Beautiful Smiles by Design

Orthopedic and Early Interceptive Orthodontics to correct severe skeletal discrepancies and reduce the severity of later dental crowding.

James R. Waters, DDS, MSD

Diplomate American Board of Orthodontics
Treatment For Children, Teens And Adults

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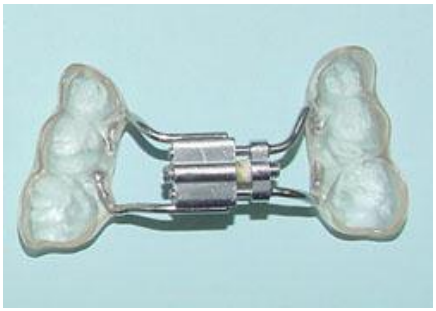
Expansion Therapy (RPE)

Many young patients have upper and lower jaws which do not fit together. Probably the most common issue related to a poor fitting bite is a narrow upper jaw relative that patient's lower jaw. This narrowness can be caused from overactive muscles of the face restricting the upper jaw development (i.e. thumb-sucking, lip sucking), genetics (i.e. mom's upper jaw and dad's lower jaw), and/or mouth-breathing (when a patient's nasal air passages are blocked frequently enough to prevent breathing through the nose). Mouth breathing is particularly common in regions with higher than average allergens such as Austin. When a patient breathes through their mouth, the tongue rests on the floor of the mouth while the cheeks push inward from the sides, thus constricting the upper arch of teeth. Compare this to breathing through the nose which requires the tongue to be raised against the roof of the mouth, behind and against all of the front teeth. With the support of the tongue against the inside of the upper teeth, the force from the cheek muscles is balanced and there is no tooth movement or resistance to growth.

Once the upper jaw is too narrow to fit well with the lower jaw (termed a **crossbite**), the lower jaw can shift to one side or the other so at least some of the back teeth fit well. It will also constrict the development of the lower arch causing severe crowding. If a shift remains throughout growth, or the constriction remains, the lower jaw can begin to grow more sideways, become asymmetric, and/or remain smaller creating a long-term discrepancy between the size of the teeth and the size of the arch. This is the reason **crossbites** are corrected as soon as possible after the permanent first molars erupt, around **age 6 to 7**. Expansion is performed by pushing two bones of the upper jaw away from each other and allowing bone to form in the middle. The upper jaw bones are easily moved as a child but fuse in the late teens making expansion increasingly less successful as the child becomes an adult.

Expansion can be successfully performed in all patients up to age 15 (although side effect from years of ill-fitting jaws may not be easily reversible). Past age 15, the bones of the upper face begin to fuse and it becomes more difficult to expand the upper jaw. After 18, most patient will require surgery for expansion (the surgery simply re-opens the space that used to exist between the bones).



A typical "bonded" **Expander**.

Expander as it fits on teeth.

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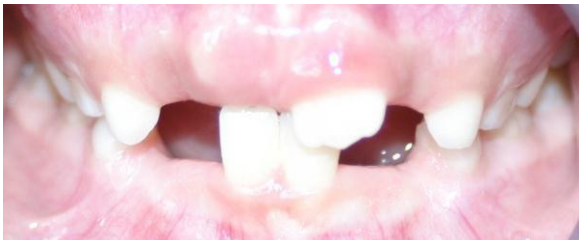
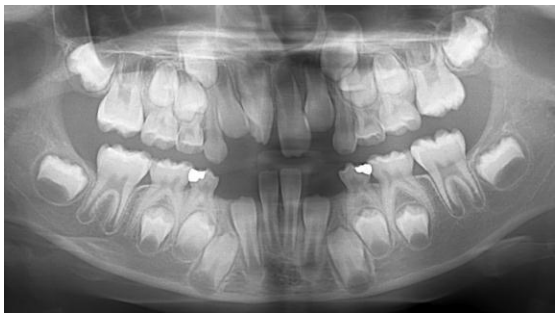
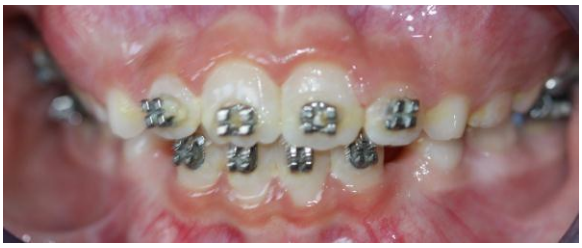
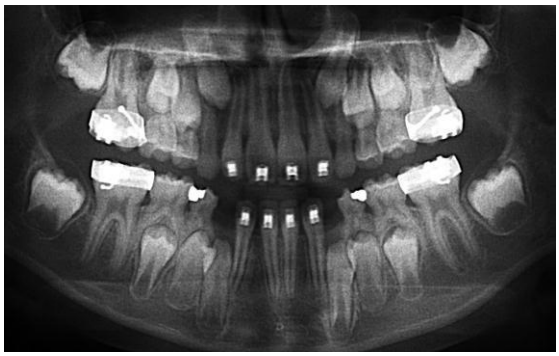
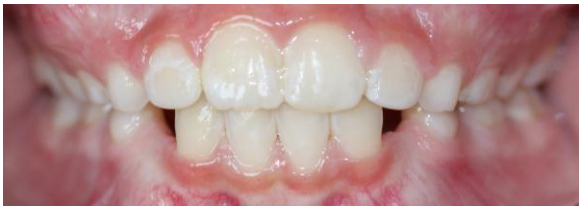
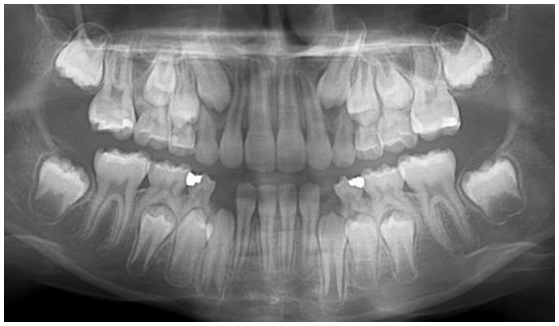
Severe Crowding due to Narrow Maxilla affecting Eruption of Permanent Teeth

7y 9mo initial records reveal a narrow upper jaw with insufficient space for teeth; looking at the X-Ray, you can see the permanent teeth turned and crowded, blocking upper canines 100%.

9y 3mo progress records following expansion and limited braces to correct rotations as teeth finally had room to erupt. Note the added space in the X-ray around the un-erupted canines.

At **10y 4mo**, Phase I is complete and we are now holding space and awaiting permanent teeth.

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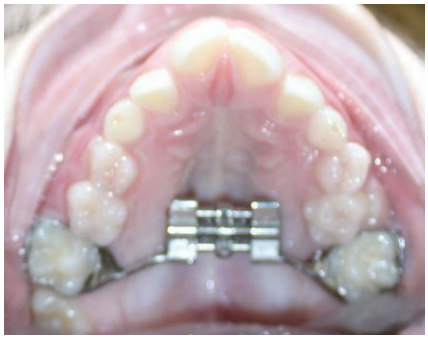
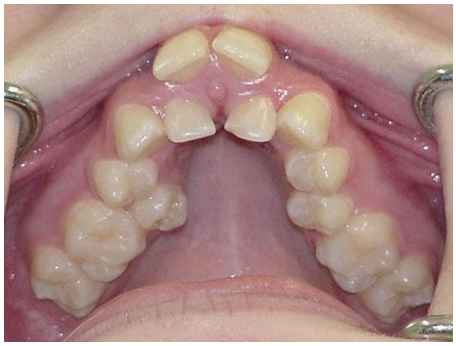
Expansion Therapy
Banded v. Bonded RPE

There are various types of Rapid Palatal Expanders (RPE's) employed to widen the upper jaw however there are significant differences in the effectiveness of each as demonstrated below:



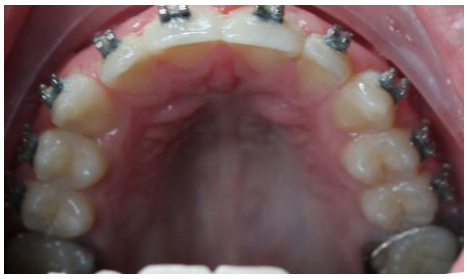
Patient A, after banded RPE, before bonded RPE

As is the case many times, a **banded** RPE will allow more dental tipping than actual skeletal expansion; Note the tipping outward of upper molars and the narrowness of the arch ***even after expansion (***above).



Patient B, before expansion, bonded RPE planned

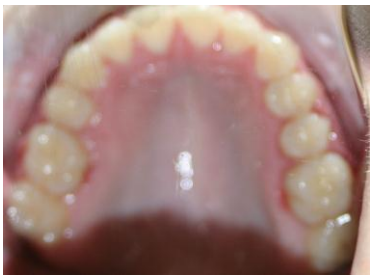
In this patient, a **bonded** RPE was used from the beginning to expand the maxilla. Note the expansion extends all of the way to front teeth, changing the actual shape of the arch itself (below).



Patient A, after correction with bonded RPE

Following removal of the original banded RPE, a bonded RPE was placed and braces later added. Note the new arch form and the larger circumference; the Maxilla now matches the size of the mandible front to back.

Typical Bonded RPE



Patient B following Bonded RPE Expansion

The same patient following full braces; a single tooth was removed (upper right 2nd bicuspid) but the remaining teeth were aligned within the new larger circumference.

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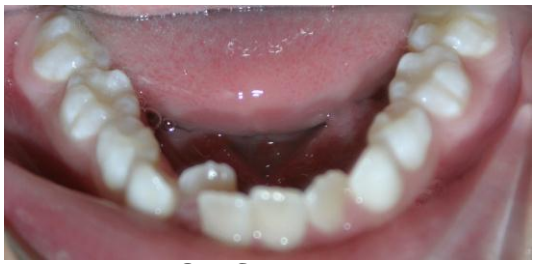
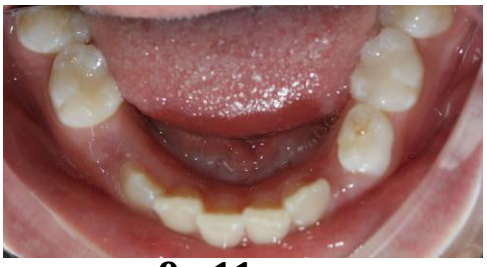
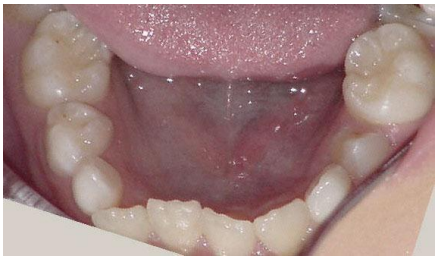
Early Removal of Lower Primary Canines to Alleviate Crowding; No Braces



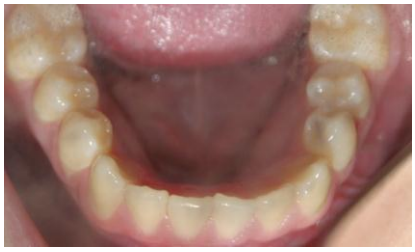
8y 6mo



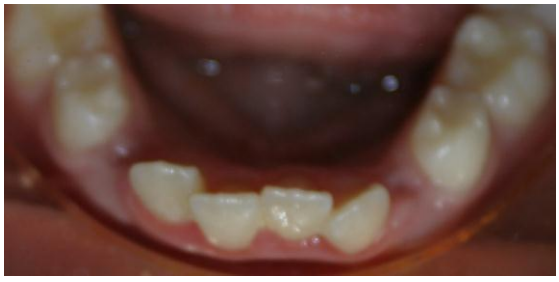
9y 11mo



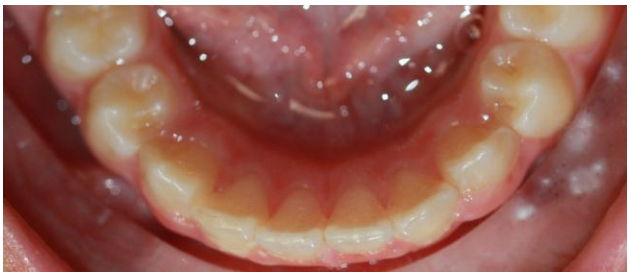
8y 11mo



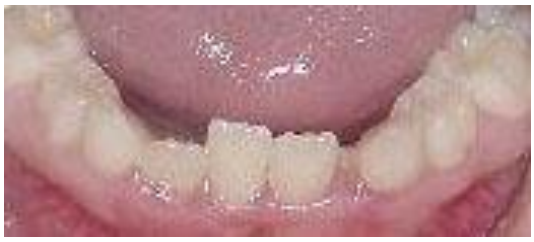
12y 8mo



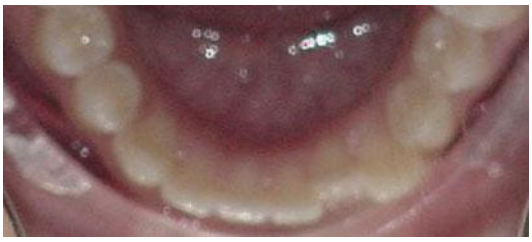
9y 6mo



12y 6mo



8y 1mo



12y 1mo

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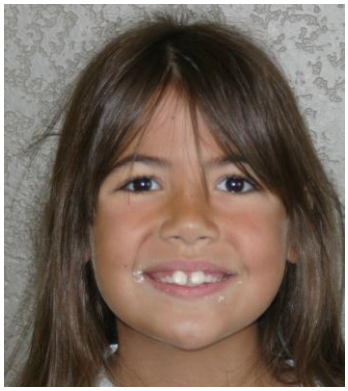
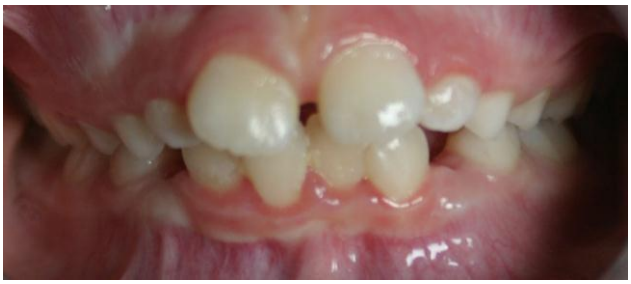
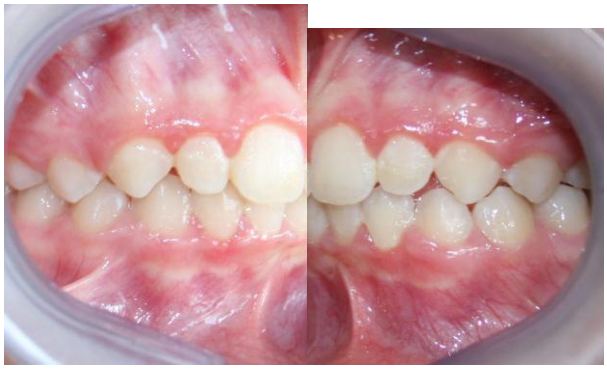
Narrow Maxilla w/ Severe Crowding, RPE and Early Treatment Only





