



**MODERN**  
Dental Laboratory Canada

**TRIO**  
CLEAR

PRODUCT GUIDE

# Let Your Smile Shine







## About TrioClear™

The orthodontic and clear aligner industry has experienced rapid development over the past few years. TrioClear is the groundbreaking design of clear aligners that innovates and improves the orthodontic treatment process. TrioClear aligners are nearly invisible and straighten teeth using multiple sets of custom-made aligners, which are designed to gently move teeth into their ideal position.

We aim to provide clinicians with a predictable and economical aligner solution while minimizing chair time. TrioClear only works with dentists, as we believe all orthodontic treatment requires a dental professional to achieve optimal results.



# Why TrioClear

TrioClear is an innovative, progressive two-step clear aligner solution designed to transform your patients' smile. Our new triple-layered material provides enhanced comfort, improved stain and tear resistance, and increased force retention. Combined with the TrioDim Force Technology, TrioClear aligners stay in place with minimal attachments, offering a unique and comfortable solution that improves workflow and saves chair time. Using our clinical simulation software, TrioClear accurately enables you to predict alignment and movement.

Most importantly, our treatment plan puts patient safety first. We safely design teeth progression for mild to moderate cases. Moreover, our trays are made of nearly invisible medical-grade materials and are BPA-free.



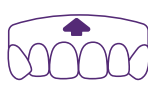
Progressive Two-Step Solution



TrioDim Force™ Technology



Minimal Attachments



Increased Gingival Coverage



Pressed Buttons



Bisphenol-A Free



TrioClear iDesign Software

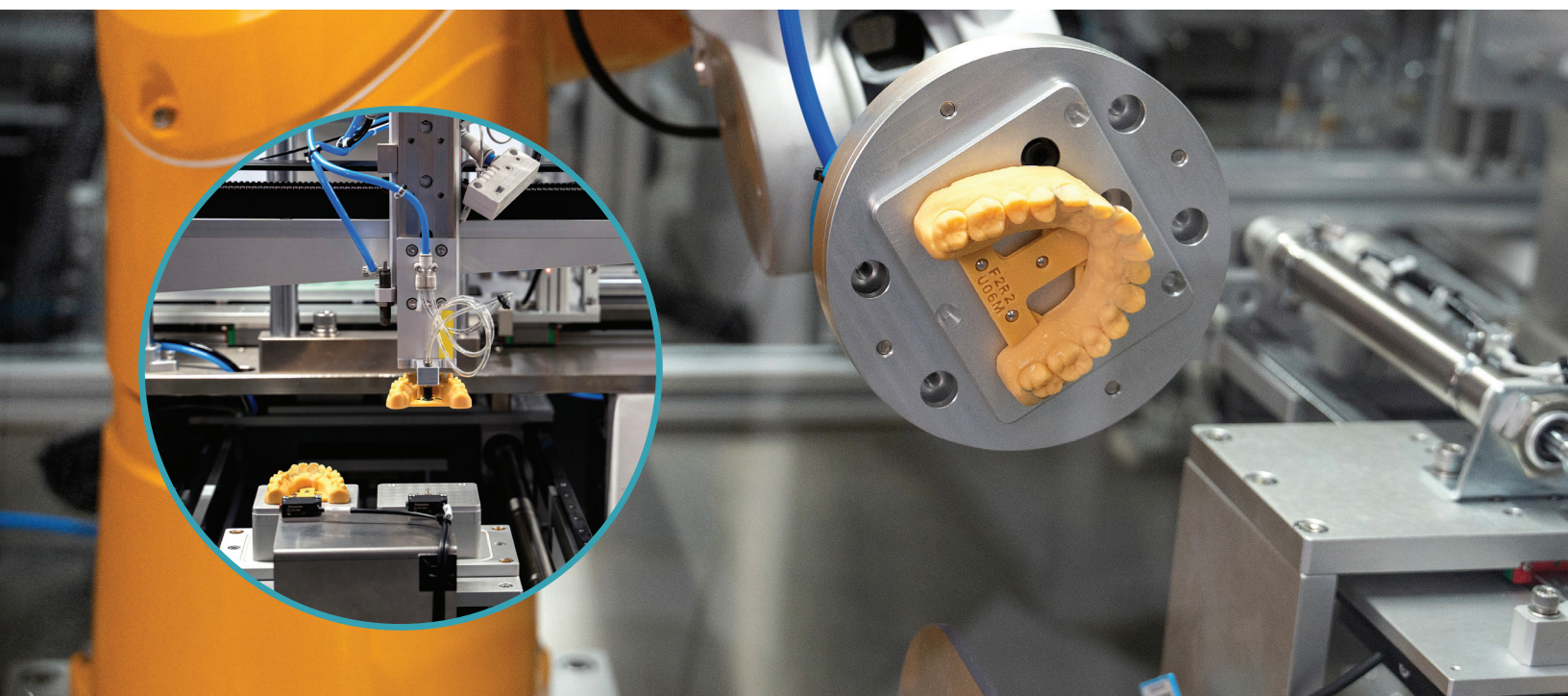


TrioClear™ started in 2018 in response to doctors looking for a predictable, yet affordable aligner system. With innovative design features and flexible parameters, we aim to keep chair time to a minimum.



# Fully Automated Production Line

TrioClear is produced on a 24-hour, fully automated production line. This state-of-the-art production system dramatically improves and maintains our clear aligner production's consistency, accuracy, efficiency, and quality.



## Batch Aligner Production

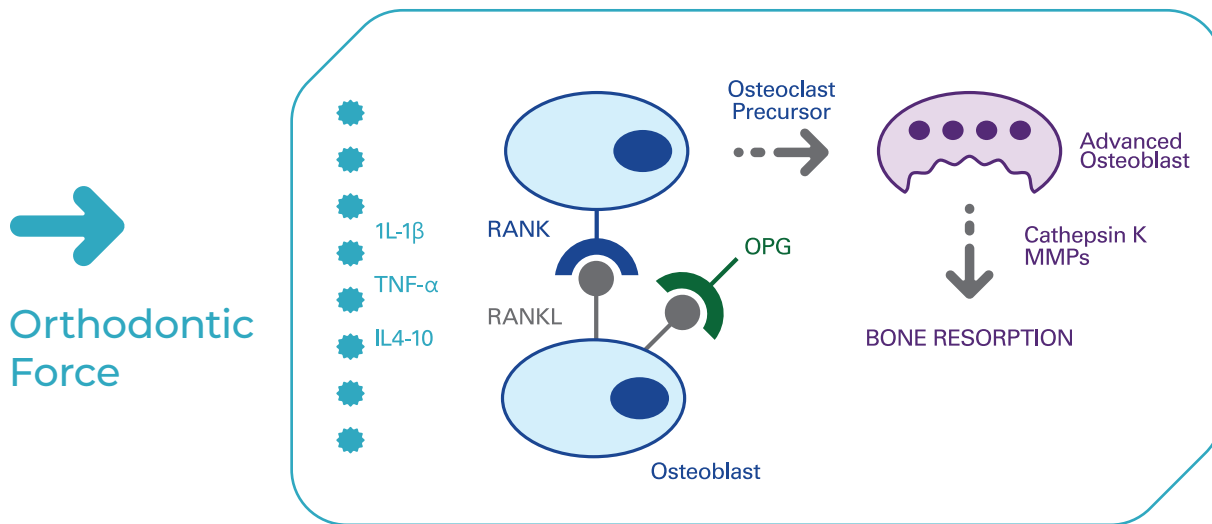
Traditionally, aligners are produced all at once based on the treatment plan simulation, leading to a lot of plastic waste when mid-course refinements are needed. Instead of manufacturing an entire set of aligners upfront, TrioClear™ focuses on producing only the aligners necessary for each specific stage of treatment; this significantly reduces the number of aligners created and minimizes plastic waste.

