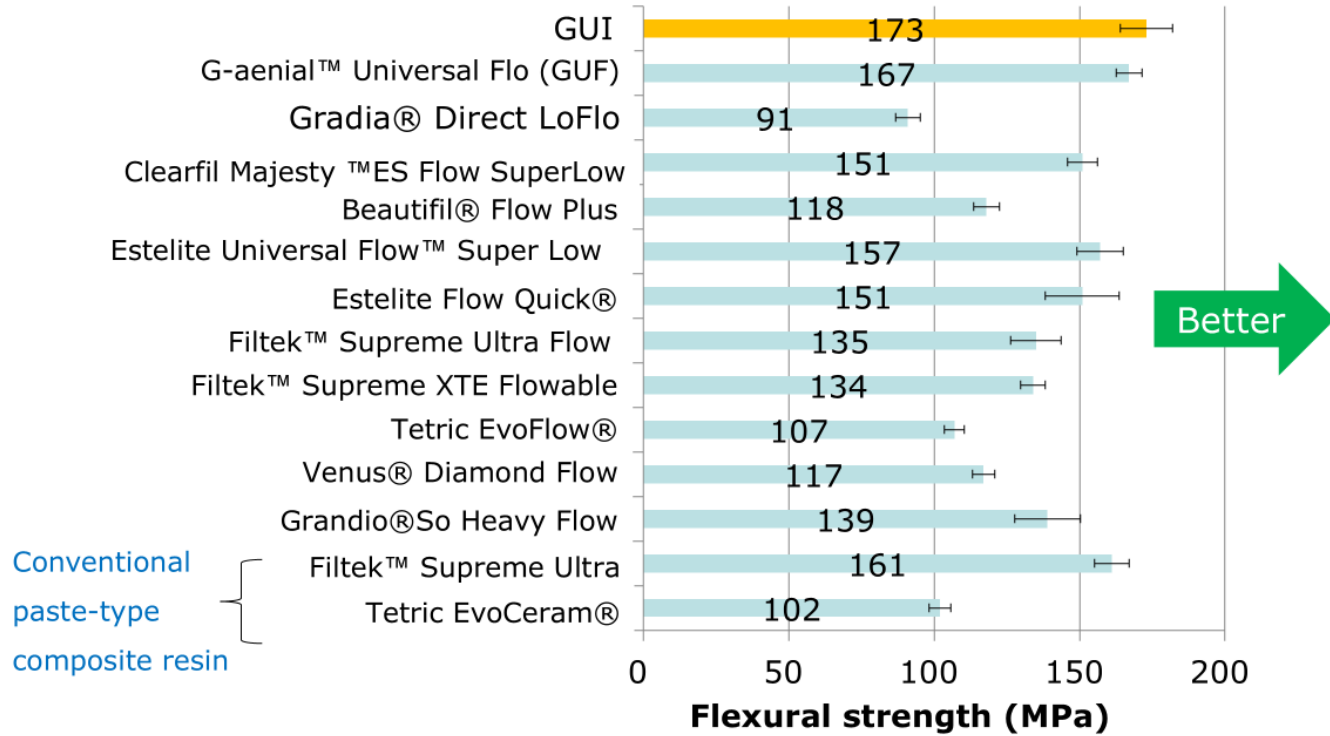
# New Technology – Full Coverage Silane Coating

## High Density Resin with Full Coverage Silane Coating (HDR with FSC Technology)

- Full silane coating of ultra-fine particles allows particles to disperse homogeneously and in higher density within resin matrix
- This, along with finer ultra-fine filler, delivers **high physical strength, wear resistance** and **improved handling**



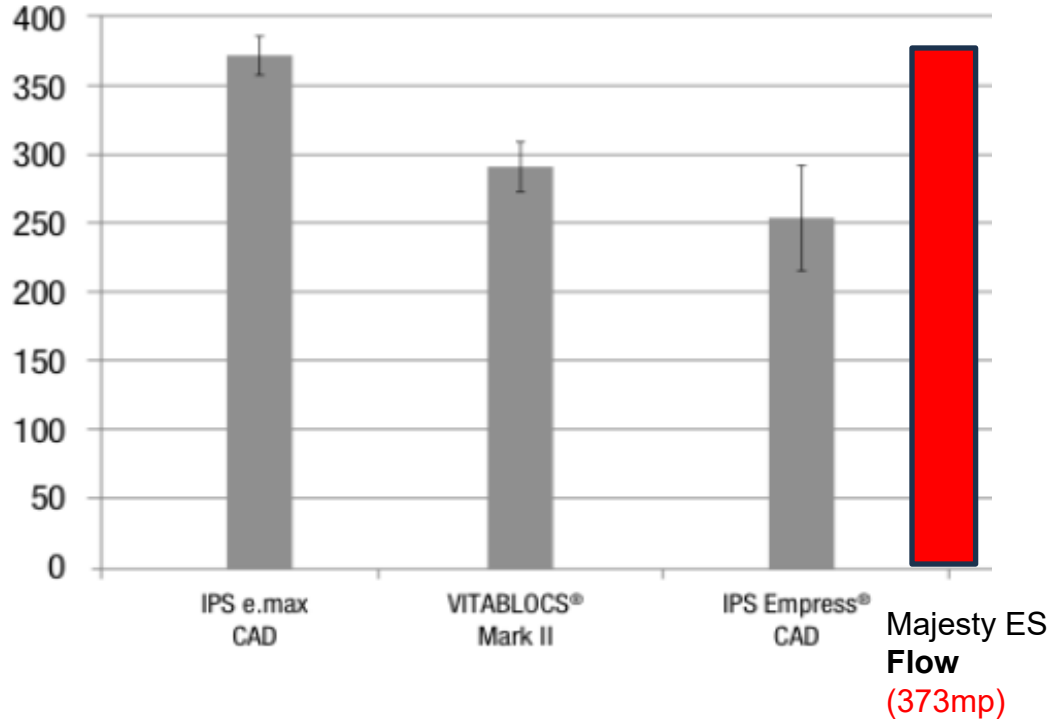
# High Flexural Strength



GUI has the highest flexural strength among all the competitive products in the market. → **Low risk of chipping or fracture.**

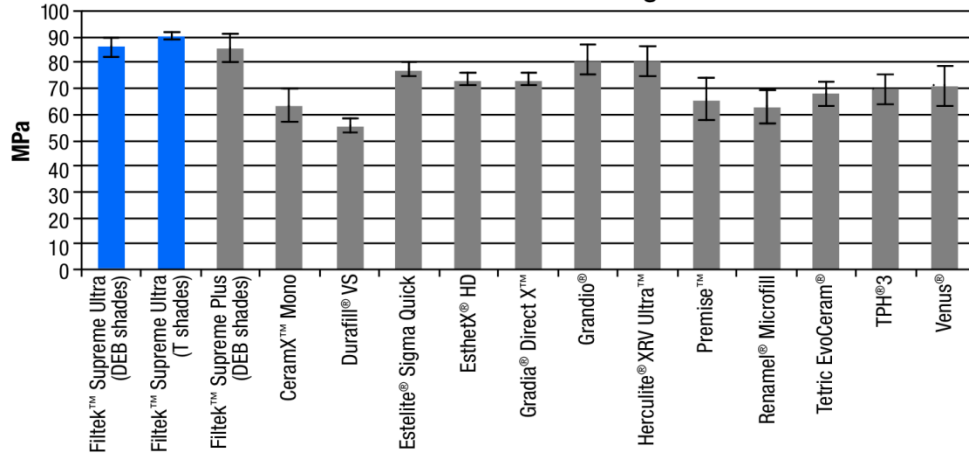


## High Compressive Strength (MPa)



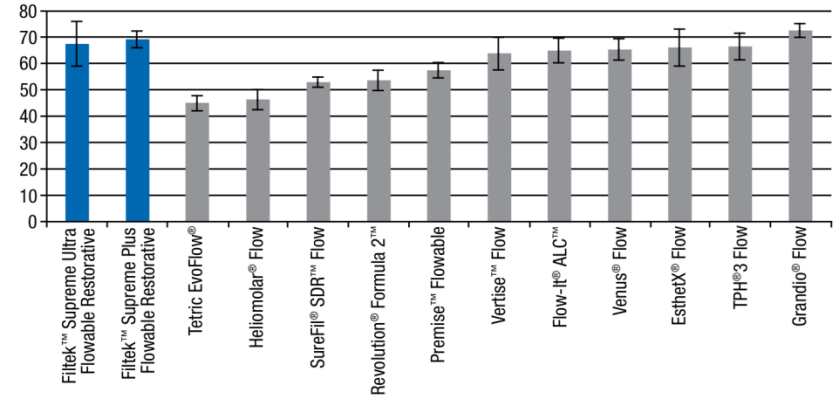
# Composites

## Diametral Tensile Strength

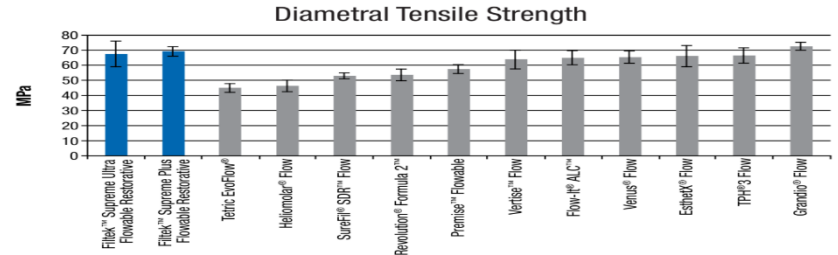
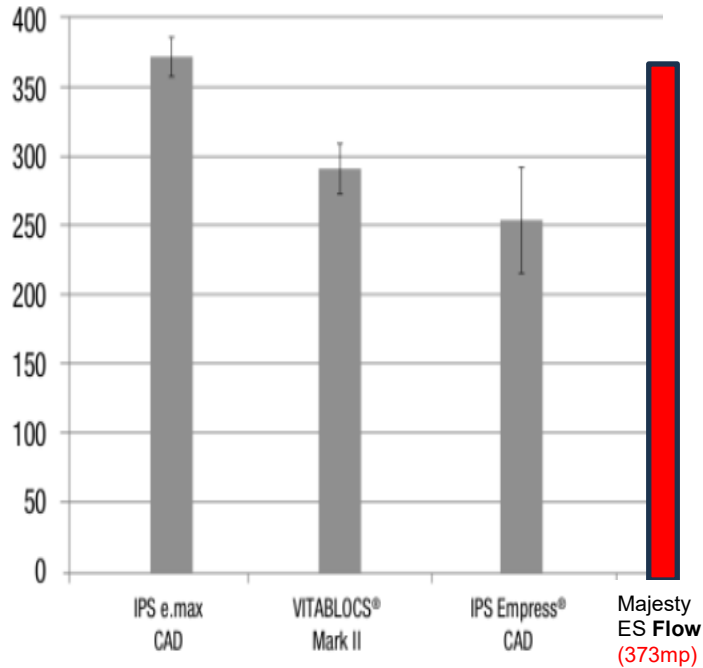


