
Evaluation of Effectiveness of Aligners in Treatment of Malocclusion in Patients

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INTRODUCTION

ORTHODONTICS-

Orthodontia, also called orthodontics and dentofacial orthopaedics, is a specialty field of dentistry that manages malposition teeth and the jaws: their conclusion, counteraction and remedy.



Malocclusion-

Malocclusion is the clinical term for skewed teeth that can actuate oral issues like overbite, underbite, crossbite.

A goal of orthodontic treatment is to achieve a consistent, useful and stylish arrangement of teeth which effectively better the patient's dental and all out wellbeing.

Treatment of malocclusion-

Braces-

- Braces are one of the proven and oldest malocclusion treatments. In some cases specific teeth should be removed prior to beginning supports treatment in children and youngsters. Braces fix the teeth and jaw to fix your grin and skewed chomp. Your orthodontist could endorse metal or ceramic or lingual supports. It will depend upon the earnestness of your malocclusion of teeth

Removable Devices-

- Removable orthodontic device like Retainers for the treatment of the malocclusion are popular because of the convenience they provide. A few instances of removable devices are retainers and headgears.

Aligners-

- Clear aligner alludes to a progression of clear dental machines that are framed to the state of a patient's teeth. Clear aligners step by step further develop appearance and capability by applying delicate, steady strain to a patient's teeth, which invigorates osteoclastic and osteoblastic movement



Aligners-

- Clear aligner therapy refers to a series of clear dental appliances that are formed to the shape of a patient's teeth. Clear aligners gradually improve appearance and function by applying gentle, consistent pressure to a patient's teeth, which stimulates osteoclastic & osteoblastic activity.
- So the treatment of malocclusion, Aligners are used.



Cases where aligners are used in treatment-

- Crowding-

When there is lacking space in the jaw for the teeth.

- Spacing-

Spaces between teeth can be shut utilizing clear aligners. The aligners can draw the teeth nearer together.

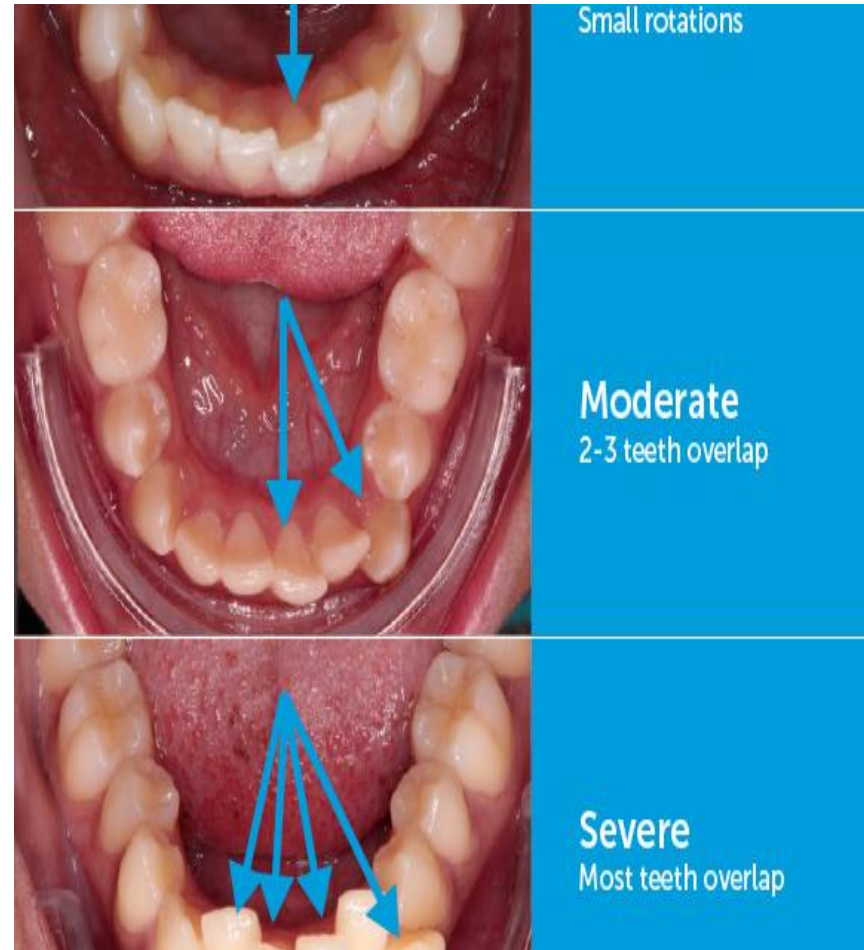


Fig- Tooth Crowding



Fig-Tooth Spacing

Clear aligners can be used to treat a variety of orthodontic cases-

- Overbite-

An overbite happens when the upper front teeth cross-over unnecessarily with the lower front teeth

