Clinical Perspective

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Let's Not Perpetuate A Dichotomy

By Eileen Stewart Seed

The keynote address was presented to a symposium on "The Application of Myofunctional Therapy in Dentistry and Speech Pathology" held at Mebarry Medical College, April 14-16, 1978. The symposium was funded by the Department of Health, Education and Welfare.

At the time of the address Mrs. Seed was not married and presented the speech under her maiden name, Eileen Stewart. (Ed.)

Good morning, y'all.

It certainly is nice to be in a part of the country where people understand rebels. Because that's exactly what it feels like to be a myofunctional therapist in the 1970's.

Today, however, I'm here to act as a peacemaker, not a rebel.

What I really want to promote is peace between two opposing camps. Two camps with the same goals . . . to correct orofacial muscle imbalance.

For years I have been looking for a bridge between the dichotomy of appliance and exercise therapy to correct muscle imbalance. Realizing the importance of an all encompassing regimen to correct the multi-factorial muscle problems, I scoffed at simple appliances such as the rake and palatal crib. I could not understand how users of these appliances could overlook the numerous other muscle dysfunctions and related oral habits involved with orofacial muscle imbalance. To me, it showed the misunderstanding of a very complex problem.

Misunderstanding of a concept is based on ineffective communication. And sometimes I feel that due to ineffective communication between myofunctional therapy and dentistry, a concept designed to serve dentists has served, rather, to antagonize dentists.

You see, the real purpose of myofunctional therapy is to set up a muscular environment in which dentists can move teeth with ease and in which corrected occlusion remains stable.

However, somehow through poor communication, our purpose became confused with that of the orthodontist in that we were expected to move teeth and, as some thought, virtually eliminate the need for orthodontic treatment.

This miscommunication is tragic, but even the idea of myofunctional therapy replacing orthodontics is ludicrous! It is every bit as ludicrous as a story I would like to share with you now.

A couple went on a round the world trip and asked their best friends to take care of their most prized possession, a big, beautiful Cheshire cat.

The couple requested their friends keep them informed concerning their cat's welfare during their trip. When the couple arrived in London, their first stop, they had a telegram waiting for them. It read: "Your cat is dead!"

The couple was crushed with the news and immediately called their friends.

"What a horrible way to communicate the death of our cat." the man criticized his friend. "Surely, you could have thought of a better way to break the news?"

The couple apologized and questioned as to what they should have said.

"Well," said the man. "You could have wired us in London, informing us that the cat was on the roof. And upon our arrival in Spain, you could have wired us that the cat was nearing the edge of the roof."

"When we arrived in Tangiers, you could have sent us word that the cat jumped. In Bangkok, you could have said that the cat was not expected to live and, finally, in Tokyo, our last stop, you could have notified us of the death of our poor cat."

"That would have been a much better way to transmit this tragic news, cushioning the blow."

"In the future, please attempt a more subtle communication!"

The couple left London the next day to continue their world tour. At their final stop in Tokyo, the couple arrived to a waiting telegram, which read: "Your mother-in-law is on the roof."

In a sense, myofunctional therapy is on the roof. We had a good start, but through miscommunication, our field, once accepted with open arms, became very controversial.

There have been at least two major schools of thought concerning the correction of oro-facial muscle imbalance over the past seven years. They break down pretty simply to (one) the belief that oro-facial muscle imbalance contributes to malocclusion and the breakdown of corrected occlusion, therefore, requiring appliance or myofunctional therapy. And, (two) that orofacial muscle imbalance is an adaptation to the malocclusion and will self-correct by correcting the occlusion or form.

So, the unanswered question is "does form determine function or does function determine form?"

I could argue that function determines form and support my contention with research and literature. But, I happen to agree with Dr. Marvin Hanson, who feels that we must look at the relative reciprocal effects of each. In some cases, form does cause improved function. In others, it does not.

In some cases, function of the musculature causes changes in form and, again, in others, it does not.

If we knew how to accurately predict cases in which a change of form causes a remission of oro-myofunctional problems, the debate would be solved.

The fact is, however, that we don't.

There is much literature to support both contentions. Theories abound, but facts are scarce, which compels me to mention that several negative articles have been published in dental journals between 1970 and 1977.

Without mentioning names, let it suffice to say that one article was sheer opinion, based on no facts, while the other two were research studies in which the conclusions and recommendations were not warranted by the research reported.

A close friend of mine recently said "Any fool can find the points on a cephalometric X-ray. The skill comes in determining what they mean and what to do with the findings."