As a result, doctors can manage their inventory more effectively, saving valuable storage space in clinics and reducing clutter. This method also aligns with environmental sustainability efforts, as it decreases the overall consumption of plastic materials, ensuring a beneficial outcome for doctors and our planet.





# How TrioClear Works



Studies show that direct bone resorption is associated with light force application, allowing vascular potency. Indirect resorption is associated with heavy forces that cause crushing injury to the periodontal ligament (PDL) tissues and cell death<sup>1</sup>. Intermittent low force (<0.3N/cm<sup>2</sup>) results in an inflammation process in the PDL, which leads to tooth movement via minimal root resorption compared to a continuous force. Further studies have shown that forces between 0.20-0.26N/cm<sup>2</sup> allow blood supply to be maintained, resulting in less cell damage and less root resorption<sup>1</sup>.



## Two-Step Clear Aligner Solution With Progressive Aligner Thickness

A single-material aligner system with the same thickness for all aligners can result in forces that are sometimes too great for individual teeth, increasing the likelihood of root resorption and unpredictable movements. In TrioClear, every tooth movement step comprises one soft and one hard aligner. Using a soft aligner for every movement helps ensure that the



Two-Step Clear Aligner Solution With Progressive Aligner Thickness forces initially expressed are low, before finishing the final movement with a hard aligner. Elkholy and Lapatki concluded that using a sequence of progressively thicker aligners substantially reduces the force values exerted and ensures a constant load increase for each setup step<sup>2</sup>.





Treatment time is unaffected because of TrioClear's ability to accomplish a more extensive range of movement than a single-thickness aligner system. This principle of alternating between soft and hard aligners ensures a perfect range of orthodontic forces. The light force and subsequent force reactivation are comparable to the principle of leveling and alignment in fixed appliance therapy<sup>1</sup>.

The unique Progressive Force Concept has made orthodontic teeth movements predictable.

		Days per Step*	Aligner Thickness	Benefits
	Soft	7 days	0.5mm	<ul style="list-style-type: none"> <li>• Eases the patient in with greater comfort, less pain</li> <li>• Flexible, easy to insert and gently remove</li> <li>• Stretches ligaments</li> <li>• Stimulates bone remodeling</li> </ul>
	Hard	7 days	0.7mm	<ul style="list-style-type: none"> <li>• Further rigidity finishes programmed movement</li> <li>• Holds teeth in place while remodeling progresses</li> <li>• Survives longer without material distorting or weakening</li> <li>• Protects against micro-relapse</li> </ul>

\* Each step's changing time may vary at the dentist's discretion, subjected to good compliance and fit as the patient progresses.

Reference:

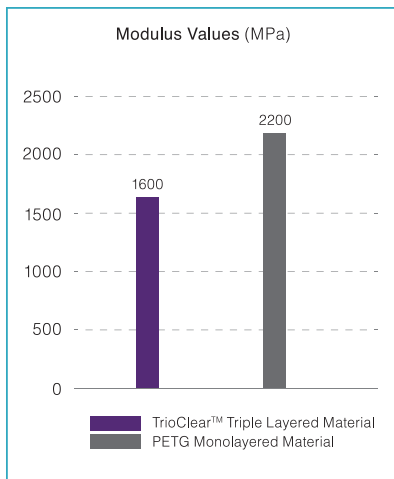
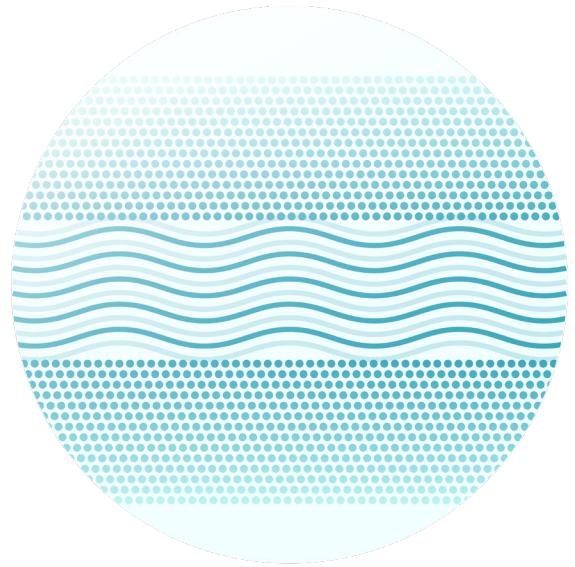
- Schupp, W., & Haubrich, J. (2023). Aligner Orthodontics and Orofacial Orthopedics (2nd ed.). Quintessence Publishing.
- Elkholy, F., & Lapatki, B. G. (2018). Recommendation of a novel film-thickness sequence, 0.4, 0.5 and 0.75 mm, for aligner systems. Journal of Aligner Orthodontics, 2(4), 295–304.





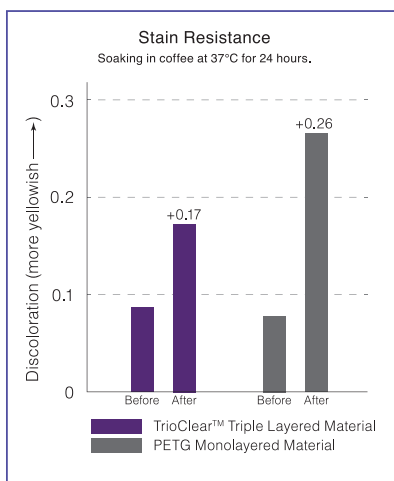
## Triple-Layered Material

TrioClear's triple-layered material allows greater comfort, elastic force retention, and stain and tear resistance performance than the traditional PETG monolayered material in many other aligner systems.