- Underbite-

An underbite is something contrary to an overbite, where the lower teeth distend before the upper teeth

- Crossbite-

Crossbite is that upper teeth fit behind your lower teeth when your mouth is closed.

- Open bite-

Gap between the upper and lower teeth when the jaws are shut.

Attachments in Aligners-

Attachments are small, tooth-coloured structures that attach to your teeth. Each attachment has a very specific shape that promotes a certain type of movement. attachments can likewise secure your aligner, assisting it with remaining set up over your teeth.

ALIGNERS PROPERTIES-

It is aesthetic, agreeable, has basic mechanics, requires less seat time, treatment time and is conservative.

Clear Aligners push against the dynamic surface of the attachment.

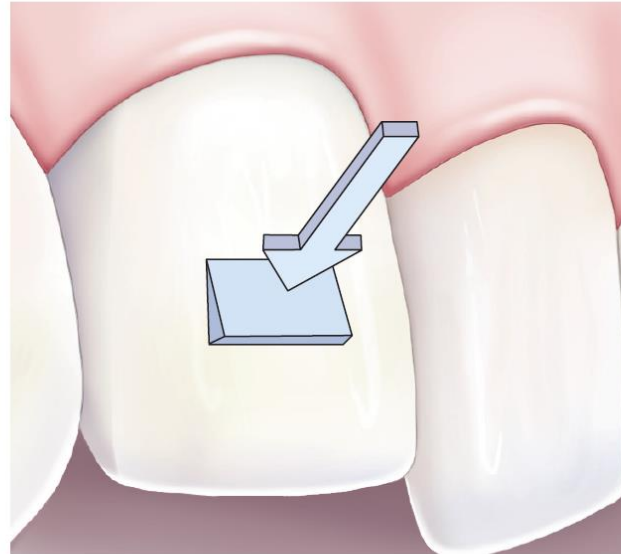


Fig 2-2 Clear aligners push against the flat surface of an attachment to move teeth.

