

REJUVENATE. CONSERVE. PROTECT.

The Bioclear Method—expanding
the possibilities of dentistry



XX BIOCLEAR



“ I hated the black spaces between my lower teeth and was repeatedly told that there was nothing that anyone could do. I am a person that laughs all the time and the spaces were becoming noticeable. Now that the Bioclear treatment is finished the teeth feel perfect! They feel like my natural teeth but smoother.”

- B. Westphal



“After treatment, my first response was ‘wow!’ I didn’t expect it to be so easy and look so nice. One of the biggest things for me was the feel; my tongue used to be drawn to the gaps and now it feels so smooth. I am really pleased with the results.”

- B. Johnstone

“The treatment was done in a single session and the results far surpassed my expectations. My teeth are now very natural in appearance and the thinning enamel has been reinforced with a layer of composite. My teeth are much easier to clean and remain essentially tartar free.”

- M. Hooker

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**Your smile is
your introduction
to the world.**

ABOUT BIOCLEAR

The Bioclear Method and modern smile design can correct many aesthetic dilemmas in a permanent and less invasive manner than traditional treatments such as porcelain crowns or veneers. Discover Bioclear's rejuvenating possibilities.

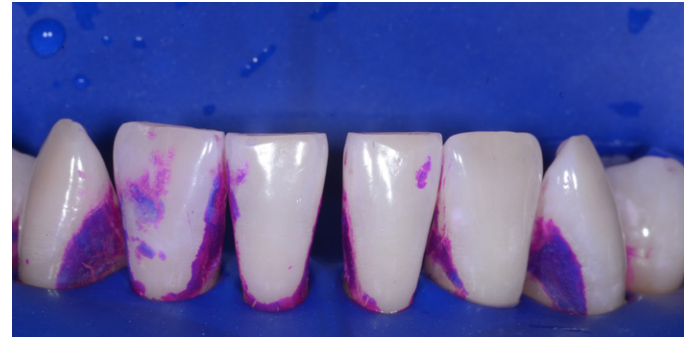
The Bioclear Matrix is an innovative minimally invasive tool that dentists can use to help improve the strength and aesthetics of patients' teeth. Until the invention of the Bioclear Matrix, dentists did not have an ultra thin, tooth-shaped form that allowed permanent reconstruction of teeth with composite.

The Bioclear Method was developed after extensive research and testing. When combined with the Bioclear Matrix, it allows dentists to maximize efficiency and aesthetic outcomes for a conservative yet beautiful smile.

6

BIOCLEAR METHOD STEPS

Because there are only six steps, most procedures take just one or two visits.



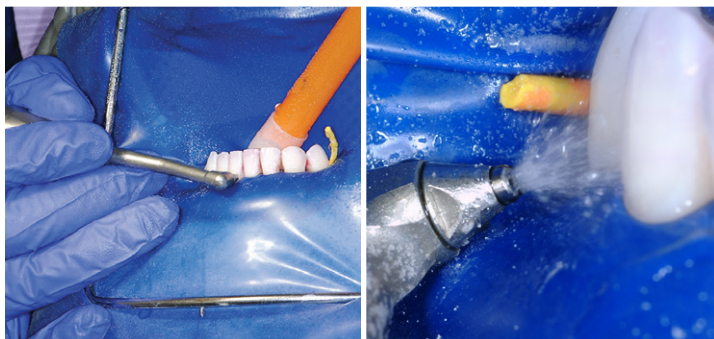
1. DISCLOSE

Disclosing solution is applied to identify biofilm that naturally accumulates on the surface of the tooth.



4. ETCH

Etch material is placed to open the pores of the tooth for proper adhesion.



2. BLASTING

The biofilm and disclosing solution is gently blasted away with the use of a very fine aluminum trihydroxide powder.



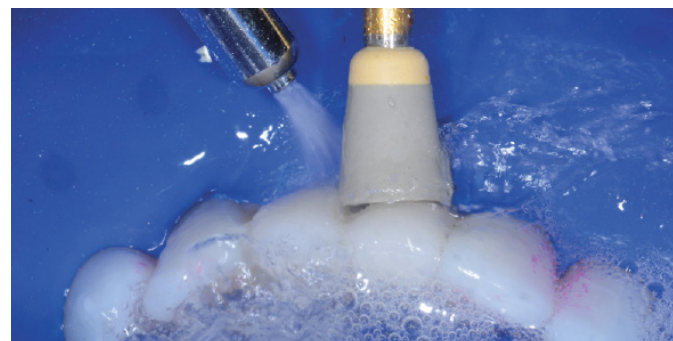
3. MATRIX PLACEMENT

The preferred matrix (which is as thin as a human hair) is selected and placed along the tooth, resting below the gum line.



5. INJECT

Heated composite material is injected into the matrix providing a beautiful infinity margin restoration.



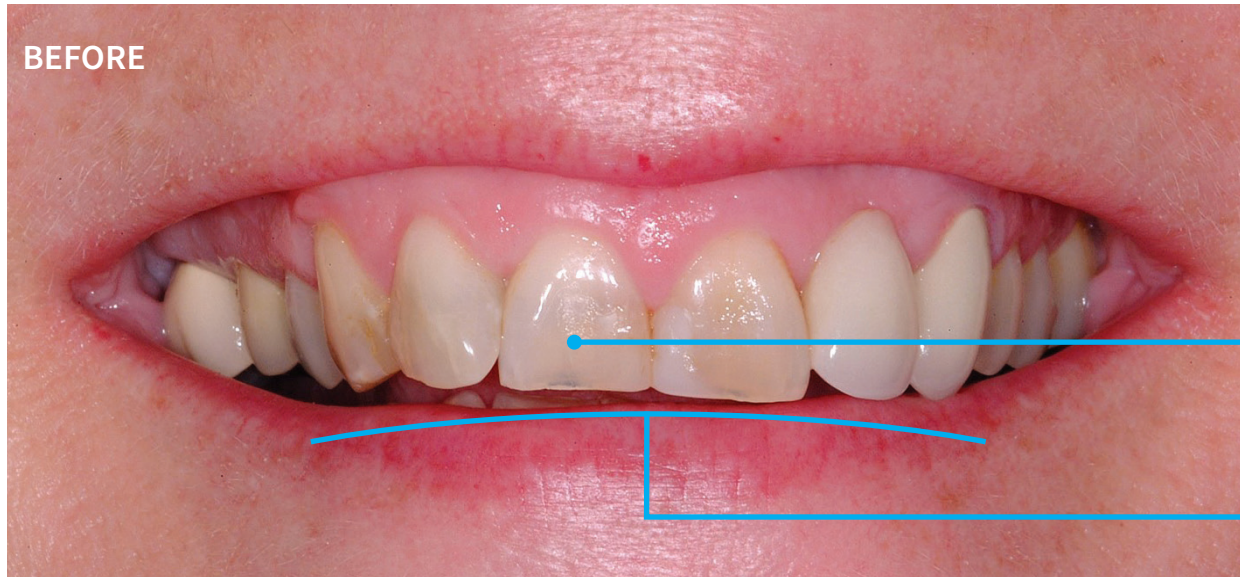
6. REMOVE FORMS & POLISH

The matrix is removed, restoration is shaped and polished to the desired shape.

THE BUILDING BLOCKS OF A BIOCLEAR SMILE

- Symmetrical upper central incisors
- Midline is centered and perpendicular to the occlusal plane
- The front teeth follow the lower lip in the smile pose
- Central incisors are even with the canines
- Central incisors should be 1-2 mm longer than the lateral incisors
- Central incisors are rectangular and in proportion
- No “Black Triangle”