### 1. Degree of Comfort:

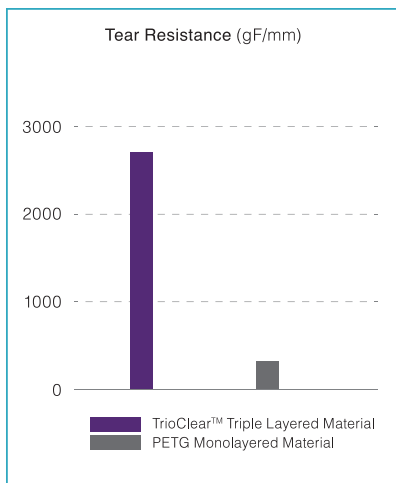
Studies show that the new material has a balanced modulus, enabling more precise tooth movement while providing additional comfort.



### 2. Stain Resistance:

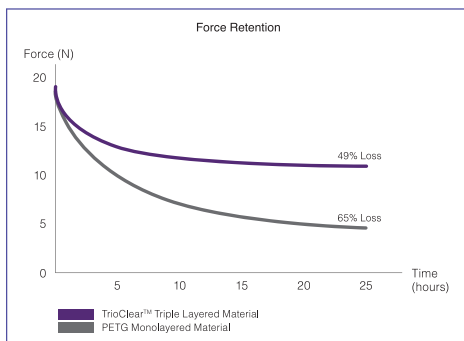
The stain-resistant performance of the new material compared to the monolayered material is much greater; therefore, TrioClear aligners become less discolored than other brands.





### 3. Tear Resistance:

The triple-layered material with elastomers improves the tear-resistant properties, giving the material additional durability and robustness than other monolayered materials.



### 4. Force Retention:

The new material provides better force retention, which means it can exert orthodontic force over an extended period; this dramatically improves the predictability of planned tooth movements as the material continuously generates orthodontic forces over an extended period of time.



**Scan to discover the stain challenge video**

and see how our triple-layered material resists everyday stains.

**TrioClear**



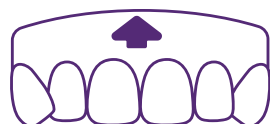
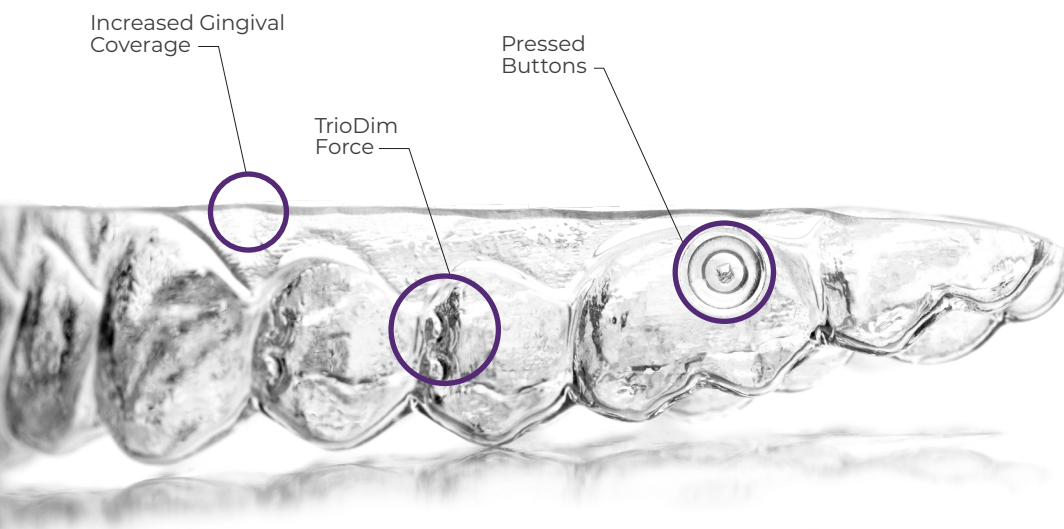
High Stain Resistance

**Other Aligner Brands**



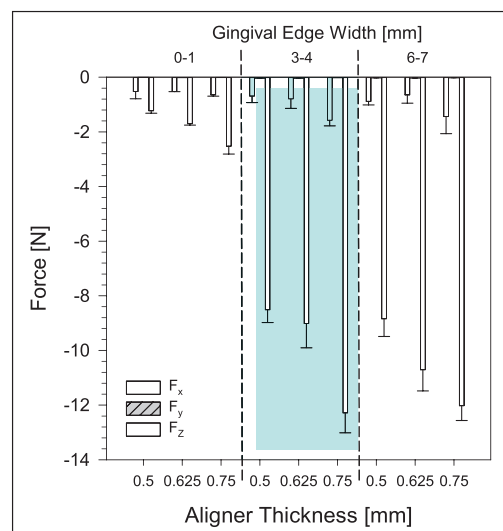
Low Stain Resistance





## Increased Gingival Coverage

Extended gingival coverage allows a larger area to be covered by the aligners, particularly for teeth with short crown height. The margins of the aligners are also less visible to others since they are placed deeper from the zenith of each tooth, making the aligners more esthetic, particularly for patients with varying lip line positions. Studies have shown that having the margin of the aligner cover the gingiva increases retention compared to clear aligners with margins that follow the scallop of the teeth<sup>3</sup>. Furthermore, studies have also shown that coverage of the gingival edge increases orthodontic forces by an acceptable amount.



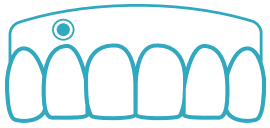
Aligners which have the margins around 3mm past the gingiva have been shown to produce a larger movement force compared to aligners without gingival coverage.

The increased gingival coverage allows room for pressed buttons directly on every aligner, saving doctor's chair time without the need to bond and avoiding the risk of debonding. However, we also understand that non-gingival coverage aligners are beneficial for some situations. Therefore, TrioClear™ allows doctors to choose scalloped margins on request.

