Volume 6, Issue 5

Adult & Child Braces and Early Interceptive Treatment for Ages 6-11

## Inside this Issue



Donald M. Fox, D.D.S., M.S.

# Really Straight Teeth



## Deep Bites: Why refer at age 7?

*Donald M. Fox, D.D.S., M.S.*
*Diplomate of The American Board of Orthodontics*

A collapsed bite seen in the teenage years was usually present at age 7. The teeth, bones, gums and muscles should not be allowed to adapt 5 more years, past age 7, without being corrected. Untreated, it makes it harder to correct in the teenage years and invites relapse to occur when the braces come off.

Orthodontists, well trained in early interceptive treatment, know that the two main problems that has to get corrected at age 7 are narrow arches and collapsed deep bites. If a patient does not want to do lower jaw growth or serial extractions, those can be treated with extractions and jaw surgery in the teenage years. But, correcting narrow arches & deep bites are harder to do after age 10 when the bones are harder.

Interestingly, deep bites in orthodontics are not fully understood. This article will address:

1) What is a deep bite?

2) Why correct a deep bite at age 7?

3) How is a deep bite corrected?

4) How do you keep a deep bite from returning after the braces have been removed?

## #1: What is a deep bite?

The deep bite is also called an overbite. Before the lower 1st molars erupt, the bite is already showing signs of being collapsed. The lower jaw can also be retruded. When the lower incisors erupt, they over-erupt or extrude beyond the normal occlusal plane position. The lower incisors do not go to their normal contacts with the upper incisors. During this same time period, the lower 1st molars are not allowed to fully erupt upward to their normal position. They are below the normal occlusal plane position.

This in turn forms a deep lower curve of spee seen in most deep bites. The problem from here only gets worse. With the deep bite now visible at age 7, the remaining teeth will erupt into positions of this collapsed bite. The bone structures will also grow and form to this collapsed bite.

But, the worst thing to then happen is the muscles of the face are allowed to function and grow and adapt to this new position. The muscles are what the braces in the teenage years will have to overcome to correct the deep bite. Then, retainers will have to fight off these muscles that will want to collapse the bite back down to where the muscles have memory of where the bite used to be.

# #2: Why correct the deep bite at age 7?

During dental school, all of us learned form follows function and that function follows form. They work hand in hand. Leaving the deep bite past age 7 will allow the entire facial structure to function with this new form. Also, the form of everything else that develops from age 7 onward will follow this new function.

Many children seen in the teenage years that have collapsed bites also have a retruded lower jaw. Which came first, the retruded lower jaw or the deep bite? If the lower jaw was retruded just enough for the lower incisors to miss coming into contact with the upper incisors, a deep bite then forms. The big question then has to be asked. With the deep bite now present, is the lower jaw now locked back or being prevented from growing forward normally? So, allowing the deep bite to remain past age 7 could cause bigger problems to develop.

There are many early interceptive cases with deep bites that were treatment planned for lower functional jaw growth therapy and the jaw growth occurred without using the jaw growth device. While correcting the deep bite at age 7, the lower jaw spurts forward. It is an interesting phenomenon to observe.

So, the next deep bite you see in a teenager with a retruded lower jaw will make you wonder "what if this child would have been treated at age 7?"

Doing functional jaw growth therapy correctly and getting the highest percentage chance of success requires setting the case up for the functional treatment. You just can't throw the functional device on the teeth if the teeth and bite are not in the correct places. It is a fact that lower functional jaw growth does not work well when a deep bite is present. The deep bite must be corrected first.

## *Example of a Treatment of a Deep Bite Case*

The below patient had a severe deep bite and severe crowding. Not only was the deep bite corrected the way it was written in this article, but also Dr. Fox had to deal with extracting 4 premolars to handle the lack of space requirements. A pearl of wisdom is known in Orthodontics that you never want to extract teeth in a deep bite case. There are fewer teeth to support the remaining bite and extracting teeth will usually cause the bite to deepen during treatment. But, in this case, there was no choice.

# #3: How is a deep bite corrected?

It took Dr. Fox years of correcting ill-fitted dentures on patients to learn the significance of vertical dimension. The wrong vertical dimension not only makes an unhappy patient, but causes major changes in the patient's facial muscles and bone structures.

But, it was not fully understood how to correct the deep bite until being trained by Dr. Gordon Christensen over 15 years ago. He was showing how to restore a case that had all their teeth, had a severe deep bite, but needed crowns on every tooth in both arches.

He stated that he does not like restoring a deep bite case unless the deep bite is first corrected orthodontically. Also, the lower curve of spee must be either flat or have a slight curve present.

The lower posterior teeth, especially the lower 1st molars, are at the root of the problem of the deep bite. To understand this problem, you have to turn off the thought of being an orthodontist and also the thought of being a general dentist, but turn on the thought of being a removable prosthodontist.

At age 7, it is easier to correct the deep bite. It is easier to extrude two lower 1st molars at age 7, then it is to extrude four lower premolars and four lower molars. Remember that this is like increasing the vertical dimension when setting teeth for full dentures. But, with braces, we are doing it with real teeth attached to bones and gums.

If you have a deep bite case to restore, but it was in front of you instead on your lab bench in the form of prosthodontic teeth set in wax, you would correct this prosthodontic case by raising the pin on the articulator. You would then reset the occlusal plane and reset the vertical dimension and then extrude the posterior teeth in the wax.

Dr. Christensen pointed out that the other problem to correcting a deep bite was getting the lower posterior teeth to be at their normal positions at the normal occlusal plane for the patient you are restoring. For most patients, the lower premolars and molars need to be supra-erupted. This, in turn, will not only increase the vertical dimension, but also give support to maintain the corrected deep bite.