9y 10mo Initial Photos showing narrow maxilla with severe crowding; treatment was planned for Phase I early expansion and limited braces to align upper incisors.





13y 3mo Expansion was completed after 6 months and limited braces used for a total of 12 months; The rest of the teeth were allowed to erupt into the space created. Note the solid occlusion when viewed from the sides (left and right photos combined to show occlusion).

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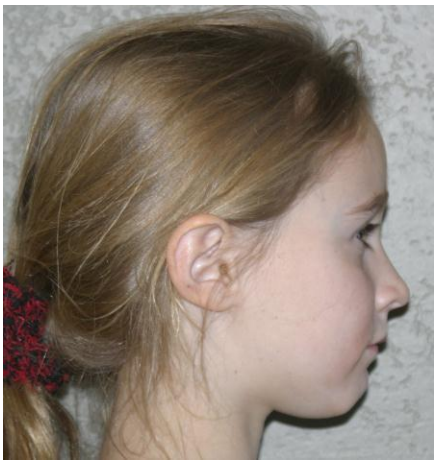
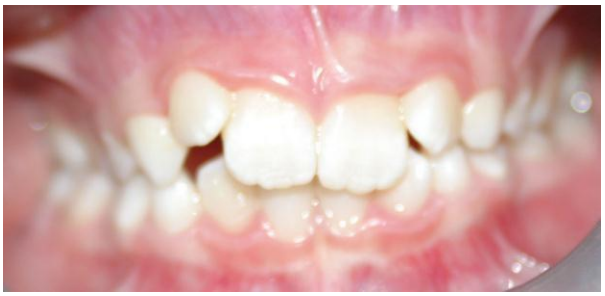
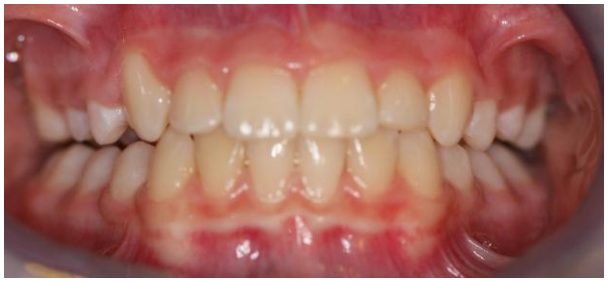
Early Expansion with Limited Braces

This young lady presented with a narrow maxilla and severe crowding; Note how her back teeth remain in a shadow and how her lower arch is wider than her upper arch.





A bonded RPE (expander) and 8 months of limited braces were first used to expand the narrow maxilla and align upper incisors establishing her arch form. Then the teeth were allowed to erupt over the next 18mo without braces. There was no need for further braces as teeth settled.

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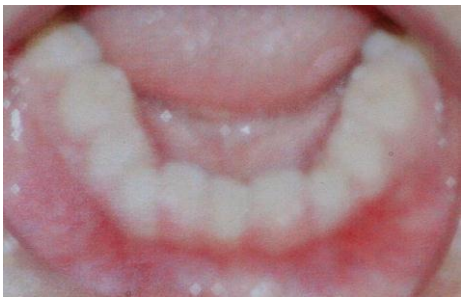
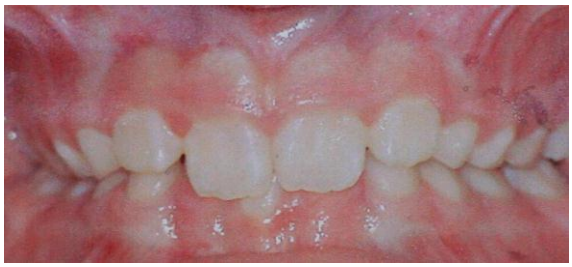
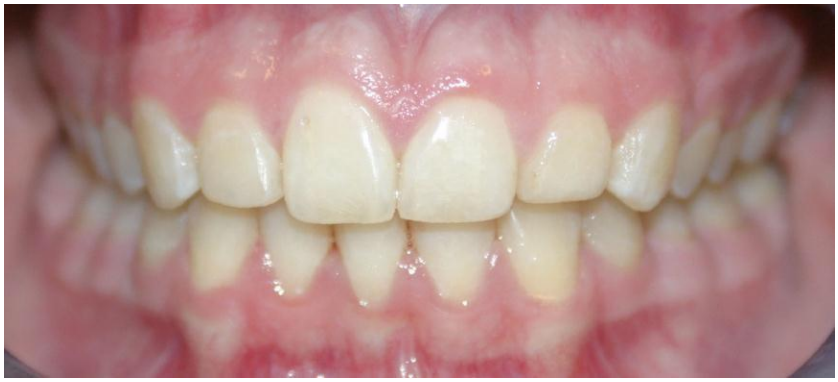
Early Treatment of Congenitally Missing Lower Incisor

This **10 year old young lady** was born missing a lower incisor. This causes a discrepancy in arch forms between upper and lower teeth as the lower arch is now 5 to 6mm smaller. Above, you can see the deepbite created fromthe now smaller lower arch. Front incisors folded back as well.

Now after early intervention with limited braces, we have finished the Phase II full braces and the same younglady is back 12months following removal. Note the deepbite has been resolved and upper incisors aligned. Occlusion was restored to ideal, despite the missing tooth, by reshaping between upper teeth to make up for themissing lower tooth structure. One would be hard-pressed to detect the missing tooth now.

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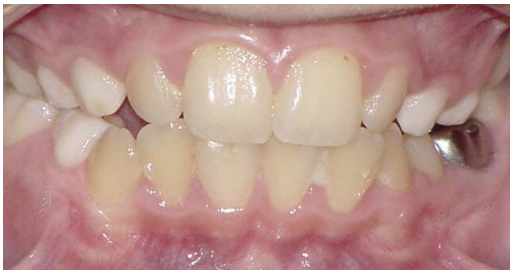
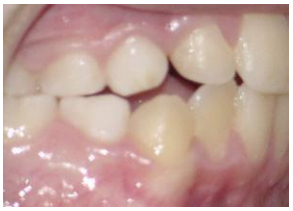
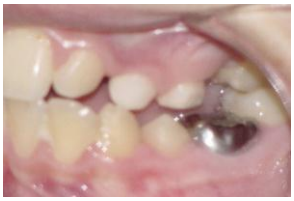
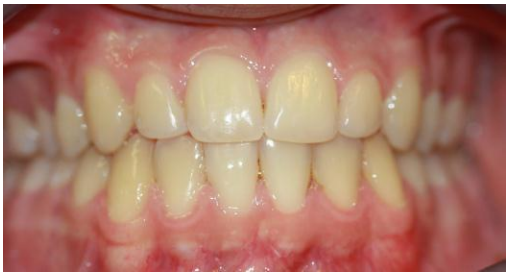
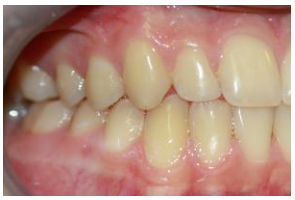
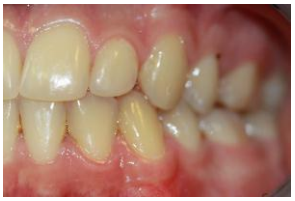
Unilateral Congenitally Missing Bicuspids, Crossbite and Canted Occlusal Plane

11y 5mo Initial photos. Patient presents with a canted occlusal plane (high on his right) as well as bilateral posterior crossbite and **missing upper left/lower left 2nd bicuspids**. Primary molars are retained and ankylosed (fused to the bone and submerged). Early Phase I treatment was started to correct the crossbite and begin closing spaces unilaterally from missing teeth.

17y 4mo Post-retention photos. Patient was treated with braces to level his occlusal plane, correct his crossbite and close all space from the missing bicuspids. Space remains closed from the missing teeth and midlines remain centered. No restorations were needed since all space was closed; Photos taken 2 years after Phase II full braces/orthodontics.

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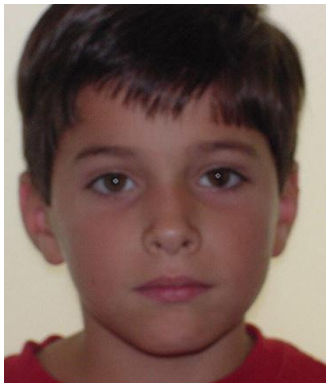
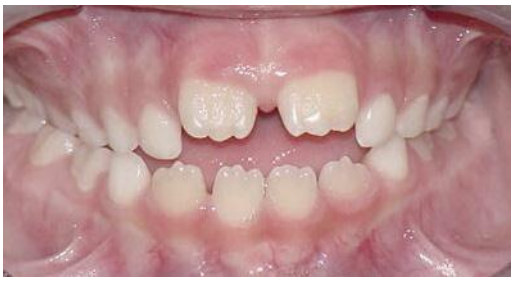
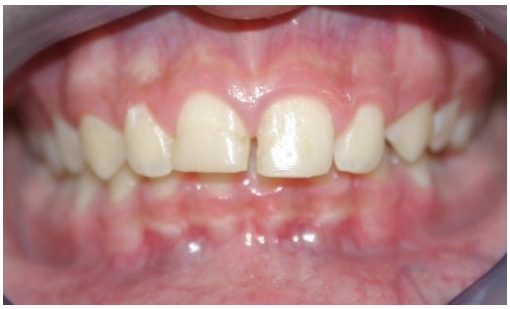
Early Treatment Employing Bonded RPE to expand and Close Openbite



This 7y 5mo young man presented with persistent thumb sucking and an anterior openbite with bilateral posterior crossbites. His lower jaw shifts laterally to his right side due to the poor fit between upper and lower arches.



Following a bonded RPE, you can see the upper jaw has been widened and the open bite closed without braces. These pictures were taken 4 years after removal of the RPE illustrating the stability achieved with early treatment to close an openbite.



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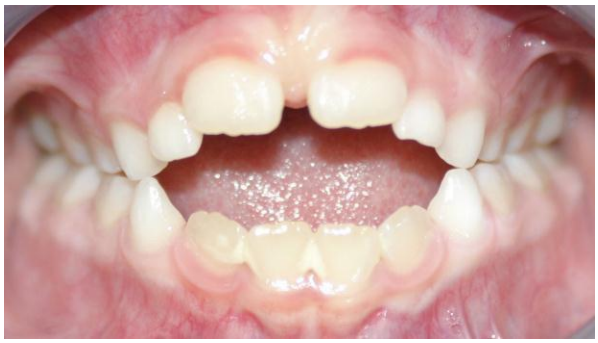
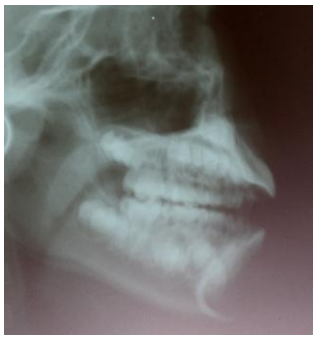
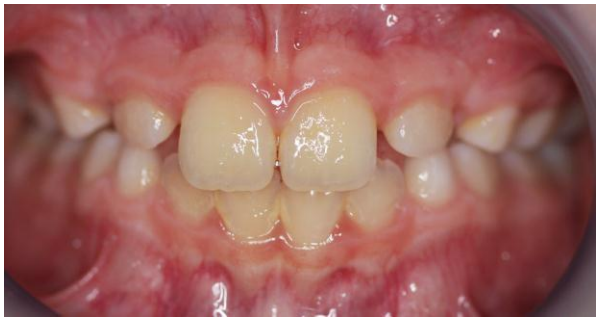
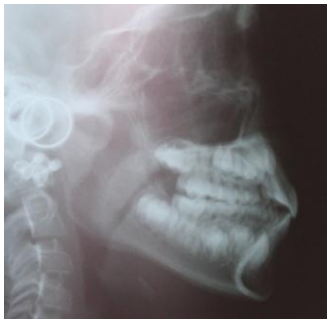
Anterior Openbite with Diastema and Strong Frenum

(Treatment with bonded RPE and limited upper braces)

7y 8mo Initial Photos and X-Ray showing severe anterior openbite and narrow maxilla with heavy maxillary frenum and 2.5mm midline diastema (space).