# Flowables

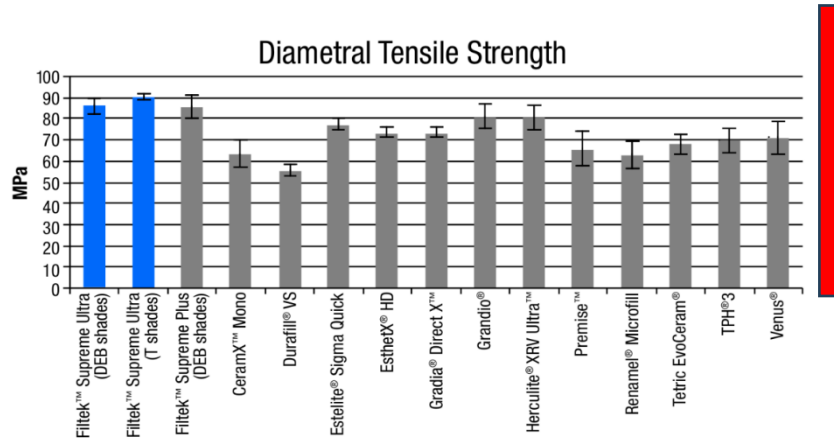
## Diametral Tensile Strength



# In general composites are 3 to 4 times stronger in compression than in tension

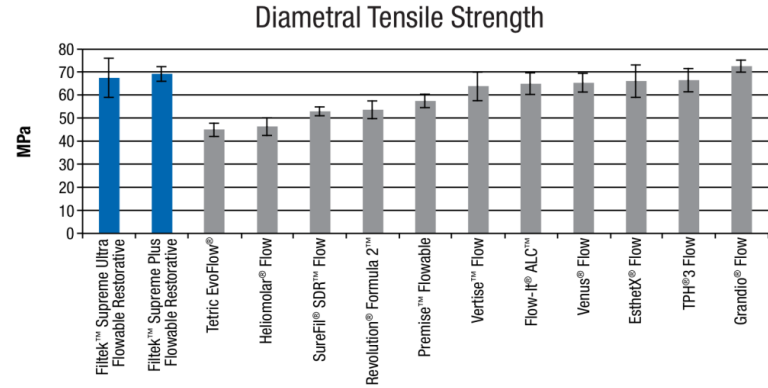


# Composites



Majesty  
ES Flow  
(148mp)

# Flowables



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





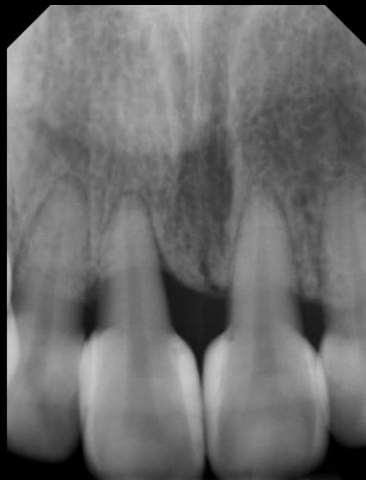
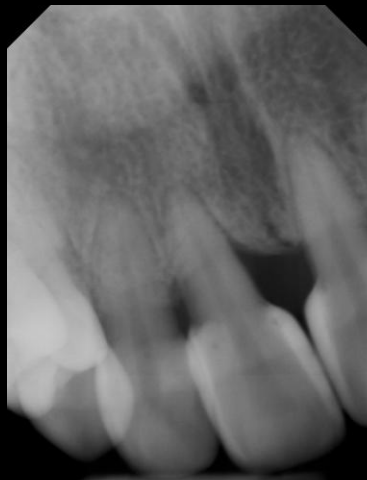
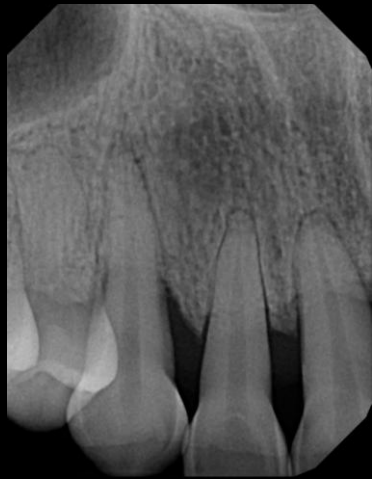
Courtesy Dr. Charles Regalado

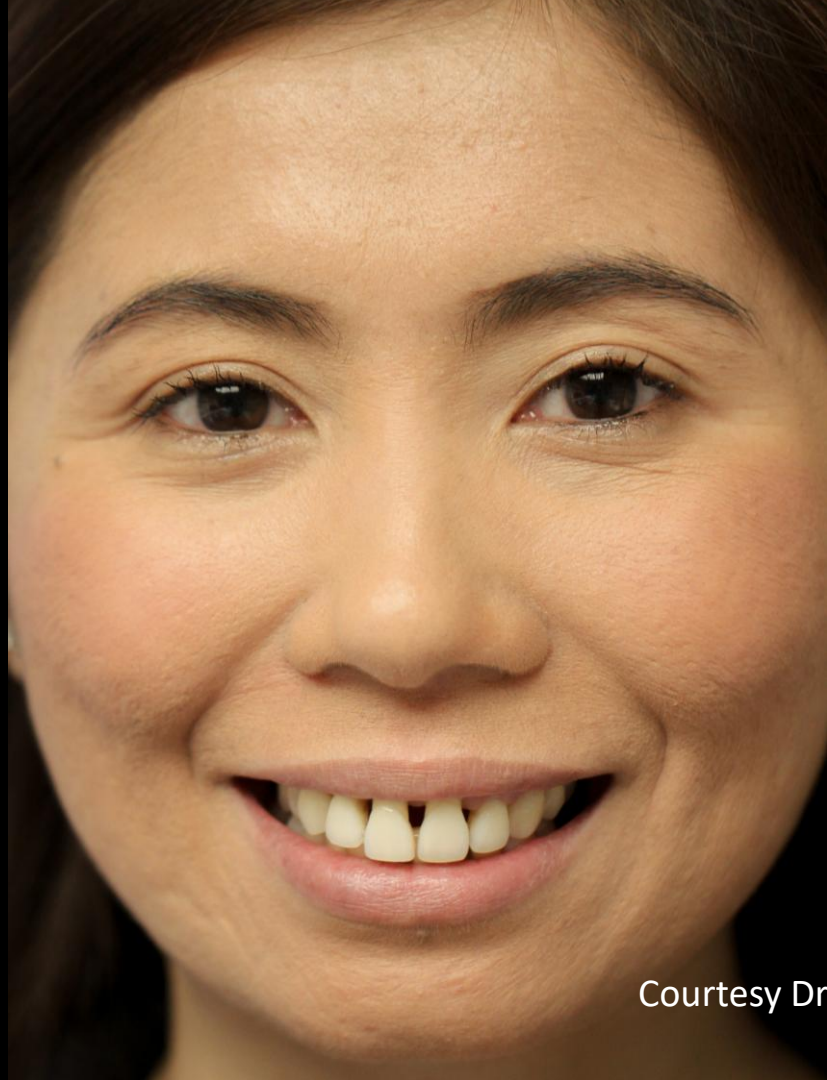


Courtesy Dr. Charles Regalado









Courtesy Dr. Charles Regalado



# Injection Overmolding: Possibilities and Long-Term Outcomes

## Finishing Ortho Cases

A young orthodontist with beautiful teeth...



# She HATED Her Black Triangles



Immediate post-operative



6 months post-operative



6 years post-operative





Pre-op



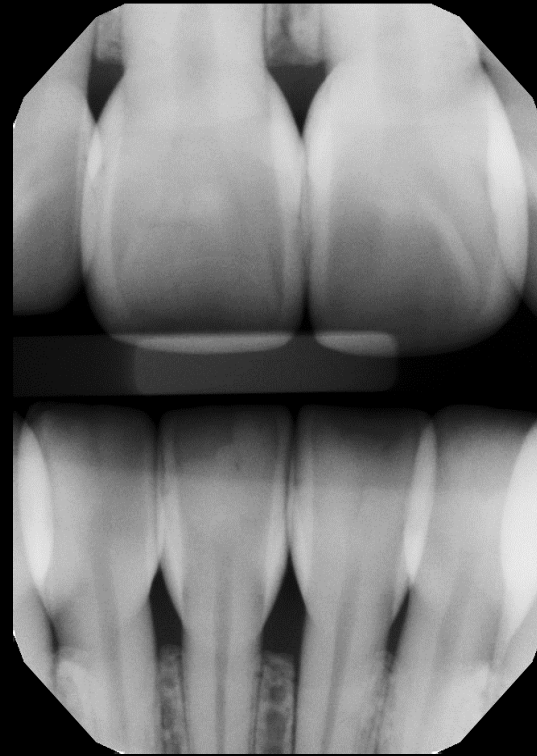
Post-Op



6 Years Post-Op



Pre-op



6 Years Post-Op



Journal of the California Dental Association



ISSN: (Print) (Online) Journal homepage: [www.tandfonline.com/journals/ucda20](http://www.tandfonline.com/journals/ucda20)




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## Minimally Invasive Cosmetic Restoration of Teeth Associated with Open Gingival Embrasures. Descriptive Case Series

Álvaro Ferrando Cascales, Rubén Agustín Panadero, José Amengual Lorenzo, Salvatore Sauro, Antonio Mendoza Rodríguez, Raúl Ferrando Cascales, Ronaldo Hirata & David Clark

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To link to this article: <https://doi.org/10.1080/19424396.2024.2313244>

Salvatore Sauro, PhD <sup>c,d</sup>, Antonio Mendoza Rodríguez, DDS, MSc<sup>e</sup>, Raúl Ferrando Cascales, DDS, PhD <sup>a</sup>, Ronaldo Hirata, DDS, MSc, PhD <sup>f</sup>, and David Clark, DDS<sup>g</sup>

<sup>a</sup>Department of Biomaterials Engineering, Faculty of Medicine, UCAM. Universidad Católica de Murcia, Murcia, Spain; <sup>b</sup>Prosthodontic and Occlusion Unit, Department of Stomatology, Faculty of Medicine and Dentistry, Universitat de València, Valencia, Spain; <sup>c</sup>Department of Therapeutic Dentistry, I. M. Sechenov First Moscow State Medical University, Moscow, Russia; <sup>d</sup>Dental Biomaterials and Minimally Invasive Dentistry, Department of Dentistry, University CEU Cardenal Herrera, Valencia, Spain; <sup>e</sup>Arconclinic odontòlegs, Barcelona, Spain; <sup>f</sup>Department of Biomaterials and Biomimetics, New York University College of Dentistry, New York, New York, USA; <sup>g</sup>Academy of Microscope Enhanced Dentistry, Newport Coast Oral Facial Institute, Newport Beach, California, USA

## ABSTRACT

The aim of this study is to evaluate the performance of the restorations and soft tissues at 2 years using direct composite resin with injection molding technique to solve open gingival embrasures, also known as black triangles.