#### Reference:

3. Lixia Gao and Andrea Wichelhaus (2017) Forces and movements delivered by the aligner to a maxillary central incisor for palatal tipping and intrusion. The Angle Orthodontist: July 2017, Vol. 87, No. 4, pp. 534-54



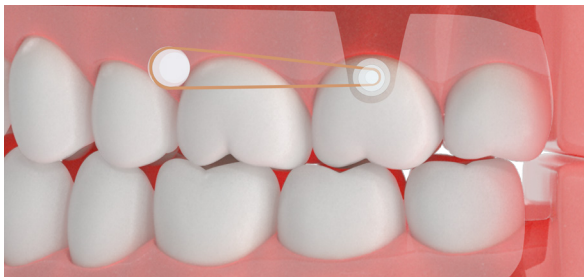


## Pressed Buttons Directly on the Aligners

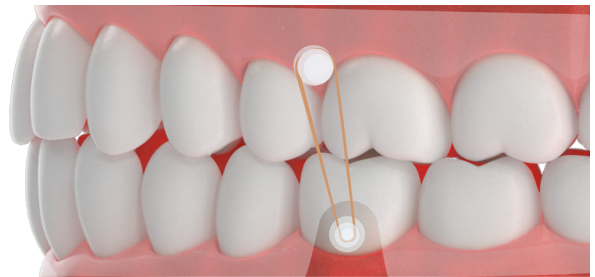
Buttons are directly pressed on TrioClear aligners to work with elastics and auxiliaries. Therefore, there is no risk of debonding compared to placing buttons directly on the teeth; this reduces unnecessary emergency patient visits and saves chair time. Furthermore, different biomechanics are possible with buttons pressed at the gingival-covered area of the aligners. Additional cutouts and engagement hooks on the aligners are also possible for specific tooth movements.

### Clinical Applications of Pressed Buttons

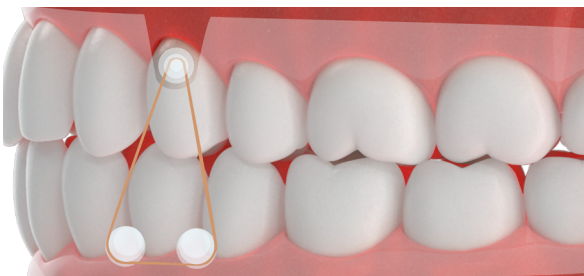
With the integration of pressed buttons on TrioClear aligners, doctors can effectively address clinical applications. These innovative features enhance treatment versatility, enabling precise tooth movement and improving orthodontic outcomes.



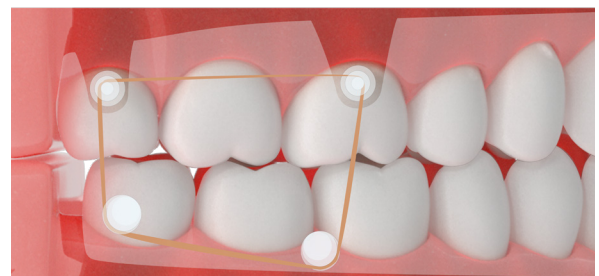
Retraction Elastics



Vertical Elastics



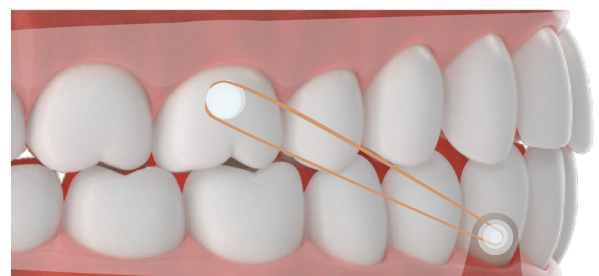
Triangular Elastics



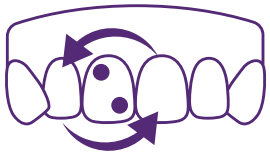
Box Elastics



Class II Elastics



Class III Elastics



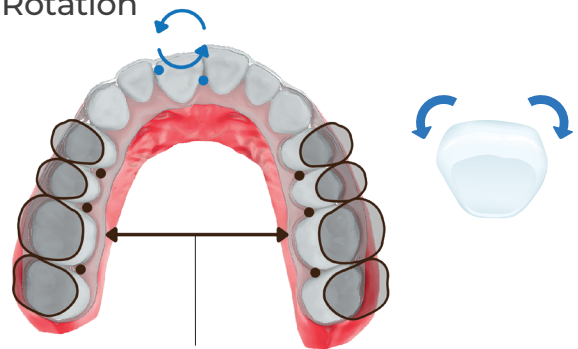
## TrioDim Force Technology

The TrioDim Force technology is implemented in all TrioClear cases by our experienced technicians. Depending on the specific movement required, our dental technicians will design the divot at particular locations according to the TrioDim Force principles. Every divot is measured and placed with special instruments to ensure the precision of the location. Below is a simple summary of different movements and the corresponding area of the divots.

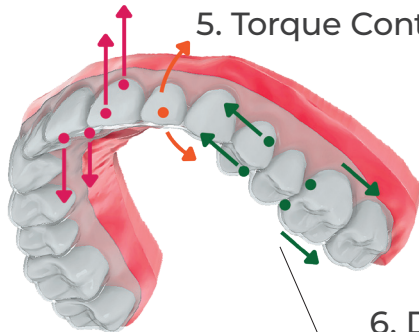
### 1. Tip Control



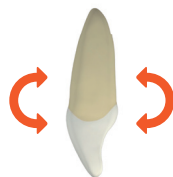
### 2. Rotation



### 4. Proclination & Lingualization

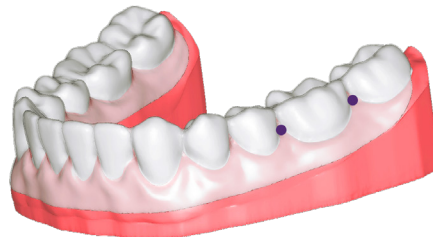


### 5. Torque Control

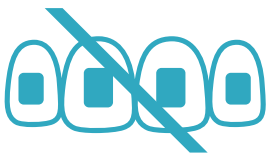


### 3. Expansion

### 7. Retention



### 6. Distalization & Mesialization



## Minimal Attachments

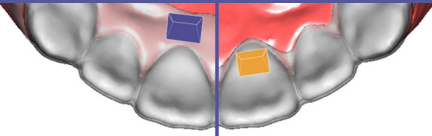
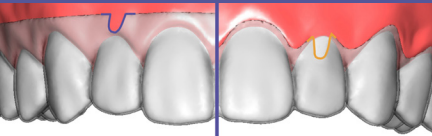
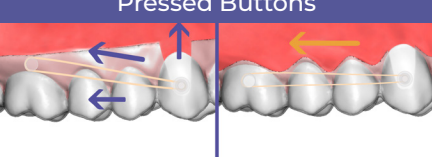
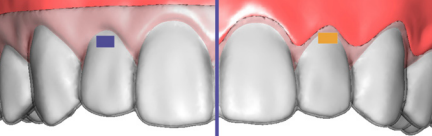
TrioClear can achieve an esthetic result while saving your precious chair time. Attachments and bumps used in other clear aligner cases consume valuable clinical time, as the clinician must reapply them when they dislodge. Additionally, they are easily stained, and excessive flushing of the attachments can sometimes cause a non-ideal fit of the aligners. Due to TrioDim Force, TrioClear can use minimal attachments and still generate predictable and effective results.