Believe me, I could vent much fury upon articles published about myofunctional therapy in some dental journals. Unsubstantiated opinions were made as though they were facts. And, because of these negative articles, some dentists who believed in myofunctional therapy began questioning it.

Non-believers gloated, and referrals came to a halt pending further research to settle the issue.

Now, two years later, dentists and orthodontists who stopped referring are again sending patients, indicating that people may confuse the issue but cannot stop the teeth from being pushed out by muscle imbalance.

You can't just say something isn't a problem and expect it to go away!

I read a quote the other day which sums up my feelings on the entire issue:

"Every man has a right to his opinion, but no man has a right to be wrong in his facts."

I feel that, someday, a lot of people will have to swallow hard for attempting to close the book on correction of muscle dysfunction and claiming to know the answers.

But, the form vs. function controversy is yesterday's news.

This morning I want to address myself to a present dichotomy involving the treatment of oro-myofunctional disorders, between the use of myofunctional therapy or appliances to correct the oral-facial muscle imbalance.

So, let us assume for now that the aberrant function of muscles does contribute to malocclusion and to the breakdown of corrected occlusion, with the question "How to best treat the muscle problems?"

On the other hand, we have oral myofunctional therapy, an exercise regimen to correct orofacial muscle imbalance and related oral habits. Through the use of behavior modification, myofunctional therapists teach the correct muscle function and the patient repeats the desired muscle functions until habituation occurs.

On the other hand, we have restrictive and functional appliance users who claim to correct muscular dysfunction through the use of various appliances.

Some appliances simply restrict tongue thrust, and others intercept unwanted muscle activity while harnessing lingual and labial forces to help correct the malocclusion. The appliance range from the rake or palatal crib to the more sophisticated European functional appliances which I will discuss later.

We have had a hard time getting people to recognize the complex relationship of the orofacial musculature to the arch form and occlusion. Many have only concerned themselves with the tip of the iceberg . . . tongue thrust.

For those, the rake or palatal crib was a sufficient answer to the problem. Such problems of recognition are nothing new, however. Myofunctional therapy is in the same stage that endodontics and periodontics were in twenty years ago.

Just as dentistry has grown to stress the importance of prevention and the total treatment of occlusal problems, so will the field of myofunctional therapy grow. I sincerely hope this conference will serve to enhance this growth.

I would like to present some background concerning myofunctional and appliance therapy.

For decades, simple tongue restricting appliances such as the rake were routinely used to combat tongue thrust. Obviously, if they had worked there would never have been a need for an exercise regimen. But, because of the failure of the rake to correct orofacial muscle imbalance, speech pathologists were enlisted to develop an exercise regimen to correct the problem.

Decades were spent developing and refining innovative exercises which are used in modern myofunctional therapy. There are three "Ps" in the correction of any bad habit. The three "Ps" are (1) perceive, (2) plan, and (3) persistence.

I am going to break down the three p's and show how myofunctional therapy utilizes all of them in an exercise regimen.

1. Perceive . . . the patients are educated to perceive the bad habit or habits. They are educated as to the problems and the reasons for correction. They understand why correction is so important to their dental health through the therapist's explanations and educational films.

2. Plan . . . We have a multi-factorial plan or therapy program which is designed to

- (1) strengthen the musculature where needed.
- (2) deactivate musculature where indicated.
- (3) reposition the tongue and lips.
- (4) correct mouth breathing and train nasal breathing pattern.
- (5) correct all related oral habits, such as digital sucking, nail-biting, lip-licking, lip or cheek-biting, etc.
- (6) teach correct gathering and swallowing patterns for saliva, food, and liquids.
- (7) teach proper mastication.
- (8) teach masseter function.
- (9) break aberrant lingual-labial suction or lingual buccal suction habits.
- (10) teach resting posture of musculature.

Must I go on?

Obviously, if there is a habit which is pernicious to the dentition, myofunctional therapy deals with it.

So, when I say multi-factorial, I Mean It!

3. The third P is persistence . . . Motivating patients to repeat the desired muscle function over and over until habituation takes place and muscle function is automatic. PERSISTENCE . . . Ahhhh . . . this is the weak link in our chain of p's.

To teach correct muscle function on the conscious level is no problem. Habituation of the newly learned skills is where we could use a bit of help in certain cases.

In some orthodontic cases, the persistence required to hold and use the corrected muscle function often has to be maintained for a year or two after intensive myofunctional therapy. Until the malocclusion is corrected, the occlusion is not supportive to the corrected muscle function.