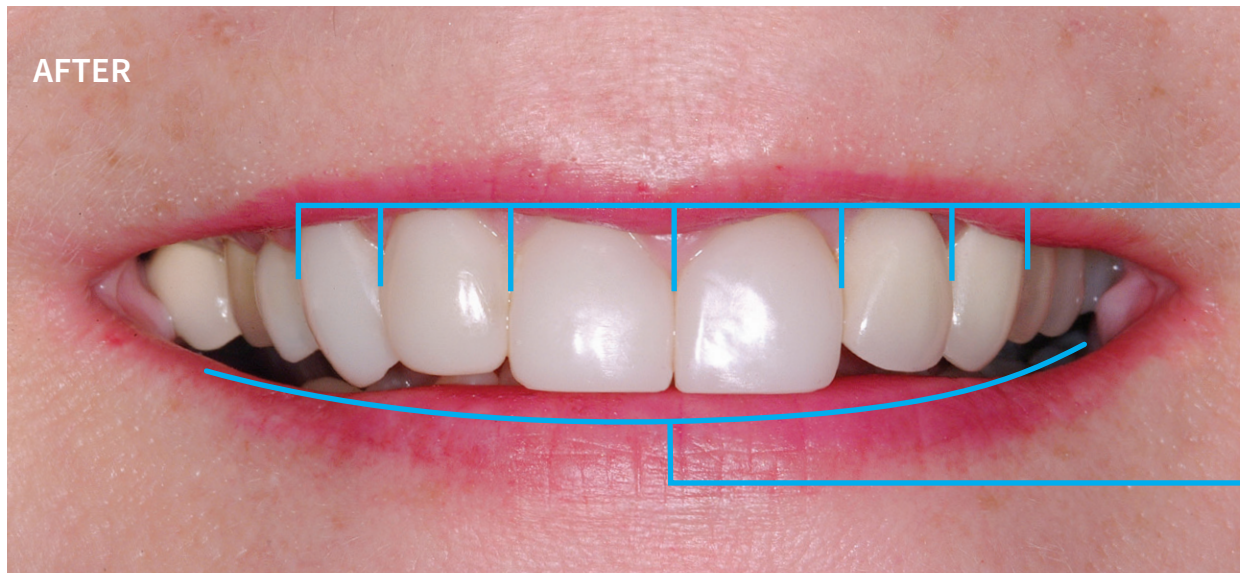
BEFORE



Right central incisor
shorter than the
lateral incisor

Maxillary teeth
create a negative
smile line

AFTER



Follows the 75-80%
width to height
Golden Rule of
anterior arch form

Maxillary teeth now
follow the lower lip
in the smile pose and
central incisors are
even with canines

BLACK TRIANGLES CLOSURE

30% of adults have black triangles—clinically known as open gingival embrasures. This can result from bone loss, recession of the gum line, and sometimes movement of the teeth. Dark spaces between teeth can age a smile.

Teeth with black triangles are also prone to food accumulation and tartar build-up. In cases where the enamel is perfectly healthy, it does not need to be masked with veneers. Using the Bioclear Method, your dentist can conservatively close these gaps to rejuvenate your smile.





Bioclear matrices in place



Injecting material into the matrices

Bioclear's patented process allows the white composite material to go between the tooth and gum to "grow the tooth" and restore the pink papilla—the black triangle becomes a pink triangle.



BEFORE



AFTER



6-YEARS LATER



SAMPLE CASE

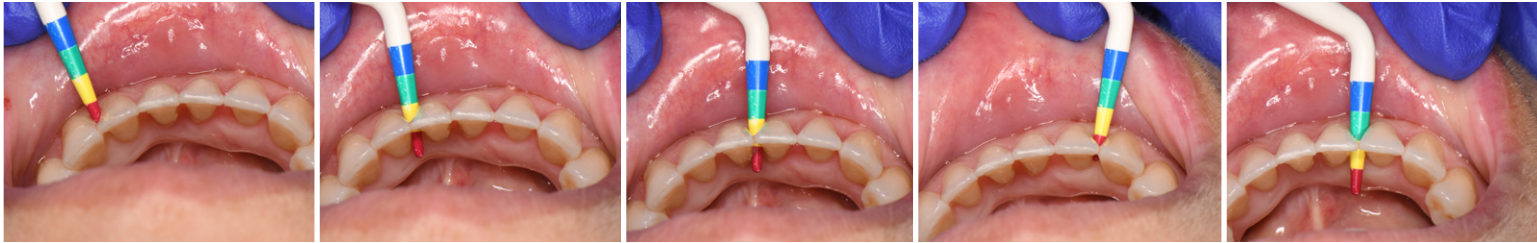
Black Triangle Closure After Orthodontics

Erica had ortho as a kid, and then again in her 40's after the ortho relapsed. The orthodontist tried some sanding on the sides of the teeth to minimize the black triangles but then "gave up". When the case was finished, her lower teeth felt loose. She was afraid to bite into an apple fearing that her teeth would literally fall out and get stuck in the apple.

She had a consultation with her general dentist who told her the only good option she had was to extract her lower incisor teeth. After just completing her ortho treatment, she was not going to do that.

Her periodontist gave her 4 choices; veneers, bonding, more surgeries (she already had a graft), or Bioclear. She then did an online search for a trained Bioclear Dentist. Happily today, her teeth feel strong, secure, and attractive. Additionally, the Bioclear approach comprehensively addressed other problems such as the small gouges left in her enamel when the orthodontist drilled off the bracket cement.





GAUGING THE SIZE OF 5 BLACK TRIANGLES



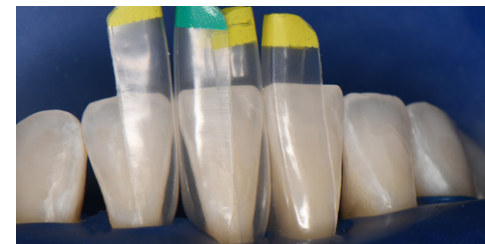
DISCLOSE

Disclosing solution is applied to identify biofilm that naturally accumulates on the surface of the tooth.



BLASTING

A gentle water and powder mixture blast the teeth. No drilling of the tooth is necessary.



MATRIX PLACEMENT

The preferred matrix (which is as thin as a human hair) is selected and placed along the tooth, resting below the gum line.



FIRST TOOTH MOLDED

Note the dramatic change in shape and the miracle of additive dentistry.



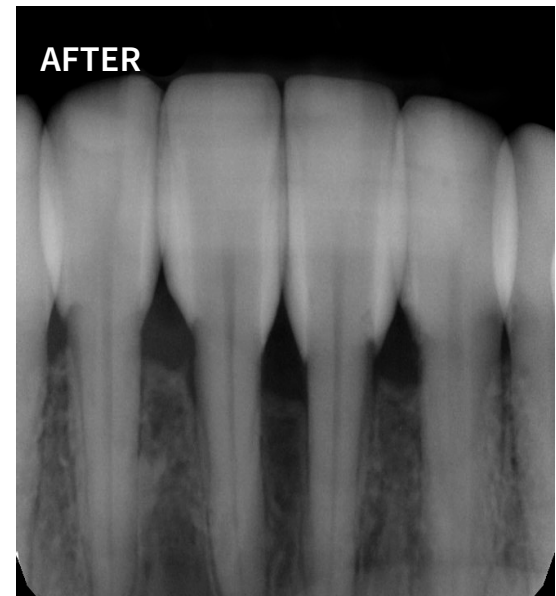
STEPS REPEATED FOR EACH TOOTH



RESULTS

Immediately following the procedure.





DIASTEMA CLOSURE

The Bioclear Method is also perfect for closing diastemas (the vertical gap between two teeth).

Many celebrities have a diastema including Madonna, Eddie Murphy, Jack Black, Lauren Hutton, and Willie Nelson. For many people, a diastema makes their smile unique, and they choose to keep the charming midline gap.

Though a diastema is considered harmless, meaning it rarely affects dental health, some people choose to close those smile gaps for esthetic reasons. Using the Bioclear Method and matrices, your dentist can transform your smile and create a very natural finish.

BEFORE



AFTER





BEFORE



AFTER



BEFORE



AFTER



UNDERSIZED TEETH

(Peg Laterals)

Another common dislike among patients is undersized laterals (or peg laterals). This is where the tooth has not grown to its full capacity, leading to an uneven smile.

Combining the Bioclear Method with the excellent quality of shaded composite materials, these teeth can be built up to reveal an esthetically pleasing and symmetrical smile.

BEFORE



AFTER





SAMPLE CASE

Peg lateral restoration for identical twins.



Willow

Sydney

AFTER



Willow

Sydney





BIOCLEAR 360° VENEERS

The Bioclear 360° Veneer matrices are fantastic for rejuvenating and repairing teeth without needing to remove the same amount of your remaining tooth structure as crowns or veneers.

These matrices are specially designed to create a 2-part anatomical mold around the tooth. This mold allows your dentist to add composite to create a monolithic, solid structure, which is esthetically pleasing and is as functional as your natural tooth.