9y 4mo Photos taken 6mo after removal of limited braces and 12mo after the removal of a bonded expander. Note the soft tissue between central incisors has accommodated to the closed space without need of frenectomy and the bite has been closed completely (and remain closed).

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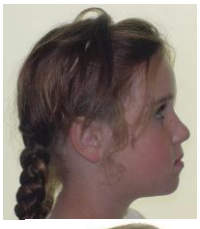
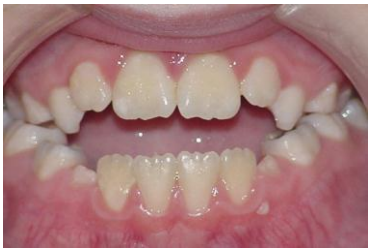
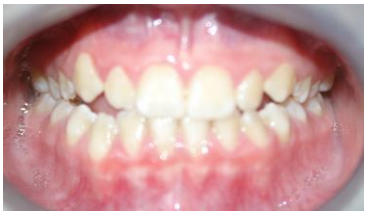
Early Treatment of Severe Skeletal Openbite with Underbite

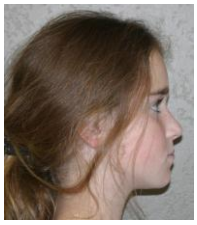



This **8y 6mo** young lady presented with a severe anterior openbite and full underbite with bilateral posterior crossbites. In other words, she had skeletal discrepancies in all three dimensions; Vertical, Transverse and Anterior-Posterior.

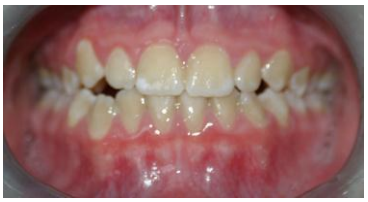


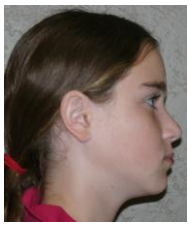

Now at age **9y 9mo**, following expansion & protraction. Bite has closed from posterior intrusion using the fixed overlay of the bonded RPE.



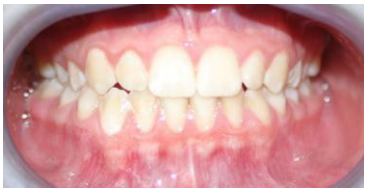



At age **10y 6mo**, the patient is being treated with a Frankel III removable appliance to relax muscles and help mold the continued growth and development.

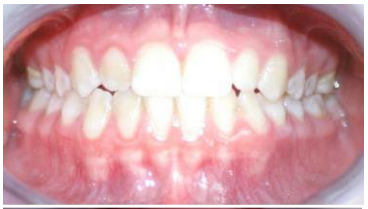


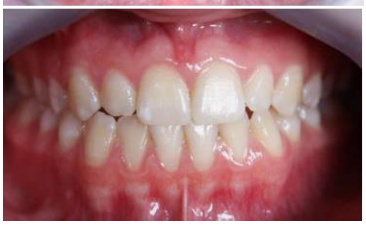
Now, **11y 1mo** we start to see the teeth settling into occlusion without braces.




By **11y 10mo**, the teeth are stabilizing but remain tight at the right cuspids. Growth has continued and we have fought this with the Frankel III and an added removable Guidance positioner (still no braces).




By **13y 2mo**, growth is subsiding to a base-line level and we can see the stable outcome of the Early treatment without braces. Now we can make a decision if braces are needed To finish or we can leave the bite alone.



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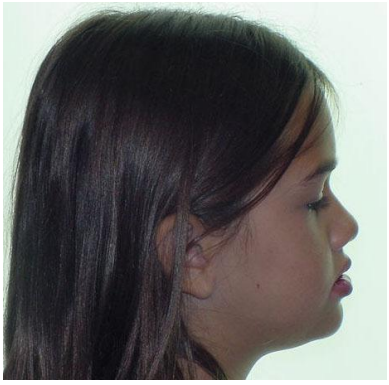
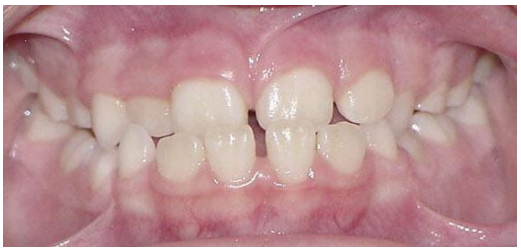
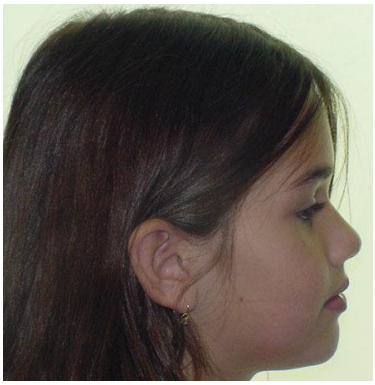
Early Treatment of Underbite ~ No Braces

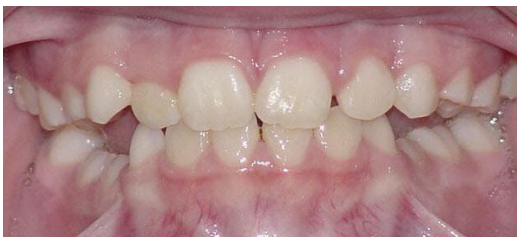


This 8y 0mo young lady presented with a typical Class III underbite with mid-face deficiency and bilateral posterior crossbites. A bonded RPE with pro-traction headgear was employed to correct the crossbite and pull her upper jaw forward over her lower jaw.

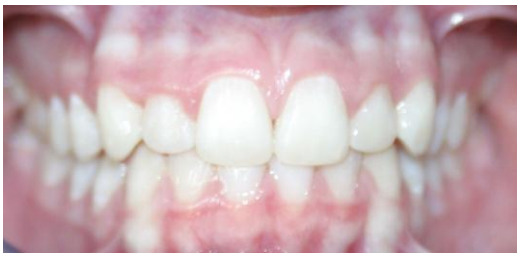


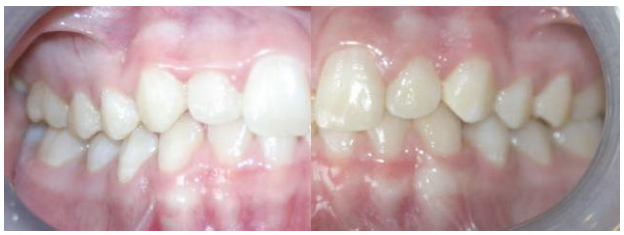


6 months later, the RPE and headgear were discontinued and a guidance appliance/ pre-finisher was placed to help hold the correction and allow the remaining permanent teeth to erupt into the new arch form. Note the over-correction of the expansion at this early stage of treatment.



Now after years of monitoring at age 13y 6mo, the patient presents with ideal Class I occlusion and perfect dental interdigitation. No braces were used at any time in treatment.





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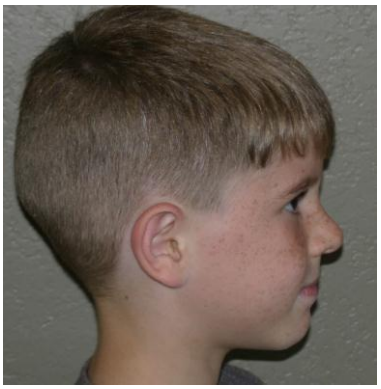
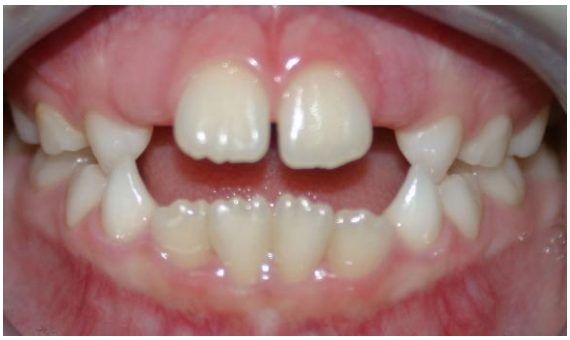
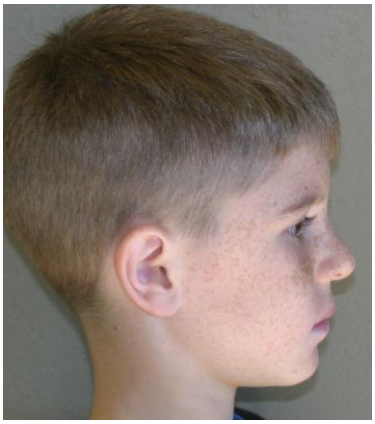
Early Treatment of Class III Openbite with Developing Underbite



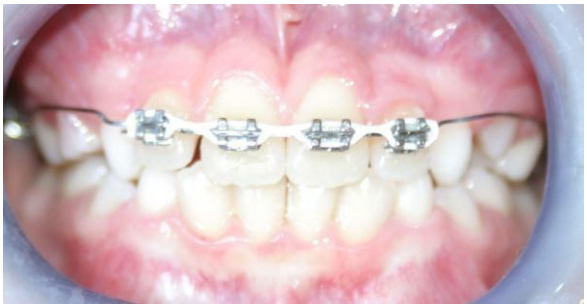
This 7y 8mo young man presented with a severe Openbite and developing underbite. There was no space for upper lateral incisors or upper cuspids and his profile revealed insufficient lip support.



Treatment began with a bonded RPE (expander) with fixed overlay and traction hooks; a reverse pull headgear was also placed and we proceeded to expand and protract his maxilla. By expanding, we also picked up more room for upper teeth. Upper incisors were bonded and aligned and the expander removed after 10months.



Now at age 9y 1mo, we have completely closed the patient's severe openbite while pulling his upper jaw forward out of underbite. Alignment is all but complete and we will now be removing braces to await permanent teeth to erupt. Note also the improvement in the profile with increased lip support and a full midface.



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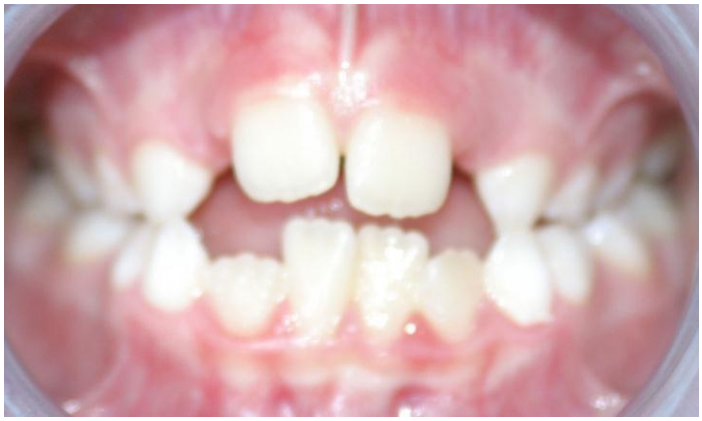
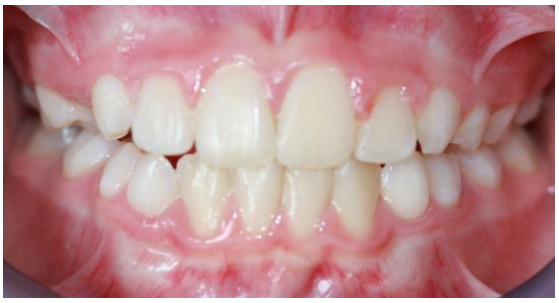
Early Treatment of Class III Posterior crossbite with Anterior Openbite and Developing Underbite



This 7y 7mo young lady presented with a bilateral posterior crossbite, anterior openbite and developing Class III underbite. The decision was made to correct some of the more severe skeletal discrepancies now so that we have a manageable orthodontic case later.



Now at 9y 7mo, we have expanded her maxilla to correct her crossbite, opened space for the blocked out teeth, closed the openbite while pulling her upper jaw forward into a better relationship. At this point, we will monitor until the remaining permanent teeth have erupted and we can decide on full braces.