**Materials and Method:** An observational study of a case series was conducted for the treatment of black triangles. The criteria evaluated in each of the restorations were: color stability, polishing, maintenance of surface gloss, staining in the tooth/restoration margins, secondary caries, radiographic appearance of the restored emergence profile, probing depth and bleeding on probing (of the restored proximal surface), presence of plaque (of the restored proximal surface), detachment, delamination, and fracture of the restoration. The following patient satisfaction criteria were evaluated using the visual analog scale (VAS): aesthetic, functional and overall satisfaction.

**Results:** A total of 36 restorations were performed in the anterior aesthetic area between canines (24 upper and 12 lower). The mechanical and biological survival rate of restorations were both 100% (95%CI: 90.3–100%). Regarding mechanical complications, there were no restorations showing secondary caries, alteration of color, staining in the tooth/restoration interface, detachment, delimitation or fracture during the entire follow-up (0%; 95%CI: 0–9.7%). Regarding biological complications, there were no restorations measuring probing depth higher than 3 mm or showing an unusual radiographic appearance during the entire follow up (0%; 95%CI: 0–9.7%).

**Conclusions:** The composite injection technique using anatomical matrices is a cost-effective, minimally traumatic, predictable, and reproducible approach to achieve anterior black triangles closure and creation of pseudopapillas.

## ARTICLE HISTORY

Received 7 September 2023

Revised 3 January 2024

Accepted 29 January 2024

## KEYWORDS

Composite resin; dental marginal adaptation; cosmetic dentistry; gingival recession; matrix band; dental papilla

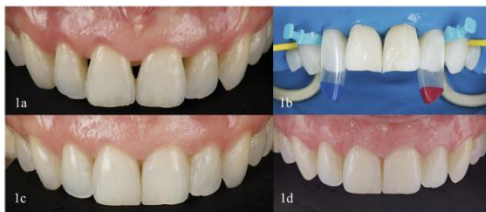


Figure 1. Clinical case I. (a) Initial intraoral front view. (b) Detail of the isolated teeth. Anterior HD diastema closure upper mesial-distal. Bioclear matrix systems. Bioclear was used to treat the central black triangle. The specific matrices for black triangles installed on the sides (black triangle kit, Bioclear matrix systems, Bioclear) can be seen, they are color coded and the red one has a lower profile than the blue one, which allows us to close a larger area of the anterosuperior sector in which the black triangles can be seen. (c) Two weeks review. (d) Two years review, highlighting the periodontal health and restorations integrity.

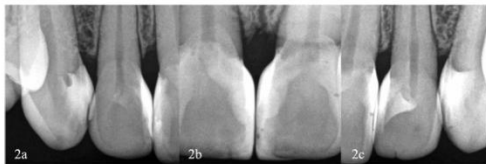


Figure 2. Clinical case II. Two weeks radiographic control composition to check the adaptation and the absence of retentive areas, the radiopacity of the composite allows us to observe the new artificial amelocementary junctions proximally. (a) Adaptation of composite in the papilla area from right mesial upper canine to distal upper right central incisor. (b) Good composite adaptation between centrals incisors drawing the new natural emergence profiles. (c) Adaptation of composite in the papilla area from left distal upper central incisor to mesial upper left canine.



Figure 3. Clinical case III. (a) Initial intraoral front view. (b) It was performed a back triangles closure from canine to canine. Anterior HD an DC diastema closure upper mesial-distal. Bioclear matrix systems. Bioclear was used. (c) Two weeks review. (d) Two years review, highlighting gingivitis due to plaque accumulation and loss of polish because the patient never returned to maintenance.

tion) and the status of the restoration (color stability, polishing, maintenance of surface gloss, detachment, delamination and/or fracture of the restoration if present by visual inspection).

McNemar's test was used to assess changes in the presence of complications between 1-year and 2-years. Chi-squared independence and Fisher's exact test was used to assess the relationship between the different complications

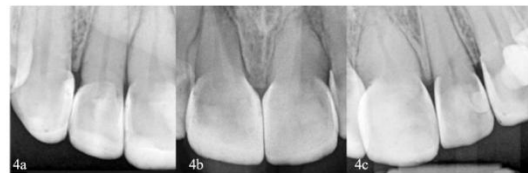


Figure 4. Clinical case II. Two weeks radiographic control composition to check the subgingival marginal composite integrity and the absence of gaps and retentive areas, the radiopacity of the composite allows us to notice the pores absence and the continuity of the restoration without undercuts. (a) Adaptation of composite in the papilla area from right mesial upper canine to distal upper right central incisor. (b) Excellent adaptation of the composite between the central incisors drawing the new natural and progressive-emergence profiles. (c) Adaptation of composite in the papilla area from left distal upper central incisor to mesial upper left canine.

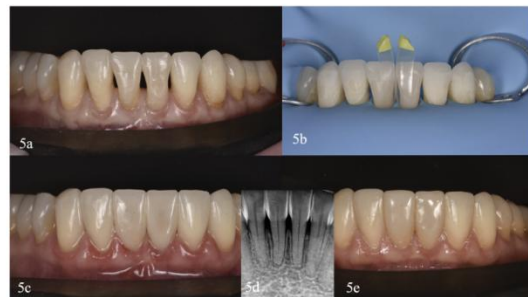


Figure 5. Clinical case III. (a) Initial lower intraoral front view. (b) Detail of the isolated teeth. The small yellow specific matrices for black triangles installed on the central black triangle (black triangle kit, Bioclear matrix systems, Bioclear) can be seen. (c) Immediate result just after removed the rubber dam. (d) Two weeks radiographic control (e) Two years review, highlighting the periodontal health and good polish of the restorations.



Figure 6. Clinical case IV. (a) Initial intraoral lateral view. (b) Detail of the isolated teeth. The largest yellow and green specific matrices for black triangles were selected (black triangle kit, Bioclear matrix systems, Bioclear). (c) Two weeks clinical control (d) Radiographic control at two weeks. (e) Two years review, highlighting the restoration integrity.

**Table 3.** Incidence of complications (mechanical and biological) and survival after one and two years of clinical behavior.

6 A. FERRANDO CASCALES ET AL.

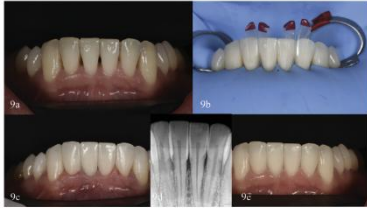


Figure 9. Clinical case VII. (a) Initial lower intraoral front view. (b) Detail of the isolated teeth, the small red specific markers for black triangles installed can be seen, to do the injection molding procedure at the same time fibra triangle kit. (c) Two weeks clinical review. (d) Two weeks radiograph control. (e) Two years review, highlighting the stability of periodontal health and good polish.

Table 1. Restoration survival and outcomes (restorative parameters).

Location	N	Color stability	Polishing	Maintenance surface gloss	Secondary caries	Staining tooth/restoration interface	Detachment, delimitation, fracture
Maxilla (case 1) 1 year	6	Yes	Not necessary	Yes	No	No	No
Maxilla (case 1) 2 years	6	Yes	Not necessary	Yes	No	No	No
Maxilla (case 2) 1 year	6	Yes	At one year	No (small insignificant loss)	No	No	No
Maxilla (case 2) 2 years	6	Yes	At two years	No (loss of surface gloss)	No	No	No
Maxilla (case 3) 1 year	6	Yes	Not necessary	Yes	No	No	No
Maxilla (case 3) 2 years	6	Yes	Not necessary	Yes	No	No	No
Maxilla (case 4) 1 year	5	Yes	At one year	No (small insignificant loss)	No	No	No
Maxilla (case 4) 2 years	5	Yes	At one year	No (small insignificant loss)	No	Yes (one tooth of 5)	No
Maxilla (case 5) 1 year	1	Yes	Not necessary	Yes	No	No	No
Maxilla (case 5) 2 years	1	Yes	At two years	No (small insignificant loss)	No	No	No
Mandible (case 6) 1 year	6	Yes	At one year	No (small insignificant loss)	No	No	No
Mandible (case 6) 2 years	6	Yes	At two years	No (small insignificant loss)	No	No	No
Mandible (case 7) 1 year	6	Yes	Not necessary	Yes	No	No	No
Mandible (case 7) 2 years	6	Yes	Not necessary	Yes	No	No	No

Table 2. Restoration survival and outcomes (periodontal and radiographic parameters).

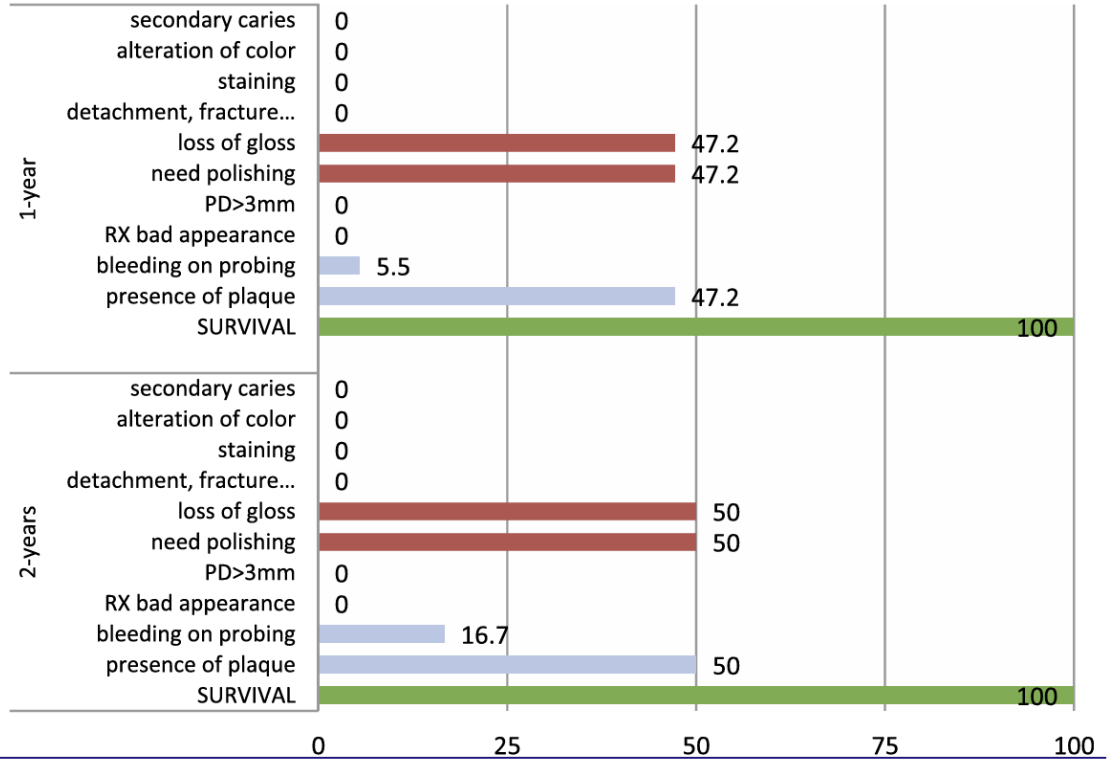
Location	N	Probing depth	Bleeding on probing	Presence of plaque	Radiographic appearance
Maxilla (case 1) 1 year	6	1-3 mm	No	No	Correct emergence profile
Maxilla (case 1) 2 years	6	1-3 mm	No	No	Correct emergence profile
Maxilla (case 2) 1 year	6	1-3 mm	No	Little on proximal surfaces	Correct emergence profile
Maxilla (case 2) 2 years	6	1-3 mm	Yes (2 tooth of 6)	Little on proximal surfaces	Correct emergence profile
Maxilla (case 3) 1 year	6	1-3 mm	No	No	Correct emergence profile
Maxilla (case 3) 2 years	6	1-3 mm	No	Little on proximal surfaces	Correct emergence profile
Maxilla (case 4) 1 year	5	1-3 mm	No	Yes (1 tooth of 5)	Correct emergence profile
Maxilla (case 4) 2 years	5	1-3 mm	Yes (1 tooth of 1)	Little on proximal surfaces	Correct emergence profile
Maxilla (case 5) 1 year	1	1-3 mm	No	No	Correct emergence profile
Maxilla (case 5) 2 years	1	1-3 mm	Yes (2 tooth of 6)	Little on proximal surfaces	Correct emergence profile
Mandible (case 6) 1 year	6	1-3 mm	Yes (2 tooth of 6)	Little on proximal surfaces	Correct emergence profile
Mandible (case 6) 2 years	6	1-3 mm	Yes (2 tooth of 6)	Little on proximal surfaces	Correct emergence profile
Mandible (case 7) 1 year	6	1-3 mm	No	No	Correct emergence profile
Mandible (case 7) 2 years	6	1-3 mm	No	No	Correct emergence profile