BEFORE



AFTER

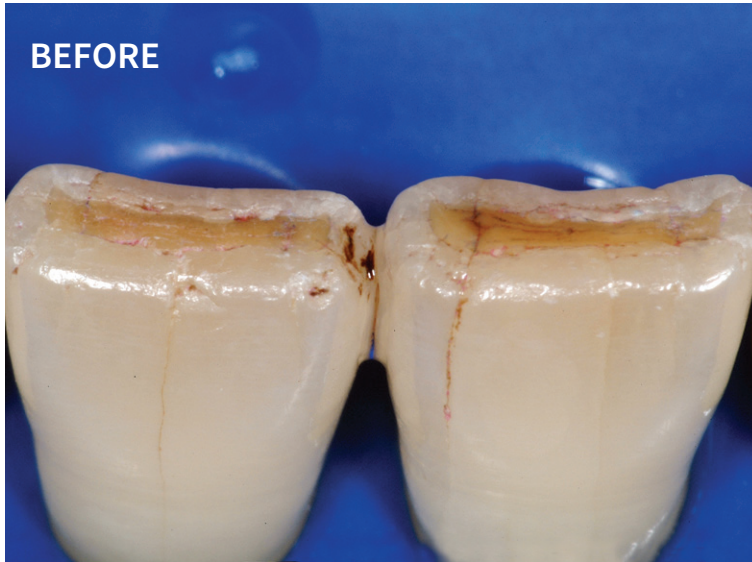


BIOCLEAR 360° VENEERS: WORN TEETH

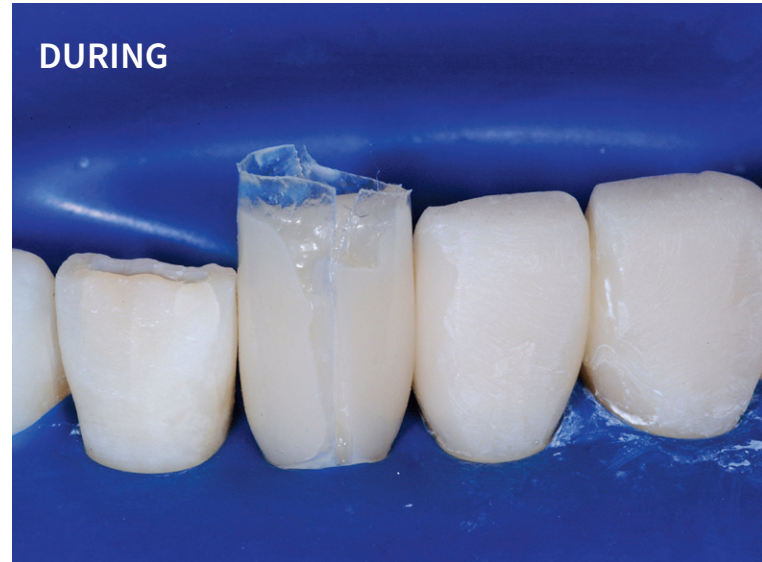
As teeth age, they begin to show wear. The Bioclear Method allows your dentist to add composite to compensate for the loss of enamel without needing to remove as much of your remaining tooth structure as crowns or veneers.



BEFORE



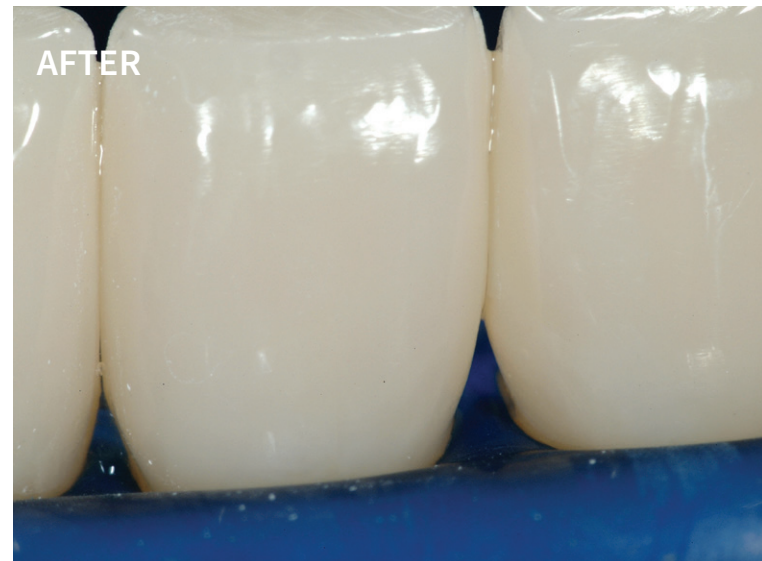
DURING



AFTER



AFTER





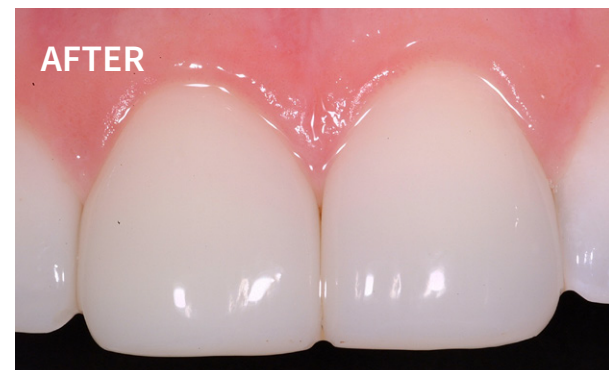
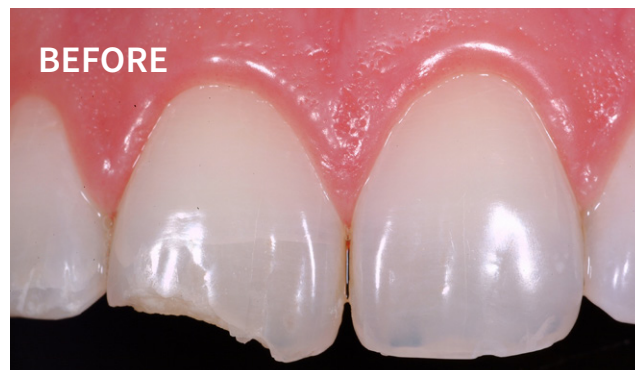
BEFORE



AFTER



**BIOCLEAR
360° VENEERS:
BROKEN TEETH**





BIOCLEAR VS. BONDING

Conventional “bonding”—as most people know it—has been around since the ‘70s. Bonding, along with composite resins (tooth colored filling material), is used to treat dental esthetic problems.

Although composite resins and adhesives have advanced, the older technique of hand-manipulating filling material directly onto the tooth still persists.



Bonding

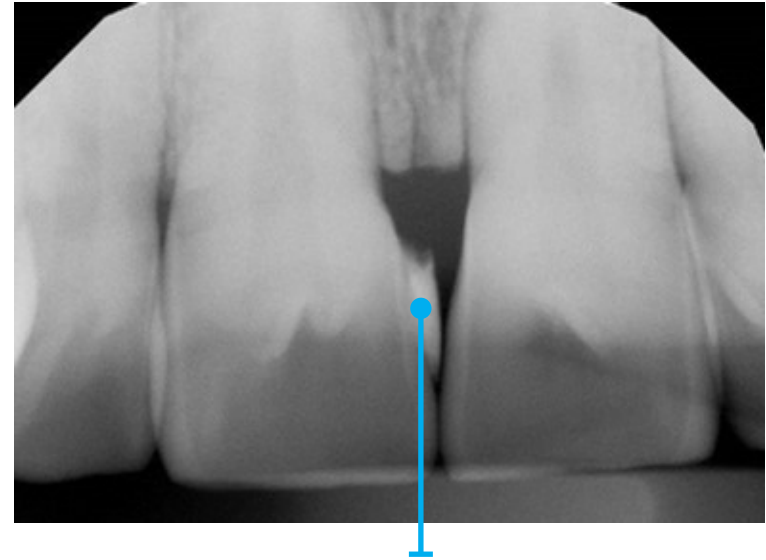


Bioclear

ISSUES WITH CONVENTIONAL BONDING

Hand spackling composite introduces gaps and voids that contribute to weakness in the composite material, tendency for stains, discolorations, roughness, and poor margins.

Traditional “bonding” can be an invasive, temporary solution, often associated with inflamed and bleeding gums. Notice the rough edge in the top photo.

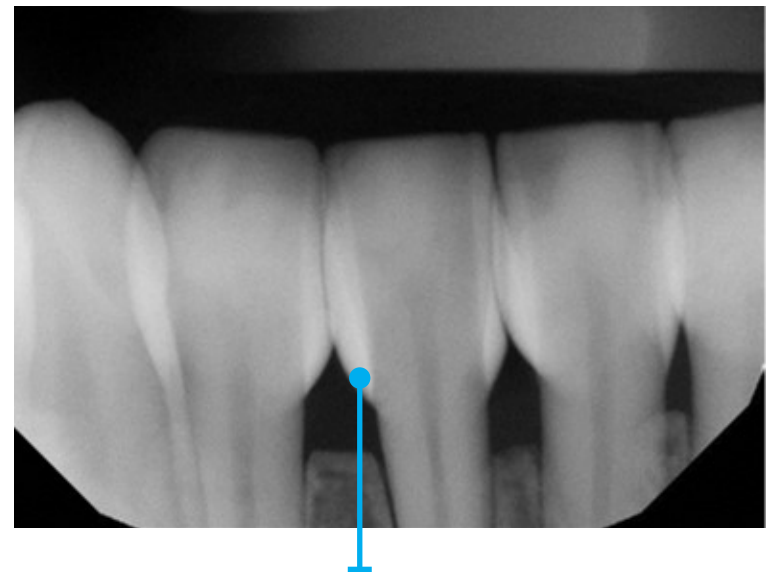


Rough edge left by traditional bonding

THE BIOCLEAR METHOD HAS MODERNIZED THE TECHNIQUE FOR COMPOSITE SOLUTIONS

This patented and revolutionary method produces a 3-dimensional, monolithic, injection overmolded tooth.