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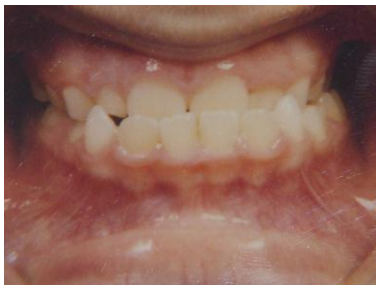
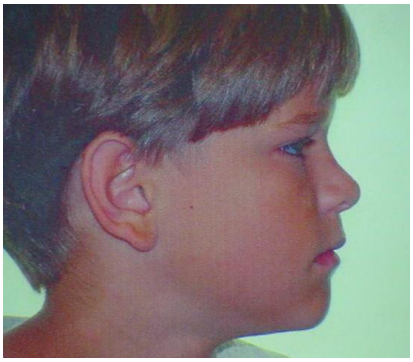
Class III Correction with Traction and Frankel III Therapy

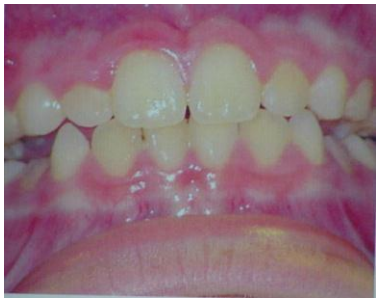
This 8y 4mo patient presented with a Class III malocclusion, full underbite, and a severe midface deficiency. As is usual in midface deficient patients, the maxilla is under-developed in all dimensions which creates a posterior crossbite as well. There is a 2.0 mm lateral shift with a 1.0 mm anterior shift.



Treatment began with a rapid palatal expander (RPE) and Protraction (reverse pull) Headgear for 6 months. The appliances were then removed and the teeth allowed to "settle" for 3 months.

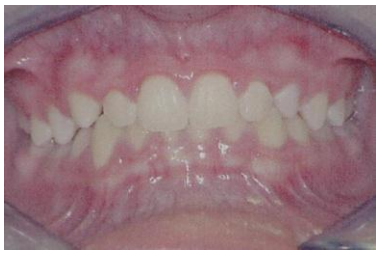


Now at 10y 1mo, after Traction, notice the full midface with upper lip support and normalized profile. Of course also notice the correction of the anterior crossbite (underbite) as well as the posterior crossbite. We then placed a Frankel III orthopedic appliance to enhance maxillary growth and reduce mandibular growth while guiding eruptions.



Once in the Frankel III appliance, growth will be controlled to assist facial esthetics and to minimize future treatment, completely eliminating the need for surgical assistance despite the Class III growth.

At age 12y 10mo, the patient has completed Frankel III Orthopedic Therapy and all permanent teeth have been guided into the respective arches. There is minor crowding in the lower arch due to excessive lower jaw growth pushing the lower teeth into the upper teeth but an excellent profile despite a 5.5mm jaw discrepancy. We will now monitor until baseline growth then re-eval for braces.



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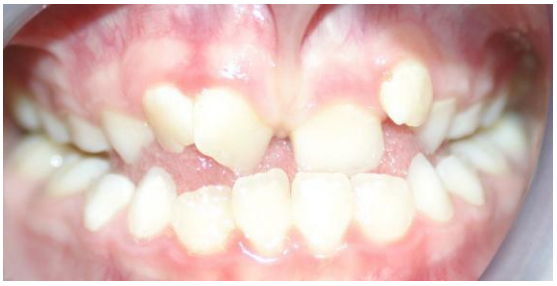
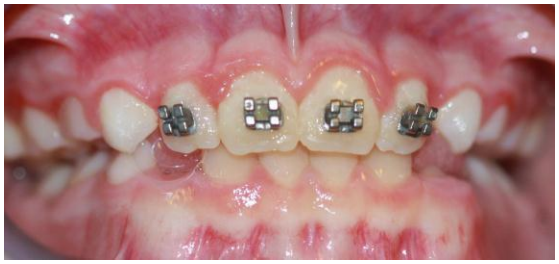
Early Treatment Class III Underbite with Crossbite



9y 9mo Initial Pictures, note the severe Class III underbite with severe crowding and poor angulation of upper incisors due to a narrow maxilla during development. Also take notice of the midface deficiency or "punched in" profile.



10y 7mo After maxillary expansion and protraction with limited braces to align the upper incisors. We have established the anterior arch form and now will await teeth. Once again, compare the new facial profile; the lower jaw will continue to grow and fill in the lower face now that the upper jaw is in the correct position.

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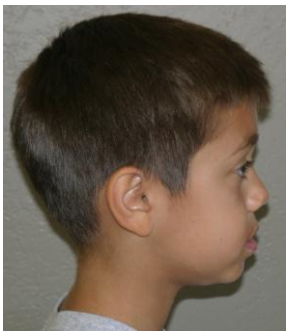
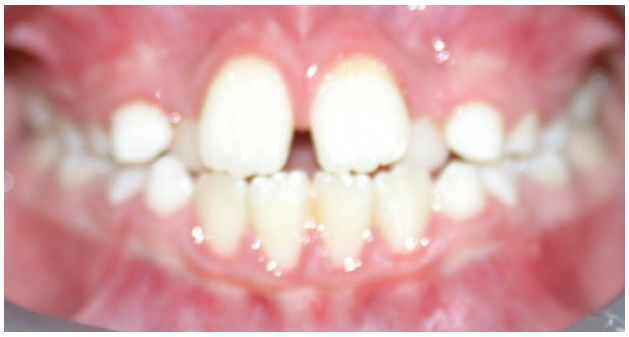
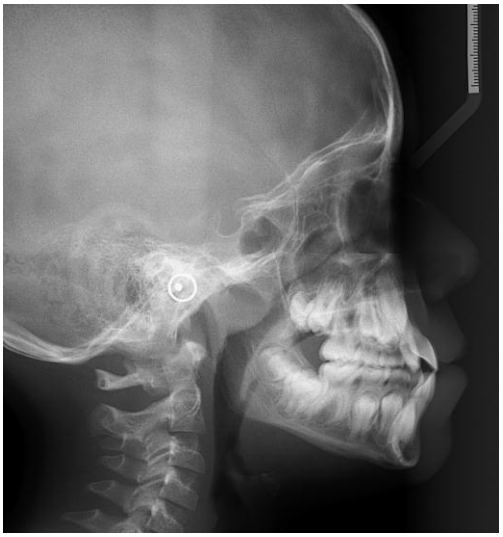
Early Treatment Class III Underbite and Severe Crowding

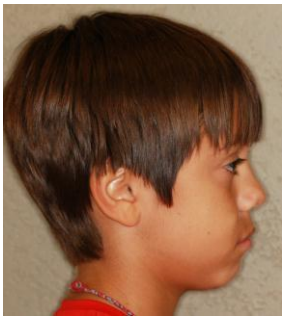


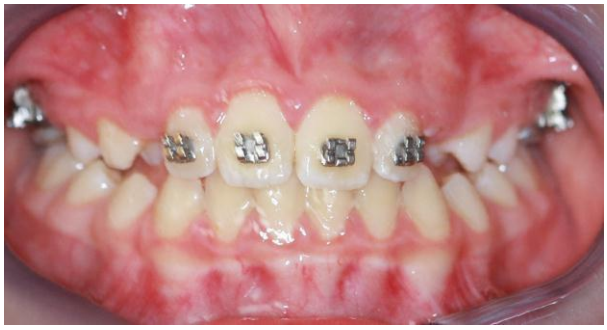


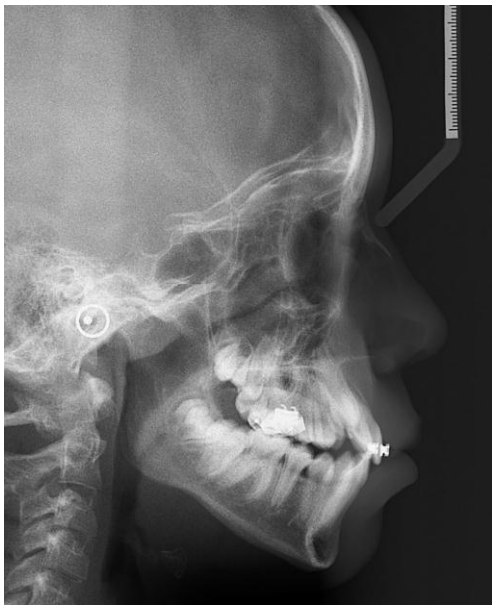


At 7y 6mo, this patient already presents with a significant underbite and severe crowding. Early treatment was performed to expand and pull his maxilla forward while aligning the front teeth.

Now at age 11, we can see the underbite correction has held and the profile is greatly improved. Braceswere then removed as we awaited the remaining growth and eruptions. Without early treatment it islikely this patient would require surgery to correct his underbite instead of just traditional braces.







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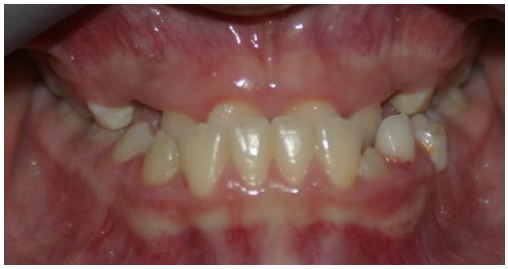
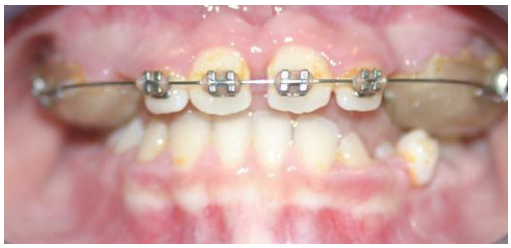
Class III Underbite, Early Treatment with Significant Growth





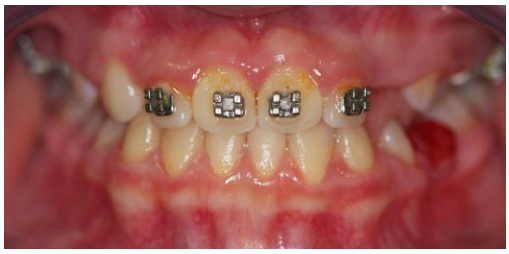
11y 9mo Initial photos revealing severe underbite with significant midface deficiency.





12y 1mo After 3 months of protraction headgear following expansion (immediate maxillary correction and initial alignment of incisors); note the space in the midline secondary to true skeletal expansion. The facial profile reveals the correction in the midface.





13y 5mo After another 14 months of growth, we can see the mandible come forward but the ovejet and overbite remain under control with limited braces. Future treatment will now be used to pull the lower incisors back further and upright the front teeth while improving profile.

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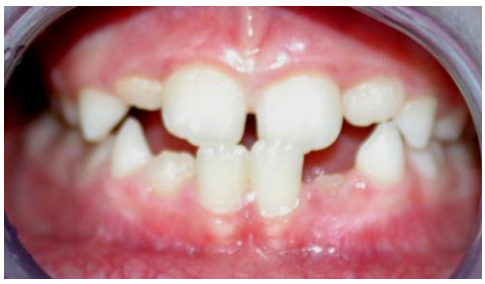
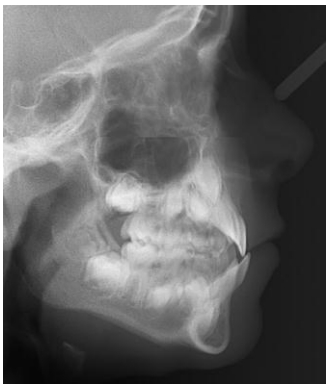
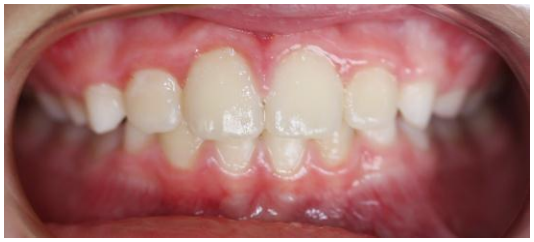
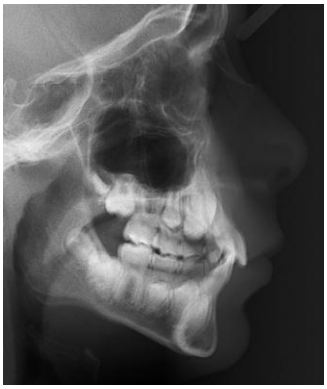
Class III developing Underbite with Posterior Crossbite and Severe Crowding; Early Treatment with RPE and limited braces

8y 7mo Initial Photos showing developing underbite with posterior crossbite and severe crowding of upper teeth.

10y 2mo, following expansion with a bonded RPE and limited braces to upper incisors. Alignment has been corrected on incisors as we establish an ideal Class I occlusion. If growth is not too severe we may not need future braces however if do need braces due to growth, we would expect a far more predictable outcome.