(47.2%; 95%CI: 30.9-63.5%) showed plaque at 1 year, increasing to 18 (50%; 95%CI: 33.7-66.3%) at 2 years. All complication rates did not change statistically from 1 year to 2 years. The most relevant increase was bleeding ( $p = .125$ ) (Table 2).

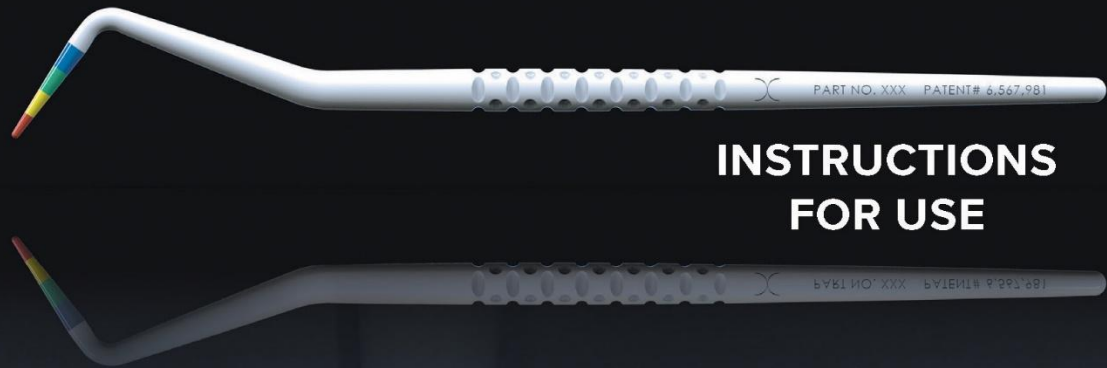
At 1 year, no association was found between bleeding and other complications: loss of gloss ( $p = .216$ ), need for polishing

( $p = .216$ ) or presence of plaque ( $p = .216$ ). Loss of gloss and polishing were always observed in the presence of plaque ( $p < .001$ ). At 2 years, loss of gloss and polishing were significantly more frequent when bleeding ( $p = .019$ ) or plaque ( $p < .001$ ) were present. In addition, bleeding rate was 50% in teeth with plaque and absent in teeth without plaque ( $p = .019$ ) (Table 3).

## Complications and Survival rate



# BT MATRIX

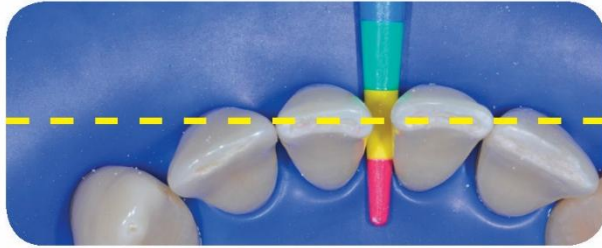


## INSTRUCTIONS FOR USE

 BIOCLEAR

# BLACK TRIANGLE SYSTEM INSTRUCTIONS FOR USE

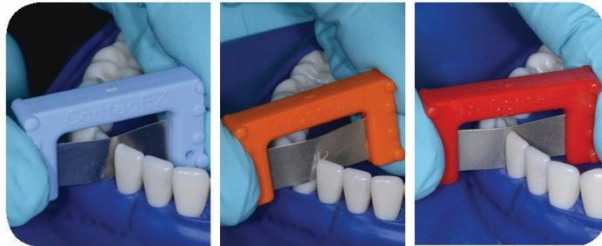
1  
GAP  
SIZING



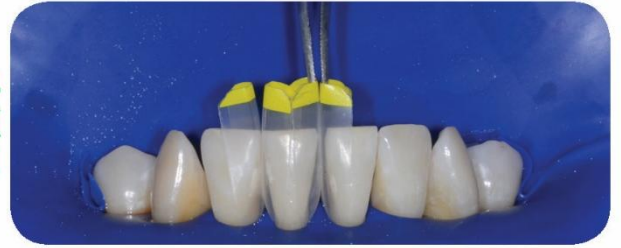
2  
DISCLOSE  
AND CLEAN



3  
CONTACT  
OPTIMIZATION



4  
MATRIX  
INSERTION



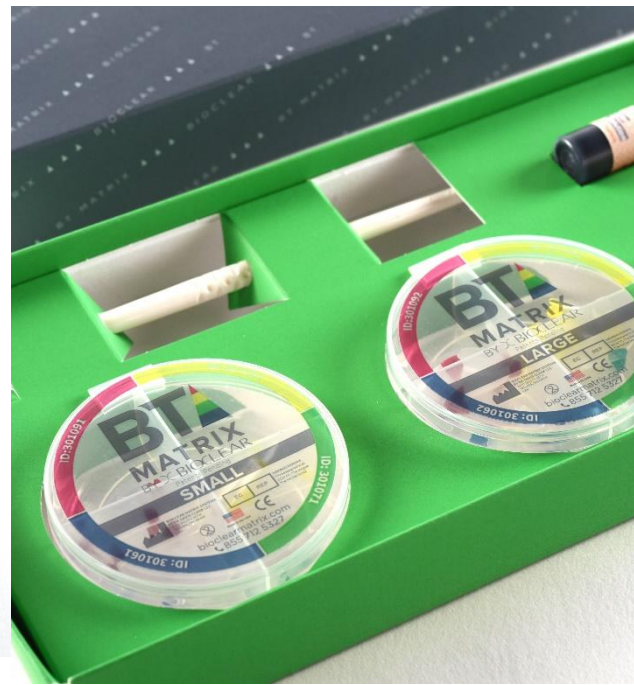
5  
ETCH  
AND RINSE



6  
ADHESION,  
INJECTION MOLD,  
LIGHT CURE,  
RELEASE MATRIX,  
FINISH



**BT**  
**MATRIX**  
BY ∞ BIOCLEAR



# BT



## MATRIX

BY ∞ BIOCLEAR



# Rock Star Polish

1



2



The Art and Science of Perfect Contacts: How do we best temporarily displace the teeth so that when the matrix comes out, the teeth “bounce” back together?

1. If the contact is intact, we gently sand the contact until it is friendly, then the matrix itself plus gentle prying of the teeth will displace the teeth
2. Use a wedge
3. Use a powerful separator
4. Spot Weld/Push Pull Technique

The Art and Science of Perfect Contacts: How do we best temporarily displace the teeth so that when the matrix comes out, the teeth “bounce” back together?

## 5 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

















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







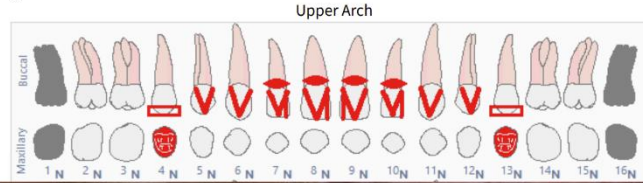



# BIOCLEAR CLINIC

3402 South 38<sup>th</sup> 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
<b>Comprehensive evaluation:</b> complete oral evaluation, color, size determination, photos.		
	• <b>Bioclear Comprehensive Evaluation</b>	<b>\$289</b>
<b>Full mouth series of radiographs:</b> If you have within 5 years a Full mouth series of radiographs taken have them emailed to <a href="mailto:Joan@bioclearclinic.com">Joan@bioclearclinic.com</a>		
	• <b>Bioclear Full Mouth Series of Radiographs</b>	<b>\$252</b>
<b>Bioclear 360 Veneer:</b>  To rejuvenate tooth to youthful appearance, worn edges, correct negative space, mask color, wraps 360 degrees encompassing the entire tooth.		
	<b>Bioclear 360 Veneer Overlay \$1,200 per tooth</b>	
	• <b>Tooth # 5, 6, 7, 8, 9, 10, 11, 12</b>	<b>\$9,600</b>
<b>Bioclear Diastema Closure:</b>  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.		
	<b>Bioclear Diastema Closure Per side \$279, per space \$558</b>	
	• <b>Tooth # 7 Mesial, 8 Mesial, 9 Mesial, 10 Distal</b>	<b>\$1,116</b>