Special anatomic forms are used with an injection molded technique to produce beautiful, infinity margin restorations that are solid, strong, smooth, and stain resistant. Notice the smooth interface in the bottom photo.



Smooth interface created with Bioclear

BIOCLEAR ROOT OVERLAY

Bioclear Root Overlay covers areas of recession and root abrasions. The Bioclear Root Overlay is the transition of the Bioclear Black Triangle or the Bioclear 360° Veneer overlay to the root without leaving a size discrepancy in the presence of recession and root abrasions.

5 Purposes Of Root Overlay

1. Mask dark root
2. Rejuvenate exposed worn roots
3. Blend the matrix curve to the root form
4. Root overlay for instant ortho (visually upright a flared front tooth)
5. Gum lift to correct an overly gummy smile



ORTHODONTIC CORRECTION

Bioclear can often solve issues of mild to moderate crowding, or other orthodontic problems, in one sitting. However, in some cases, orthodontic treatment will still be required.

BEFORE



AFTER



Tooth is undersized and rotated leaving a gap between upper and lower teeth—previous orthodontic treatment fell short of the desired outcome

BEFORE

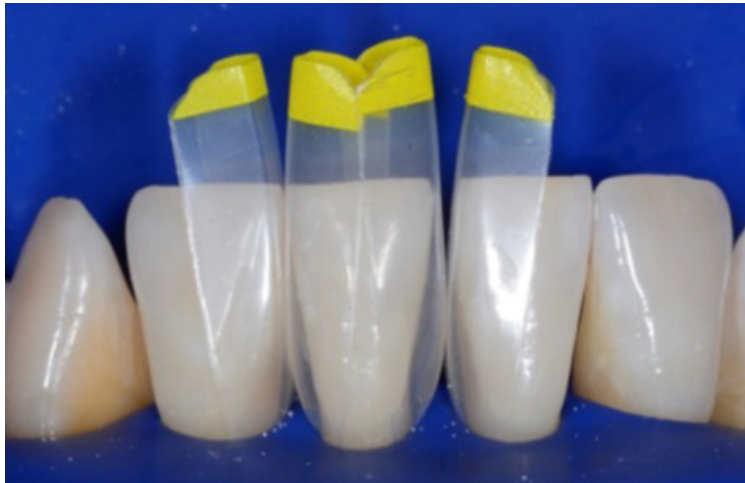


AFTER



BIOCLEAR VS. CROWNS AND VENEERS

Bioclear is an alternative to traditional dental methods for enhancing a smile. Rather than grinding down a tooth to prepare for a crown or veneer, the Bioclear Method of ensconcing the natural tooth structure retains the natural 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

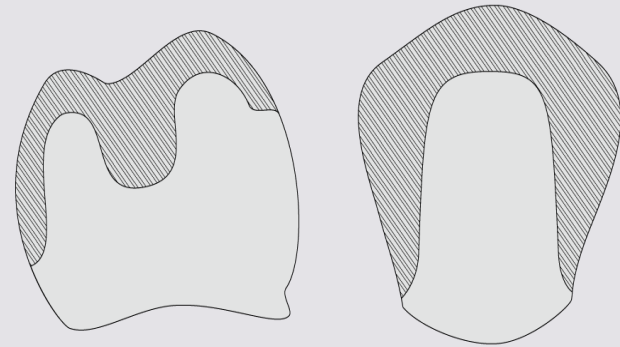


VENEER PREPARATION

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.

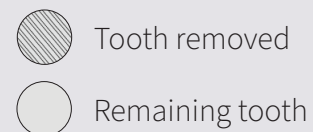


~3/4 Crown

47% of tooth
removed

Full Crown

76% of tooth
removed



POSTERIOR RESTORATIONS

Bioclear represents the evolution of dentistry—conserving and protecting teeth from the beginning in a way that traditional fillings and crowns do not.

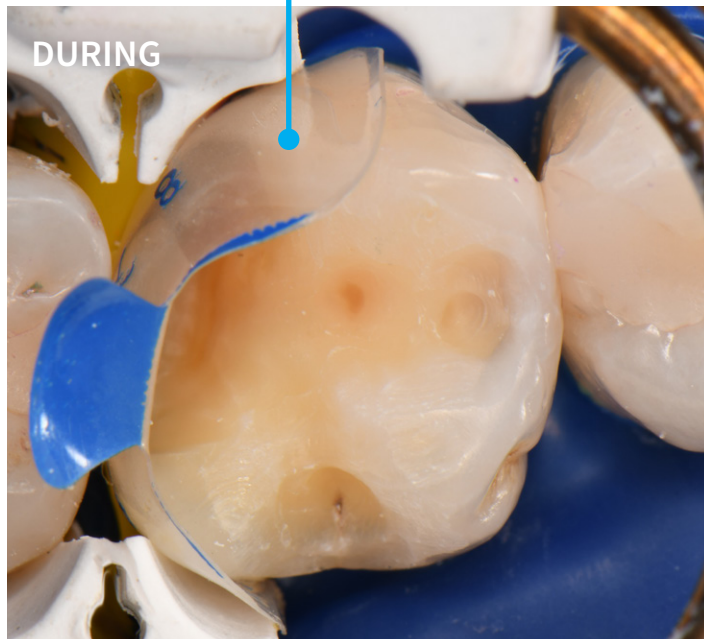
When repairing or restoring teeth, dentists have always faced the fundamental mechanical problem of how to adhere fillings to the underlying tooth.

Traditionally, the answer has been to first remove the decayed portion of the tooth, and then either hollow out a notch in the tooth like a jigsaw puzzle piece in order to get amalgam to stay in place, or create a box prep to receive a composite filling. Either way, the dentist is grinding away otherwise healthy tooth structure, just to get the filling to adhere.



Tooth prior to the Bioclear Method procedure

Bioclear matrices are an anatomically advanced design that mimics the complex and beautiful shapes of natural teeth



Tooth after initial preparation; decay removed and older white filling disassembled



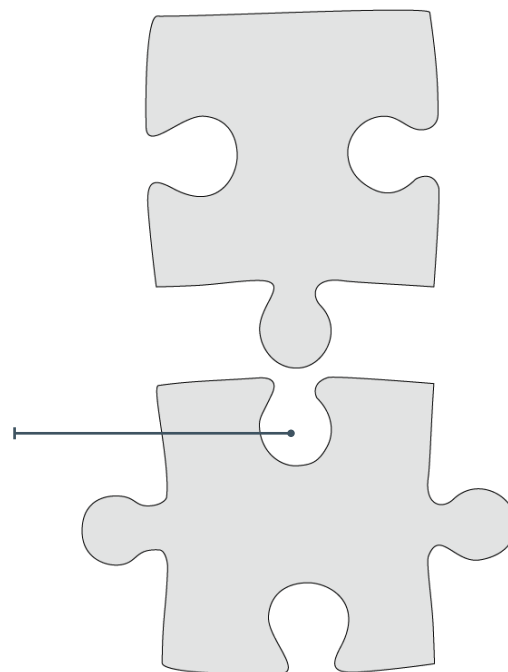
Bioclear result

ENGINEERING CONSERVATIVE RESTORATIONS

Bioclear is based on principles of **structural engineering**. Looking at posterior restorations through an engineering lens allows us to see unintentional flaws in their design.

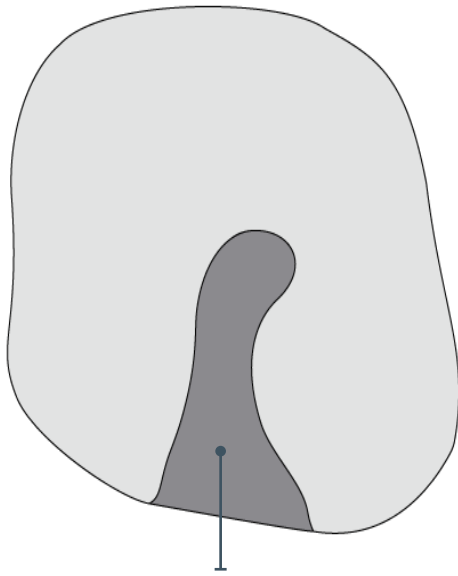
G. V. Black's first-generation jigsaw puzzle-style preparation is a classic mortise-and-tenon or "dovetail" joint. Developed in 1897 and still used today, it mechanically locks the filling—originally made of wood—into place.