If you want to see how difficult it is to maintain good muscle function in a hostile occlusal environment, put an eraser between your molars on both sides creating an openbite. If you want to test your persistence, try to function correctly for a day or two. Imagine your patients trying to hold correct muscle patterns for a year and a half.

Consequently, myofunctional therapists have to reject many of the cases referred until the occlusion is conducive to the establishment and maintenance of normal muscle function, as it is unrealistic to ask patients to maintain correct muscle patterns for a year or two in a hostile dental environment until correction of the malocclusion is achieved.

Amazingly enough, most of the patients who have been taken into therapy at the initiation of this two to three year orthodontic treatment have persevered and habituated the correct swallowing-resting patterns. But the effort expended seemed to make myofunctional therapy the focal point of their life.

Case selection and treatment timing are of utmost importance, and close communication between the myofunctional therapist and dental practitioner is essential.

Now let's turn to the other side of the treatment approach dichotomy—the correction of oral myofunctional disorders through appliances alone.

Appliances in the United States such as the rake or palatal crib only restrict the tongue thrust but usually retrain nothing as well as ignore the multi-factorial problems.

European functional appliances are reported to enlist muscle forces (involuntarily) for malocclusion correction. Some appliances correct malocclusion without ever touching the teeth. Such appliances make a strong argument for function determining form.

Some of these appliances include the double oral screen, bionator, activator, Frankel appliance, etc.

Graber points out in his book that even with these appliances, voluntary exercises must be done along with wearing most of the appliances to get a good end result.

Some of these appliances must be worn day and night to get optimum results. Often, this is difficult as some of the appliances are bulky and cosmetically unpleasant to wear.

Dentists usually do not have the time to cover the first two p's necessary to correct a habit with the patient (perceive and plan) so motivation is not structured through behavior modification. It is no wonder that failures occur due to poor cooperation. If patients do not perceive the entire problem and understand the plan and reasons for the correction, they are apt to take the appliance out and leave it on the dresser. Even a fixed appliance needs explanation of correct tongue function.

Also, none of the appliances, even the most sophisticated ones, treat the entire problem of muscle imbalance and related oral habits. That is why even the creators of the appliances suggest voluntary exercises to augment the appliances.

For example, saliva gathering problems, speech dysfunctions, improper mastication, hypotonic upper lips, lack of lingual-palatal seal, related oral habits, and many other factors contributing to orofacial muscle imbalance are not treated by appliance therapy alone.

The bulkiness of these appliances seems to restrict their usage to a very good natured, cooperative patient.

I feel that in selected cases appliances in conjunction with myofunctional therapy would offer faster correction and habituation of muscle dysfunction.

For example, in Graber and Newman's book, *Removable Orthodontic Appliances*, numerous functional appliances are described with a variety of purposes. The vestibular screen and double oral screen by Kraus, the lip bumper, and other simple appliances are described which could augment our therapy program. I think we could use these appliances in our myofunctional regimen to improve form and restrict muscle activity while we teach and habituate the correct muscle functions. Many of the newer appliances would serve to reinforce the newly-learned muscle patterns. When conscious control of muscle function ceased, the appliances would not allow the muscles to function in the incorrect manner. Yet, the patient would be taught not to become dependent on the appliances. They are to help him in weak moments and to help retrain the muscles.

Let's take the vestibular screen by Kraus for example. It is designed to intercept buccal pressure where maxillary expansion is desired, while preventing mouth-breathing, reinforcing lip closure, and utilizing lip pressure to reduce maxillary protrusion.

Kraus also has a double oral screen in which acrylic is built up to prevent tongue thrust in an openbite malocclusion.

I think we could use some of these appliances to help us reinforce the correct resting posture and to facilitate habituation of the new habit pattern.

I plan to cover various appliances that may be helpful in myofunctional therapy tomorrow in my therapy lecture, so I won't elaborate today.

I have tried to give you a general overview of the pros and cons of myofunctional therapy alone, and appliances alone to correct orofacial muscle imbalance.

Now let's explore the benefits of a combination of myofunctional therapy and appliances.

You know . . . the purpose of myo has never been to move teeth, as some people would have you believe. Our job is to set up a good muscular environment in which teeth can be moved with ease and an environment which is conducive to the stabilization of correct occlusion. Myofunctional therapy does not correct occlusal relationships, it corrects muscle dysfunctions. In certain cases, limited tooth movement occurs. Therapists are encouraged when this happens, but tooth movement certainly is not our job, nor the purpose of the field. Nor does a lack of tooth movement indicate that the treatment has been unsuccessful.

