



## Techniques for Posterior Intrusion in the Correction of Anterior Open Bite with Invisalign

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When correcting anterior open bite with Invisalign, I will often prefer a treatment plan that includes purposeful intrusion of the posterior teeth to allow subsequent auto-rotation of the mandible. This method of anterior openbite closure is especially useful and indicated in patients with a longer lower face height and for cases where anterior extrusion is contradicted as the method of anterior openbite closure. Here are my techniques for posterior intrusion using Invisalign:

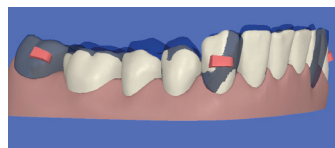
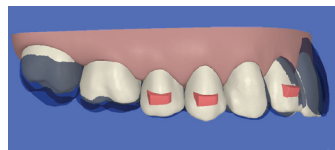
### TIP 1: SET UP ATTACHMENTS TO SUPPORT POSTERIOR INTRUSION ON SELECTED TEETH

The treatment goal includes intrusion of the posterior teeth, which are in occlusion at the start of the treatment, in order to purposefully create a posterior open bite required for autorotation of the mandible upward and forward.

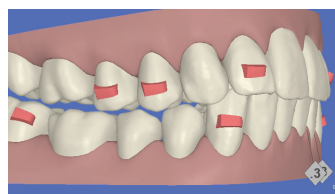
Not all posterior teeth need to be intruded. When selecting which teeth to intrude, the clinician should attempt to create a gentle positive Curve of Spee in both arches.

While the teeth being intruded do not require attachments, some of the adjacent teeth will require attachments for retention and to provide support for the desired intrusion.

Attachments are placed on the teeth adjacent to those being intruded to provide retention and support for the desired intrusion. In the maxillary, this will often mean intruding the first and second molars, with attachments on the premolars for support. In the mandibular, often the premolars and first molars are intruded, with attachments placed on the second molars and anteriors for support.



A posterior open bite will be created near or at the end of the virtual ClinCheck treatment plan.



### TIP 2: ENGAGE PATIENT MUSCULATURE TO ENHANCE ANCHORAGE FOR POSTERIOR INTRUSION DURING TREATMENT AND IN RETENTION

Biting on the thickness of aligners creates an effect similar to the use of posterior bite blocks that the patient is able to wear during orthodontic treatment. Each time the patient closes on the aligners, intrusive forces are created on the posterior teeth—these forces enhance the posterior intrusion of the intruding teeth and helps to avoid unwanted posterior extrusion of anchorage teeth.

Therefore, having patients chew on rubber bite sticks (chewies, also called "rubber gum" in the clinic) can enhance posterior intrusion. I will request my open bite patients to do 'rubber gum chewing exercise 2-3 times per day for 15 to 20 minutes at a time.

For retention of more severe open bite cases, I will also recommend patients to chew on clear retainers with rubber gum in the posterior every evening for 15 minutes, along with nightly wear of retainers to continue the posterior bite block effect.



Patient shows how to chew in rubber gum on posterior teeth to enhance posterior intrusion. In clinical practice, the patient can close their lips and will appear to be chewing gum.

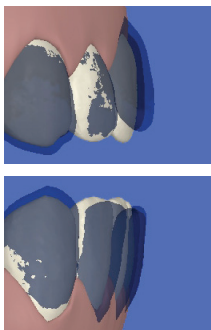
### TIP 3: ALLOW RELATIVE ANTERIOR EXTRUSION

Depending on the expected anterior overjet relationships as the mandible auto-rotates clinically during treatment, there may be a need to retrocline maxillary or mandibular anteriors to develop final overjet and overbite relationships. As these teeth retrocline, the ClinCheck® treatment plan should allow these teeth to extrude slightly as they would in a free tipping movement. This relative extrusion does not necessarily require attachments, unless it is the goal of the orthodontist to also include absolute extrusion of anterior

teeth to close the anterior open bite. Delaying this movement until near the end of the ClinCheck treatment plan allows me to check the actual clinical overjet and overbite before the anterior movements. If the patient's actual autorotation of the mandible occurs differently than anticipated in the ClinCheck treatment plan, I can choose to do an earlier refinement, and adjust the treatment plan accordingly.

Depending on the overjet relationships as the mandible auto-rotates clinically during treatment, there may be the need to retrocline maxillary and/or mandibular anteriors to develop final overjet and overbite relationships. Images depict relative extrusion of the anterior teeth in the ClinCheck treatment plan

(gray= initial, white= final).



#### TIP 4: PLAN ELASTICS AND/OR IPR TO ADJUST OVERJET AS ANTERIOR OPENBITE CORRECTS

Depending on the exact changes occurring in the sagittal plane for the patient as the mandible auto-rotates, the clinician should expect that the creation of adequate overjet and overbite may require some Class II or Class III elastics or some anterior IPR for anterior retraction to provide good anterior coupling and adequate anterior guidance during mandibular excursive movements.

Patient at the start of Invisalign



Patient after openbite closure with posterior intrusion, note end to end anteriors.

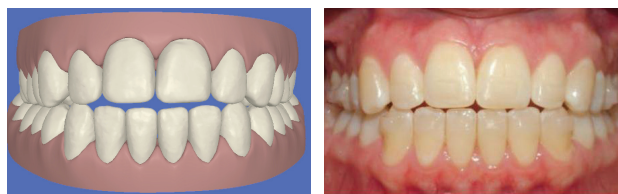


Patient after class III elastics with mandibular anterior IPR in refinement.



#### TIP 5: USE BITE JUMP TO SIMULATE AUTOROTATION OF THE MANDIBLE

At the very end of the ClinCheck treatment plan, there will be a complete anterior and posterior openbite. A surgical simulation bite jump can be used to simulate the actual autorotation of the mandible upwards and forwards as a result of posterior intrusion. Note that this is merely a simulation. Clinically, the autorotation of the mandible is occurring gradually throughout the treatment. And so at the middle stages of treatment, the anterior open bite should be smaller clinically than the virtual ClinCheck plan shows, if the posterior intrusion is proceeding as planned.



Patient at stage 15. Notice how clinical anterior openbite is smaller than ClinCheck representation at the same stage, due to the autorotation of the mandible that is occurring clinically throughout treatment.

I have used this methodology in multiple patients with anterior open bites, where the ideal treatment plan was posterior intrusion with subsequent auto-rotation of the mandible. Each patient may have slight variations to the attachment protocol, or selected teeth for intrusion, depending on the exact clinical situation. This method has enabled me to achieve posterior intrusion clinically, while providing patient an improvement of their bite and smile.

Dr. William Dayan reached the level of Invisalign Elite Advantage Provider in 2005 and has been treating Invisalign patients since 2000. In addition to his full-time private practice in orthodontics, he is a guest lecturer at the University of Toronto Department of Orthodontics, The Toronto Academy of Cosmetic Dentistry, The Ontario Dental Association, and The Alpha Omega Dental Fraternity. He holds a DDS degree and diploma in orthodontics from the University of Toronto.

#### TIP FOR COMMUNICATING WITH TECHNICIANS:

Provide specific instructions for how you want the treatment setup. For example, intrusion of teeth X by X mm. Do not request protocols by doctor's name, as this will not be understood by your technician.