First-generation jigsaw puzzle-style preparation mechanically locks the filling into place



This keeps the filling in place, but stresses the tooth.

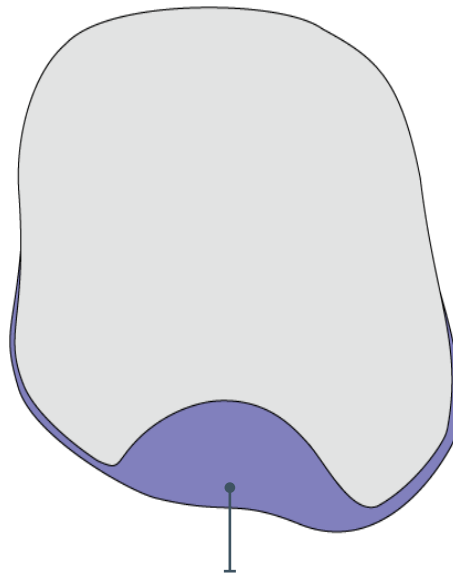
Another critical engineering principle not typically taught in dental school is that of mechanical forces. These are the forces created by the direct interaction of two objects. **Tension** is one of these; **compression** is another. Tension is the result of two objects pulling away from each other. Compression is the result of two objects being pushed together.



Jigsaw puzzle-style preparations inadvertently create tension joints

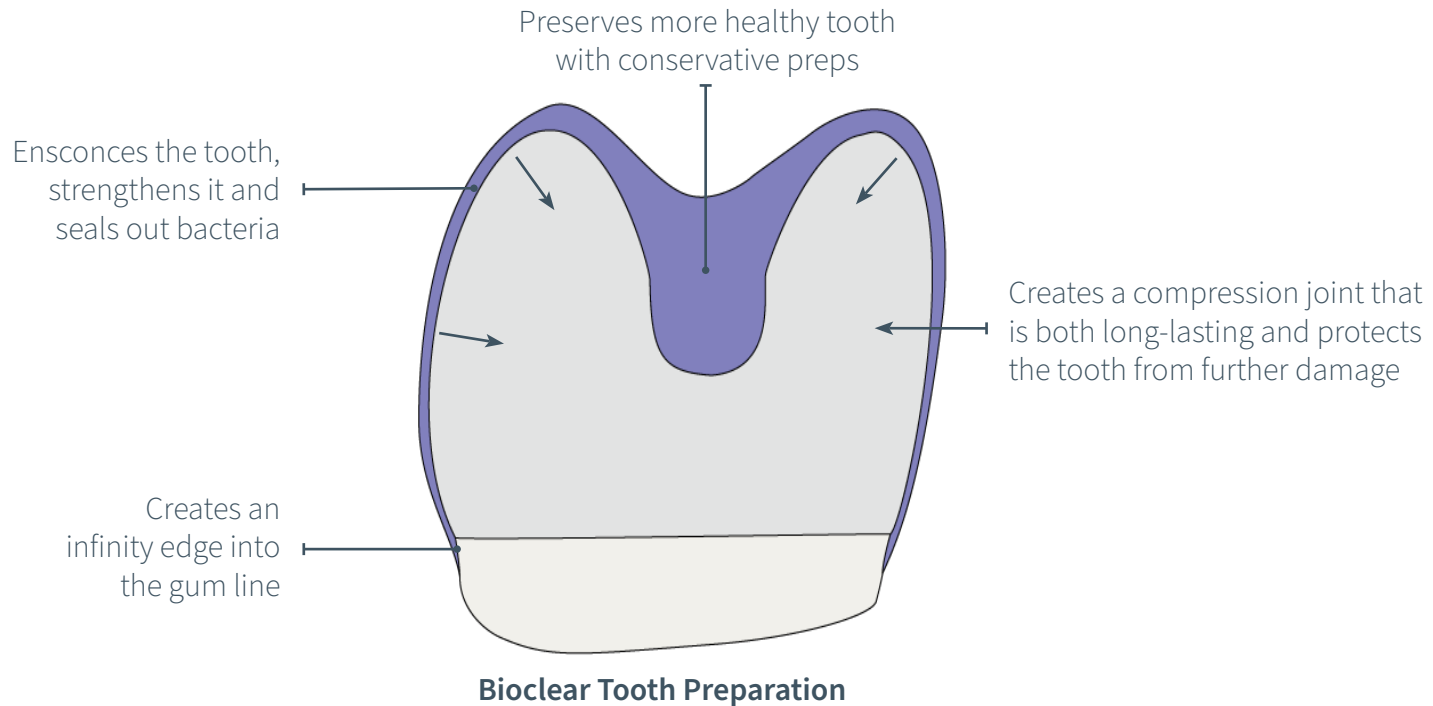
Traditional preparations inadvertently create **tension joints**. Tension causes tiny fractures in teeth over time, weakening them further. And that's because of the way cavity preparations are taught in dental schools.

When dentists moved from amalgam to white composite material, most did not transition to an appropriate modern prep, because the legacy was that we had to have this mechanical lock.



Bioclear ensconces the tooth creating compression joints

To this day, dentists are removing—again, inadvertently—more of the tooth than they need to for these composite restorations and creating a fracture-prone tooth-material complex.



BIOCLEAR VS. “FILLINGS”

In engineering, by definition the word filling implies a **tension joint**. This is why we devalue the term “filling,” preferring instead to use restoration.

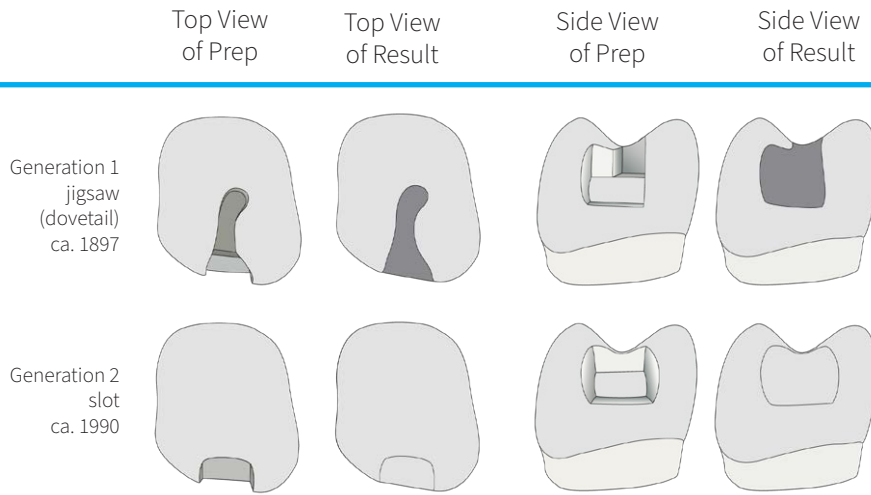
Instead, Bioclear restorations avoid tension altogether. It relies instead on **compression joints**, where forces push the two materials together.

In the case of third-generation Bioclear Class II preparations, for example, this compression comes from all sides, with injection-molded

composite resin completely enveloping the tooth. These restorations are thus said to be overlays. Smaller restorations use the Calla Lily preparation, a design that still shifts the forces from tension to compression.

Not only does compression shield the tooth from further damage, it also means less dentin needs to be removed for the restoration to stay. Patients retain more of their original tooth structure, and both it and the restoration will last much, much longer.

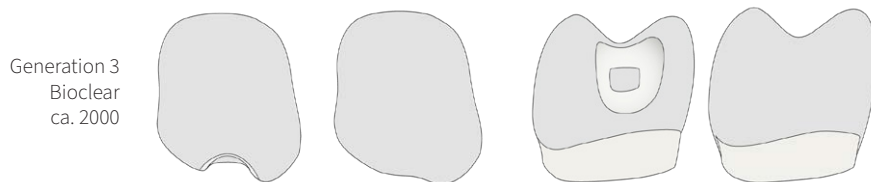
TRADITIONAL PREPARATION



Traditional Methods

- Require removal of otherwise healthy tooth structure, to create a mechanical lock
- Fillings sit in the prep, creating a **tension joint** between the tooth prep and the filling material
- **Tension joints** are prone to loosen and can create small fractures in the underlying tooth

BIOCLEAR PREPARATION



The Bioclear Method

- Conserves more tooth structure
- Composite ensconces the tooth, creating a **compression joint**
- Composite extends below the gumline creating an infinity edge with no seams
- **Compression joint** strengthens the tooth and protects it from further decay, damage or fracturing

SELECTIVE CARIES REMOVAL AND THE BIOCLEAR METHOD

(Modified Hall Technique)

The Modified Hall Technique is a new advancement in dentistry which is now beginning to be taught in dental schools. It is described as selective decay removal with the deep decay left near the nerve of the tooth. The tooth is then sealed from the oral environment.