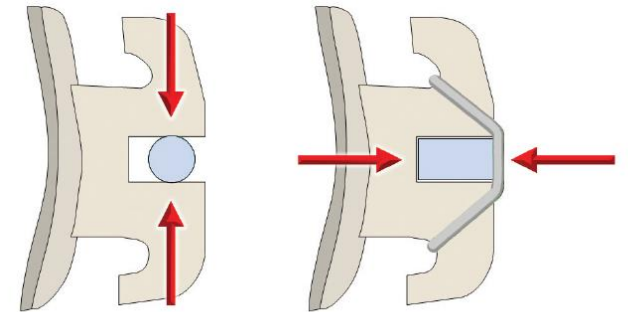
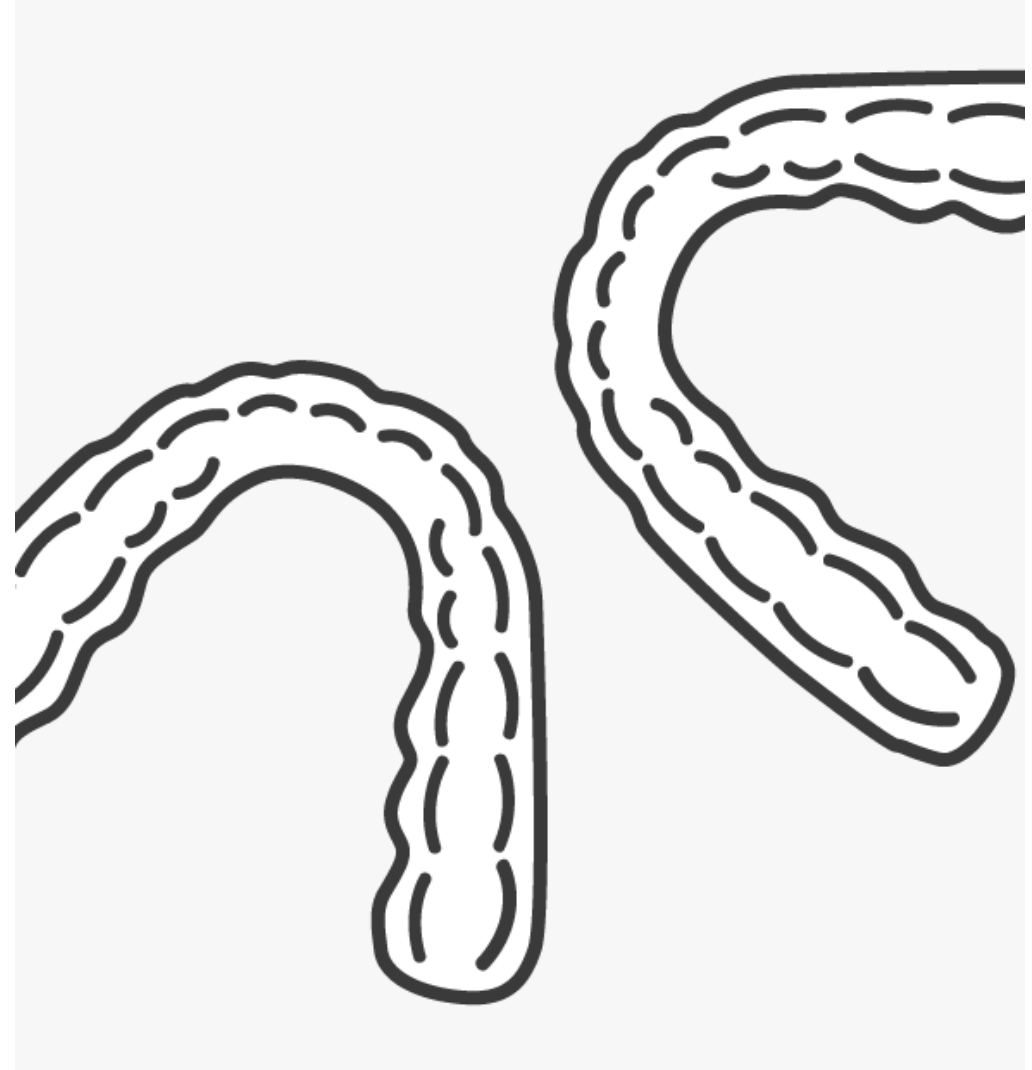


Fig 2-3 The round, flexible initial archwire engages the tooth to move it into position. A full-size rectangular archwire fully engages the bracket slot so that the torque and

ATTACHMENT TYPES-

- Multiplane attachment
- Rotational attachment
- Molar attachment
- Power ridge
- Bite ramp
- Conventional attachment (Vertical)



