Clinical Perspective

Time required for orthodontic treatment: The impact of myofunctional therapy

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The question I have been asked to address is, "What impact does oral myofunction therapy have on the overall time that orthodontic treatment is conducted in individual patients?"

I have no statistics on this subject, and know of no reported research to substantiate the observations derived from my practice. Consequently, I decided to contact several orthodontists in various Utah communities and am reporting their opinions along with my own.

I interviewed and secured statements from ten prominent, practicing orthodontists covering a radius of approximately 70 miles. From these ten orthodontists, I have ten different opinions, some of which coincide with mine, and some of which are in opposition. Their diversified opinions clearly point out the need for a good, documented study on this question.

Frankly, I was quite surprised by the varied opinions. One, at least, stated flatly and simply that OMFT reduced the time of orthodontic treatment. Another stated it increased the time, and still another reported that it made no difference in the time required for orthodontic treatment.

Two felt that the time element was not the important factor, but that therapy was essential in achieving long-term orthodontic results. Three believed that in cases of mild tongue thrust, the orthodontic treatment alone would correct the thrust, and no therapy was necessary. One believed that this question could not be answered, or even successfully researched, because of the many variables involved. Still another stated that if a patient were motivated, he could eliminate a thrust without any treatment.

None of these orthodontists had statistical data to document their opinions, and none knew of any research that had been done on this question. I phoned Professor Marvin Hanson at the University of Utah, co-author with Richard Barrett of *Oral Myofunctional Disorders*, and learned that one of his students was analyzing orthodontic records for her thesis project. Consequently, in the future there may be more scientifically documented data than what is available at present.

Dr. Wynn S. Andersen, who practices in Brigham City, Utah, stated:

My answer would have to be, sometimes a very profound impact and sometimes there is no impact whatsoever. It is my feeling that any child past the age of seven or over can be instructed and "taught" to swallow correctly in ten minutes. Motivation for follow through is what is important.

I know an orthodontist who was a tongue thruster when he was a student in dental school. One of his instructors had him stay after class one day and said, 'You are a tongue thruster. It looks bad and I do not like it. I want you to stop.'

The student, anxious to not do anything that would cause him to be flunked out of school, stopped thrusting (without any instruction of the matter) and his anterior open bite closed down.

Motivation is the key.

The patients I have seen in my practice have demonstrated that the young dental student to whom Dr. Andersen referred is quite atypical. My experience I wholeheartedly agree with Dr. Andersen that "motivation is the key". A patient must be motivated to
succeed in correcting his thrust. Perhaps an intelligent client can be taught to swallow correctly in ten minutes, as Dr. Andersen believes. I have never actually timed how long it takes me to teach the correct swallow. However, the TEACHING of the correct pattern, in my experience, is the EASIEST part of the treatment program. The DIFFICULT part is achieving carry-over to a consistent, automatic, subconscious correct pattern, but I don't consider the treatment completed until subconscious habitation has taken place. I also find with many of my clients that achieving consistent lip closure and correct tongue-resting posture require considerable time and effort, both of which I treat as part of the overall problem.

I believe that habit, as well as motivation, must be given some consideration. Many of my clients can swallow correctly after a short period of training, especially while I am with them, giving specific directions on what to do, or when they are consciously aware that I am watching their swallowing, or even at other times when they are consciously thinking about deglutition. Then a few moments later, when they are not consciously aware of being watched, or are not consciously thinking about deglutition, I see them with lips open, tongue down, and still thrusting.

No one is going to think about every saliva swallow day and night. The old habit is very strong and continues to occur subconsciously in the majority of the clients for a period of time even after they are consciously aware of how to swallow correctly, and even though they do swallow correctly when they are thinking about it. In my experience, the period of time required for complete subconscious habitation varies from client to client, but for the majority, it takes considerable time to store the old, incorrect habit away in a dark, remote corner of the subconscious mind, and replace it with the new, correct pattern, and have it occur consistently and automatically.

Teaches that, generally speaking, orthodontists will not achieve such instant cures in their everyday, typical patients.

Dr. J.L. Wilde, Salt Lake City, Utah, gave this response to my question:

The answer is pretty straightforward. It shortens the time.

I would like to think that this is always the case, and certainly this is one of the goals I seek to accomplish during my phase of the treatment.