If properly sealed, the pulp, (commonly referred to as the nerve of the tooth) with its good circulatory system, helping enzymes, antibodies, and calcification process, can heal the deep decay.

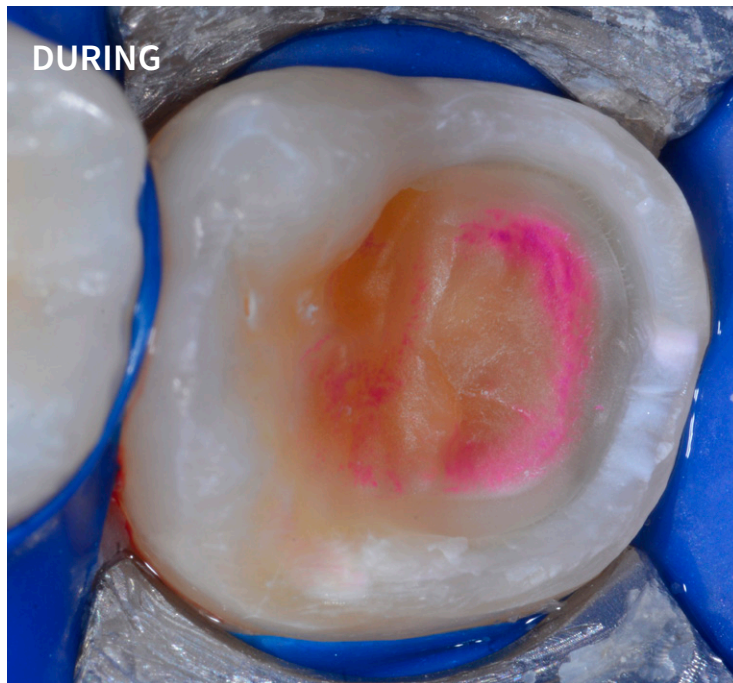
Within a few months, the tooth becomes hardened and essentially bacteria free. In other words, it becomes naturally healed dentin via the healing mechanisms of blood supply and tooth together.

With proper case selection, the success rates are shown at well above 90%.¹



Tooth prior to the Bioclear Method procedure

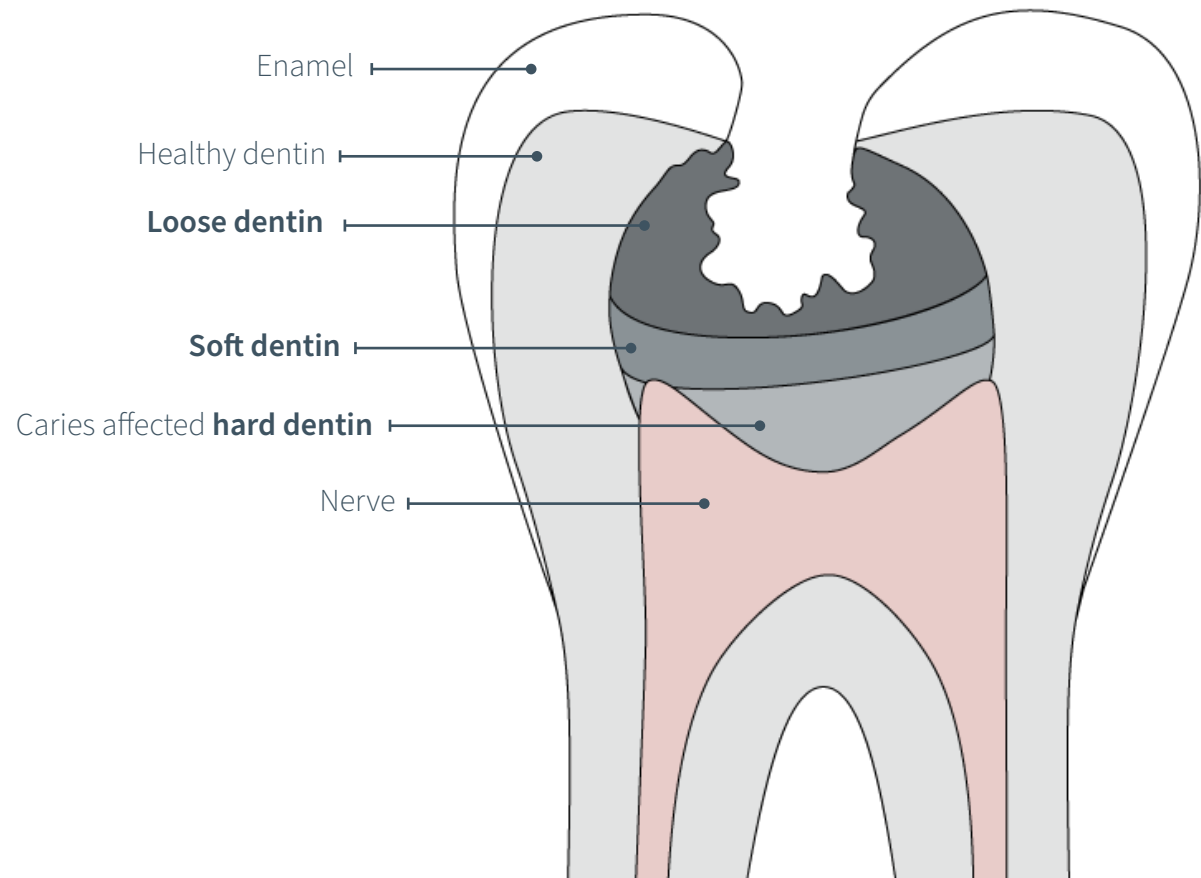
¹Long-term survival of indirect pulp treatment performed in primary and permanent teeth with clinically diagnosed deep carious lesions. Gruythuysen RJ, van Strip AJ, Wu MK. J Endod 2010 Dec;36(9):1490-3



Tooth after initial preparation



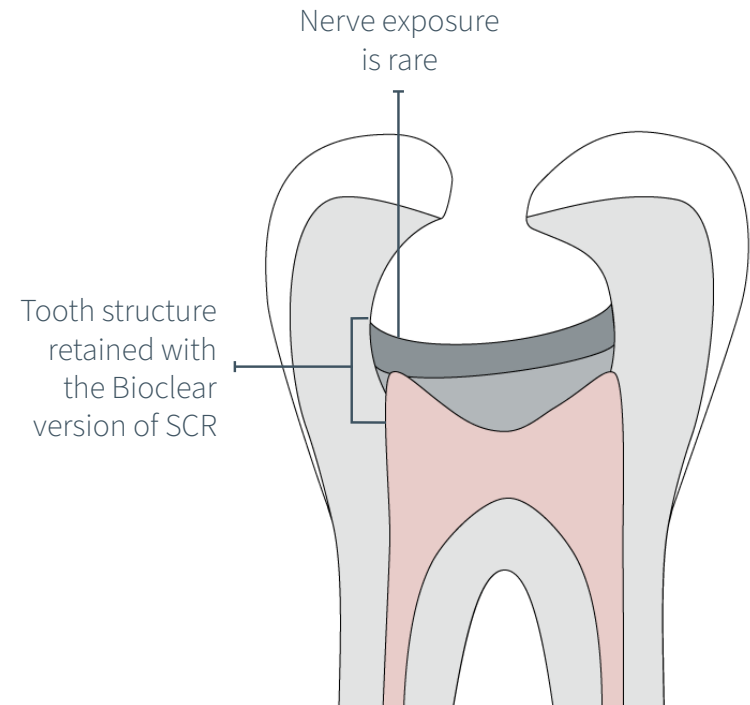
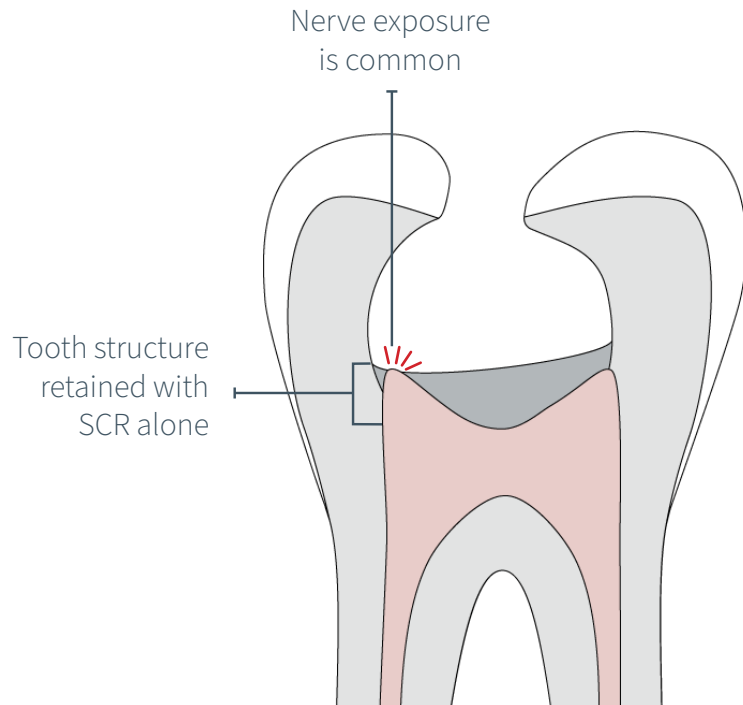
Bioclear result