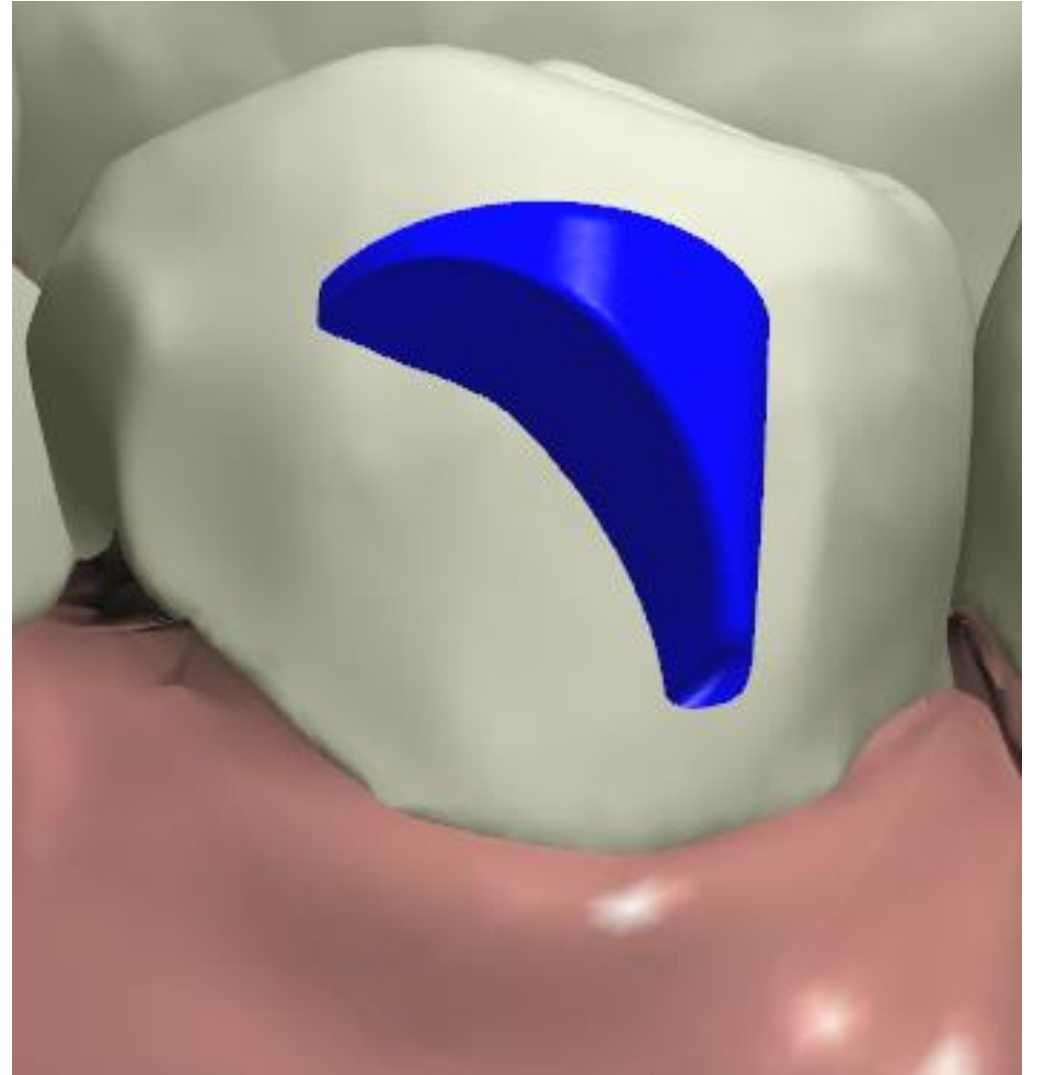
Multiplane attachment-

- Location : Anterior & posterior (except molars)
- Movements:
 - Single : for correcting rotation of crown
 - Double : Bodily movement



Rotational attachment

- Location – canines and premolars
- Movement- correction of rotation



Molar attachment

- Location : posteriors
- Movement :
 - Fig 1 : intrusion, extrusion
 - Fig 2: tip correction

