

Class III Treatment with Clear Aligner Therapy

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CHAPTER 1

Introduction

Class III malocclusion presents different challenges when treating patients with a clear aligner system. Besides using the aligners to treat vertical issues shared with a Class III malocclusion and arch length discrepancy, we must consider anterior-posterior correction. Vertical control is also a key component of Class III correction. Managing the challenging elements of a Class III malocclusion in orthodontics is critical for success. Using elastics, changing the occlusal plane, and modifying posterior teeth angulations are essential for developing an effective treatment plan.

CHAPTER 2

Precision Cuts

We can modify aligners to accommodate intermaxillary elastics. These modifications allow us to attach elastics to the aligners or bond buttons onto the teeth. For instance, the default protocol is to place elastic hooks on lower canines and place button Cutouts on the upper first molars. Then, drag and drop the specific cuts onto the desired tooth surface within the Precision Cuts Interface.

Modifying default hooks and button cutout placements

We can also modify the default hooks and button cutouts placements. With default hooks, prescribe buccal surfaces of canines, premolars, and molars in clinical preferences. To change default button cutout placements, prescribe buccal and lingual surfaces of canines, premolars, and molars. In cases of any incompatibility, Optimized Attachments will take priority based on clinical preferences unless you have changed the default parameters.

Clinical preferences

In clinical preferences, we can request the placement of elastic hooks on the mandibular first premolars and hooks on the maxillary first molars and second molars (when present). Then, we can elect to prioritize optimized attachments on mandibular canines and remove the aligner's extrusive force that can tax the mandibular canine attachment.

Elastics that are more posterior can improve patient compliance. We recommend using hooks instead of bondable buttons to prevent unwanted appointments if buttons debond during treatment.

CHAPTER 3

Class III Open Bite (High Angle Cases)

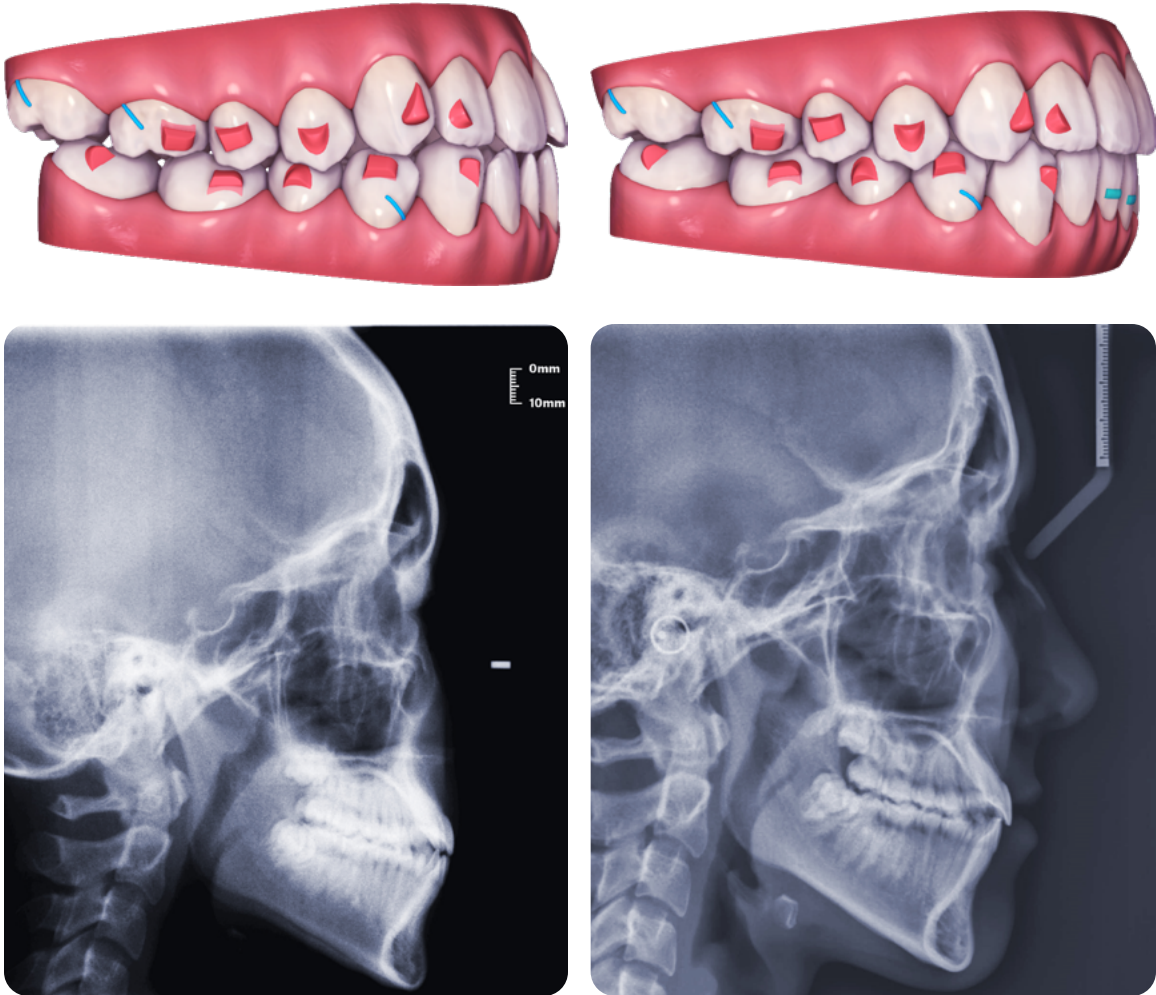
Class III Open Bite (High Angle Cases)