REMOVING LESS DENTIN

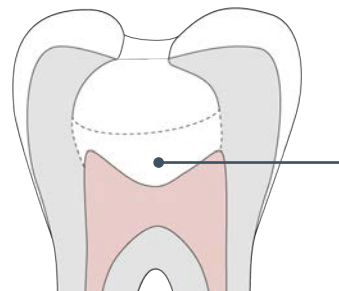
Using Selective Caries Removal (SCR), intact dentin—which in other methods would have been scraped away—becomes a layer of natural insulation between the composite and the nerve. This also virtually eliminates the chance of postoperative pain.

When properly sealed, the dentin will harden and the decay can heal, thanks to the pulp's incredible circulatory system—with its enzymes and antibodies—and the tooth's own calcification process.



Within a few months, the dentin will be hardened and essentially bacteria-free.

Not only does that conserve more of the underlying structure, but it means a younger, healthier tooth overall.



After Bioclear treatment the soft dentin and carries affected hard dentin will be healed

REJUVENATION AFTER DISASSEMBLY OF EXISTING RESTORATION

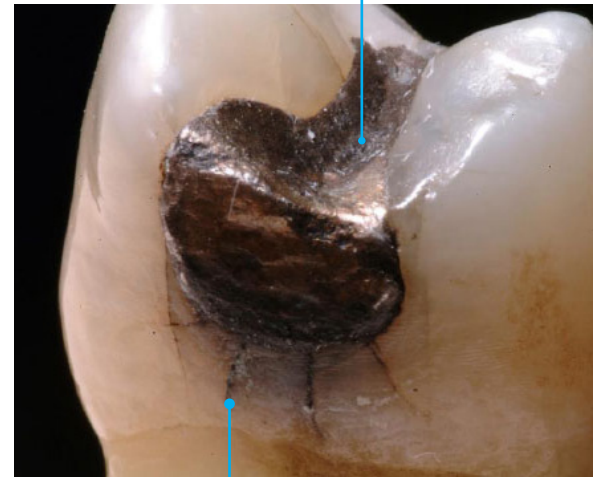
Existing restorations (typically old amalgam or layered composite) are removed and replaced with Bioclear overlay restorations. It is important to remove the old materials first, as a separate procedure, in order to ensure monolithic color uniformity and strength to the Bioclear restoration.

There are four reasons why patients and dentists will choose to disassemble an existing restoration and replace it with Bioclear:

- **Decay** is present beneath the existing restoration
- **Esthetics** are unappealing in existing restoration (stained, brown edges, etc)
- The existing restoration causes **pain** when chewing, or exposure to cold because the tooth is cracked
- High **risk of breakage** due to microscopic cracks

Pain is clearly an urgent indicator, but the last point is also important. Up to 70% of cracked teeth are asymptomatic. Therefore, we can take a proactive approach before it has symptoms and requires a root canal. Thus Bioclear is an outstanding preventative option that rejuvenates and strengthens the tooth.

Traditional fillings sit in a hollowed space of the tooth, creating a tension joint

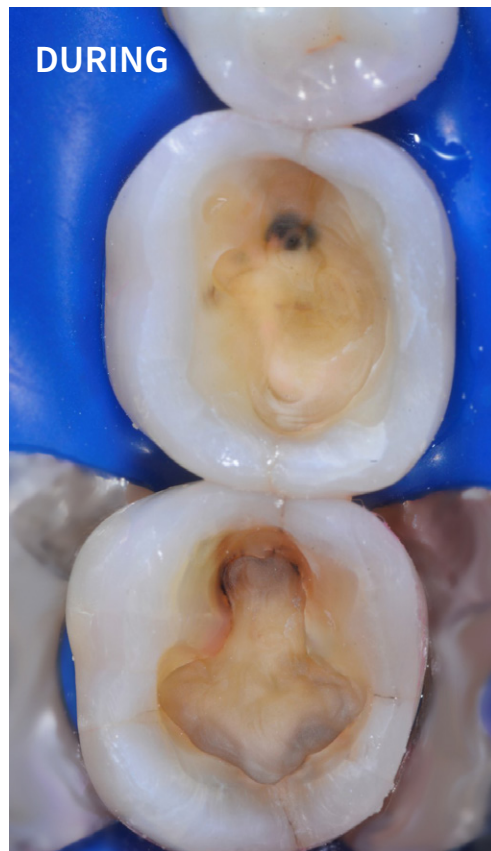


Tiny fractures in otherwise healthy tooth structure.





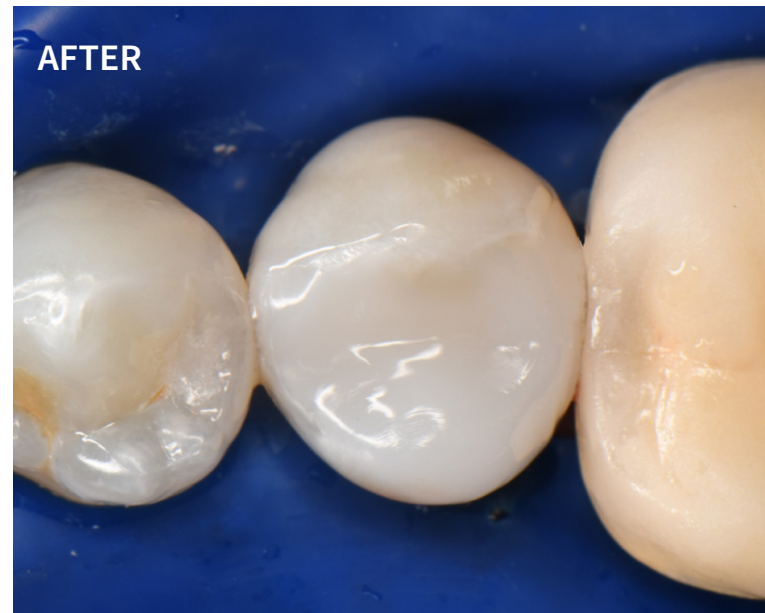
Teeth prior to the Bioclear Method procedure with the old restoration still in place



Tooth after initial preparation using the Calla Lily prep



Bioclear result



COMMON PATIENT QUESTIONS

How long will a Bioclear restoration last compared to a crown?

A better question is: Which option—a crown or a Bioclear restoration—will allow me to keep my tooth the longest?

The answer is: the Bioclear restoration. Bioclear provides the best chance to keep your natural tooth for a lifetime.

Why? Traditional crown preparations remove about 76% of the tooth. Bioclear's less invasive technique minimizes reduction of tooth structure and decreases the potential of future root canals or snap off fractures. As we age, crowned teeth later can require extraction. Bioclear offers an innovative option to avert this outcome.

Can I get decay under a Bioclear restoration?

Crowns rely on a glue which slowly deteriorates over time. When crowns fall off it is a very disruptive and frightening occurrence. Instead of cementing or gluing, Bioclear becomes essentially one with the tooth, similar to a shrink-wrapping process. Because the weak link is removed, Bioclear can more readily prevent decay.

Will my teeth look or feel bulky?

Bioclear is an additive procedure. Traditional methods of dentistry reduce your natural tooth structure to make space for the crown, veneer, or filling.

The Bioclear restoration overlays and ensconces the tooth. Your teeth may temporarily feel slightly thicker than your existing teeth due to the ensconcement of the composite around the tooth. Patients often comment that the teeth feel smoother and stronger after Bioclear.