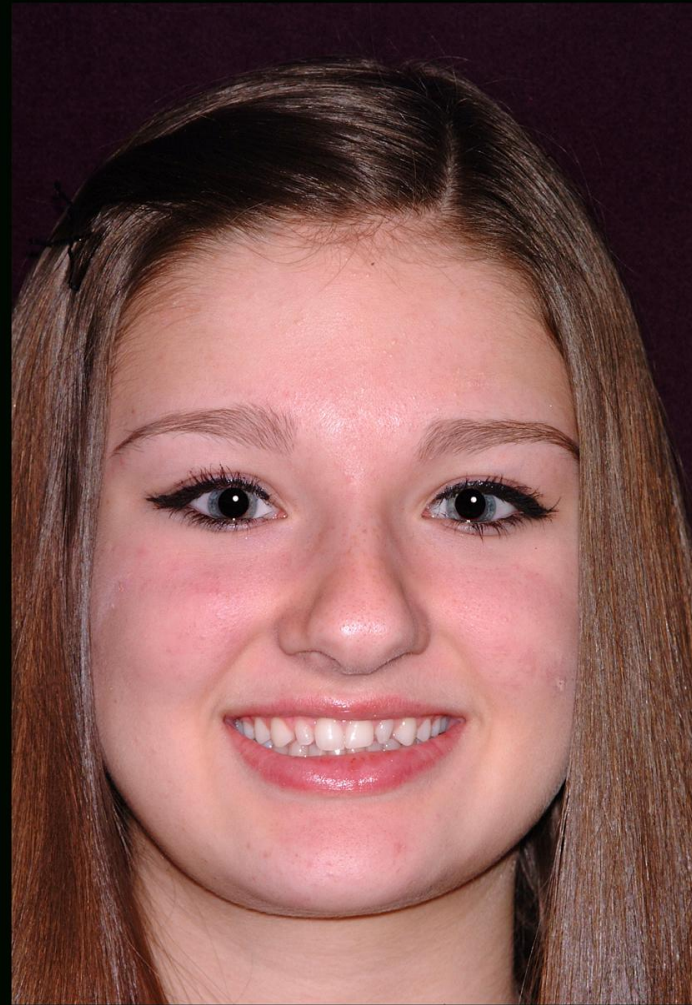








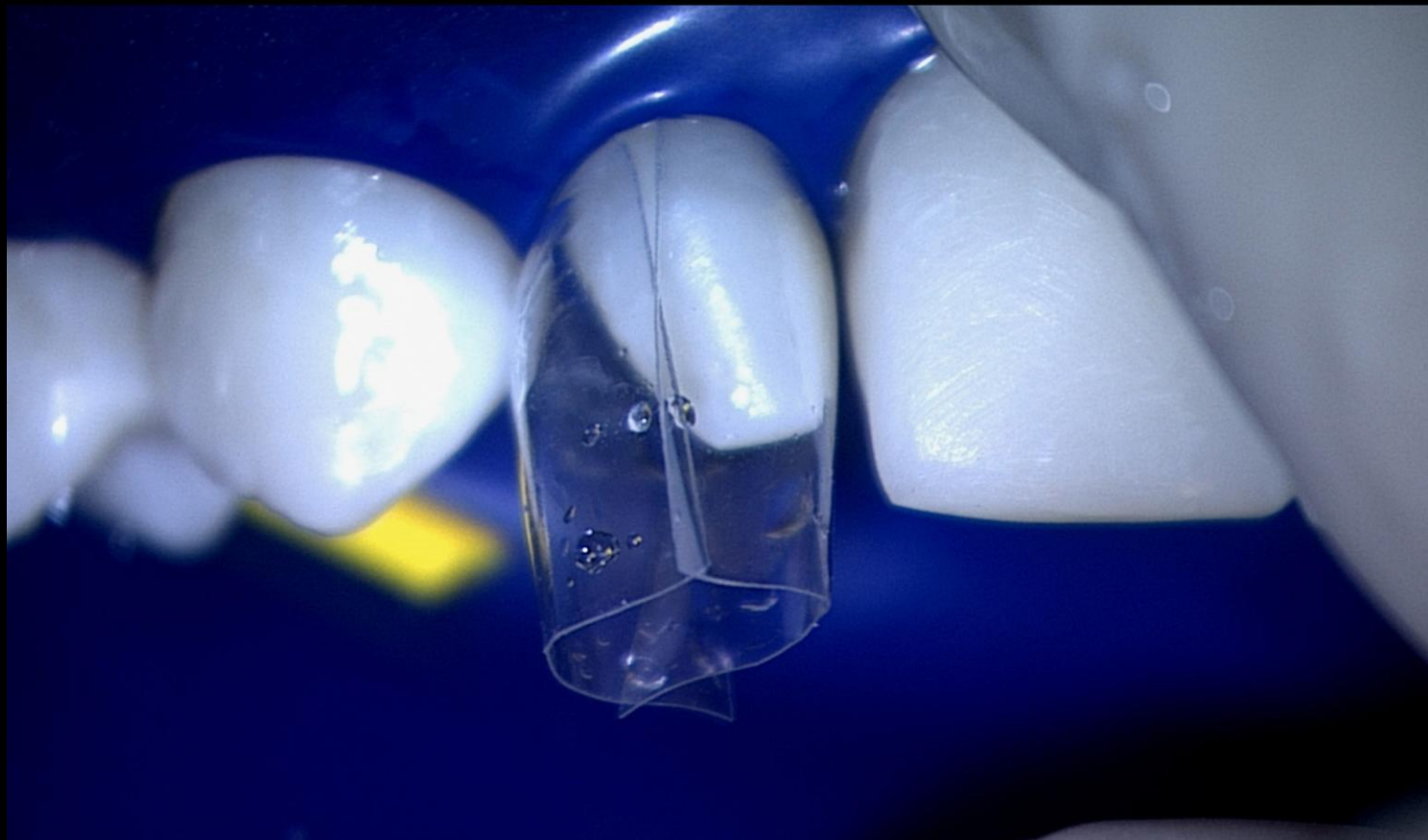






















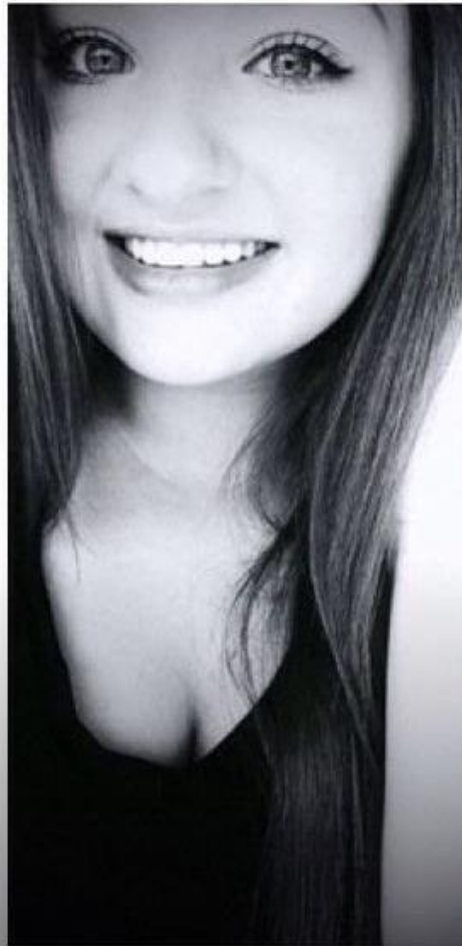








3 year  
follow up



# 7 year follow up



# 11 year follow up

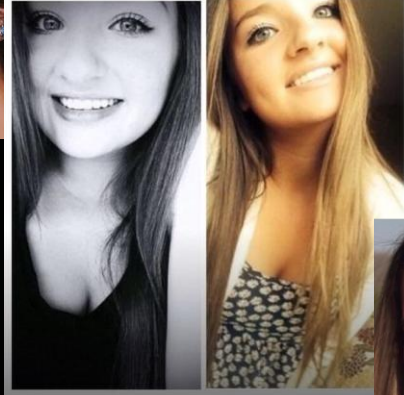




Pre-  
op



Immediate  
post-op



Three-year  
post-op



Seven-  
year post-  
op



Eleven-year  
post-op





Pre-  
op



Immediate  
post-op



Eleven-year  
post-op



Peg Lateral  
Pre-operative





Immediate Post Operative



3 Year Follow-up



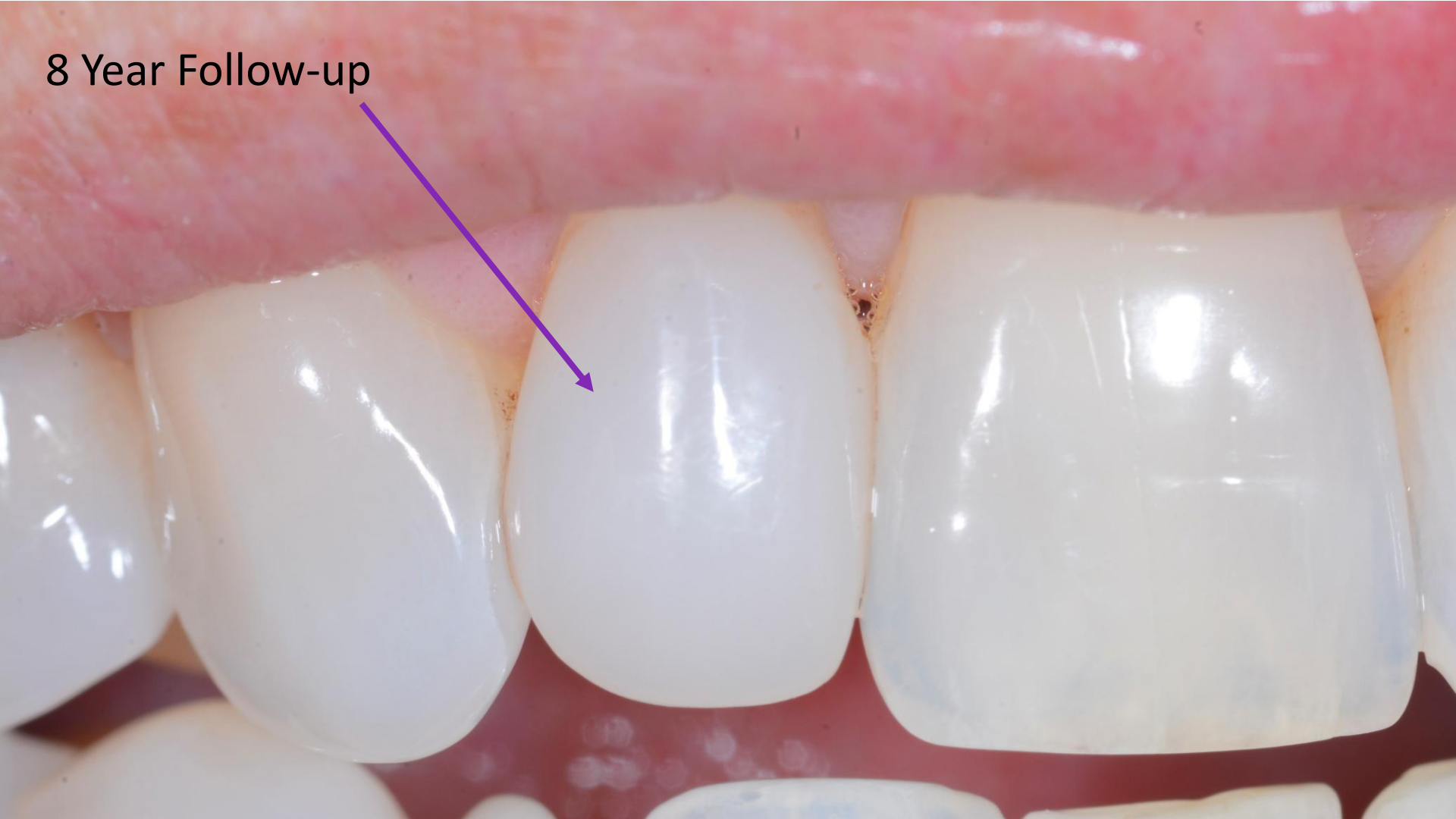
5 Year Follow-Up



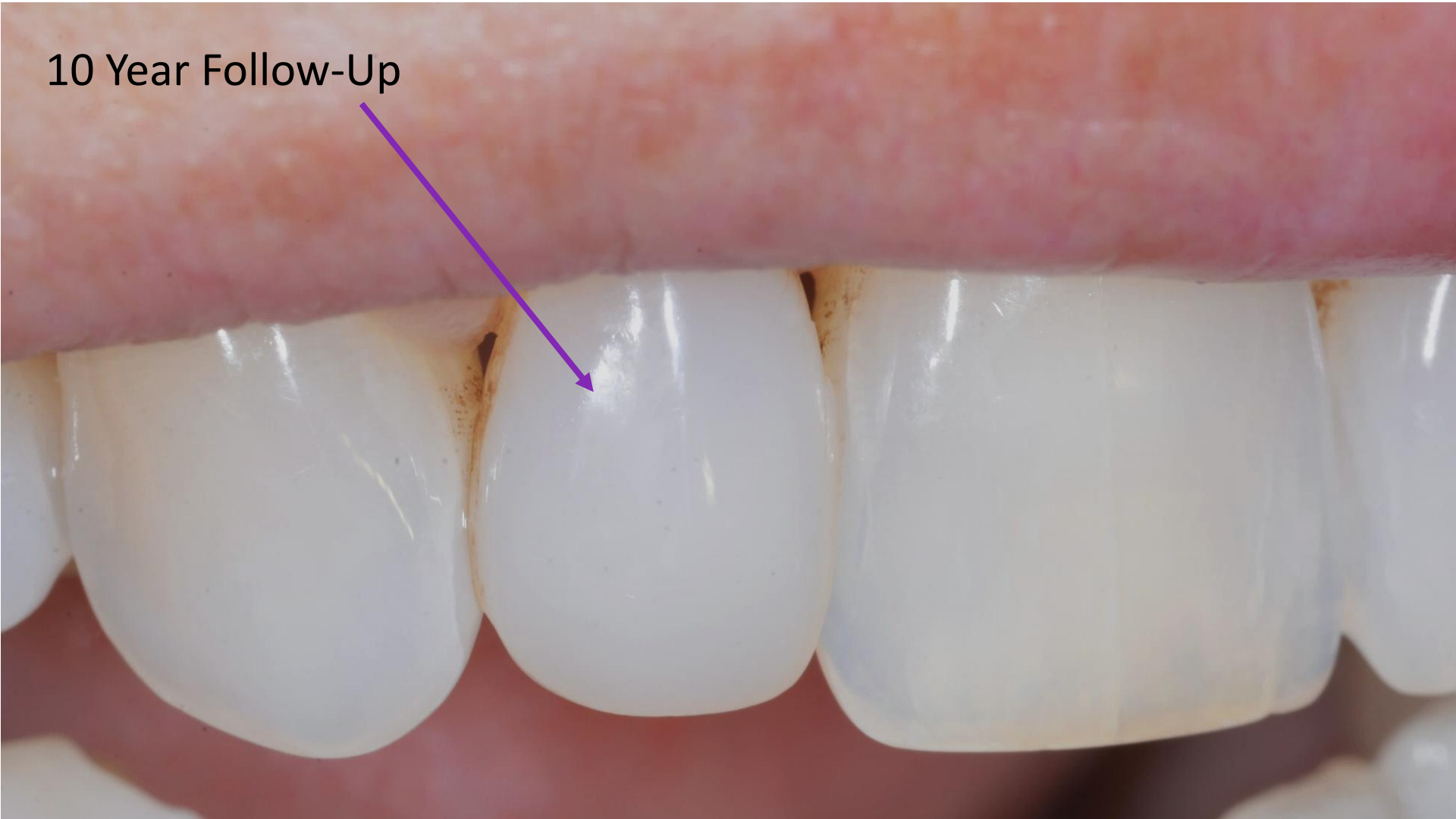
7 Year Follow-Up



8 Year Follow-up