An important factor in understanding myofunctional therapy is understanding that our basic principle is based on physical therapy concepts. A friend of mine is a professional football player who suffered a leg injury and, subsequently, was in a cast for 6 weeks. After the cast was removed, he wore a leg brace. Because of a rigid muscle retraining program of extensive physical therapy, he was back playing football in just a manner of weeks. This followed a severe injury and operation, a cast, followed by a leg brace and physical therapy. His doctor told him that his leg is now stronger than it was before the accident. The concept with the physical therapy he underwent is really little different than the concept that I am presenting today. Perhaps, if we take a longer look at what is being done in physical therapy today, we, in myo, can learn a great deal. But as I am suggesting, myo alone might not be the best possible solution; I also feel appliances alone are not the answer. Even Graber said many appliances need voluntary muscle exercise regimens. My friend, the football player, would have surely spent a far longer period recovering if he had had only physical therapy and no leg brace. I believe this could also be true in myo and, that appliances could present the missing link in the treatment of oral-myofunctional disorders. Not only do appliances aid in restriction of aberrant muscle function, but also in the habituation of the newly-learned muscle patterns.

In a sense, the combined approach would restrain incorrect muscle function while training and habituating the desired muscle function.

For those who would criticize this dual approach, believing the combination of myo with appliances is a white flag, let's take our patients into consideration. Simply sticking an appliance in their mouths and expecting them to correct this multi-factorial problem on their own without benefit of education, motivation, and conscious retraining of the problem, is unfair.

On the other hand, it is often equally unrealistic to expect the patient to exert constant conscious control of his musculature during the day, as well as to practice exercises from 35 minutes to an hour every day. In a poor occlusal environment, appliances would improve the anterior and lateral borders for the musculature in rest and swallowing.

What the combination approach really provides is the opportunity to give the patient the dignity needed for successful motivation by allowing them to retrain their muscles, understand their weaknesses, and react to them accordingly. There is no sense trying to make a patient feel guilty for thrusting in their sleep or while in school in subconscious or unguarded moment. The important factor is change and correction as soon as possible. Give the patient the credit to understand their muscle problems and to work in overcoming them . . . depending on their crutch, the appliances, when necessary, and standing tall in myo in retraining their muscle patterns on the conscious and eventually subconscious level.

A few weeks ago, I spoke with a friend of mine and told her of the basic format of my lecture this morning . . . the plea to incorporate functional appliances along with myo. She had a fit . . . Myo works fine on its own. No appliances are needed. Effecting change in muscle function was easy. It wasn't until we had talked for twenty minutes and were ready to hang up that the real truth came out. Why, if you say that, you'll put me out of business! It's through this mentality that dichotomies are created. Perhaps, we could augment our education to include a thorough study of appliances and a variety of adaptations in our augmentation, it will be easier to communicate our needs and ideas to referring dental practitioners. One must exercise caution in this area, as few dentists welcome myotherapists' suggesting how they should treat their cases. It must be made clear that the appliances are to aid us in muscle retraining . . . not in any way to interfere with the dentists treatment plans.

My first thought when viewing the combination approach was . . . It's hard enough to get patients to accept myo or an appliance to correct muscle problems. How in the world can we get patients to accept both??? Is this practical? I've decided that it is not only practical, but necessary. Only 2 to 3% of the patients who need ortho treatment are being treated presently. Studies indicate that over 50% of the children in the United States could benefit from ortho treatment. The major reason that 47% are not being helped is MONEY, or more precisely, the lack of it. So, it is important to look at the socioeconomic flux and the increasing rate of third party payment in dental care. In looking at the healthy growth of third party involvement in dentistry, we can see a very positive trend. In 1968, 6.9 million people had dental coverage. In 1974, 22 million people, adults and children, were receiving dental coverage. The projection for 1980 is 60 million people enrolled in dental prepayment plans, according to Wilbur Johnston, the president of the American Association of Orthodontists.

What does this mean? There is going to be a huge influx of orthodontic patients and the problem will not be money . . . it will be time. Orthodontists will no longer have the time to treat cases for two to four years, due to hostile muscle pressures only to see part of them relapse and require re-treatment. Myofunctional therapists will no longer be engaged

in conversations regarding the legitimacy of myo, but rather discussions concerning the most efficient methodology to treat this huge influx of patients with oral-myofunctional problems.