# Advanced Capabilities of Aligners

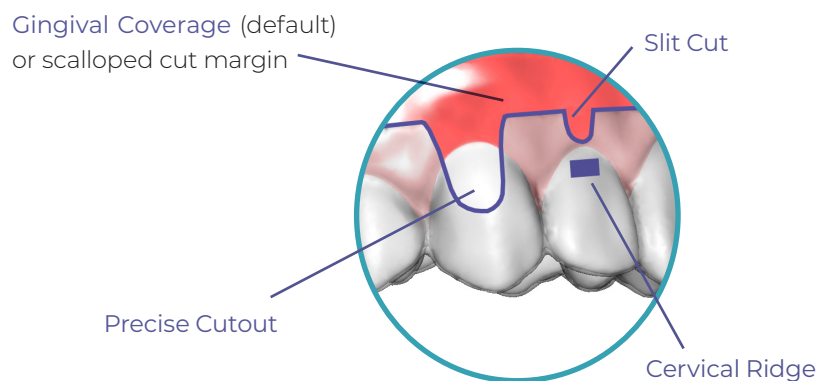
## Enhancing Efficacy With Gingival Coverage

The gingival coverage facilitates the precise placement of essential features such as bite blocks, slit cuts, and direct aligner buttons, ensuring improved retention and performance of the aligners. By utilizing this approach, doctors can enhance the overall effectiveness of clear aligner treatment, ultimately leading to better patient treatment outcomes.

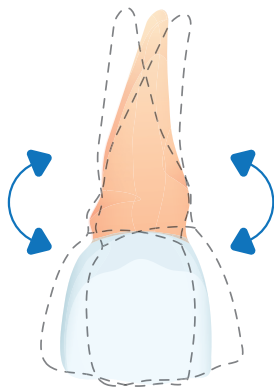
TrioClear With Gingival Coverage	Other Aligner Brands With Scalloped Cut Margins
Extended area for anterior bite block placement.	<p><b>Bite Blocks</b></p>  <p>There is less area and flexibility for the placement of bite blocks.</p>
Slit cuts for elastic engagement can be higher, allowing aligners to have full buccal coverage.	<p><b>Slit Cuts</b></p>  <p>Slit cuts will compromise the full buccal coverage of the aligner. Does not allow concurrent attachment on the same tooth.</p>
Pressed buttons can be applied higher on the gingival area, allowing more flexibility in exerting vertical vector force without the use of TADs.	<p><b>Pressed Buttons</b></p>  <p>Less flexibility in exerting vertical vector force or temporary anchorage devices (TADs) are required.</p>
With gingival coverage, the stability of the cervical ridges for root torque comfort is improved.	<p><b>Cervical Ridges</b></p>  <p>With a scalloped cut margin, cervical ridges are easily deflected outwards, losing force pressure.</p>

## Multiple Features Allowed Vertically

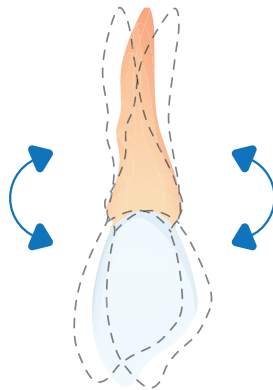
TrioClear is tailored to fit more than two features without any deterioration in the fit of the aligner—for example, a slit cut and a cervical ridge on the same tooth.



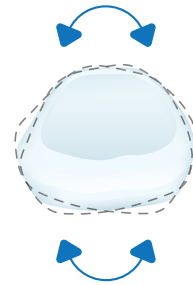
# Maximum Tooth Movement (per step)



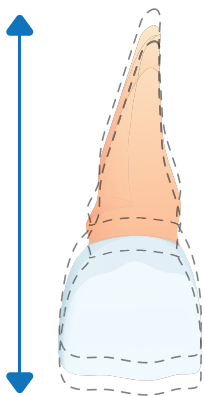
Tip Control  
max. 1.5°



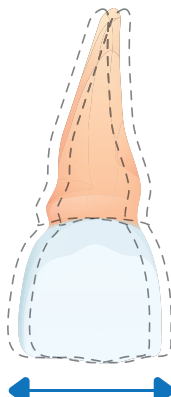
Torque Control  
max. 1.5°



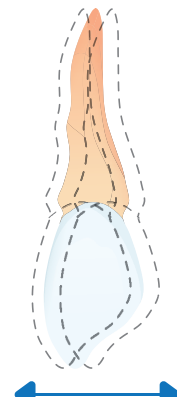
Rotation  
max. 2°



Intrusion / Extrusion  
Anterior: max. 0.15mm  
Posterior: max. 0.10mm



Distalization / Mesialization  
max. 0.25mm



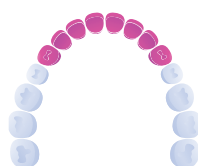
Protrusion / Lingualization  
max. 0.25mm



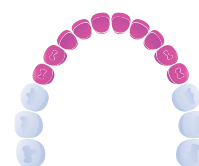
# Treatment Plan Options



FLEX



SIMPLE



TOUCH-UP

Number of Steps

8

Up to 14

Up to 20

Recommended Movement

By recommendation

4-4

5-5

## Refinement

Refinement Definition

To redesign the treatment plan with updated impressions. Photos and comments may be requested.

Free Refinement Quota

within the Free Refinement Expiration Period

N/A

1 time

2 times

Free Refinement Expiration Period\*

N/A

1 year

2 years

Case Expiration Period\*

1 year

2 years

3 years

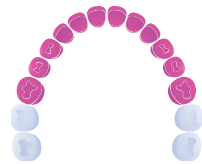
Treatment Cases

- Orthodontic Relapse
- Minor Tooth Movement
- Diastema Closure
- Pre-restoration Space Preparation

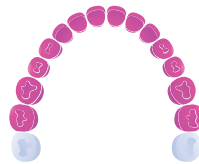
- Orthodontic Relapse
- Minor Tooth Movement
- Diastema Closure
- Pre-restoration Space Preparation

- Spacing and Mild Crowding
- Deep Bite: < 2mm
- Open Bite: < 1mm
- Midline Discrepancy: < 2mm
- Cross Bite: < 1mm

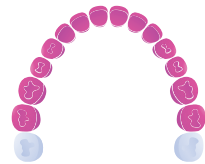
# Treatment Plan Options (cont.)