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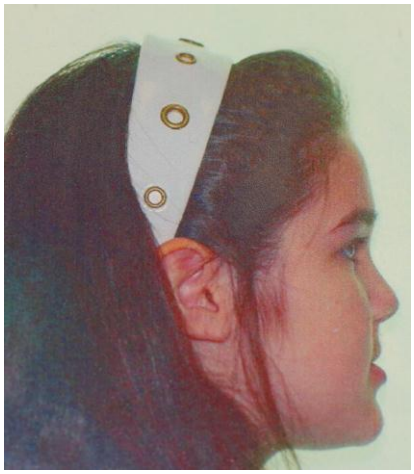
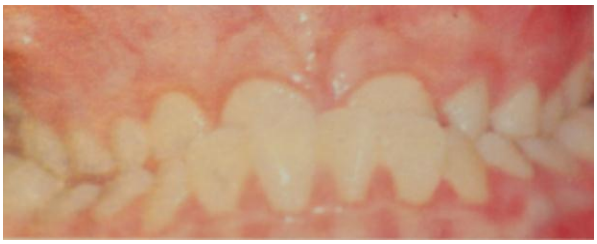
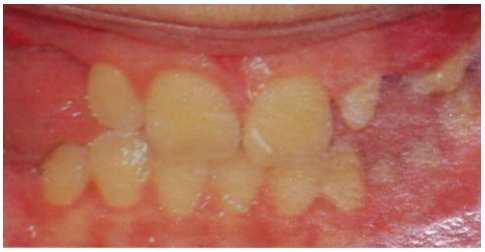
Early Correction of Underbite Only





This 9y 0mo young lady presented with a full underbite and classic midface deficiency seen in profile.



Now at age 10y 0mo, only one year after the initial photos were taken, the underbite has been corrected and the facial profile restored to the ideal withproper lip support.

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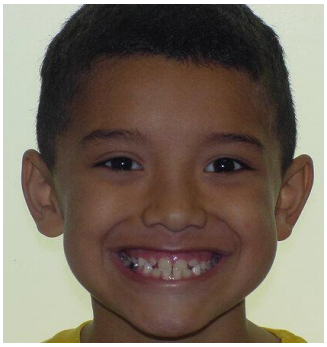
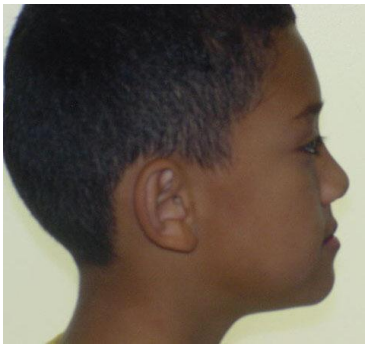
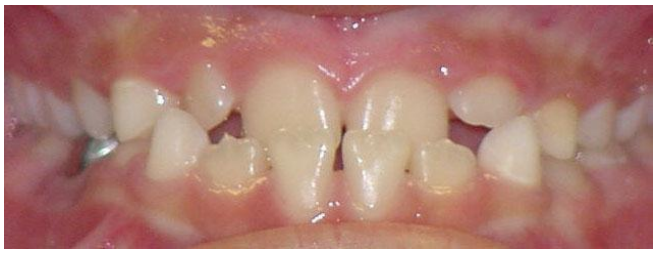
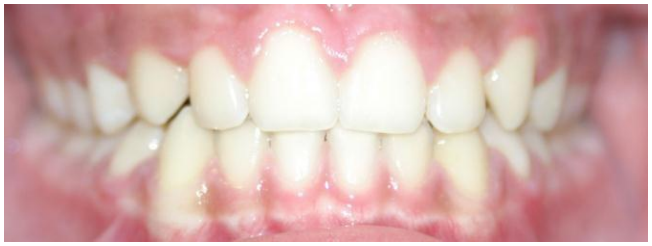
Early Treatment of Class III Underbite with Crossbite

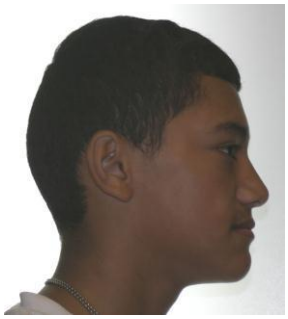
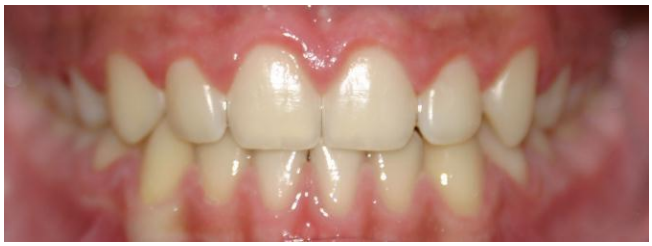




8y 10mo, Initial Photos showing full Class III Underbite with posterior crossbite.





11y 5mo, following Phase I treatment including a bonded expander (RPE) with protraction headgear and limited braces on his upper incisors.

13y 7mo, following additional 2 years of monitoring growth to make sure the early correction is still holding and the remaining teeth erupt and settle. No further Phase II braces were recommended. Note the facial profile changes following treatment.

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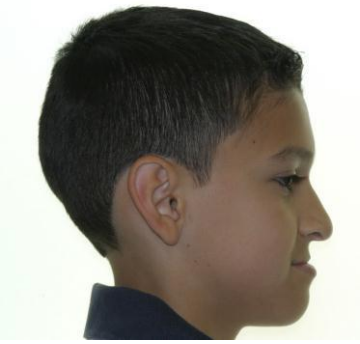
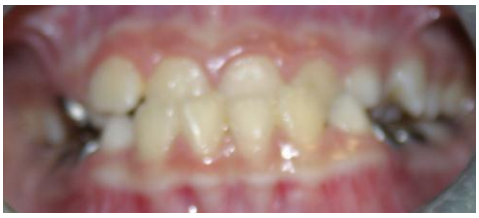
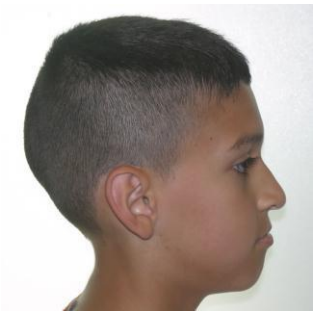
Early Treatment of Underbite, Early Expansion and Protraction with Limited Braces; No Need for Future Braces

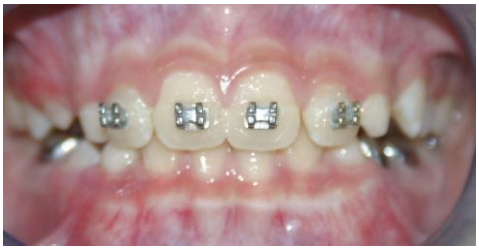


This 8y 9mo boy resented with a Class III underbite with canted occlusal plane and a significant lack of lip support. We placed a bonded RPE and added protraction head-gear to expand and pull his upper jaw forward.

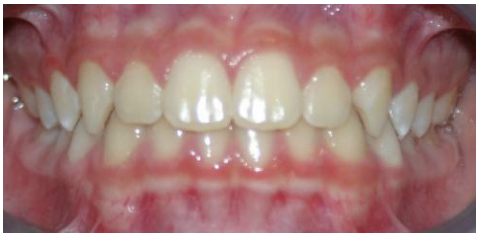




At 9y 5mo we have completed the expansion and the protraction of the maxilla and we have placed braces on upper incisors to align incisors and establish the anterior arch form. We take progress films to re-evaluate spacing for future teeth and we will remove braces to place a guidance appliance or a modified removable retainer to await teeth.



After monitoring for several years, now the patient is 12y 6mo and shows no mal-alignment. He has remained Class I with no propensity for further Class III growth. There will be no need for comprehensive braces and no need for retention. Braces were never used in the lower arch and only briefly in the upper arch at age 9y.



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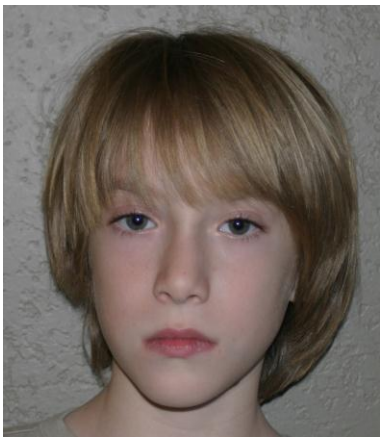
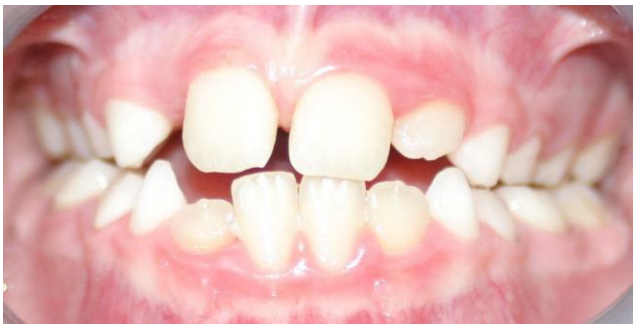
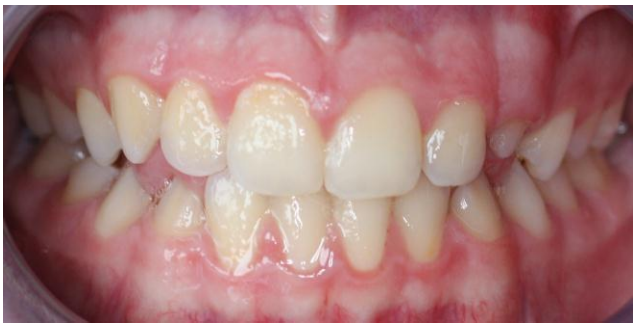
Early Crossbite Correction to Improve Facial Asymmetry





8y 6mo Initial photos showing narrow maxilla (upper jaw) and wider lower jaw (posterior crossbite) with a significant asymmetry pushing his lower jaw tohis right side and forward into a near crossbite; note the insufficient space for the un-erupted upper right lateral incisor.





12y 0mo, following expansion and initial alignment of upper incisors as spacewas opened for the lateral incisor; midlines have been corrected and the asymmetry improved. Note the bite is closed and the lower jaw no longer shifts to the right. Without early correction the asymmetry would have worsened making correction difficult without eventual surgery.

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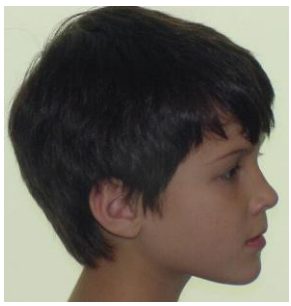
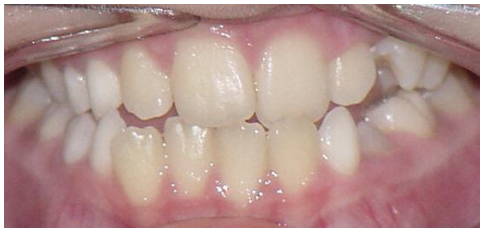
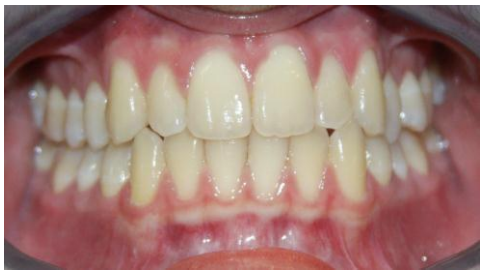
Early Treatment of Underbite, No Comprehensive Braces



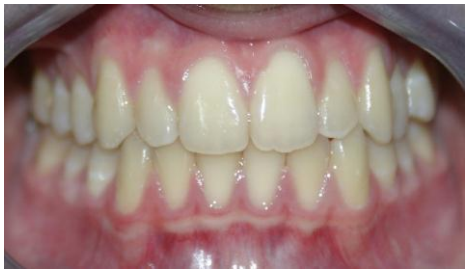
At **9y 0mo**, this patient presented with a significant developing Class III underbite including a 4mm lateral shift of his lower jaw toward his right. His maxilla was narrow to the point of crossbite and he exhibited significant crowding already. Treatment was planned to expand and protract (pull forward) his upper jaw while aligning upper incisors and removing lower primary cuspids.



Following **treatment for 15mo**, the underbite was corrected, space was opened by increasing the upper arch. The bonded expander provided a fixed overlay which acted asa splint to de-program the severe lateral shift. Even the facial profile demonstrates the correction of the once prominent lower jaw. As upper incisors were aligned, limited braces were removed and we maintained the correction with a removable guidance appliance/retainer as teeth erupted.



At age 12y 9mo, a full 2 years after completion of the Phase I Interceptive treatment, you see his teeth have settled into Class I occlusion and the Class III skeletal correction has remained solid. The correction previously seen in his profile has also remained leaving him with a solid Class I appearance. Function has been restored and esthetics maximized without ever going into full traditional braces.



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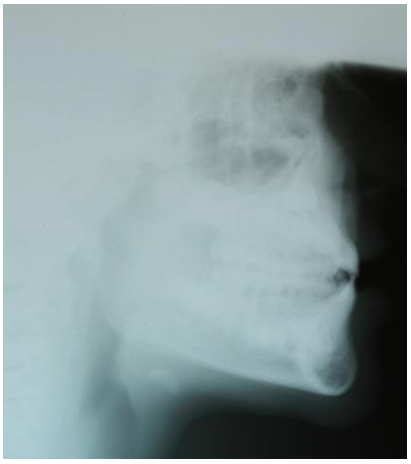
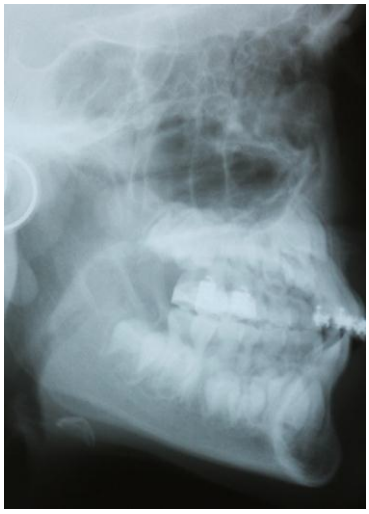
Facial Change from Maxillary Protraction (Early correction of Underbite)

This **7y 6mo** young lady presents with a mild Class III underbite due to maxillary hypoplasia (midface deficiency). Note the "punched in" appearance of her nose and cheeks.