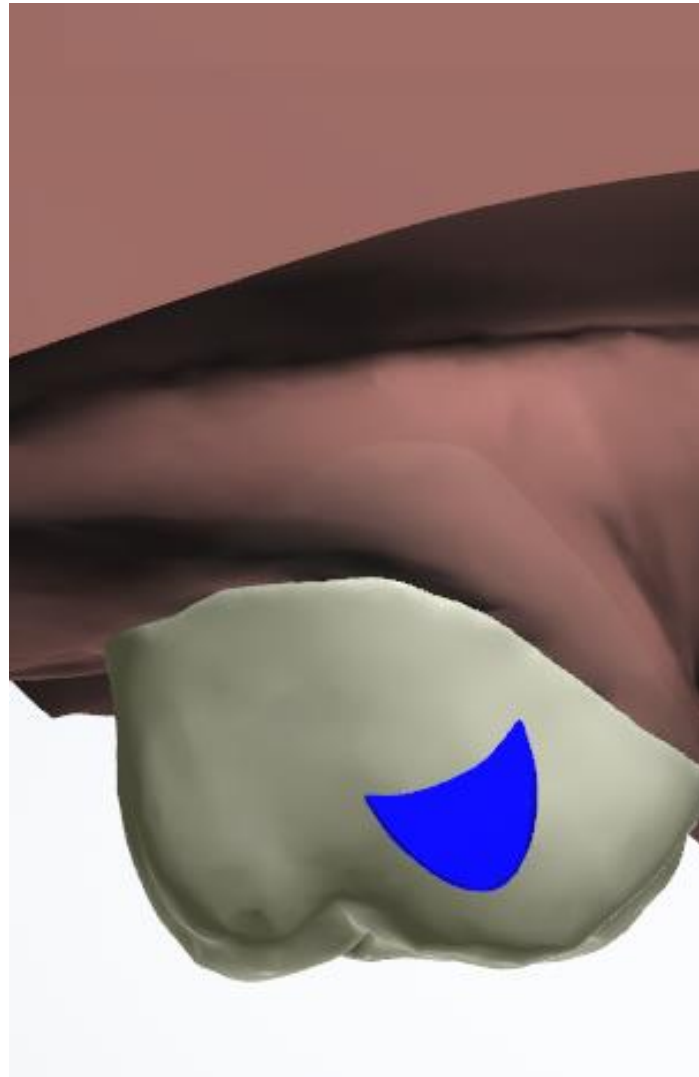


Fig-2

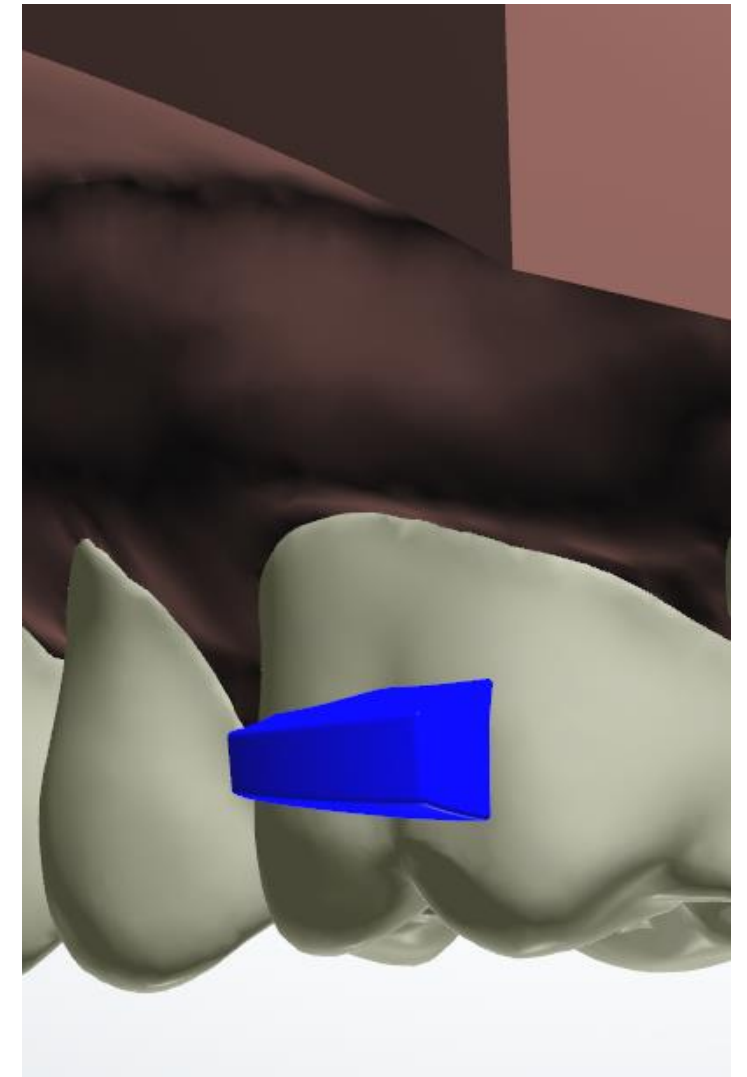
