

Really Straight Teeth

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Lower Jaw growth: Why refer at age 7?

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It is amazing that years ago before functional jaw growth was done in the United States, it was successfully being done in Europe. Today, functional lower jaw growth therapies are commonplace and widely accepted.



Interestingly, jaw growth in orthodontics is not fully understood since it is not taught in dental school. This article will address:

- 1) Why refer retruded lower jaws at age 7?
- 2) Can we get jaws to grow?
- 3) How does the jaw growth appliance Dr Fox use actually work?
- 4) Can adults have lower functional jaw growth?

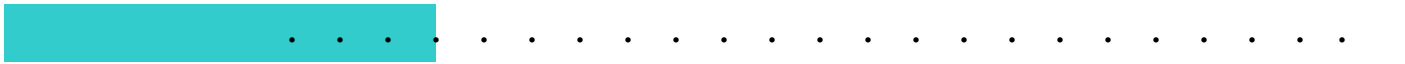
#1: Why refer retruded lower jaws at age 7?

The literature clearly supports the position that at age 7, skeletal correction of Class II malocclusions is very much possible. Further, it dictates that such correction is best done at age 7 where facial growth is plentiful and patient cooperation is likely to be the greatest. To have perfect cooperation in getting a child through lower functional jaw growth therapy is preferred at age 7 over a teenager any day of the week.

About a year ago, a research article came out of the University of North Carolina stating that lower jaw growth done at age 7 is not as predictable as once thought. The research done was not done with all types of lower jaw growth appliances.

The ability to read in between the lines and the ability to read statistical data of what is presented to us in journals today can often mislead clinical practitioners. Many of us in private practice were never shown in our dental school training how to pick apart a journal article for the truth. For example, ANOVA, a widely used statistical analysis, is not taught in dental school and is not understood by many dentists. Yet, it is the one of the most widely used analysis in dental journals.

Past studies have shown 75% or higher success rate of getting the lower jaw to grow. The appliance that Dr. Fox has used for the past 18 years has a higher



than 75% success rate. But, the child needs to start at age 7 because many times the teeth need to be moved to the correct positions that will give the optimum result when lower jaw growth is started.

#2: Can we get the lower jaw to grow?

The lower jaw can do many things to give the overall appearance that it grew forward. The lower jaw can actually grow in length. Secondly, it can grow by changing its shape. There is a book titled Current Principles and Techniques in Orthodontics written by Tom Graber, past editor of the American Journal of Orthodontics. This book shows that the lower jaw is L-shaped & where the body of the mandible meets the ramus it forms roughly a 90 degrees' angle. Functional therapy bends the jaw enlarging this angle making a longer mandible. A 3rd type of growth can occur from the glenoid fossa actually remodeling to a more forward position in relation to the skull. Any or all three of these methods can occur to get jaw growth. It is not how the mandible grew, but what is important is: "Did we not only get an improvement of the occlusion, but also an improvement in the patient's profile and facial appearance?"

Dr. Fox was trained to use almost every appliance in orthodontics to get a lower jaw to grow forward. One common denominator exists in most appliances that are used today and in the past. It is that "for every action there is an opposite and equal reaction."

Whenever using an appliance to get the lower jaw to posture forward (action), the lower anterior teeth want to flare forward (reaction). Many appliances Dr. Fox first used would give the

appearance that the lower jaw grew forward when it did not. Why is this?

Looking at the finished case, you would see a Class I occlusion. But, when you stepped back and looked at the profile, it had not improved. Then, the truth was revealed when a lateral cephalometric head x-ray was made. The lower jaw did not grow forward, only the lower incisors tipped forward.

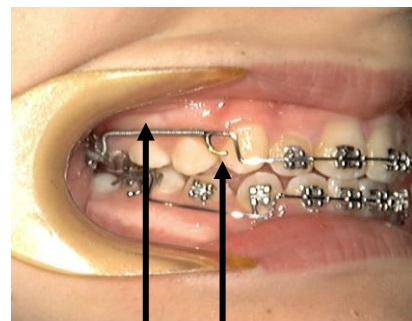
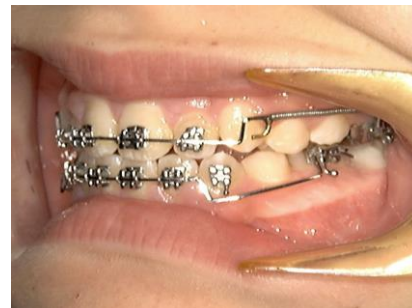
Herbst appliances with shock absorber arms cause many patients' lower incisors to tip forward. So do the plastic appliances called Bionators or any devices that look like Bionators.

#3: How does the jaw growth appliance Dr. Fox use actually work?

It took Dr. Fox years of combing through materials he had learned from orthodontic school, journal articles and visiting other private practices to come up with the best and smallest jaw growth appliance.

Dr. Fox is one of few orthodontists in the South Florida area that was trained in the main three types of braces used in orthodontics. He also had training with Dr. Jasper who invented the Jasper Jumper, which are special coils hooked to the braces to get the lower jaw to grow forward.

Dr. Fox trained with Dr. McNamara, Chairman, University of Michigan. Michigan is one of few schools heavy in early treatment along with LSU, UNC, University of Washington and the University of Tennessee. McNamara uses Utility Arch Wires (UAW) that are regular orthodontic wires bent as seen in the pictures to the above right.