Selection in the Rx form for Class III correction using elastic simulation will improve the sagittal discrepancy and add force systems to address the anterior open bite. The bite jump may have a vertical component if the plan intrudes posterior teeth in open bite cases. This jump will also simulate bite closure, along with the A-P change.

To aid in the open bite correction, we can add posterior intrusion. Horizontal attachments (or optimized support attachments) are necessary to support the desired intrusive force. Intrusive posterior movements help control the vertical dimension and avoid the undesirable extrusion that often occurs on maxillary molars when applying Class III elastics. The mandibular effects from Class III elastic use will then help with the counterclockwise rotation of the occlusal plane. Depending on the smile esthetics, maxillary anterior extrusion can also be added to these cases to gain more overbite. We can use a multi-tooth extrusion force system to achieve that extrusion.

Case Study

A 15-year-old female presented with a Class III malocclusion and an anterior open bite correction setup.



Before and after cephalometrics.

Class III Open Bite (High Angle Cases)



CHAPTER 4

Class III Deep Bite (Low Angle Cases)

Class III Deep Bite (Low Angle Cases)

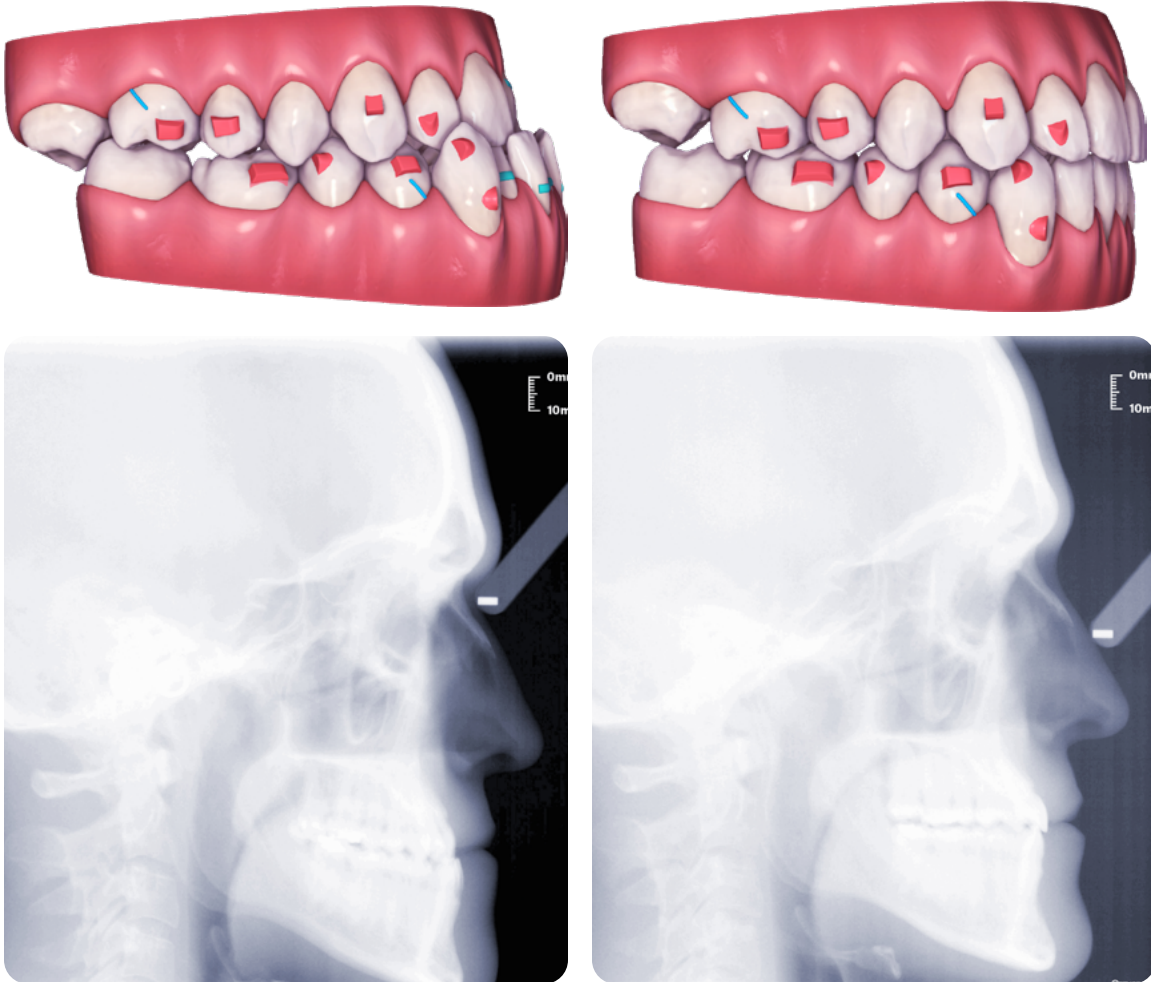
Selection in the Rx form for Class III correction using elastic simulation will improve the sagittal discrepancy and implement force systems to level the arches to address excessive anterior overlap. It will simulate an A-P bite jump to achieve a Class I molar, Class I canine, and improve over-jet. The Elastic Bite Jump reproduces a bite shift, while the individual tooth movements focus on improving the vertical changes, transverse changes, and dental alignment.

The simultaneous staging of movements does not consider the time needed for the sagittal correction. Thus, it leads to additional aligner orders to follow the sagittal changes in some Class III malocclusions.

In deep bite cases, it is crucial for an adequate level of the Curve of Spee. Often, we level by performing with a distal crown angulation of the mandibular posterior teeth. The effects from Class III elastic use will help with the counterclockwise rotation of the occlusal plane and in Class III correction. Depending on the smile esthetics, maxillary anterior extrusion can also be added to these cases when the lower incisors are intruded.

Case Study

A 23-year-old male presented with a Class III malocclusion with a deep bite correction setup.



Before and after cephalometrics.

Class III Deep Bite (Low Angle Cases)



