

The Function Junction:

Utilizing Nature's Bio-Adaptability of Soft and Hard Tissues

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Orofacial Myology/Orofacial Myofunctional Therapy is the study and therapeutic treatment approach of utilizing the junction between nature's muscular and behavioral forces and the normalizing bio-adaptability of the soft and hard tissues in the orofacial environment. This "Function Junction" takes place between the functional relationships of the orofacial musculature; functional use and movement patterning of the mandible; orofacial parafunctional behavior elimination abilities; resting postures of the tongue, lips, and mandible; establishment of an adequate dental freeway space; and the nasal respiration impact on the hard and soft tissues of the dental and orofacial structures (form).¹⁻⁷ The Function Junction harnesses orofacial and oromotor forces in a therapeutic retraining manner to eliminate harmful behaviors. Therapeutic exercises are both physical and psycho-physiologic. These exercises are the initiating facilitators creating a neuro-muscular impact. Change occurs by retraining and/or eliminating negative biologic and physiologic forces applied to the orofacial environment, dentition, temporomandibular joint region,

and along with retraining movements of the tongue, lips and mandible affecting functional speaking patterns. "Function" refers to the movements and patterning impact of the orofacial muscle balances and harmony of the oromotor behaviors. These include habituated oromotor movement patterns of the tongue, lips and jaw, in addition to correcting resting postures, establishing the dental freeway space, and facilitating nasal respiration. It also includes the impact of parafunctional habits and orofacial behaviors exerted on the dentition and the surrounding head/neck environment.^{1, 2 & 4-7}

The Epigenetic Versus Bio-physiologic Debate

Discussions have been longstanding and circular, especially when considering the impact of "Function" on the "Form" or vice-versa. This circular conversation occurs most often in relation to orthodontic mechanotherapy. Positions are taken whether it is more epigenetic (form) or bio-physiologic (environmental/function).^{3-8, 13-18, 25-28, 30} Opinions still vary whether it is the form influencing growth and development and requiring the

function to become adaptive, or if it is the morphological function influencing the growth, development, and stabilization of the form.^{4, 6-8, 13-15, 25-28} Decades of debate to validate or disprove still leave the orthodontic clinician in the middle trying to figure out if they must choose a side or ignore the issue. Some take a firm stance on one side, while others view Function and Form as a significantly inter-dependent dynamic process where one must be taken into full consideration when addressing the other.^{2-20, 23-28, 31, 34-35}

Bio-Adaptive Theory

Functional Matrix Theory (Moss, DDS, MS) – Functional and environmental influences impact the growth and development of the facial arches.

Malocclusions are influenced by imbalances of airway flow, resting postures, oromotor imbalances, chewing and swallowing patterns, incorrect forces of the lips, tongue, musculature, and genetic imprints.

Regardless of one's initial stance, hopefully the question of how the function impacts the form (and vice versa) is considered and incorporated into the critical decision making process with each orthodontic case. The challenge facing orthodontic clinicians is using evidence-based research along with individualized patient treatment goals to establish a harmonious interplay between the function, form, orthodontics, and orthopedic therapy.... and having it last!^{6, 21} Anatomist, Harry Sicher, advocated the importance of "Normalizing the intricate balance between the teeth, skeletal and muscular system".⁷ Sicher describes creating a balance that includes establishing and maintaining a dental (oral) freeway space. A dental (oral) freeway space is the mandibular resting posture maintaining a 2-3 mm posterior (molar) inter-dental (inter-occlusal) space with approximately 4-5 mm maintained in the anterior (incisal). When the mandible sits in its physiologic resting posture, the tongue is resting on the palate (Fig.1) with the dental freeway space maintained and the lips lightly closed at rest. A balanced equilibrium is reached between the external forces of the lips, facial and masticatory musculature against the dentition and the internal resting posture of the tongue against the palate while normal nasal respiration takes place. Maintaining the dental freeway space allows the uninterrupted physiologic eruption of the teeth. He conveyed that clinicians need to become biological anatomists and more fully take the biologic-physiologic systems into account during treatment.^{6, 7}

Moving Forward Based on Evidence

Scholars support and recognize maintaining normalized function is challenging if orofacial or oromotor dysfunction is present. Orofacial myology is a treatment consideration that fits nicely with orthodontics. Orofacial Myofunctional Therapy methodologies address the orofacial and oromotor functional

issues creating the negative environmental impact. The literature indicates a clear need to incorporate functional issues and include treatment for orofacial myofunctional disorders in order to be able to create the ideal occlusion, and then maintain its stability within the orofacial and dental environment over the long-term. The scientific evidence depicting function significantly impacting form continues to build through the literature.^{4-8,10, 16, 25-29, 32, 53} Orthodontic practitioners' attitudes are also moving towards using evidence-based diagnosis and treatment more frequently to assist with their clinical decision-making processes.^{21, 22} Utilizing an evidence-based approach to address the interrelationship between function and form diminishes the debate, even among skeptics.



