



Anterior Open Bite Correction with Invisalign

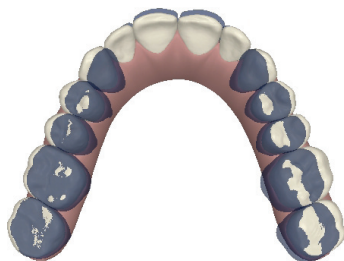
By Dr. Linda Crawford DDS, MS, P.C.

Open bite cases are one of the most difficult types of malocclusions to correct orthodontically. These are usually three dimensional malocclusions, often with the added challenge of tongue thrust. The Invisalign appliance is my treatment appliance of choice for open bite cases. In my opinion, Invisalign is better at closing open bites than fixed appliances because of the vertical control that the aligners provide in the posterior. Here are details of how I approach anterior open bite cases with Invisalign:

TIP 1: FORMULATE A PROBLEM LIST IN THE THREE DIMENSIONS THAT CAN INFLUENCE OPEN BITE, AND CREATE A TREATMENT PLAN TO ADDRESS EACH PROBLEM.

- A-P considerations: Where is the 1st occlusal contact (example: 3rd molars, restorations, other)? Are the incisors flared in the upper or lower anterior? What is the skeletal and dental relationship? Is crowding/spacing present?
- Vertical considerations: Is a vertical component present such as pronounced maxillary Curve of Spee? Is the vertical component dental, skeletal, or both? Is the transverse dimension affecting the vertical dimension (example: improper torque of the teeth in the buccal segments)?
- Transverse considerations: Are the arches narrow in the molars, bicuspid, or canines? Is a crossbite present? Is the Curve of Wilson contributing to the open bite? Are the teeth upright over the basal bone?

Many open bite cases exhibit narrow arches with transverse discrepancies of molars, premolars, and canines. In these cases, I will always upright lingually tipped posterior teeth over the basal bone for optimal final occlusion and periodontal health.



For example, many open bite cases exhibit narrow arches with transverse discrepancies of molars, premolars and canines. In these cases, I always begin by uprighting lingually tipped posterior teeth over the basal bone for optimal final occlusion and periodontal health. It is also critically important that the buccal overjet is equal on all posterior cusps for balanced loading of occlusal forces. However, I minimize true posterior expansion to avoid buccal tipping of the teeth which would lead to extrusion of the palatal cusps.

TIP 2: SET UP THE CLINICHECK® TREATMENT PLAN FOR ANTERIOR EXTRUSION.

In patients with flared incisors, reducing the angulation of incisors provides some relative extrusion which helps to improve the open bite. This can be done subsequent to uprighting the posterior teeth as space opens up to retrocline the incisors. In cases that do not need posterior uprighting that lack space, careful planning of IPR is necessary to allow for the correction of incisor angulation and relative extrusion. Relative extrusion does not require attachments; however, it is necessary to ensure that the aligners are fully seated.

In cases where absolute extrusion is necessary, place optimized extrusion attachments. These extrusion attachments also help to keep the aligners engaged on the teeth.



Relative extrusion of incisors does not require attachments, but it is necessary to ensure that the aligners are fully seated. (gray= initial, white= final)



Use optimized extrusion attachments for pure extrusion of incisors

TIP 3: MAXIMIZE INTRUSIVE FORCES IN THE POSTERIOR.

The use of aligner chewies help with fully seating the aligners. Aligner chewies are utilized for 2-5 minutes twice a day for the first few days of each stage. I also request equal number of upper and lower aligners to maintain the intrusive forces throughout the treatment. If the aligners are still “tight” at the end of the 2 week wear period, I ask the patient to wear the aligner for up to three weeks as needed.

TIP 4: CHECK AND REMOVE “HARD POSTERIOR CONTACTS” OR POSTERIOR INTERFERENCES WITH VERY LIGHT EQUILIBRATION.

I ask the patient to bite without their aligners to see if there are any teeth that are biting particularly hard, like a rock. Then I check the patient’s occlusion and remove premature contacts with very light equilibration.

TIP 5: USE OF INVISALIGN VIVERA RETAINERS HELPS TO NOT ONLY MAINTAIN THE FINAL TOOTH POSITION BUT ALSO IMPROVES THE FINAL OCCLUSION OVER THE FIRST 6 MONTHS OF RETENTION.

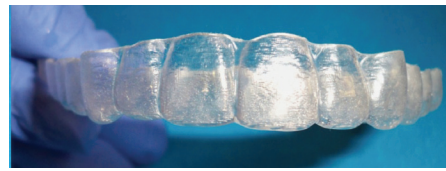
I use Vivera retainers for all of my Invisalign patients. Retainers made from the last stage of treatment appear to improve the bite for 6 months after active treatment. I have my patients rotate the 4 Vivera retainers on a quarterly basis so that all of the retainers are “stretched” equally. I instruct my patients to wear retainers 2 months full time, 4 months from 6pm through the night, and indefinitely thereafter while sleeping.



Vivera retainers not only maintain the final tooth position, but they appear to also improve the final occlusion over the first 6 months of retention.

In my practice, I have found that trimming the Vivera can help avoid interproximal spacing that we sometimes see in retention.

I trim the lingual of the U3-3 into a smooth arc, reducing the tray margin to the height of the papilla.



I also reduce the length of the retainer margins so that they extend no more than 1mm into the undercuts.

Dr. Linda Crawford has practiced orthodontics in Dallas, Texas since 1993 and has been an Invisalign Elite provider since 2007. She received her Doctor of Dental Surgery degree in 1991 from Baylor College of Dentistry. Her Specialist’s Certificate in Orthodontics and Dentofacial Orthopedics was also received from Baylor’s world renowned Orthodontics program in 1993. Dr. Crawford’s Masters in Science degree in Craniofacial Biology was awarded from Baylor University in 1993. Then in 2001, Dr. Crawford completed the extensive examinations that earned her Diplomate Status with the American Board of Orthodontics. Dr. Crawford also has a passion for understanding how airway obstruction and improper muscle attachments affect the developing face and influences the development of malocclusion.

TIP FOR COMMUNICATING WITH TECHNICIANS:

Provide specific instructions for how you want the treatment setup. For example, upright teeth over basal bone or extrude teeth X by Xmm. Do not request protocols by doctor’s name, as this will not be understood by your technician.