TOUCH-UP PLUS



ULTRA



COMPLETE

Number of Steps	Up to 28	Up to 40	Unlimited
Recommended Movement	6-6	7-7	7-7

## Refinement

**Refinement Definition** To redesign the treatment plan with updated impressions. Photos and comments may be requested.

### Free Refinement Quota

within the Free Refinement Expiration Period

2 times

3 times

Unlimited

### Free Refinement Expiration Period\*

2 years

3 years

5 years

### Case Expiration Period\*

3 years

4 years

5 years

### Treatment Cases

- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li>• Spacing and Mild Crowding</li> <li>• Deep Bite: &lt; 3mm</li> <li>• Open Bite: &lt; 2mm</li> <li>• Midline Discrepancy: &lt; 3mm</li> <li>• Cross Bite: &lt; 2mm</li> </ul> | <ul style="list-style-type: none"> <li>• Extraction Case</li> <li>• Distalization Movement: &lt; 3mm</li> <li>• Deep Bite: &lt; 4mm</li> <li>• Open Bite: &lt; 3mm</li> <li>• Midline Discrepancy: &lt; 4mm</li> <li>• Cross Bite: &lt; 3mm</li> </ul> | <ul style="list-style-type: none"> <li>• Extraction Case</li> <li>• Distalization Movement: &lt; 3mm</li> <li>• Deep Bite: &lt; 4mm</li> <li>• Open Bite: &lt; 3mm</li> <li>• Midline Discrepancy: &lt; 4mm</li> <li>• Cross Bite: &lt; 3mm</li> </ul> |
|--|--|--|





## Trio iDesign 2.0 Software

Our Trio iDesign simulation software offers clear visualization from various viewing angles and stages, providing dentists with a comprehensive view. Each treatment simulation design has an external link for sharing with colleagues or patients.

The simulation software is readily available on mobile devices for easy and convenient access.



Scan to discover the  
Trio iDesign 2.0 video



### Other Aligner Brands

1. DOES NOT COVER GINGIVA
2. HIGH RELIANCE ON ATTACHMENTS
3. METAL BUTTON ON TEETH
4. STAINS EASILY

### TrioClear

1. **INCREASED GINGIVAL COVERAGE**  
Increased control of orthodontic force and provides extra protection to teeth movements
2. **TRIODIM FORCE DIVOTS**  
Facilitates individual tooth movement to the ideal positions without attachments
3. **PRESSED BUTTONS ON ALIGNERS**  
More comfortable and avoids scratched gums and ulcers during eating
4. **MINIMAL ATTACHMENTS**  
Reduces chair time and increases esthetics

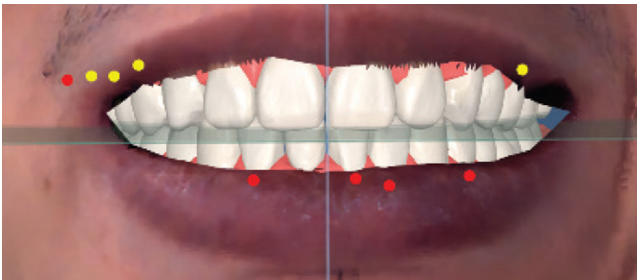
# Unleashing the Power of the 3D Face Simulation

Trio iDesign is an advanced web-based 3D simulation software that transforms the way you view, modify, and approve TrioClear treatment plans. Experience our groundbreaking new features in Trio iDesign 2.0. It seamlessly integrates face scans and CBCT into the planning process. Our software offers a comprehensive and realistic treatment planning experience by incorporating scans from compatible scanners. Make informed decisions and tailor treatments for optimal results.



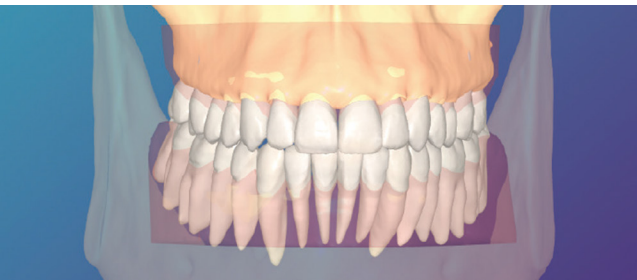
## 3D Face Visual Display

Now, you can visualize the patient's facial structure in three dimensions, allowing for a more comprehensive understanding of their unique anatomy.



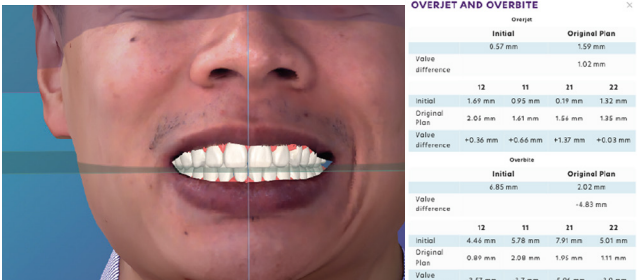
## MDI (Movement Difficulty Indicators)

With this groundbreaking feature, our software identifies potential movement challenges during treatment. By analyzing the patient's specific case, MDI enables you to anticipate and address any difficulties, ensuring a smoother and more effective treatment experience.



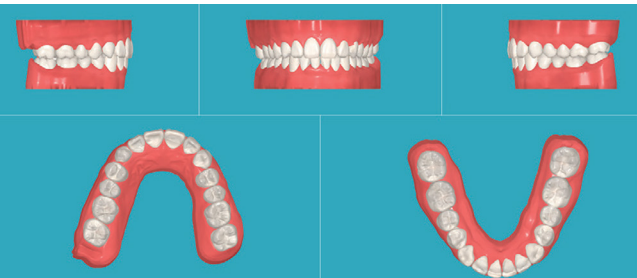
## Jaw Bone and Tooth Roots Display

Experience a detailed visualization of the jaw bone and tooth roots, providing invaluable insights for accurate treatment planning.



## Overjet/Overbite Analysis

Trio iDesign 2.0 comprehensively assesses the patient's overjet and overbite, allowing you to plan and execute corrective measures precisely. Enjoy the confidence of a balanced and functional bite.