10 Year Follow-Up



11 Year Follow-Up



14 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



**TOOTH & SURFACE SPECIFIC  
MATRIX SYSTEM**  
BY  BIOCLEAR



**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

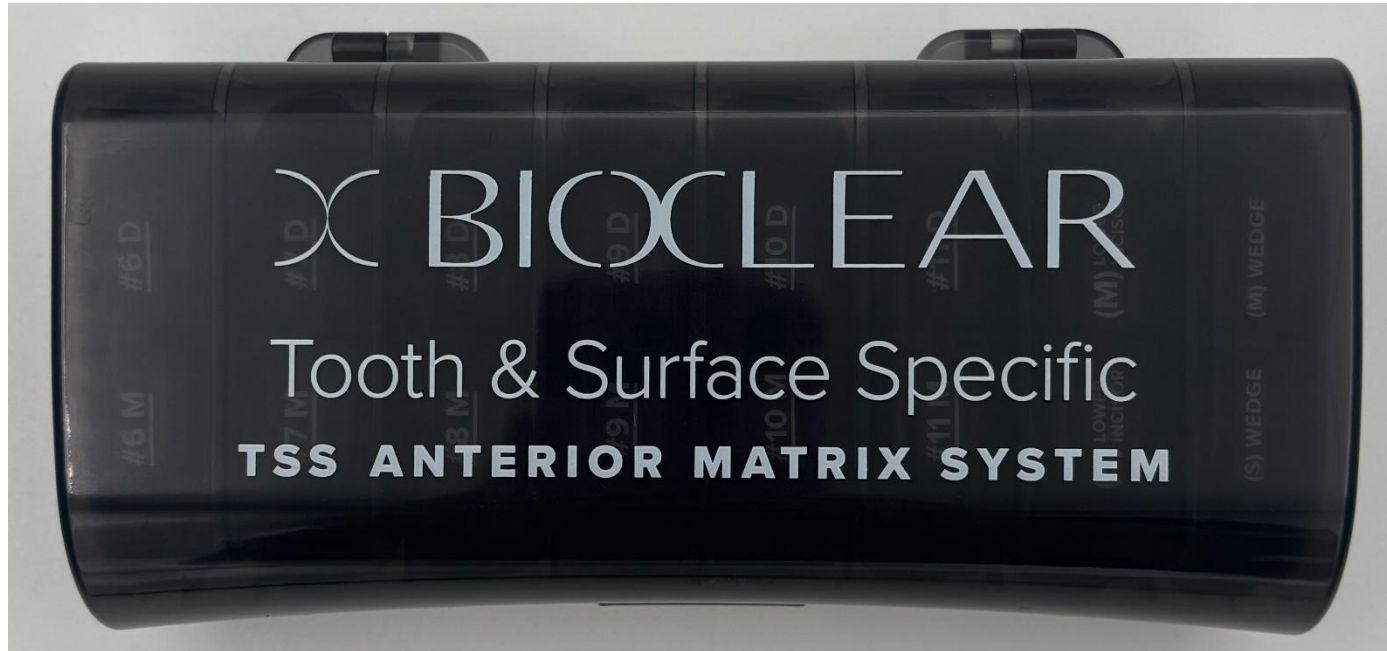


**Contact your Bioclear Sales Rep to Pre-Order**

[WWW.BIOCLEARMATRIX.COM](http://WWW.BIOCLEARMATRIX.COM)

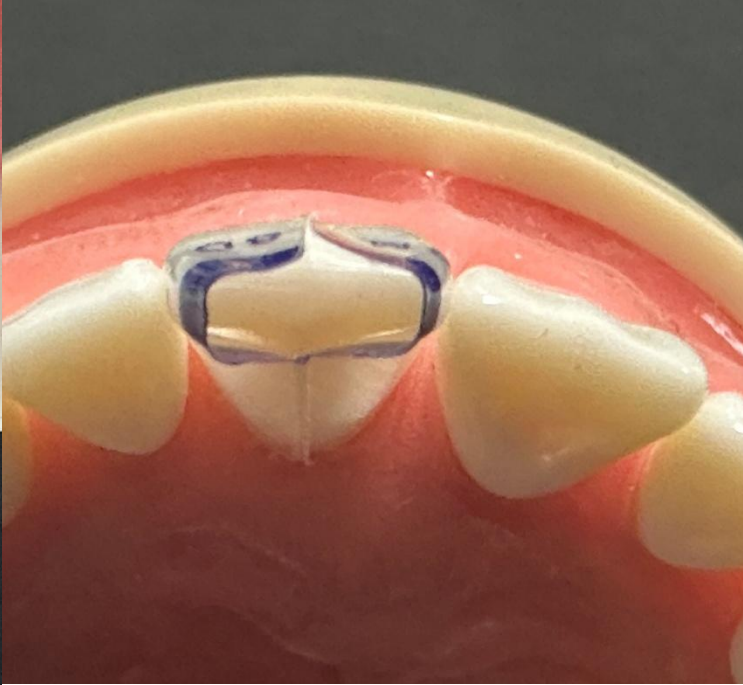
1.855.712.5327

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.

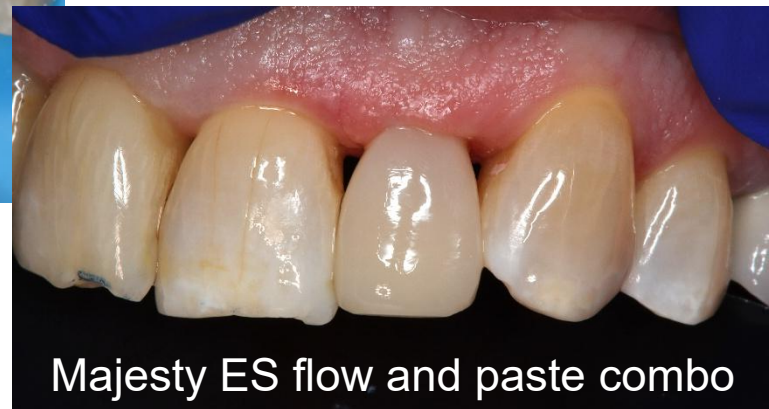








Courtesy of Dr.  
Dan  
Henricksen



Majesty ES flow and paste combo

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?