As Bob Dylan said in the 60's, "Times they are a changin'." So unless we wish to face a future shock situation where we find ourselves incapable (due to insurance coverage) of treating a huge influx of patients, we had best prepare and change now. We can no longer afford to adopt a wait and see attitude regarding muscle dysfunction and its possible adaptation to new form. We can't wait for the occlusal relapse after orthodontics and then treat the muscle problems. We must approach the diagnosis and treatment of orofacial muscle imbalance more aggressively. We must develop a method of predicting which cases of muscle imbalance will self-remiss with a change in form and which will not.

But most important, we must re-open the channels of communication between the field of myofunctional therapy and dentistry now.

We all know how a breakdown in communication occurs. 5,000 therapists study under leaders in the field either at the Institute for Myofunctional Therapy or the International Association of Oral Myology. 5,000 interpretations of what the students thought was being taught ensue. Then 5,000 therapists speak to their respective area dentists (probably each therapist will approach at least 25 dentists and explain the concepts of muscle imbalance and reasons for referral).

Consequently, 125,000 dental practitioners will interpret what they thought the therapists were saying. Now we have 125,000 different concepts of the purpose of myofunctional therapy in dentistry which can be dramatically opposed to the real purpose and role of myofunctional therapy in dentistry.

Let me share a story exemplifying what can happen in this type of situation:

A series of communiques went from the top to the bottom of the chain of command in a military installation, with the colonel first issuing this communique to his executive officer:

"Tomorrow evening at approximately twenty hundred hours, Haley's comet will be visible in this area, an event which occurs only once every 75 years.

"Have the men fall out in the batallion area in fatigues and I'll explain this rare phenomenon to them. In case of rain, we will not be able to see anything so assemble the men in the theatre and I'll show them films of it."

Now, from the executive officer to the company commander the communique went like this:

"By order of the colonel, tomorrow at twenty hundred hours, Haley's comet will appear above the batallion area. If it rains, fall the men out in fatigues, then march them to the theatre where the rare phenomenon will take place. This is something which occurs only once every seventy-five years."

From the company commander to the lieutenant, the communique was translated to this:

"By order of the colonel in fatigues, at twenty hundred hours tomorrow evening the phenomenal Haley's comet will appear in the theatre. In case of rain, in the batallion area, the colonel will give another order, something which occurs every seventy-five years."

From the lieutenant down to the sergeant the communique sounded like this:

"Tomorrow at twenty hundred hours, the colonel will appear in the theatre with Haley's comet, something which occurs every seventy-five years, but only if it rains. The colonel will then order the comet into the batallion area."

And, finally, from the sergeant down to his squad it sounded like this:

"When it rains tomorrow, at twenty hundred hours, the phenomenal seventy-five year old General Haley, accompanied by the colonel, will drive his comet through the batallion area in fatigues."

This is what can happen in communication. Sure it's funny, but it is also very tragic because we as human beings have a tendency to corrupt communication.

In summation, I hope my advocacy of a combination of techniques in muscle function therapy will not end up with the cat on the roof and General Haley. Early diagnosis, treatment, and correction of abnormal muscle function involving a combined treatment, with two formerly opposed camps working cohesively to combat problems more realistically and reasonably is my proposal. I feel that this combination approach makes sense in terms of reduced time and money . . . saving the practitioner time and money as muscle function will not interfere with correction or stabilization of occlusion; saving the patient time and money because oral-myofunctional therapy will be shortened without compromising the quality of results.

Increased volume of patients, along with shortened therapy regimens would lower the cost of the overall treatment.

What I have attempted today, while visiting this beautiful university, is to give you a brieve overview of the history

and current status of myo-functional therapy, its ups and downs, its tragedies, its strides toward being understood, and possibly a few new ideas on what the future holds.

All we need is a banjo and a juice harp for background . . . and it seems to me that we have all the makings of a good country and western ballad. I wonder if the juice harp causes tongue thrust? Better yet, I wonder if one could play a juice harp while wearing a rake or bionator? Well, I guess we have to leave a few questions unanswered.

In closing, I would like to quote Hanson and Barrett. Myofunctional therapy is the concept of "disassembling the motor-rather than tinkering with external adjustments and accessories, actually taking it apart, machining down some pieces and replacing others, then reassembling into a smoother-running apparatus." I agree with this approach, but why use your hands to tighten a nut and bolt when a wrench is available?