## Combination View

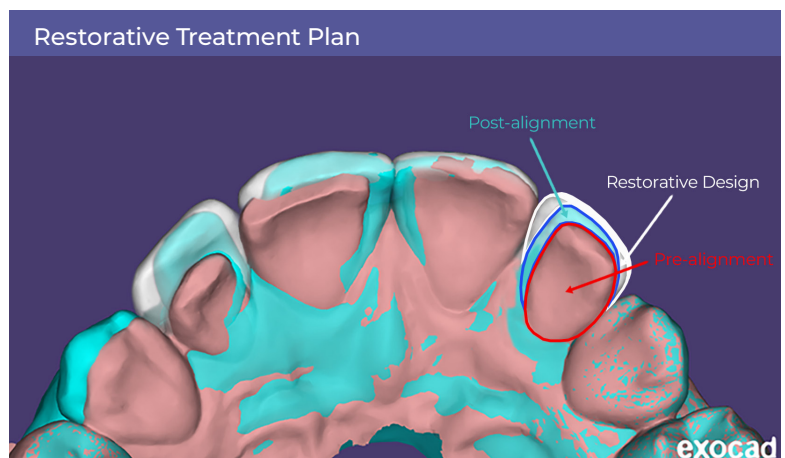
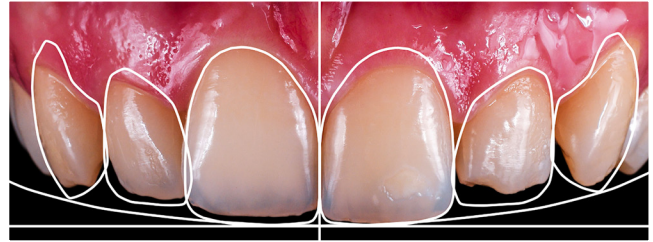
By seamlessly merging various scans and diagnostic images, our software offers a comprehensive overview of all essential angles in one window. This integrated view allows for complete analysis and easy patient communication.



# Integrative Smile Design

## One Stop Solution: Integrating Restorative Treatments With TrioClear

Achieving optimal esthetics in restorative dentistry while minimizing invasiveness is challenging. Pre-restorative clear aligner therapy enhances treatment planning by aligning teeth and reducing the need for extensive procedures<sup>4</sup>. TrioClear offers this innovative approach through our Submission Portal, allowing effective integration of clear aligner therapy with restorative options. Our portal streamlines communication and planning, enhancing productivity and reducing chair time while connecting doctors to restorative products from Modern Dental Canada.



Side-by-side comparison of the clear aligner treatment plan and the actual restorative treatment plan.

## Combined Orthodontic and Restorative Treatment

### Predictable Treatment Outcomes

Accurate planning and monitoring helps achieve orthodontic and restorative goals effectively.

### Optimized Restoration Placements

Pre-restorative alignment enables ideal tooth positioning, ensuring the equal and proper thickness of future ceramic restorations without compromising esthetics.

### Minimally Invasive Approaches

This integrative strategy preserves healthy tooth structure, reducing extensive procedures and chair time.

### Enhanced Esthetic Outcomes

Well-aligned foundations from clear aligners lead to more predictable and visually satisfying cosmetic results.

Reference:

4. Korkut, B., Unal, T., Murat, N., & Özcan, M. (2023). Effect of pre-restorative short-term clear aligner therapy in restorative treatment planning. The Journal of Prosthetic Dentistry. <https://doi.org/10.1016/j.prosdent.2023.02.024>



## **BPA<sup>FREE</sup>** Bisphenol-A Free Material

TrioClear aligners and retainers are made of environmentally friendly materials. It is thermoformable and vacuum-formable to make aligners and retainers more durable and less likely to crack. In addition, TrioClear products do not contain Bisphenol-A (BPA), a potentially harmful chemical, to ensure patients are safe when using them in their daily lives.



## Next Step: Ecodont™ Retainer

Ecodont Retainers are BPA-free orthodontic appliances. Each order includes 3 sets, a 3-month warranty, and a retainer case. Ecodont Retainers are 1.0mm thick and use the strongest triple-layered material among all TrioClear products.

**BPA<sup>FREE</sup>**

Bisphenol-A Free



Triple-Layered Material



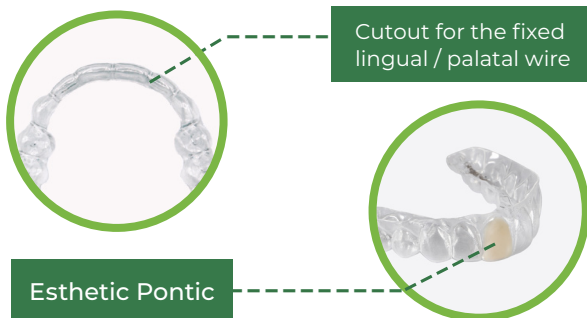
1.0mm Thickness



3 Sets



3 Months Warranty



### Tailored to Perfection: Customizing the Ecodont Retainers

Delivering a true personalized retainer has never been easier. Our Submission Portal empowers you to customize the Ecodont Retainers to meet each patient's unique needs.





# Case Study

Real patient. Dentistry by Dr. Divian Patel.



## Case Description:

Crowding on front upper and lower teeth, midline discrepancy

## Treatment Type:

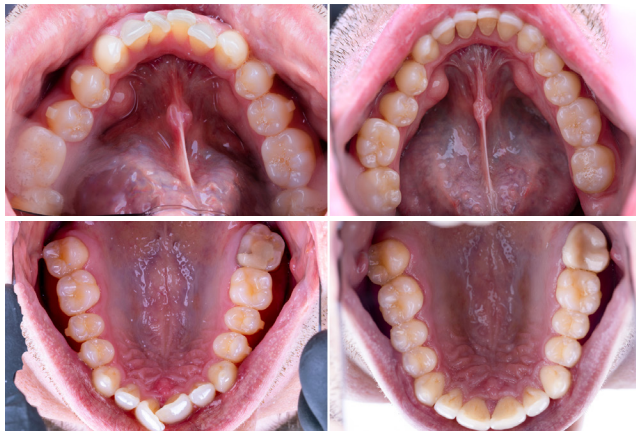
TrioClear Complete  
(18 rotations)

## Total Treatment Time:

12 months

## Attachments:

Minimal



## Retention:

Maxillary Removable Retainers  
Mandibular Removable Retainers

## Treatment Acceptance Features:

- More affordable than traditional braces
- More efficient and less attachments
- Soft initial tray allows maximum comfort compared to other brands

## Comments:

- In this treatment, minimal attachments were used
- Patient was compliant with chewing exercises

## Results Achieved:

- Class I relationship maintained
- Functional canine guidance on both sides
- Deep bite improved
- Midline corrected
- Proper axial inclination of incisors
- Arches aligned and coordinated
- Alignment of both arches through derotation and IPR
- Arch form improved
- Esthetic smile line
- Harmonic arches



# How to Register as a TrioClear Provider

1. Visit TrioClear Doctor Submission Portal:  
[pro.trioclear.com](http://pro.trioclear.com)
2. Click "Become Our Provider"
3. Fill in the required information. If you are not a customer of Southern Cross Dental, please leave the box blank.
4. Click "Register"

# How to Submit a Case Checklist

## 1 Register a new account or log in to our submission portal

Go to **pro.trioclear.com**. If you have not registered before, click "Become Our Provider" and fill in your clinic information. Click "Register" after you have verified your information. A notification email will follow when the local distributor approves your account. If you have already registered, input your Email and Password and click Log In.

## 2 Start a new case submission

Click "New Case" on the dashboard page and select the suitable treatment option according to your case (Complete, Touch-Up, Simple, Retainers).