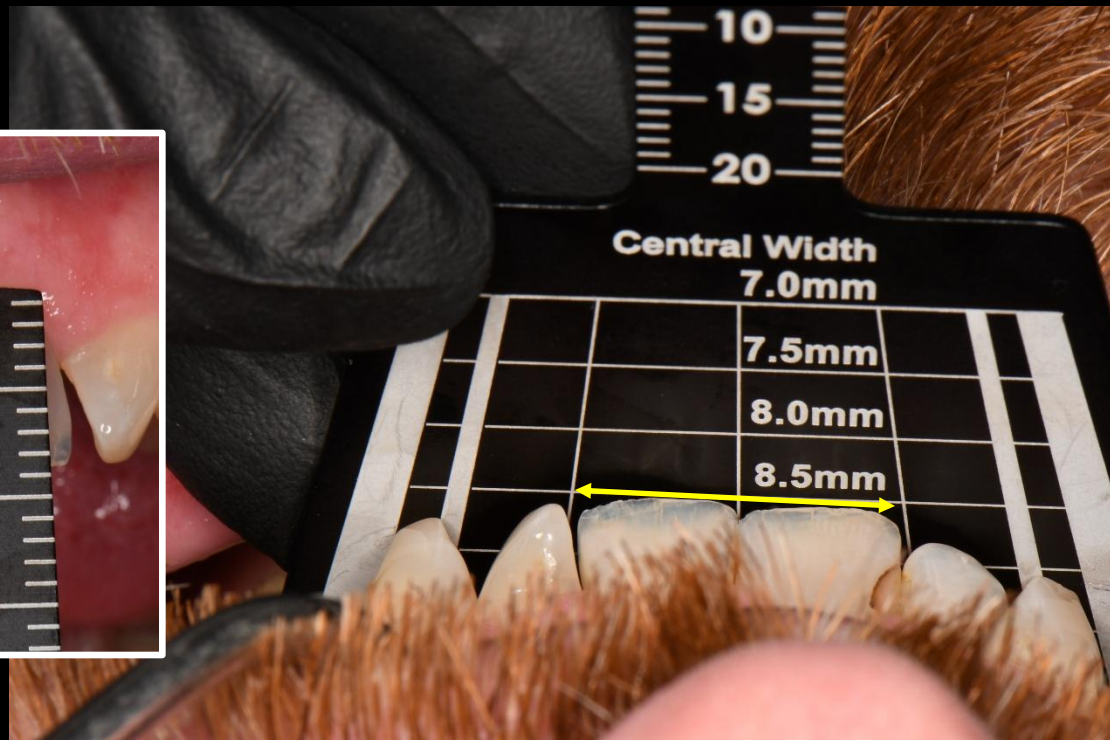


**Simplified Smile Design!**

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**

TOOTH & SURFACE SPECIFIC  
MATRIX SYSTEM  
BY BIOCLEAR



140 Anterior Matrices

20 Standard Anterior Matrix

Small & Medium Upper Incisors

76 Bridges

20 Small Bridges

20 Medium Bridges

**The next generation  
of anterior matrices:**

We're taking the  
guesswork out of  
to matrix selection



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**TSS**

TOOTH & SURFACE SPECIFIC  
MATRIX SYSTEM  
BY DEXTEAR



100 Anterior Matrices  
100 Anterior Wax Strips  
100 Anterior Wax Strips

100 Matrices  
100 Wax Strips  
100 Wax Strips

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**TSS**

TOOTH & SURFACE SPECIFIC  
MATRIX SYSTEM  
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80 Single-Block  
Matrix System  
www.boller.com

25 Single-Block  
Matrix System  
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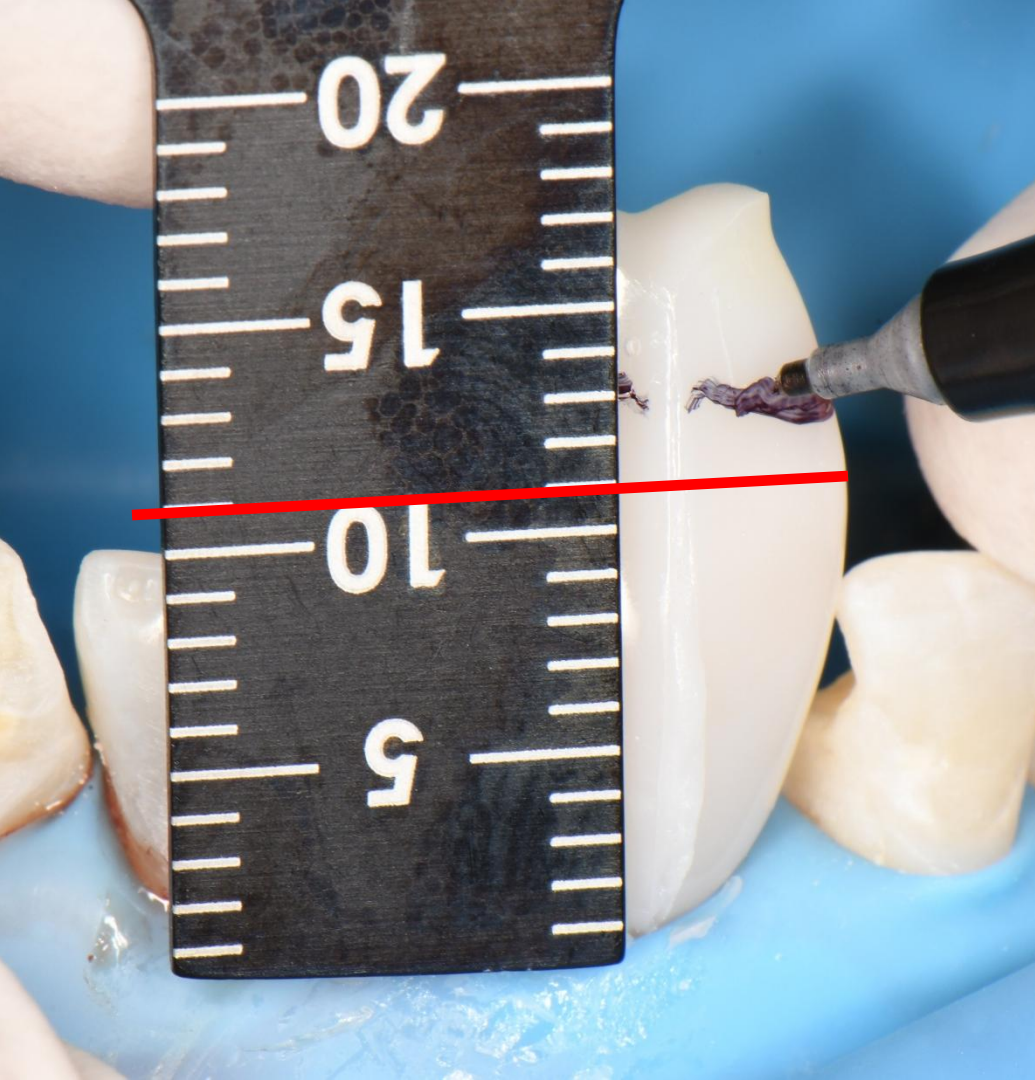


100 Anterior Matrices  
100 Anterior Matrix Bands & Cases  
100 Anterior Matrix Bands & Cases

10 Matrices  
100 Anterior Matrix Bands & Cases  
100 Anterior Matrix Bands & Cases

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Pre-operative



Immediate Post-Operative



One Week Post-Operative

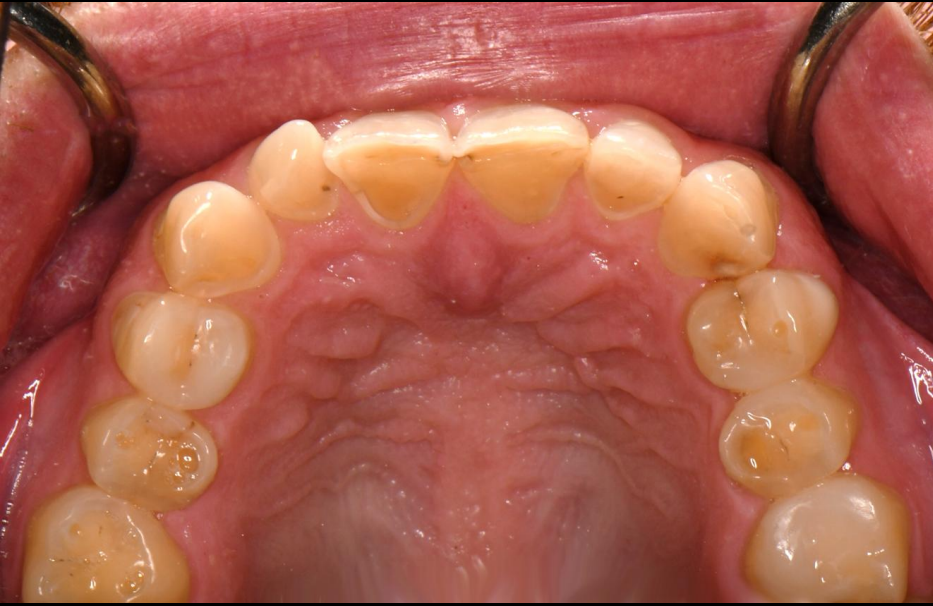








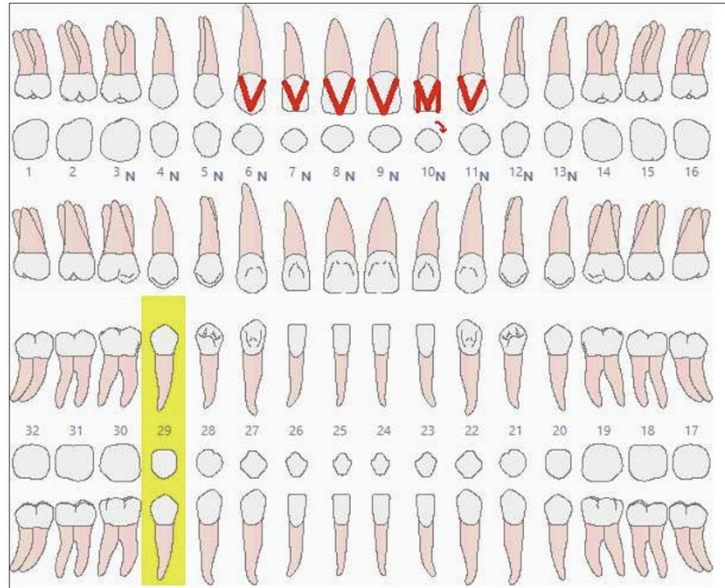




Day of treatment:  
About 4 hours



1-week  
post-op

Patient ChartPatient Name  
Patient ID

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



# Total Bioclear Case Fee? \$11,631

Kuraray Majesty ES Flow and  
Paste: Shade XW

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

Anatomic or **BT/DC?** (Black Triangle/Diastema Closure)