Dr. Peter Knudson, who practices in Huntsville and in North Ogden, Utah, responded:

The question is a tough one and can't be answered as a general statement. Each individual is different. With some MFT enhances treatment and shortens it; with others, it lengthens it.

I'm always confused whether to refer before, during, or after orthodontic treatment. If there is an open bite that defies all treatment, then MFT enhances and aids. Sometimes MFT prolongs the child's treatment, because continued checking is continued by the therapist after treatment has been concluded.

After my interview with Dr. Knudson, he said he would like to have a little more "thinking" time on the question. Later he mailed the following response which he broke down into three parts:

1. In some cases I would say it would prolong treatment. This is because a period of pre-ortho therapy may be required, followed by a period of post-ortho therapy.
2. I have not seen a case yet that myofunctional therapy has hastened the treatment time of ortho treatment.
3. In some cases it has had no effect on treatment time. Therapy has been done at the same time ortho treatment was progressing.

Perhaps the emphasis of this question being discussed should be on the retention time required, rather than just the active time of orthodontics.

The fourth doctor that I interviewed was a general practitioner, Dr. William Knudsen, of Brigham City, Utah, who refers many of his patients to me. This was his answer:

The impact in time is entirely dependent on the follow through given by the parent, and patient collectively. If the parent and child are sufficiently impressed with, and follow through on the therapy, the treatment time is determined by the physiological limitations of how rapidly the teeth can be moved to the desired position.

The retention and maintenance of the correction is entirely dependent on the correction of all displacing or thrusting habits.

Based on my own experiences I agree with Dr. Knudsen's response. It coincides in every aspect with my own opinions.

Another orthodontist replied:

I refer only the severe cases of tongue thrust. If it's a mild case, the thrust is corrected by just closing the bite.

This same philosophy was expressed by three other orthodontists during my interviews with them. In my practice I have many referrals in which the teeth have moved again after removal of orthodontic appliances. I believe many of the recurring problems may have been prevented had the tongue thrust been corrected prior to orthodontics, or at least prior to the removal of the bands. In these cases, at least, the tongue thrust was not corrected by the orthodontic treatment.

A few days later I received in the mail a letter from this same orthodontist. After he had had time to think about it, he elaborated a little more fully on the question I had asked him in my office. This is his written response:

Thank you for the opportunity to respond to your question, "What impact does oral myofunctional therapy have on the overall time that orthodontic treatment is conducted in an individual patient?"

My experience with myofunctional therapy has been limited to tongue-thrust therapy which, in the past, has been provided during or, in a few instances, after orthodontic treatment.

Since tongue-thrust therapy was not routinely provided for patients with a tongue thrust prior to orthodontic treatment, I have not been able to document how much time such therapy would have saved on an individual patient basis. Therefore, I can only give my subjective feelings about the topic. I do feel that oral habits such as tongue thrusting and adverse lip posture can affect the dentition as well as orthodontic treatment. I feel that overall treatment time can probably be reduced, possibly by a few months, in cases where the oral habit interferes with obtaining a good interdigitation of the teeth.

The long-range stability of the occlusion seems to be
affected by oral habits as well. In particular, if the oral habit has been corrected, the bite seems to stay closed better than if the thrust persists.

Once again, these feelings are expressed without a detailed study and documentation.

Please let me know if I can be of further assistance.

The graciousness with which this doctor received me in his office, and his willingness to take the extra time later to write out a response to the question was typical of the helpfulness that all the orthodontists gave me on this project.

Two orthodontists who practiced together collaborated on the question and reported that they had seen no research documenting the question. They limited their discussion to open bites, which gave me the impression, as did some of the other orthodontists with whom I talked, that they considered tongue thrust important only in this type of malocclusion. I disagree. My opinion is that it plays a very significant role in other types of malocclusion as well.

The eighth orthodontist whom I interviewed replied:

I don’t know that this question can be answered, or even researched. There are too many variables that can’t be controlled.

Then he asked permission to deliberate on it for a few days, and later sent me the following answer:

As we discussed, it is very difficult to determine the impact of oral myofunctional therapy on active orthodontic treatment time, due to such factors as individual physiologic differences in the rate of tooth movement, various degrees of patient cooperation, etc.