The wires are bent to go towards the vestibule so that it makes it easier for the patient to chew and to not bend the wires.

There are coils on the upper wire between the brass hooks back to the upper molars on both sides. These coils push the upper incisors forward. This prevents the upper incisors from being tipped palatally when the elastics are being used. The elastics run from the brass hook on the upper wire down to the lower back molars. The elastics cause the patient to hold their jaw forward.

The elastic force has to be enough to posture the lower jaw forward without the child knowing they are doing this.

The main benefit of these wires is that Dr. Fox purposely bends the lower front wire causing the lower incisors to tip lingually so that they can't tip forward during treatment. And, if they do, they will tip forward to their normal position. Therefore, true lower jaw growth is obtained without the lower incisors tipping forward.

Sometimes the bite ends up in a bulldog bite or the lower incisors are still tipped too much to the lingual. This is easily corrected by bending the wires or using elastics worn a different way. This corrects usually in 1-2 months.

The below patient had a severe lower jaw retrusion and a deep bite:



The profile had a severe lower jaw retrusion:



With treatment starting at age 7, Utility Arch Wire mechanics were used to get lower functional jaw growth as seen below:



The profile had a major improvement with no lower incisor tipping verified with a lateral cephalometric head x-ray:



By the way, Dr. Fox was trained heavily in fixed and removable prosthodontics before entering into orthodontics. He tries to achieve a gnathological occlusion with canine rise and proper anterior coupling.

If a CR to CO discrepancy exists, he has been known to mount a finished case using a Sam 2 articulator to do an occlusal equilibration on the study models. Then, the equilibration is then carried over to the patient and duplicated on the patient to get rid of any interferences.

He enjoys orthodontics since for Dr. Fox, it is like doing a removable prosthodontic case of moving the teeth around to the ideal positions for functional and cosmetic results and then finalizing the result with equilibration if needed. Dr. Fox states "This is what great orthodontics is all about! This is also what patients come to me for and what they expect when they pay good money to a specialist to receive straight teeth and an awesome bite."

Another case is shown below with a severe overjet to the point that the child was very shy:



Her profile had a severe lower jaw retrusion:



Also, this is one of over 300 patients Dr. Fox has gotten to stop thumb sucking within one week without an appliance!



Her profile had a dramatic change (above) to the point that the mother told Dr. Fox that the work done for her daughter was life changing. She told him that she was no longer shy, that the child was starting to wear make-up feeling better about herself and the boys were starting to call the house.

#4: Can adults have lower functional jaw growth?

Dr. Fox has completed an extensive literature review of all articles that exist in the literature. The data was compiled with the help of the librarian of the American Association of Orthodontists in Chicago. Dr. Fox spent days reading and reviewing the articles to search for the answer to this question.

There are orthodontists in the Tampa area telling children over the age of 14 and adult patients that they can get the lower jaw to grow without jaw surgery.

The literature does not support this fact. There are a few articles of an orthodontist attempting functional jaw growth on a few adults, but the results came from the teeth shifting and no improvement occurred from any lower jaw growth.

Dr. Fox does not recommend lower functional jaw growth on anyone older than age 12. Dr. Fox will not accept every case older than 12 coming to him wanting lower jaw growth. Any patient 10 years or older has to sign a release and a consent form that they are paying to attempt lower jaw growth, but the prognosis is poor to guarded. Again, the ideal time is age 7 since many things need to be prepared before the actual jaw growth step is done.

On these patients coming to Dr. Fox late in age, their parents sign the following statement:

“The research to date shows that the lower jaw may not grow, but the bone and the teeth that sit over top of the main lower jaw (basal bone) may just shift over top of this main basal jaw bone. Therefore, the bite may get better from this shifting of the teeth and bone the teeth sit in, but the profile will not get better since the main basal jaw bone will not grow out. After the age of 9, there is a higher chance that true jaw growth will not occur, only this shifting of the teeth. If you want a higher chance of getting a profile change, which most patients and parents want, than lower jaw surgery must be elected instead to occur after the age of 12 years old.”

What is interesting in the above statement is also the reply Dr. Fox has to those who state that early treatment does not work. Today, insurance companies have found a way to not cover jaw surgery in their policies. Many oral surgeons today are starting to

refuse to do jaw surgery since many of them state that they are starting to feel “rusty” in that they do not do enough jaw surgery cases anymore. This makes them feel uncomfortable in doing the surgery. So, early treatment is needed to help make up for patients not having insurance to cover needed jaw surgery.

Another point here is that if the people who argue that lower jaw growth is not truly achievable, then there are still valid reasons to attempt lower jaw growth at age 7.

The first reason is that there are many journal articles that state the psychological changes and self esteem improvement in children with these problems are best treated early. Especially, left alone, this continues to cause more mental damage than physical damage of the young child being harassed at school by other children causing mental scars that last a lifetime.

The second reason is that the dental and alveolar shifting and alteration would be achieved easier with younger bone since it is more pliable at age 7.

The third reason would be that adding late age jaw growth to a teenager or an adult treatment plan is just going to add to the length of time the braces are on. Teenagers and adults usually start getting cranky and start asking “Dr. Fox, when are my braces coming off” around the one-year mark. So, jaw growth at a later age is not advised.

In conclusion, follow the American Association of Orthodontists recommendation of having children seen at age 7. -End