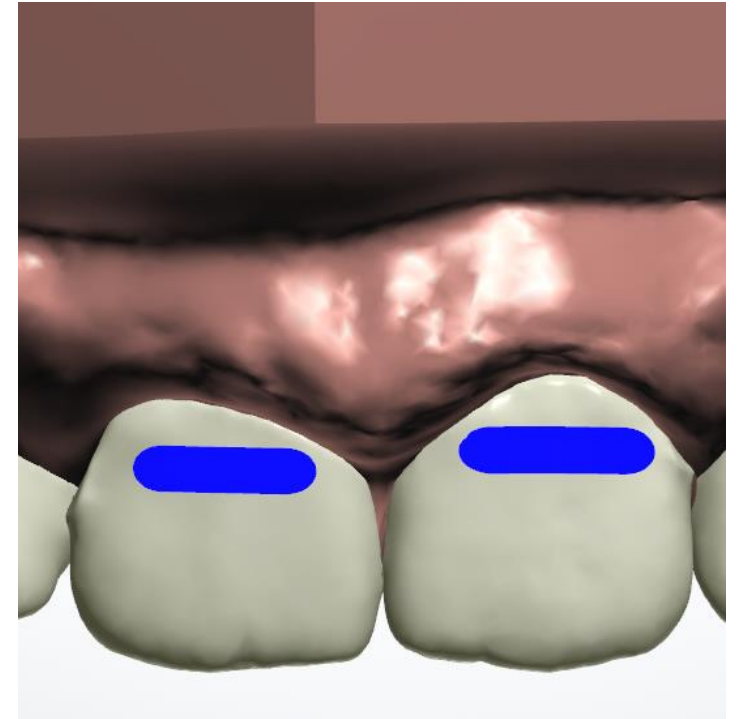
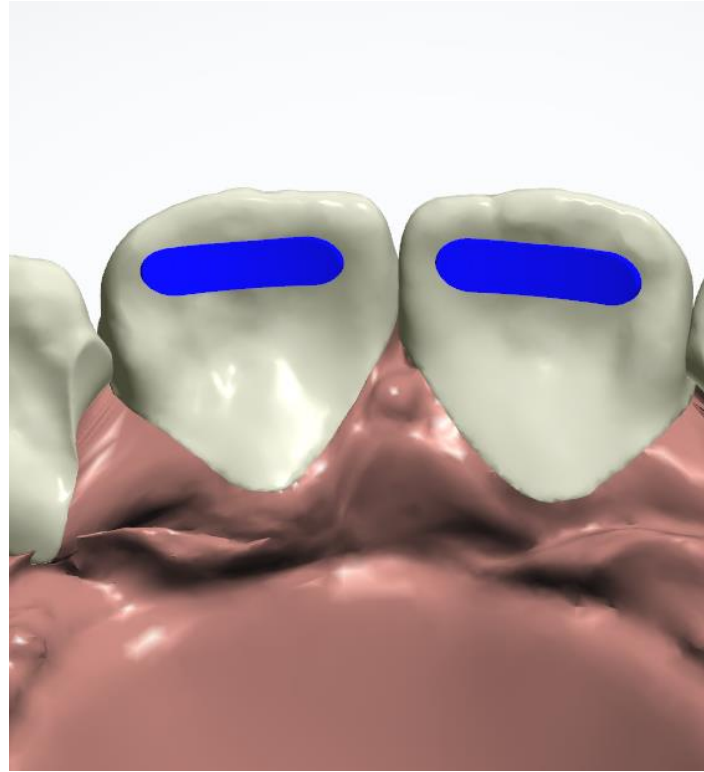