Differences in biomechanic techniques among orthodontists would make a large group study also difficult. I checked two cases in my files which several years ago had myofunctional therapy and subsequent orthodontic treatment. I found no significant difference in active treatment time when compared to similar types of malocclusions not having myofunctional problems.

The only definite information which I can provide is the fact that I generally tend to keep patients with a history of myofunctional problems in retention for a longer period of time following active orthodontic treatment. Whether this is really necessary or not, I’m not certain, but it makes me feel better.

After retention, I seldom see these patients, although I cannot think of a relapse I felt directly resulted from a myofunctional problem.

Wish I could provide you with more data.

I agree with this orthodontist that variables do make this a very difficult study, but I would like to see a greater number of documented cases studied under the best possible controls in an effort for all of us to obtain a truly valid answer to this question.

Contrary to his experience, I do see relapses in my office which I feel are due to oral myofunctional problems. The myofunctional problem may not be the sole culprit in all cases of relapse, but I believe it plays a significant role in contributing to the relapse in a high percentage of the cases.

Dr. Alan Christiansen, who practices in Ogden, Utah, near my own office, gave me this answer:

The oral myofunctional therapy competency dictates the amount of time needed for orthodontics. Without it orthodontics will take forever, and will relapse later, if the thrusting is not corrected. Orthodontics takes only a short time after the tongue thrust is corrected, but it is a waste of time unless the tongue thrust is corrected.

Really, it’s vital. It’s as important as the orthodontics, or you’re wasting your time. You can’t finish the orthodontics without the therapy first. At least 10% wouldn’t be finished.

Most cases needing orthodontics are caused by tongue or thumb habits. I wouldn’t want to begin without a therapist. It would be like doing surgery without an anesthesiologist.

Dr. Christiansen was the only orthodontist who quoted a percentage, and I suspect his figure is conservative, if one is considering only those cases of malocclusion with untreated oral myofunctional problems. Certainly, since Dr. Christiansen is so positively in favor of oral myofunctional therapy, there is no conflict between his and my points of view on this topic.

I also agreed with the tenth orthodontist:

The time element isn’t the important factor. It doesn’t matter that much whether it takes a few more weeks to complete one case as compared with another. The real important problem is whether you will succeed at all when it comes to the long term results.

Oral surgery says we can do it fast, but if the muscle problem is still there, the long-term results may not hold up.

Remember there’s an old axiom that says, ‘Muscle always wins over bone’. You can move bone, but muscle is always there, and in the long term, muscle wins out.

This doctor referred a tongue-thrusting patient to me who procrastinated coming for help until after his dentition showed considerable shifting. The orthodontist went on to say:

Case ‘X’ is a perfect example of this. You can readily see what has happened to his teeth, because he didn’t get the therapy that I recommended.

This boy is a mandibular thruster, and since this type of thruster is somewhat atypical of the usual types of cases referred to me, I would like to show the following illustrations as a case study.

Fig. 1 Mandibular thruster prior to Orthodontic treatment. Note the deep sulcus below lower lip and large chin button.
Fig. 2 Side view. Note the open lip posture and tension of the mentalis.

(a) Front view model of teeth prior to orthodontics

(b) Right side view  (c) Left side view

Fig. 3 Model of the dentition prior to orthodontics.

(a) 12 years 8 months
(b) 13 years 6 months
(c) 14 years 0 months
(d) 14 years 8 months

Fig. 4 Cephalometric tracings of X-rays.
Fig. 5 X-ray several weeks after removal of orthodontic appliances.

Fig. 6 Front view 2 years after active orthodontic treatment. Thrusting was untreated. Note tension in the buccal and mentalis areas.

Fig. 7 Dentition 2 years following orthodontic treatment. Note the shifting of the teeth.

I believe the illustrations show a relationship between the oral myofunctional disorder and the existing malocclusion, and that MFT is essential, not only as an aid in shortening orthodontic retention time, but also in assuring long-term results after removal of all orthodontic appliances.

In conclusion I wish to acknowledge and thank those ten orthodontists, some of whom were not named at their own request, who took time from their busy schedules for interviews, for the extra time they spent writing out responses to the question they were asked, and for their graciousness in providing me with the help I needed for this paper.