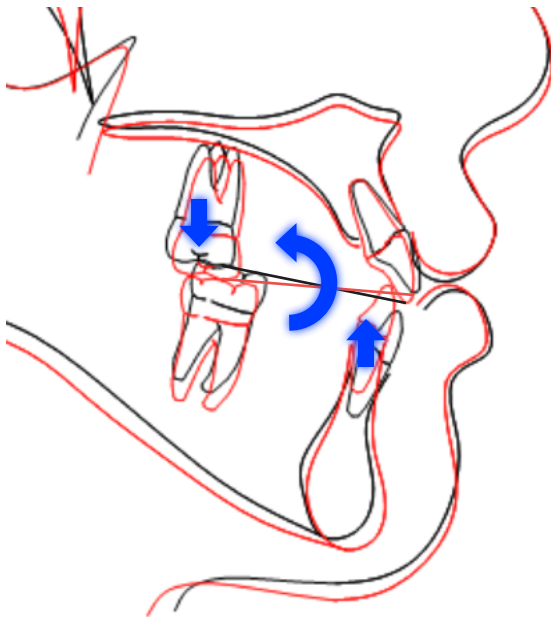
CHAPTER 5

Occlusal Plane Rotation

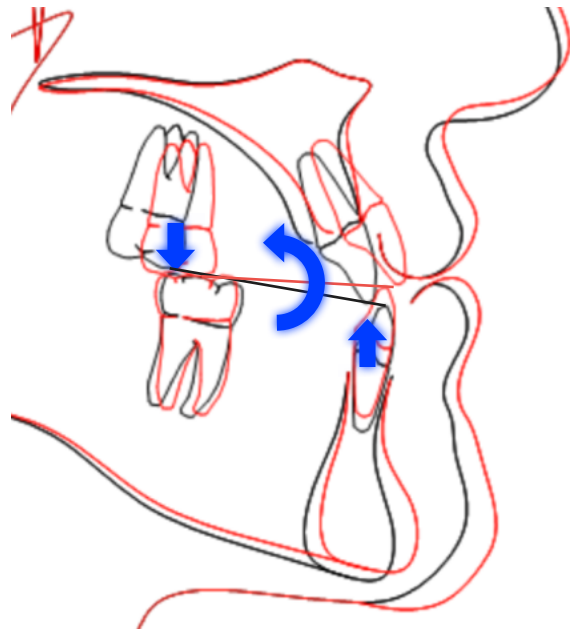
Occlusal Plane Rotation

The maintenance or change of the OP during orthodontic treatment depends on:

- Mesial upper molar movement
- Vertical control of upper and lower molars
- Extrusion and intrusion of incisors

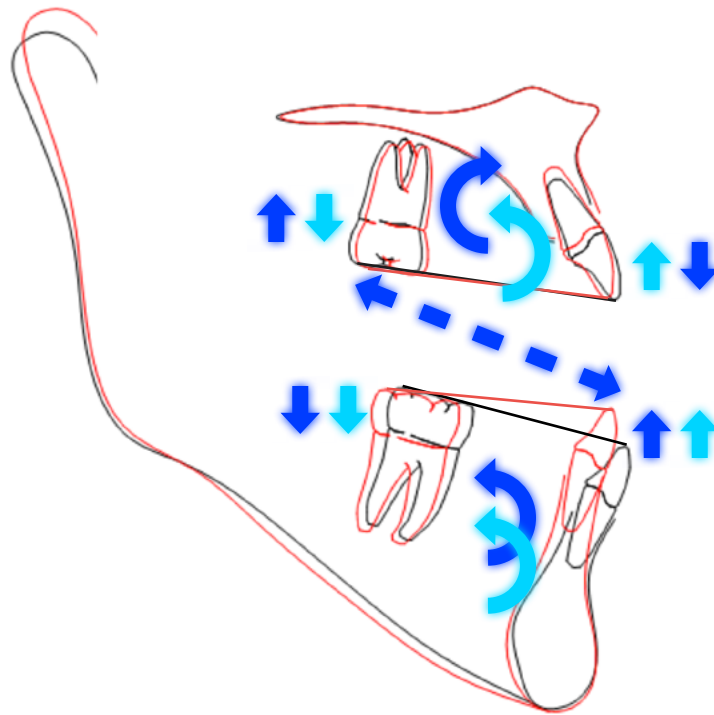
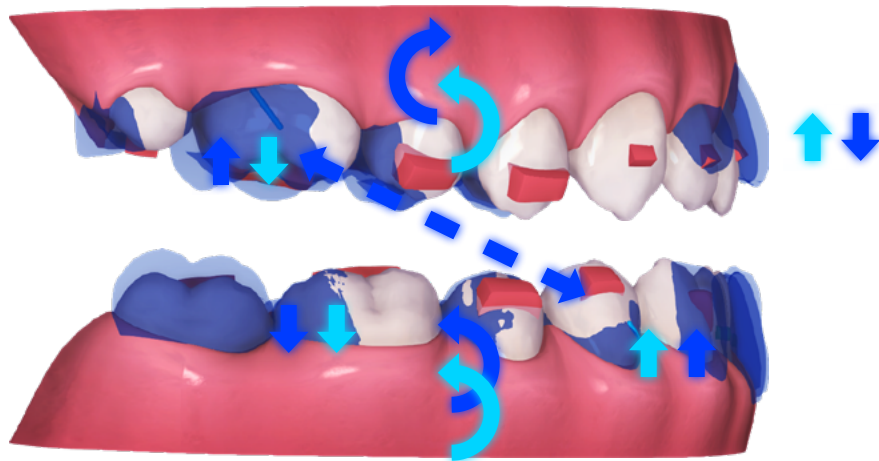