The X-Ray to the right shows the true severity of the skeletal hypo-plasia. Treatment was planned to use a bonded expander (RPE) with head-gear to pull the upper jaw forward.



Now at **8y 11mo** you can see her upper jaw has been pulled forward to fill in the soft tissue of her entire midface. Not only have we corrected a developing underbite, but we have restored facial balance and provided normal overjet for this age. At this time, appliances will be removed and a guidance appliance placed to hold alignment and guide remaining teeth.



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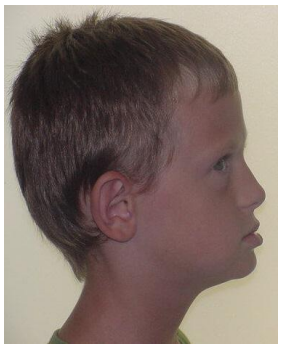
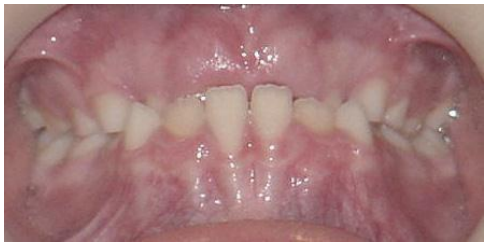
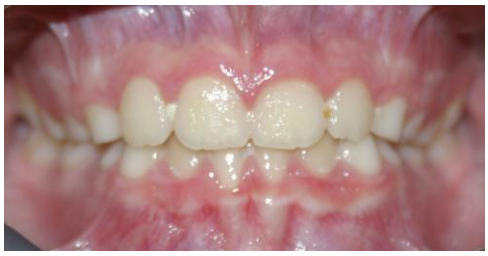
Early Treatment of Underbite in Autistic Child

This **7y 6mo** patient presented with a severe underbite; note that his upper teeth are over-erupted and behind his lower teeth. Also you can see that his entire middle face is sunken inward as his lower jaw is pushed forward.





Compare him now at **9y 6mo** following Phase I Early interceptive treatment which included expansion and protraction of his upper jaw. Not only can you see his upper incisors now, but they have been corrected to ideal overjet and overbite as the upper jaw was expanded and pulled forward. Note the facial improvements as well.



At this stage, the patient will be monitored every 6mo to follow growth and assure that the remaining permanent teeth erupt normally. Some of these cases may avoid further treatment altogether while most others will require minor braces once the permanent teeth are fully erupted and/or growth subsides to a baseline level.

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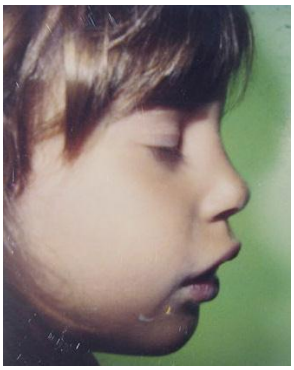
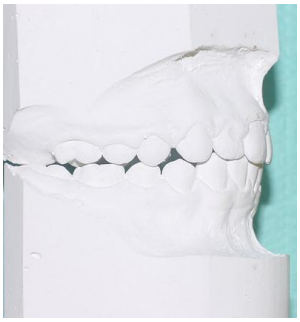
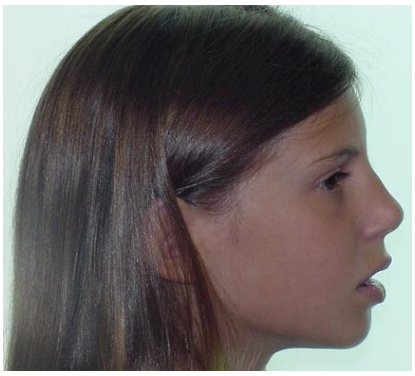
Severe Class II Treated with Frankel and Positioner; NO BRACES

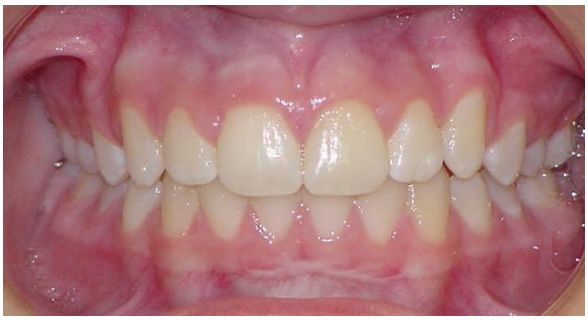


This **7y 7mo** female patient was referred for severe protrusion. She was fitted for a Frankel II Orthopedic Appliance which was used full time for roughly 30 months.



At age **11y 8mo**, the molars had been corrected to a solid Class I relationship and all permanent teeth 2nd molar to 2nd molar had erupted. Note the super-Class I relationship now evident. A guidance appliance (positioner/pre-finisher) was then employed to align the teeth and settle the bite.





At age **12y 4mo**, this patient's bite has settled and the teeth aligned **without braces** (and of course without extractions). The dramatic facial improvement and the beautiful arch development are all due to the patient's natural growth process which was modified and enhanced during the pre-pubertal growth spurt and guided with the Frankel appliance. Instead of headgear pushing the upper molars back to match the retruded lower molars, the lower jaw was brought forward, along with the molars, and the "bad" lower position was matched to the "good" upper position of teeth. The positioner/pre-finisher was further used as a night-time retainer for 18 additional months to hold the correction through any latent growth.

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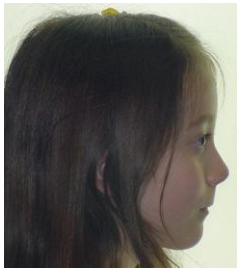
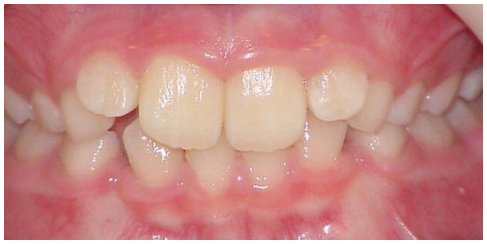
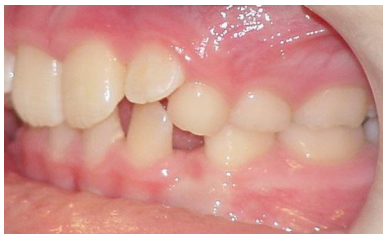
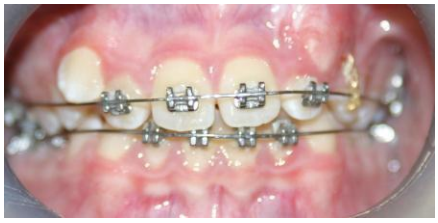
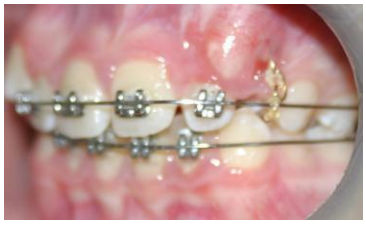
Class II Division II with Impacted Cuspid

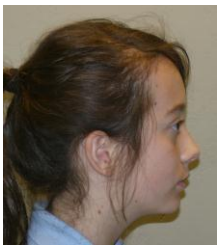
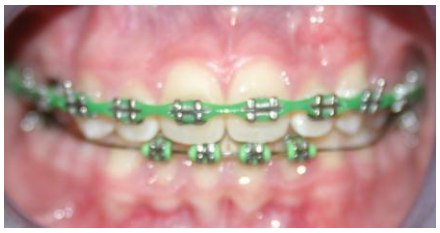
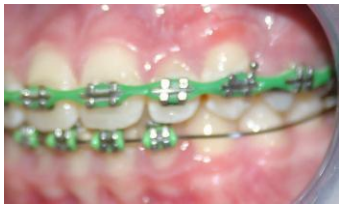





8y 7mo Initial photos, impacted upper left cuspid, Class II Division II malocclusion.



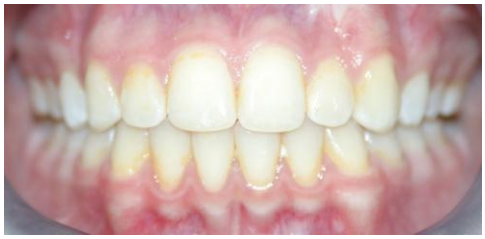
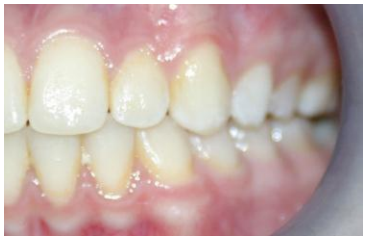



12y 2mo Braces begun with exposure tooth #11 following expansion (note the gold chain attached to the impacted tooth on the patient's left side).

12y 10mo 10 months into full braces, tooth #11 aligned, adding remaining braces.



14y 6mo 12 months into retention (after braces), with ideal overjet and overbite.

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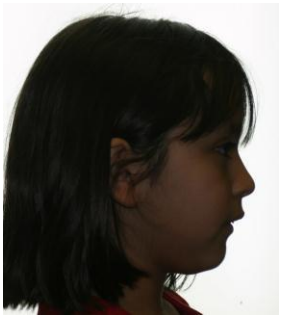
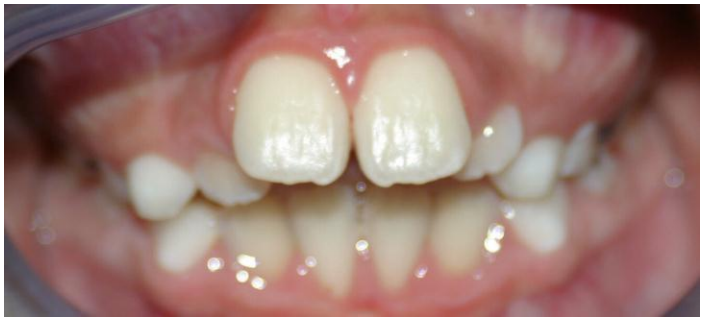
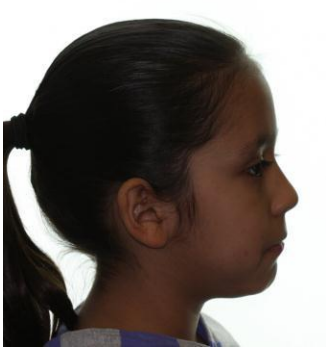
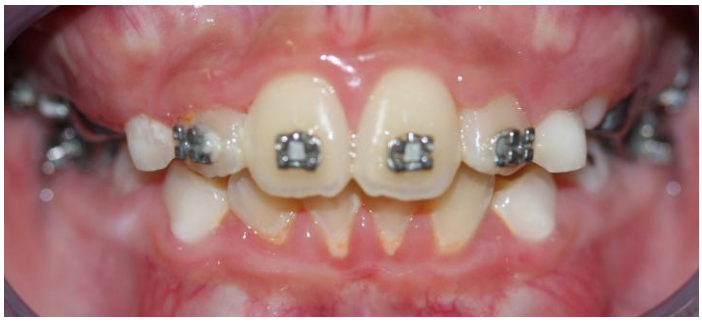
Early Treatment
Class II Severe Division I Narrow Maxilla

9y 2mo Initial Photos showing severe mandibular retrusion & significant dental protrusion w/ 14mm overjet and an openbite. Note the severe crowding secondary to her narrow maxilla.

10y 0mo Less than one year into Early treatment which including a bonded expander (RPE) with limited braces and Class II mechanics. As the expansion was completed, the lower jaw was "un-locked" and elastics were used with a lower holding arch to de-program the distal shift upon closure and enhance remaining growth. Space was created through expansion to align upper incisors and establish arch form. The bite was closed through intrusion of maxillary teeth and retraction of upper incisors. Note the improvement in profile and reduction of overjet from 14mm to 2.5mm.