Will Bioclear restorations stain?

Bioclear restorations are very resilient against staining. With that said, the Bioclear restoration may stain like your natural enamel. Smoking, heavy consumption of black coffee or dark juice can permanently stain natural tooth enamel and Bioclear restorations. We recommend that you drink a cup of water and brush your teeth after consumption or avoid these habits altogether.

If you do get surface stains, typically they can be polished away during a routine dental cleaning. Most patients making this type of investment in their smile maintain them regularly with cleanings and examinations with their local dentist.

How do I maintain Bioclear?

Avoid use of a cavitron or electronic scaler on Bioclear restorations. Hand scaling is acceptable. Use low abrasive toothpaste in lieu of traditional prophylaxis paste. Final buff with Bioclear diamond impregnated Rockstar Polisher.

Note: Patients can order a maintenance kit through Bioclear website.

Why doesn't every dentist use Bioclear?

The Bioclear Method is gaining in popularity and is now being taught in several dental schools. Major changes in dentistry and medicine often take many years to reach all doctors. However, the patient-centered results speak for themselves. Bioclear is catching on around the world.

What's the difference between the Bioclear Method and Bioclear Matrix?

The word Bioclear refers to both a method and its related tools and materials. Dr. David Clark is the inventor of both the Bioclear Matrix and the Bioclear Method.

Matrices aren't new to dentistry, but the Bioclear Matrix is the only one designed to look like a real tooth. It requires less sanding and polishing, and results in a better patient experience and superior results.

The Bioclear Method can be learned by any dentist who is already skilled at restorations and dentists can become certified in a range of specific applications. And it does require learning: the Bioclear Method is based as much on principles of structural engineering and state-of-the-art materials science as on traditional dental tools and techniques.

GLOSSARY OF REJUVENATING BIOCLEAR RESTORATIONS

Bioclear Black Triangle Closure

Closes negative space between teeth and rejuvenates the tooth to its youthful appearance.

Patients seek treatment of black triangles for many reasons that include:

- Esthetics—Black triangles prematurely age the smile
- Elimination of painful and or socially embarrassing areas of food impaction
- To reduce looseness of the tooth (provide orthodontic stability). “Point contacts” (or very narrow areas of contact between teeth) predispose teeth to movement and possible orthodontic relapse. The broad contacts created with Bioclear lock the teeth into the correct position
- Black Triangle closure is a side benefit when restoring another area of the tooth such as a chipped or worn incisal edge

Bioclear Root Overlay

Covers areas of recession and root abrasions. The Root Overlay is the transition of the Bioclear Black Triangle/ Bioclear 360° Veneer Overlay to the root without leaving a size discrepancy in the presence of recession and root abrasions.

Bioclear Diastema Closure

Placed when the open contacts and/or open spaces on either side of the tooth are too large to allow the Bioclear Black Triangle, or Bioclear 360 Veneer Overlay restoration alone to close the space.

Bioclear Peg Lateral Overmolding or Treatment

Another common dislike among patients is undersized laterals (or peg laterals). This is where the tooth has not grown to its full capacity, leading to an uneven smile. Combining the Bioclear Method with the excellent quality of shaded composite materials, these teeth can be built up to reveal an esthetically pleasing and symmetrical smile.

Bioclear 360° Veneer Overlay

Rejuvenates tooth to its youthful appearance, treats worn edges, corrects negative space, masks color, wraps 360° ensconcing the entire tooth.

Bioclear Posterior Overlay

Including the Calla Lily Prep, Flattened Calla Lily, and Full Cuspal Overlay

The Bioclear Posterior Overlay ensconces the entire tooth, prevents fracturing in weak and cracked teeth, and rejuvenates the tooth appearance, color, and volume. This technique can be used to treat Class I and Class II problems including: replacement of a failed restoration, an incomplete fracture, severe decay, a fully fractured tooth, broken cusp, failing restorations, or when adding volume (opening the vertical dimension).

Treatments used in Bioclear Posterior Cases:

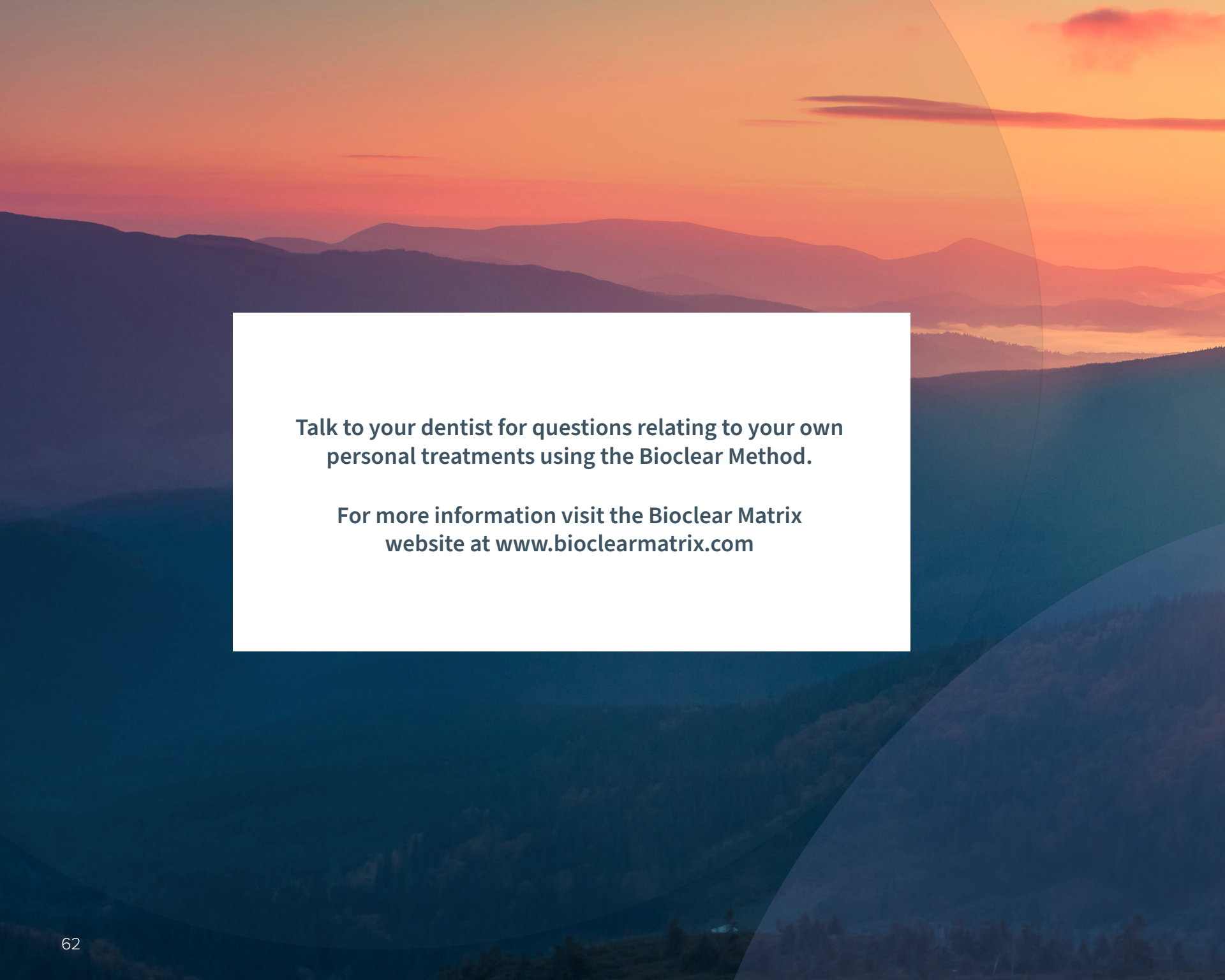
- **Bioclear SCR**

SCR (Selective Caries Removal) is a new advancement in dentistry. SCR is described as selective removal of deep decay left near the nerve of the tooth.

The tooth is then sealed from the oral environment. When properly sealed, the pulp's circulatory system, healing enzymes, antibodies and calcification process can heal the deep decay. Within a few months, via the healing mechanisms of blood supply and tooth together, the essentially bacteria-free dentin will be hardened.

- **Disassembly of Existing Restoration**

Existing restorations (typically old amalgam or layered composite) are removed and replaced with Bioclear overlay restorations. It is important to remove the old materials first in order to ensure monolithic color uniformity and strength to the Bioclear restoration.



**Talk to your dentist for questions relating to your own
personal treatments using the Bioclear Method.**

**For more information visit the Bioclear Matrix
website at www.bioclearmatrix.com**





bioclearmatrix.com