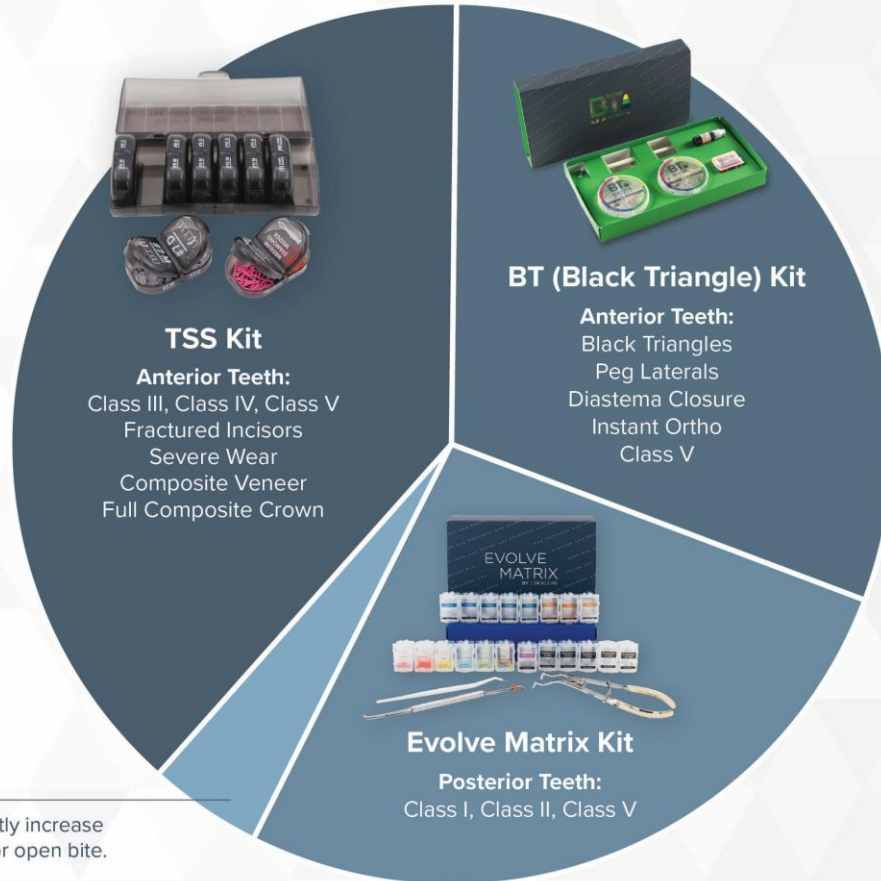
## Recommended Bioclear Matrices by Indication

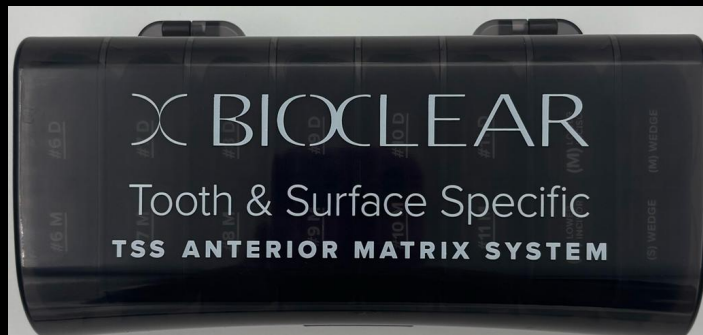
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1-855-712-5327



**360 Veneer**

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









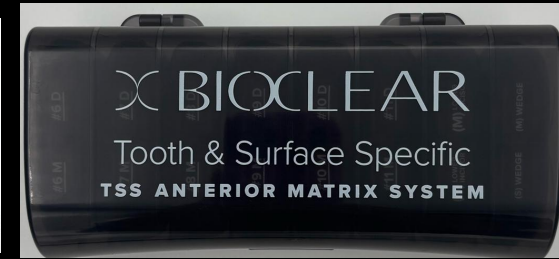
The monolithic restoration can create adequate non-layered polychromaticity with **Body** shade



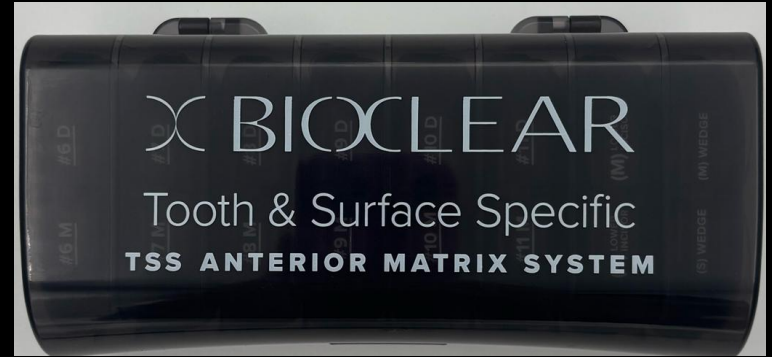
17 year old male. Had emotional issues and had ortho brackets on for many years without returning to complete orthodontic care. Left with rampant decay. Injection molded A2 **BODY** composite



# Which Matrix Type?



Which Bioclear kit?





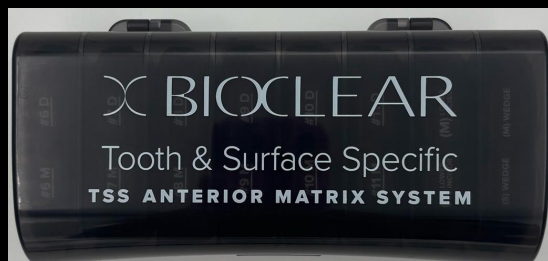
- If you think you will lose your contacts, you need to prep and then take each to 80% shape before you move to the next tooth.
- Bioclear method benefits from leverage and landmarks
- Creation of 3 facial planes is key
- Monolithic composite in the body shade is generally beautiful to the patient. Why?



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



# Which Bioclear Kit?



Which Bioclear Kit?

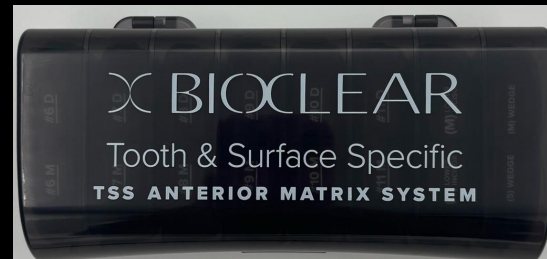




Courtesy Dr.  
Les Miller

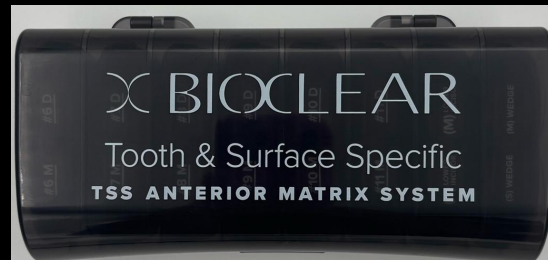


# Which Bioclear kit or kits?





Both



# Case by Dr Ahmed Al Jaber













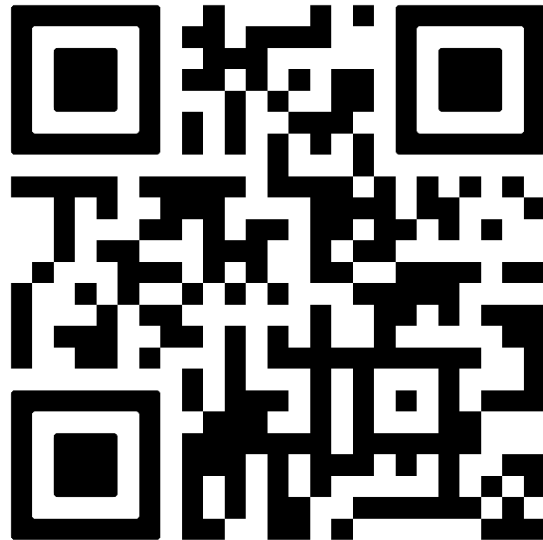








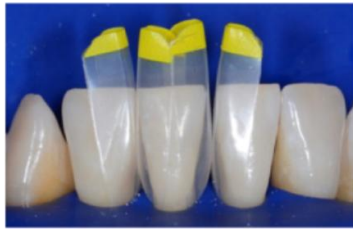
For a copy of today's presentation,  
Learning Center info or the essential  
Learning Center Library



# Getting paid to be conservative

## BIOCLEAR VS. CROWNS AND VENEERS

Bioclear is an alternative to traditional methods for enhancing a smile. Rather than preparing for a crown or veneer, the Bioclear Method—expanding the possibilities of dentistry—conserves the natural tooth structure, tooth enamel and tooth durability.



**BIOCLEAR PREPARATION**  
Bioclear allows dentists to **conserve** healthy tooth structure



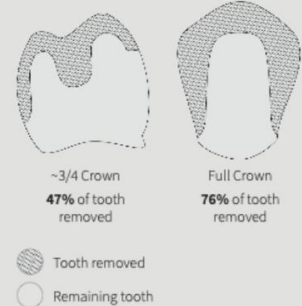
**CROWN PREPARATION**  
Crowns require dentists to **remove an average of 76%** of the tooth structure prior to the procedure



**VENEER PREPARATION**  
Veneers require dentists to **remove an average of 47%** of the tooth structure prior to the procedure

## AN HONEST LOOK AT CROWN PREPARATIONS

As illustrated below, crowns, veneers, and onlays require the removal of a significant amount of healthy tooth structure. Bioclear dentists can leave most or all of the tooth structure. Bioclear is a very attractive option to patients.



# ∞ BIOCLEAR

## Stop by convention

## booth #1111

## to...

- ✓ Hear more about Bioclear courses
- ✓ Meet our team of Bioclear experts
- ✓ Order products
- ✓ Register for courses
- ✓ Learn why Bioclear is a BIG DEAL!





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

A wide-angle photograph of a modern conference room. The room features a long, light-colored conference table with several black office chairs around it. The ceiling is a striking feature, with large, curved panels in shades of blue and green, interspersed with recessed circular lights. The walls are a mix of white and light blue, and there are large windows or glass partitions on the left side. The floor is covered in a colorful, striped carpet.

# BIOCLEAR

LEARNING CENTER

Tacoma USA









# Last week's attendees at the certification course



**BIOCLEAR**  
LEARNING CENTER

## Welcome

Dr. John Servinis  
Toronto, ON  
Dr. Leo Sonnler  
Austin, TX  
Dr. Randal Valenta  
Marion, WI  
Dr. Whitney Wolff  
Lexington, TX

WiFi: BioclearLearn  
Password: bikt120

**BIOCLEAR**  
LEARNING CENTER

## Welcome

Advanced  
Posterior Solutions

Opportunistic Class II & Bioclear Overlay

Lecture: Opportunistic Class II & Bioclear Overlay

Lunch

Lecture: Modified Hall & Deep Margin Techniques

Champagne Toast

**BIOCLEAR**  
LEARNING CENTER

Dr. Lakshmi Rao  
Houston, TX

**BIOCLEAR**  
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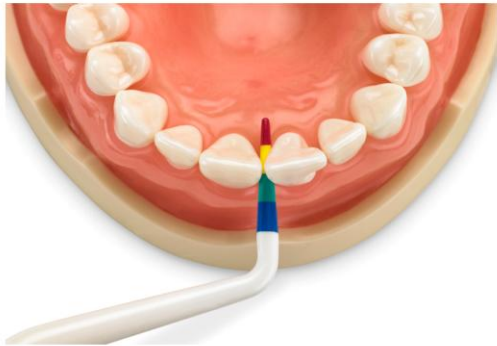
Treat yourself to a weekend with ∞ BIOCLEAR

# 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:

Washington DC  
May 8<sup>th</sup> 2026



Orange Beach  
April 24<sup>th</sup> 2026



Denver  
October 9<sup>th</sup>  
2026



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**BEFORE**



**AFTER**



**BEFORE**



**AFTER**

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**Course Code:6334**

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**booth #1111**

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