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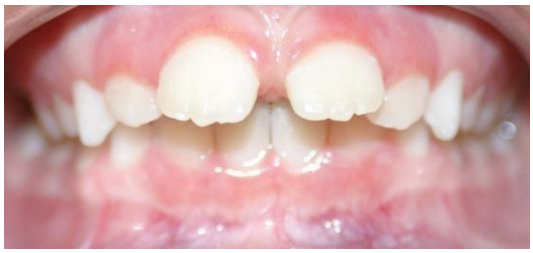
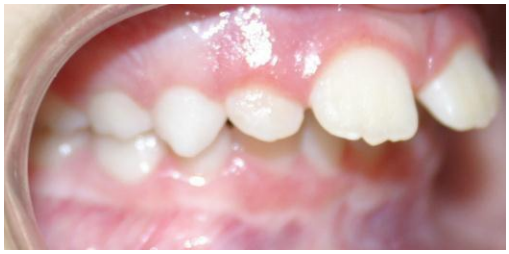
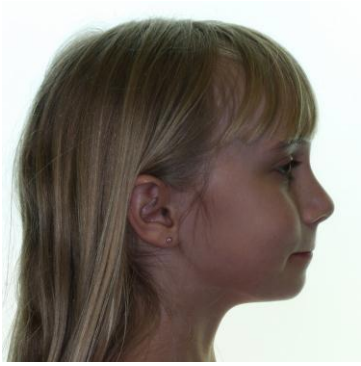
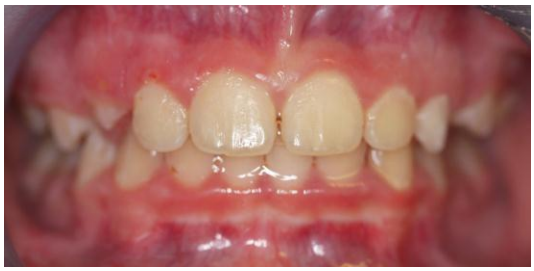
Class II Severe Overjet Early Treatment

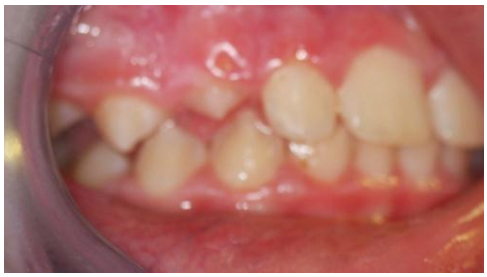




7y 1mo Initial Photos showing severe Class II skeletal relationship with 12mm overjet and deepbite into her palate. Take special note of the retrognathic mandible in profile.







9y 8mo After expansion and 12months Frankel II Orthopedic therapy, maxilla was widened, deepbite was opened to ideal overbite and overjet was corrected to ideal through enhancing mandibular growth. We will continue to hold this position with the Frankel appliance until permanent teeth have erupted and locked the patient's occlusion into Class I relationship.

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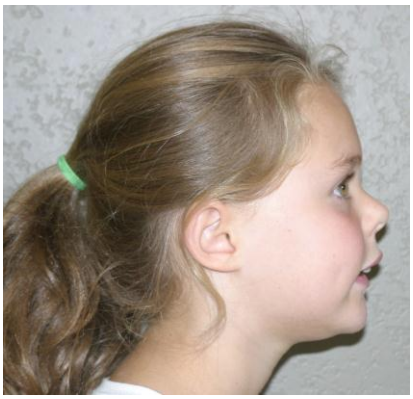
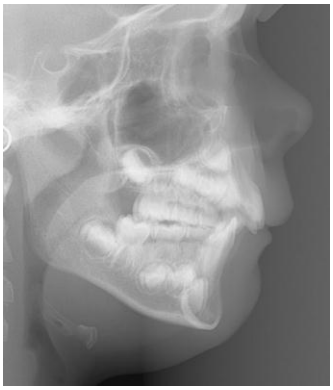
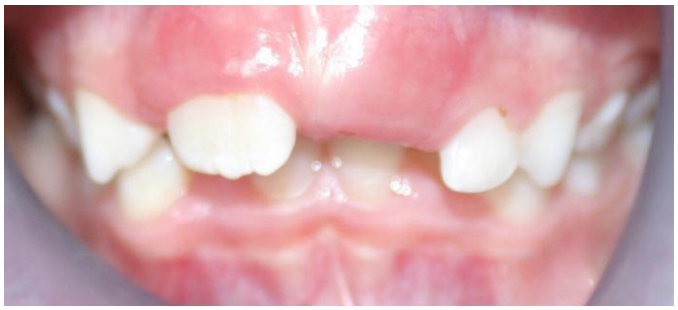
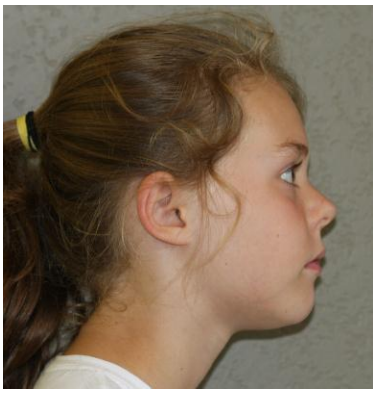
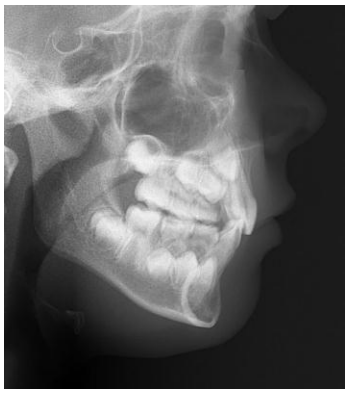
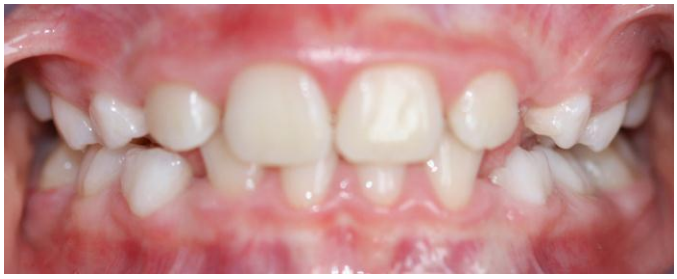
Class II Early Treatment

7y 4mo Initial Photos showing severe Class II with excessive overjet, narrow maxilla and deepbite into her palate. Note the patient's lips do not close at restdue to the 9mm overjet and complete deepbite.

9y 0mo Following Phase I treatment including expansion and limited braces, note the increase maxillary width, space opened for tooth #7 and overjet corrected to ideal from a 9mm discrepancy. Molars and the facial profile arenow a solid Class I as we await the remaining teeth.

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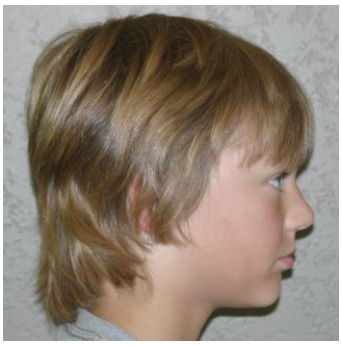
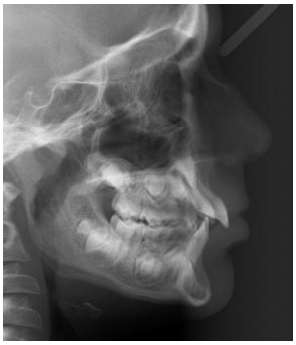
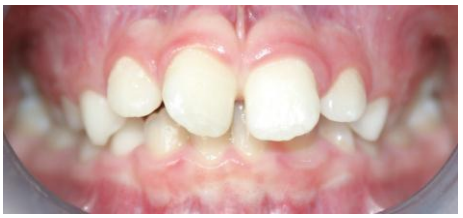
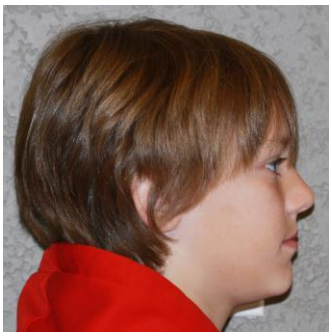
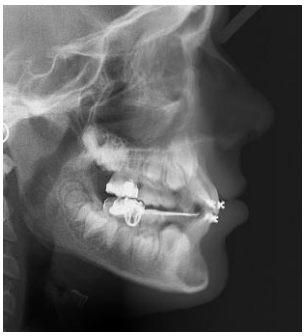
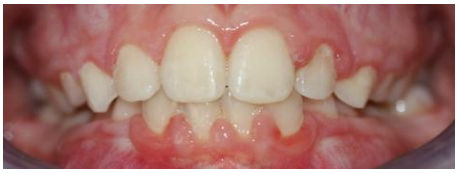
Class II Division I Early Treatment

8y 2mo Initial Photos showing Class II Division I malocclusion (Upper incisors pushed outward). Note the severe dental protrusion with 7mm overjet and deepbite into his palate.

9y 10mo At the end of Early Phase I treatment, note the correction of his profile from a retruded chin to a straight profile. Overjet and overbite have been corrected to ideal and alignment has been corrected to establish ideal arch form for future teeth to erupt.

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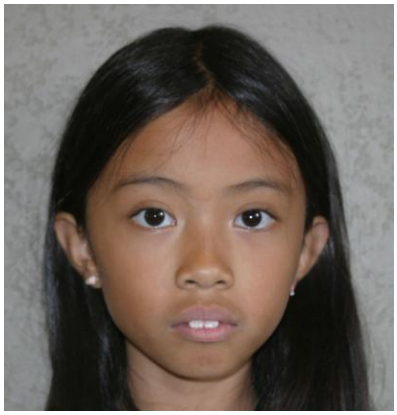
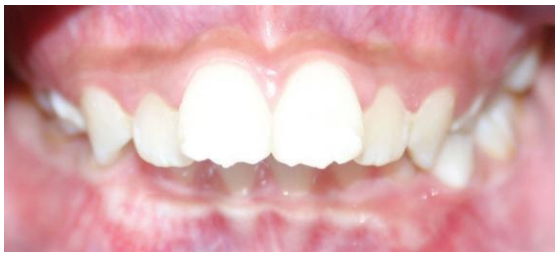
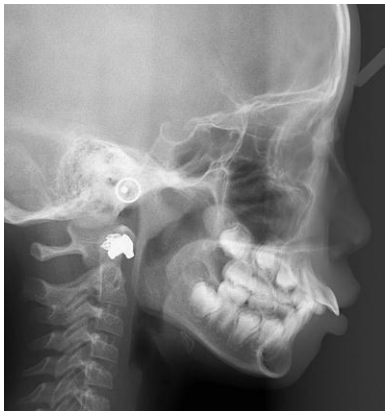
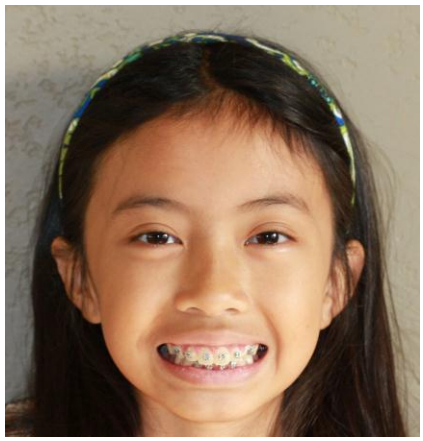
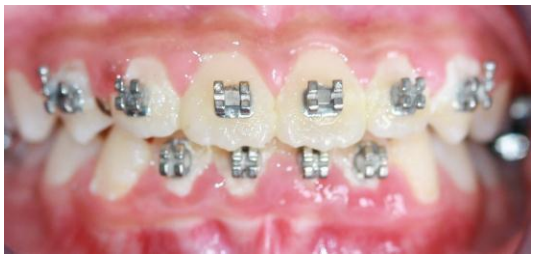
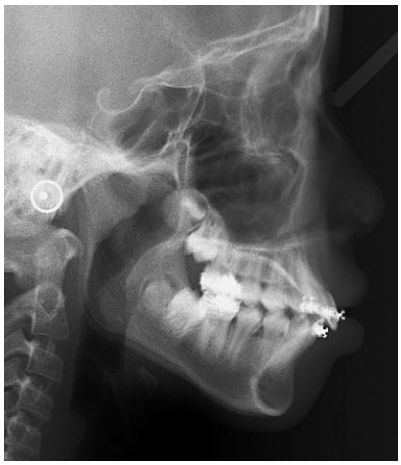
Early Treatment of Class II Division I

9y 2mo female, severe overjet with bilateral posterior crossbite and protrusion. Treatment included a bonded expander **(RPE)** for 6mo with limited braces for another 8mo.

Now at **10y 6mo,** we are ready to add the final braces and finish the correction.