## 3 Fill in the questionnaire on the clinical condition and prescription.

## 4 Upload photos in the corresponding boxes.

### Mandatory photos:

- |                             |                                |
|-----------------------------|--------------------------------|
| 1. Maxillary Occlusal View  | 4. Right Buccal View Intraoral |
| 2. Mandibular Occlusal View | 5. Left Buccal View Intraoral  |
| 3. Frontal View Intraoral   | 6. Frontal View – Smiling      |

## 5 Upload radiographs (Orthopantomogram and Lateral Cephalogram)

## 6 Provide impressions.

### Choose one of three ways to provide impressions:

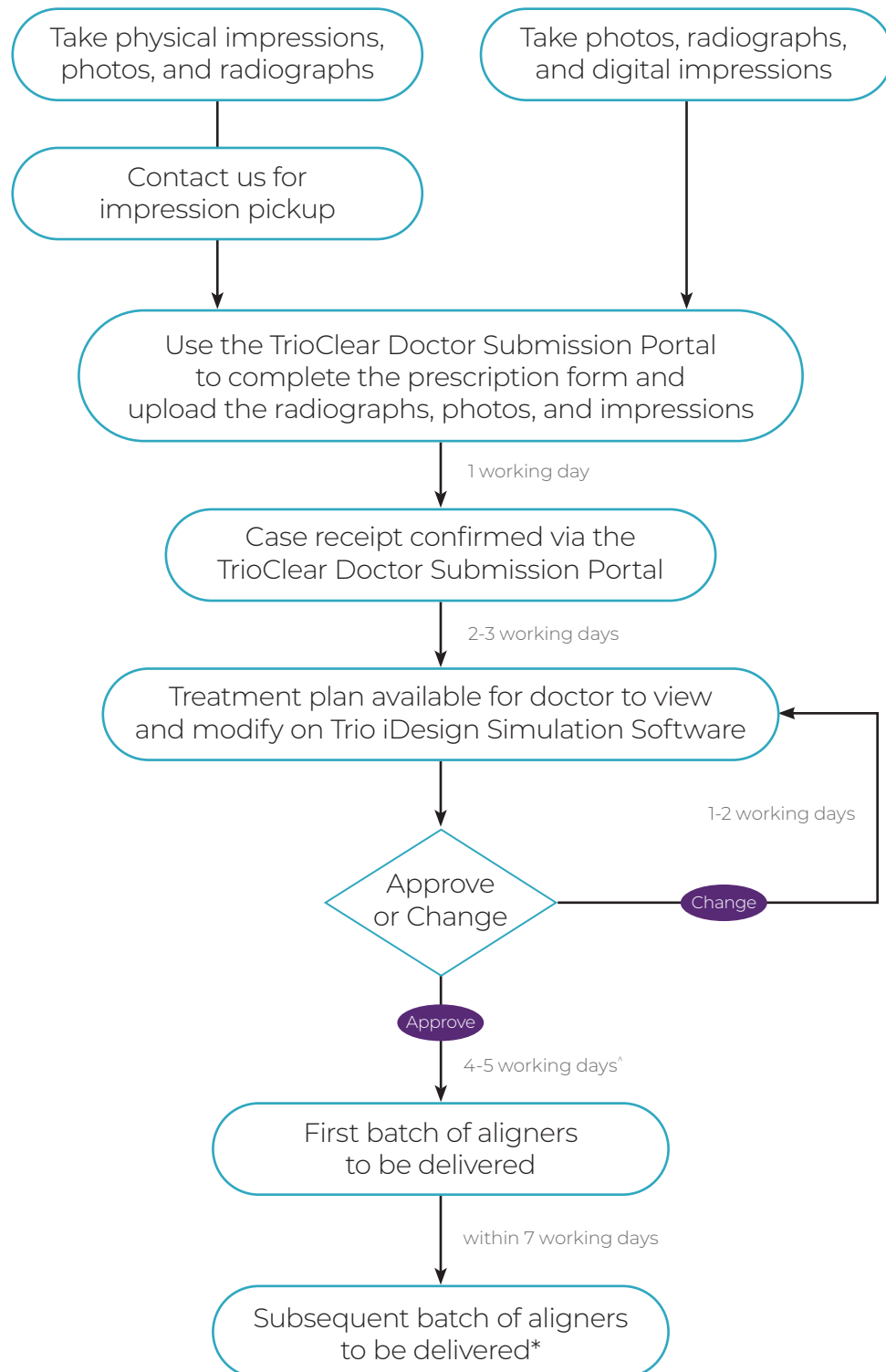
1. Upload STL /DCM files directly to the Submission Portal
2. Digital impressions by scanning
3. Contact the lab for a courier pickup

## 7 Select or enter the correct delivery address.

## 8 Make sure all information is correct, then click "Submit"



# Case Submission Timeline



\* Please remember to click: "Process your next sets of aligners" on the TrioClear Doctor Submission Portal.

^ Delivery time may vary depending on the destination country.

# Receiving the Aligner Pack

Once you receive the aligners, you should find the following items in the box:

- Packets of aligners
- Clinical card
- Instructions for use
- Patient everyday guide
- Aligner case
- TrioKey (2 in 1 clear aligner accessory)
- Accessories (upon ordering, i.e. buttons, elastics)



# Defects and Warranty

Please report any aligner defects to your local customer service team or through the Live Support Ticket section on the TrioClear Doctor Submission Portal. This is crucial for identifying and preventing future issues.

Case Expiration Period varies based on your selected treatment option and extends up to 5 years. For detailed information, please refer to the Treatment Plan Options on pages 13-14.

## For unfit aligner(s):

If you experience fitting issues with the Step 1 aligners, please also check the fit of Step 2 aligners. If both aligners are unfit, please upload photos showing the misfit areas in the patient's mouth, along with a new physical or digital impression, via the Doctor Submission Portal.

Warranty claims for unfit aligners must be submitted within 100 days from the date of treatment plan approval. Please note that the warranty will no longer apply if an initial impression was identified as defective, but production of aligners was continued at your request.

# Clinical Materials

**Please contact our team for the below items:**

1. Submission Boxes for Physical Impressions
2. Patient User Guide
3. Patient Ecodont Guide
4. Clinic Posters
5. Window Stickers
6. Smile Generator Stickers
7. Aligner Cases for Replacement
8. TrioKey (2 in 1 Clear Aligner Accessory)
9. TrioClear Demo Models







## Get started today!

Connect with our team at [TrioClear@ModernDentalCanada.com](mailto:TrioClear@ModernDentalCanada.com)  
or call **800.361.6699** to start your treatment journey with us.



YouTube



TrioClear App





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CLEAR



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