Fig-1

Power ridge

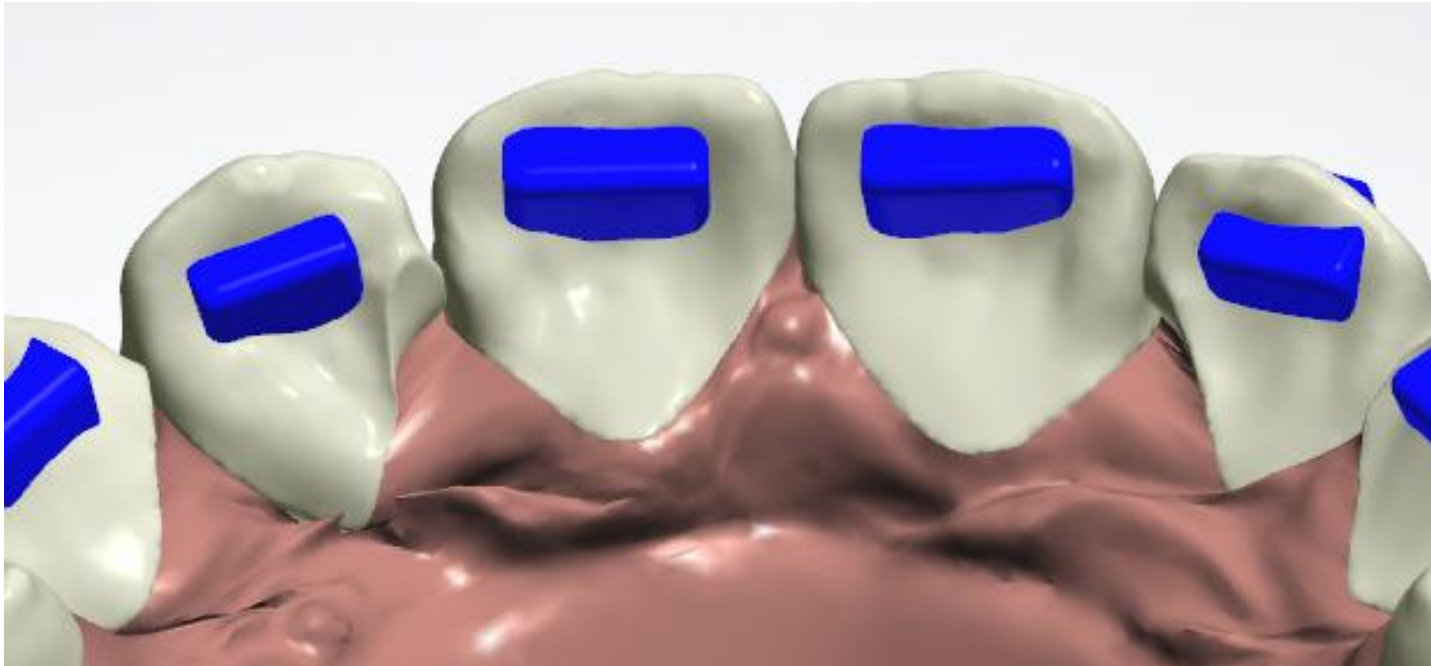
Location: anterior

Movements : reduction of inclination



Bite ramp:

- Movement : Bite opening
- Location : anterior's



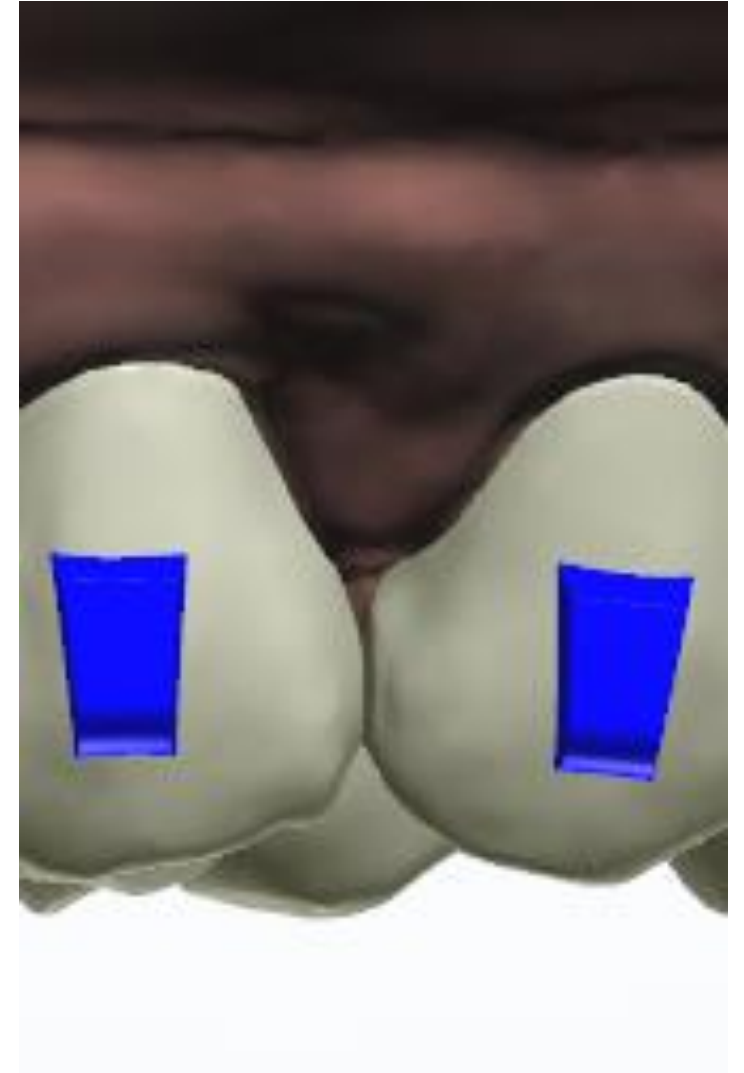
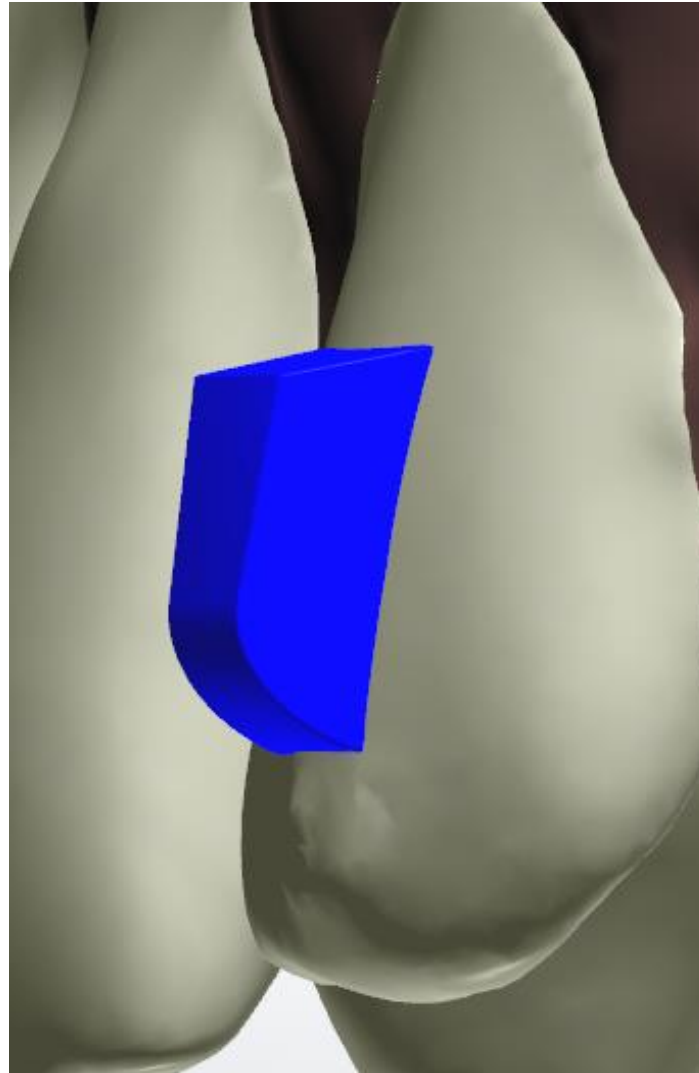
Conventional attachments (Vertical)