Class III Open Bite



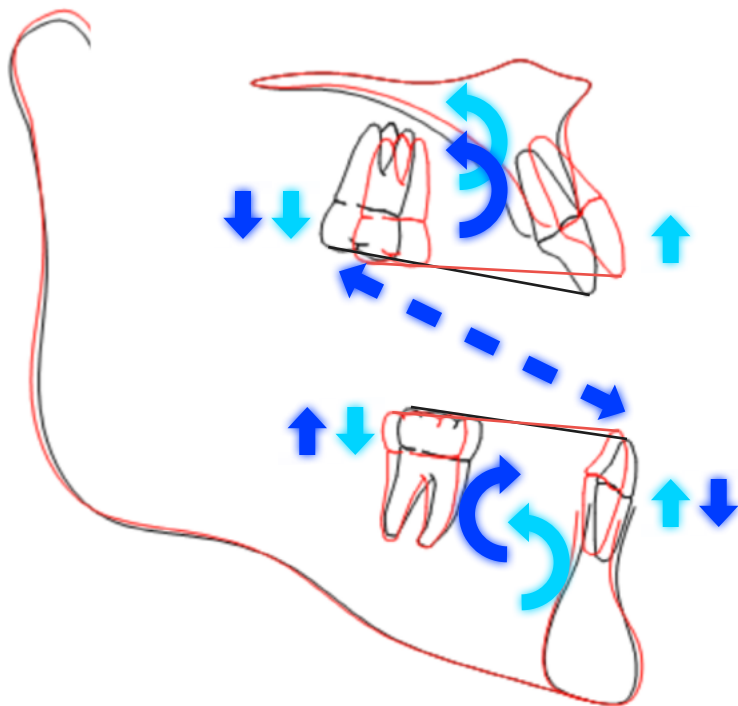
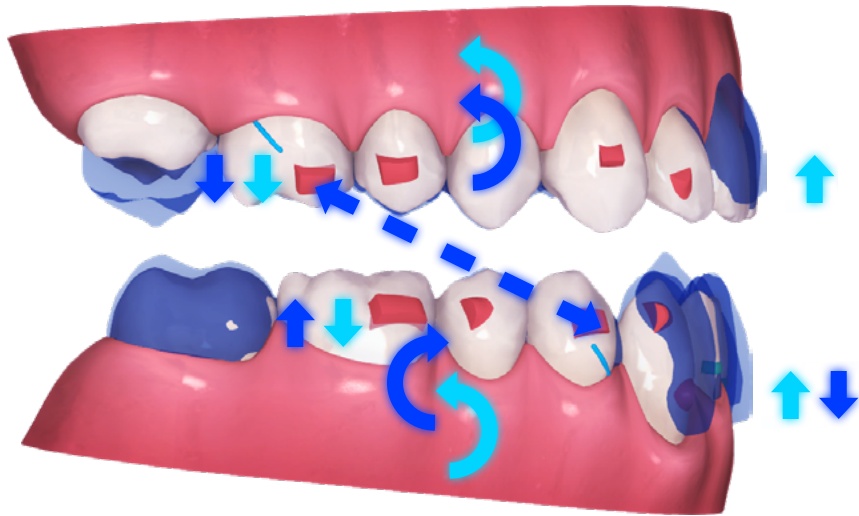
Class III Deep Bite

Occlusal Plane Rotation



Class III Open Bite

Occlusal Plane Rotation





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