In orthodontics, you can't just throw the braces on and hope the lower molars and premolars will supra-erupt. They usually will not because they are in occlusion with the upper posterior teeth. To get around this, a fixed or removable bite plane is designed. The bite plane is nothing more than acrylic that is level with the edges of the upper incisors and it is flat all the way back to the canines or 1st premolars. How far back depends on where the lower incisors come in contact with the bite plane. On severe lower jaw retrusion cases, it will go back to the 2nd premolars.

The bite plane only allows the lower anterior teeth to occlude with it. The bite plane discludes the lower posterior teeth to allow the lower braces to supra-erupt the lower posterior teeth. It works very fast taking only 4-8 months. If it is going slow, the patient is confronted on their cooperation of wearing the removable bite plane. A fixed one attached to the upper 1st molar bands can also be fabricated.

It is amazing to see how many orthodontists today throw the braces on the entire upper and lower teeth of their patients with deep bites. Not only will the deep bite take longer to correct; the real problem is then not corrected. The lower incisors usually get tipped forward and intruded while the lower posterior teeth never get supra-erupted.

What do you think is going to happen as far as the stability of this result? You are correct! The treatment will not match the true diagnosis and the deep bite will return.

Rotations and deep bites have to be corrected first in the treatment plan of a brace's case so that the corrections are held with the braces while other things are then being treated. This way, by the end of the orthodontic case, rotations and deep bites have less chance to relapse.

Dr. Fox has seen many transfer cases that had been in braces two years and the deep bite was still present. The upper braces had to be removed and a bite plane placed. After the deep bite was corrected, the upper braces were then placed back on.

Understanding all of this, you would have to now see the importance of correcting a deep bite at age 7. Having the deep bite corrected allows the remaining teeth to come into a normal functioning environment. The muscles and bones all grow to a normal vertical dimension over the next 5 years from age 7 to 12 while the remaining teeth erupt.

## #4: How do you keep a corrected deep bite from returning?

A well-trained orthodontist designs the retention phase of the patient's treatment during the diagnosis and treatment planning of the orthodontic case before the braces are placed. Deep bite cases have special designs to their retainers. Not every patient gets the same retainer design. They all have different problems when they started braces.

The simplest design is called a passive bite plane. When the upper retainer is made, the bite plane height behind the upper incisors has to come in light contact with the lower incisor's edges. This is called "spit contact".

The bite plane sends a message to the muscles of the face that "you are not going to collapse this orthodontic result back down." There has to be a light contact or the muscles will not respect the new bite. The patient can end up grinding the bite plane down in their sleep, but new acrylic can be re-added or a new retainer can be made.

## Summary

It is always best to refer early at age 7 when you see problems starting. Deep bites are not something that braces can easily correct in teenagers and adults. In addition, a deep bite makes the teenage braces treatment time last longer.

When you see a deep bite, realize that other problems may exist that you can't see, like the lower jaw may be retruded.

# About Dr. Fox

Dr. Fox does many things other than braces. He is writing a book on a diet that is easier than the Atkin's Diet. He himself lost 70 pounds last year within a 6-month period. He is also wrote a book on thumb sucking. The book will be written for parents to use Dr. Fox's techniques with their children. Dr. Fox is the only orthodontist in the United States that can get children to stop thumb sucking without an appliance within a week or less. He has gotten over 300 children to stop thumb sucking and many of them the first night.

*While in his orthodontic residency, Dr. Fox wrote the largest Master's thesis in the 75-year history of the University of Tennessee. His largest finding was that* acetaminophen was allowed to be on the market without ever going through birth defect research. There were also significant differences found in his study of acetaminophen, taken during the 13 week of pregnancy. The drug does cause bone changes in the face and it caused deaths of newborns never before reported in the literature.

His study was done exactly the same way the FDA performs their birth defect studies, but Dr. Fox used lower dosages equivalent to what a woman would take for a severe headache for an entire day.

Amazingly, Dr. Fox found in another study that physicians routinely prescribe acetaminophen for pregnant women. More surprisingly, they will even add codeine to their prescription if the woman states they have a migraine and they are pregnant.

Acetaminophen does cross the placenta to the newborn. So, caution should be used in recommending acetaminophen to women in your dental practice who are trying to get pregnant or they are pregnant.

For his research, Dr. Fox was awarded one of the highest research awards in the United States and Canada in 1987 by the American Association of Orthodontists. His work was presented to the annual convention in New Orleans. It was also presented to the University of Michigan Growth Symposium where many colleagues called for his method of birth defect research to be adopted as the norm for the FDA. Others have now used his techniques to discover birth defects from other drugs including cocaine.

## Important Note

The general practitioner is in an excellent position to detect, intercept and correct minor orthodontic problems early, thus making it unnecessary for the child to go through complex orthodontic treatment at a later date. Most patients who have Phase I early treatment usually only have 12-18 months of simple Phase II teenage braces. 5-10% never need Phase II. Getting the child in at age 6-7 is ideal; after age 10, we're lucky if prevention can be accomplished; and referrals that come after age 10 come too late for prevention or early treatment interception.

REALLY STRAIGHT TEETH **is published for the dental community as an educational service. For further information on any of these services, contact:**

DONALD M. FOX, D.D.S., M.S.
Adult & Child Braces and
Early Interceptive Treatment
For Ages 6-11

Diplomate: American Board of Orthodontics
Member: American Association of Orthodontists
Recognized: Who's Who in America
Recipient: Harry Sicher Research Award of the American Association of Orthodontists
Member: Broward County Dental Association