- Location: anterior and posteriors

Movement:

Anterior- All basic movements(crowding, spacing, etc)

- Posteriors- Mesialization (towards the middle) and distalization



Feature	Movement	Available on	Visual
Buccal Power Ridge	Lingual root torque	Upper and lower incisors	
Buccal Power Ridge + Lingual Power Ridge	Lingual root torque and retraction	Upper incisors	
Optimized Rotation Attachment	Rotation	Upper and lower canines and premolars	
Optimized Extrusion Attachment	Extrusion	Upper and lower incisors and canines	
Multi tooth anterior extrusion	Extrusion	Upper incisors	
Optimized Root Control Attachment	Tipping	• Upper central and lateral incisors • Upper and lower canines and premolars	

Optimized Multi-plane Movement features		Extrusion ± crown tipping ± rotation	Upper lateral incisors	
Deep Bite Attachments		During anterior intrusion, Deep Bite Attachments are used for anchorage/retention or activated for premolar extrusion	Upper and lower premolars	
Pressure Areas		Anterior intrusion	Incisors and lower canines	
Precision Bite Ramps (are not SmartForce® features per se, but can be prescribed by the Provider, and are placed depending on compatibility with other features).		Disocclude the posterior teeth	Upper incisors	
Multi-Tooth Unit	Optimized Retraction Attachment	Canine retraction	Upper and lower canines	 Note: variation in type of attachment, or variation of attachment placement can occur for short crowns.
	Optimized Anchorage Attachment	Posterior anchorage	Upper and lower second premolars and molars	

Conclusion-

- While segmented tooth mobility and a shorter treatment time were advantages of clear aligners, braces were still preferable for establishing proper occlusal contacts, regulating tooth torque, and retention.
 - Thus the attachments in the aligners make the tooth movement possible.
 - treatment through the aligners take much lesser time in treatment than the braces and hence aligner being now mostly used by the orthodontics doctors for the treatment of malocclusion.
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