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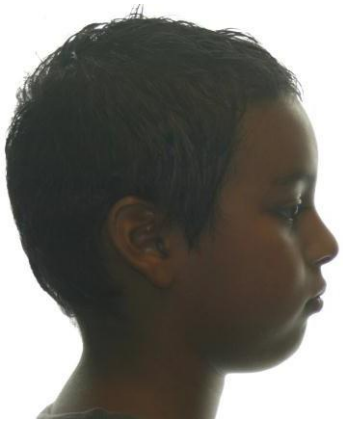
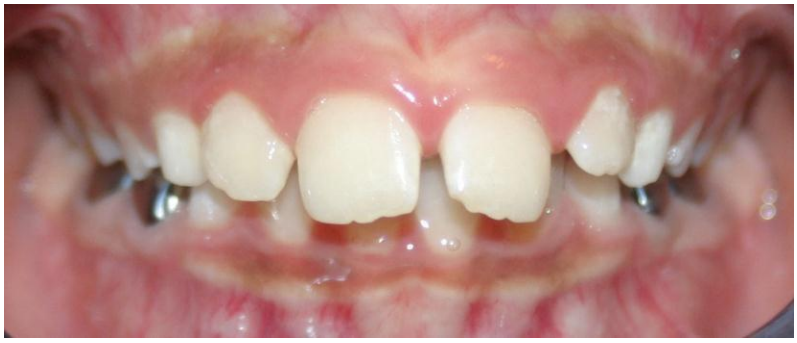
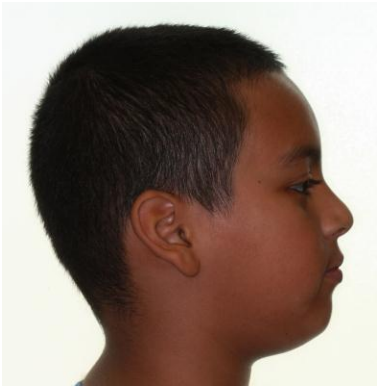
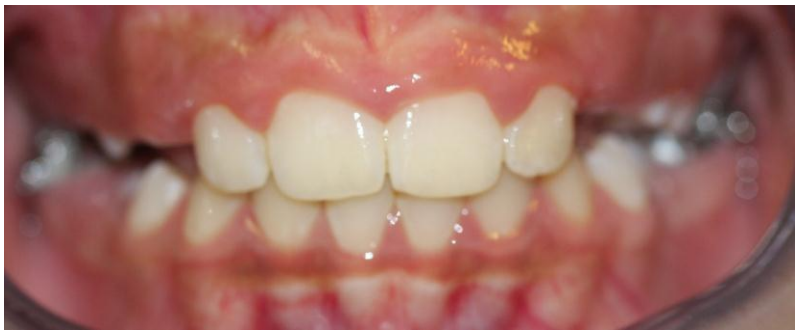
Class II Early Treatment RPE and Limited Braces





7y 11mo Initial Photos, Note the Deepbite into the palate, significant midline discrepancy and the excessive **overjet of 9mm**.





9y 8mo Post-Phase I Ortho, You can see the midlines were corrected, the biteopened and the overjet corrected to ideal. The orthopedic (skeletal) and orthodontic (dental) corrections can be seen in the patient's profile pictures.

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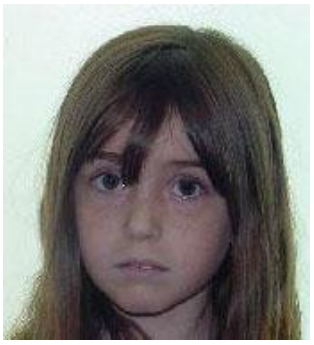
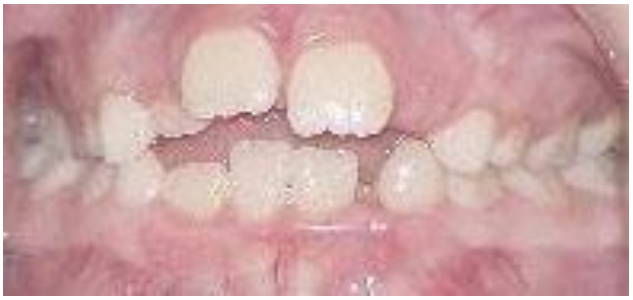
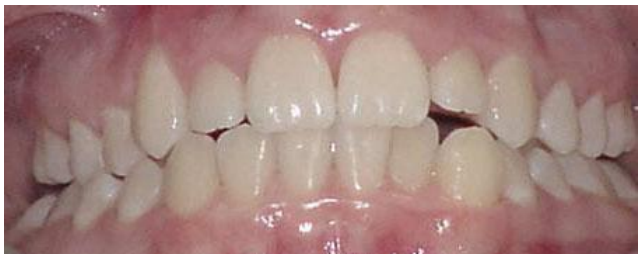
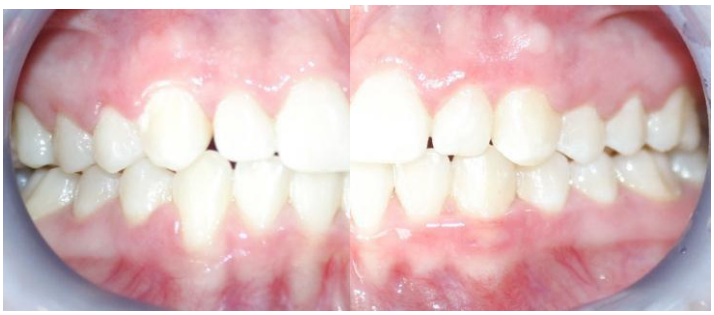
Severe Crowding, RPE and Frankel II followed by Phase II Braces

8y 10mo Initial Photos showing Class II malocclusion with severe crowding, anterior openbite and narrow maxilla with excessive overjet of 8mm.

11y 2mo Phase I Expansion and Frankel II therapy is now complete and the remaining permanent teeth have erupted. Note the lower jaw has been brought forward to correct the overjet and the bite has been closed. Space was created so that no permanent teeth were lost or removed. All that is left is to complete alignment and fit the teeth together.

13y 4mo 10mo after braces were removed, all teeth are aligned and holding well.

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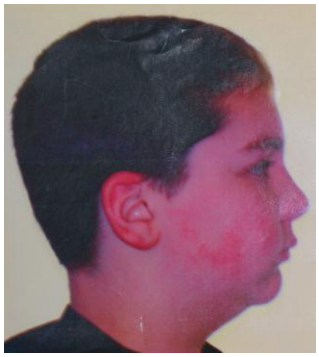
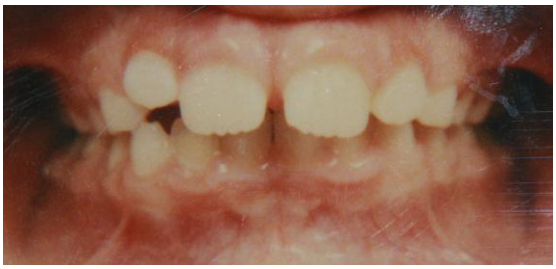
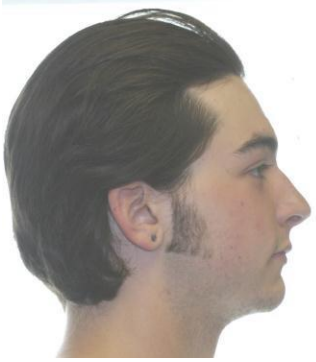
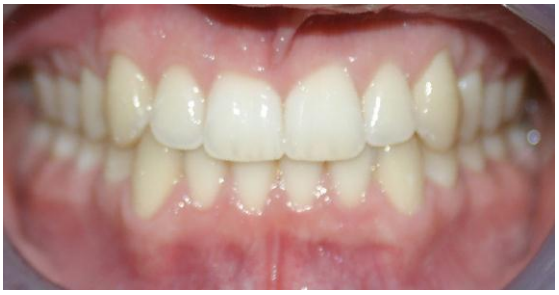
Early Treatment Class II w/ Excessive Overjet, Non-extraction; 6 year post-treatment pictures





8y 0mo Initial Photos showing a severe Class II malocclusion with a narrow maxilla, insufficient space for existing teeth and retruded mandible. Phase I early interceptive treatment was performed to enhance lower jaw growth and increase arch development to make room for all teeth.





20y 5mo Now, a full 6 years after comprehensive Phase II braces. Note the dramatic change in profile as well as the stable orthodontic correction with ideal overjet and overbite.

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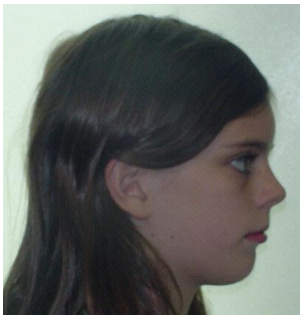
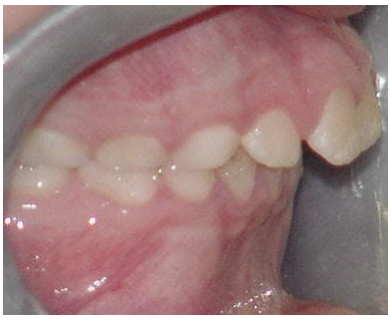
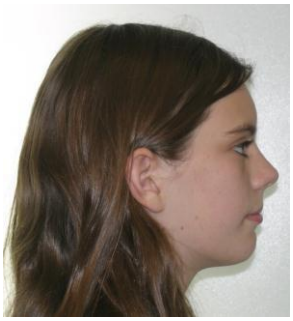
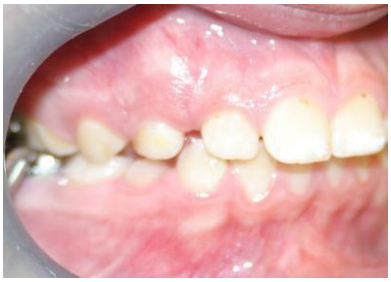
Early Treatment of Class II Severe Overjet, MARA & Non-extraction Braces

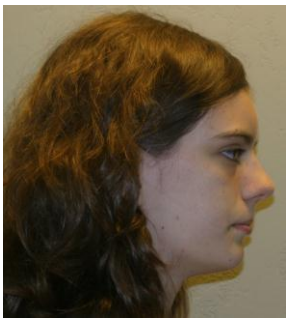
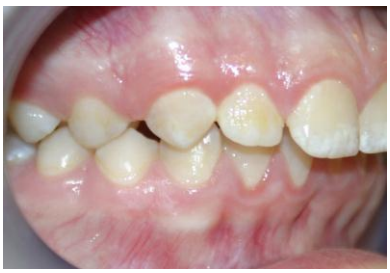
10y 4mo (Initial pre-orthodontics)

Note the severe overjet and retruded lower jaw in profile. Clearly braces alone cannot correct this malocclusion since it is the actual mandibular hypoplasia creating overjet.

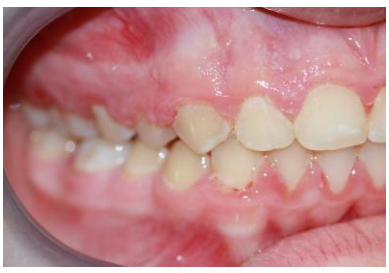
12y 2mo (18mo into Phase I MARA)

A MARA appliance has been used to posture the lower jaw forward during growth which enhances the normal growth process.

13y 6mo (ready for Phase II braces)

After 15mo of "settling"; allowing the lower jaw to stabilize and the teeth to erupt. Note the relapse and the forward eruption of the upper cuspid end-on with the lower cuspid.

15y 0mo (6mo post-orthodontics)

After @12 mo of braces to distalized the upper cuspids and incisors, upright the lower incisors and enhance any remaining growth. Compare now to the initial photos keeping in mind there was no surgery and no extractions.

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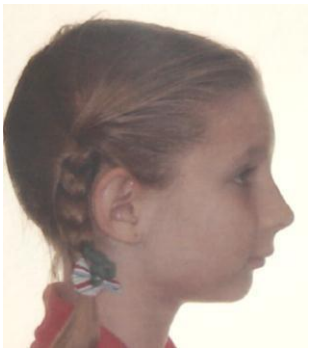
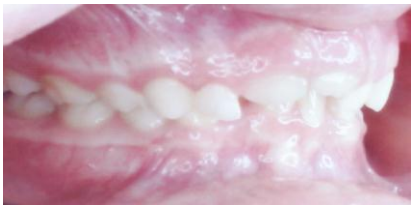
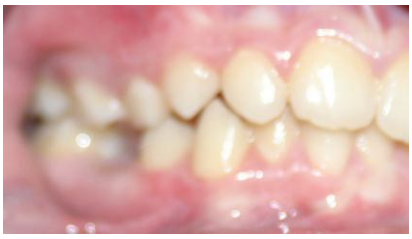
Early Correction Class II with Mandibular Hypoplasia

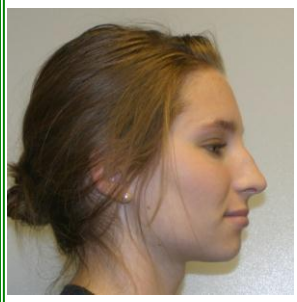


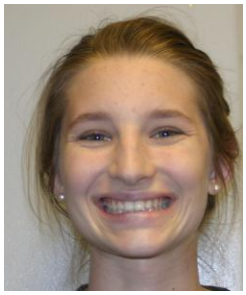


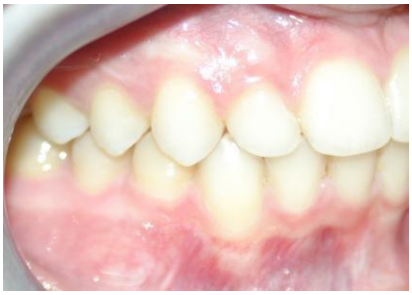
7y 6mo Initial Photos with Class II occlusion and severe mandibular hypoplasia (note retruded mandible).

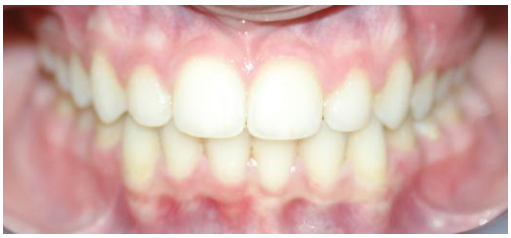


10y 0mo Following early treatment to enhance mandibular growth and open space for permanent teeth. Note the early improvement of the lower jaw.









At **16y 0mo** we have completed the Phase II full braces and restored the occlusion to ideal overjet and overbite. Note the marked improvement in the patient's profile from enhanced mandibular growth. There were no extractions and no surgery used.

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