The last three decades of supporting evidence in the literature shifts from debate towards discussions of how to best deal with negative functional impacts.^{2, 5, 6, 12, 16, 29-32, 34, 42-47, 53} This requires a paradigm shift for some practitioners in their thoughts and treatment processes. It becomes easier to understand as multiple sources in dentistry and medicine continue adding to the clinical and behavioral evidence documenting that orofacial myofunctional therapies serve as preventive, interceptive and therapeutic interventions.^{1, 2, 5, 6, 16, 24, 31, 53, 54} Theories present that separation of the two philosophies of "Function VS Form" and "Form VS Function" is not only difficult, but actually unwise to ignore in clinical practice. Moss' Functional Matrix Theory provides added support to the inter-relational dependence focused in a multi-dimensional

manner. Moss states one cannot separate the environmental (muscular and behavioral) impact on the structural (epigenetic form), and vice versa.^{25- 28} Kondo demonstrates cases, followed for 25 years, retain their orthodontic corrective integrity when coupled with orofacial myofunctional therapies.⁶

History and Scope of Care

Individuals have been addressing orofacial/oromotor dysfunction with orofacial muscle exercise since the early 1900's. Providing a program of therapeutics became better known in the 1950's through Walter Straub's efforts, and became an organized specialty focus in the 1970's through the organizational formation of the International Association of Orofacial Myology (IAOM).^{2, 4, 6, 7, 9-12, 16, 19-20, 35-40} An interdisciplinary team approach keeps the patient at the center of all of the treatment modalities and leads to the most stable outcomes.^{2, 6, 12, 16, 53} A disparity exists in the number of certified orofacial myologists in comparison to the numbers of individuals who would benefit from potential treatment. This poses a significant dilemma for orthodontists not in close proximity to an orofacial myologist. Leaving orofacial myofunctional disorders untreated increases the risk factors for orthodontic relapse. A bigger dilemma exists when the orofacial myofunctional disorders remain unnoticed and referral is non-existent. For the practitioner observing and recognizing dysfunction and then taking no action, it places the practitioner in an ethical, moral, and potential legal dilemma.^{48, 49, 50} In the scenario of non-recognition, it places the practitioner in an even more vulnerable clinical liability position for potential relapse.^{6, 7, 31, 53, 54} Based on experience levels, some orofacial myologists are capable of offering teletherapy via video conferencing with patients unable to travel to a therapist's office. It is an excellent therapeutic option for practitioners without an orofacial myologist in the immediate area.

Orofacial Myology

- The philosophy of “muscle wins” is fundamental to all phases of mechano-therapies used in orthodontics.
- Bio-adaptive theories along with muscle and respiration oriented therapeutics are influencing the long term success and stable outcomes of oral health treatments associated with malocclusions, muscular TMD, periodontics, and cosmetic restorative therapies.
- Oromotor issues, functional dysphagia, rest posturing of tongue, lips and mandible, creation of an appropriate freeway space and elimination of parafunctional habit patters is required for long term stabilization and balanced oromotor and functional patterns.

Shifting Paradigms

Many practitioners go through a clinical paradigm shift to include orofacial myofunctional therapeutics into their assessment and treatment planning. It becomes not only a philosophical journey of discovery for some, but also one of how and when to work with an orofacial myologist. This paradigm shift occurs especially if past orthodontic treatment reliance was only on mechanotherapies. Some practitioners have an easier transition incorporating these concepts into their conceptual treatment framework if the concept of ‘muscle and/or behavioral therapy’ was gleaned at some point in their formative education prior to licensure in their profession. Those individuals more quickly recognize they need to identify and locate a licensed professional trained and certified in Orofacial Myology. Others come to this realization after noting relapses in beautifully finished cases where growth patterns cannot be blamed. In either case, the journey leads to the same end goals: providing comprehensive patient care to establish a healthy and balanced orofacial structure, function, and behaviors with healthy respiration leading to the long term stability of the dento- and orofacial environment while also achieving the desired aesthetic results.

Conceding Means Increased Success

Conceding that function has the potential to positively impact the

form allows the orthodontic practitioner to take advantage of orofacial myofunctional capacity, especially when included as a consideration in initial treatment planning. One cannot ignore the impact of proper orofacial and oromotor functional processes coupled with proper respiration on the dentition and periodontium.^{33, 54} They are dynamic processes. These bio-physiologic processes continue impacting the on-going and evolving dento- and cranio-facial environment over a lifetime.⁶ Delving into recognizing, treating, and harnessing the process’ potential appears more frequently in the scientific literature with messages also being delivered from speaker’s podiums. Dentistry, dental hygiene, and orofacial myology are each making strides adding ‘Function’ to the body of knowledge and transferring of the information for practitioner’s use.^{6, 34, 41-47, 53} Orthodontic practitioners are also improving in their own assessment abilities of orofacial myofunctional disorders, functional dysphagia, oromotor dysfunction, temporomandibular muscular dysfunction, and respiration issues as the scientific evidence supporting orofacial myology increases.

Clinicians are increasing their focus on the overall impact on the dentition and the orofacial environment, and how/when to incorporate orofacial myofunctional therapies to make cases be more predictable.^{31, 43-45, 47, 52} This increases the

orthodontic practitioner’s ability to monitor, treat, successfully complete, and maintain orthodontic and TMD cases with less relapse and retreatment. Early recognition of orofacial myofunctional issues and OMT ensures a smoother and more effective mechano- and/or dental therapeutic process while achieving long-term stability goals with greater efficiency.

Defining Moments and Creating Parameters

Understanding a definition of Orofacial Myology (OM) is essential when conducting a comprehensive orofacial myofunctional and temporomandibular muscular assessment and examination and introducing these concepts to the patient. Defining OM/OMT allows one to label the dysfunction noted more clearly and place it into international coding and nomenclature systems. Benkert defines orofacial myology as: Orofacial Myology/Myofunctional Therapy is the treatment of the orofacial musculature to improve muscle balance and tonicity with establishment of correct activities of the tongue, lips, and mandible so that normal growth and development may take place in a homeostatic environment. It includes treatment of parafunctional habits for the elimination of noxious oral habits and behaviors, temporomandibular muscular dysfunction, bruxism, clenching, muscle bracing, and range of motion (ROM) activities of the mandible, and/or postural habits.^{1, 2, 5, 29, 31} The core of this definition was adopted by the IAOM Board of Directors and Membership in 1992 and supported the development of the American Dental Hygienists’ Association (ADHA) 1992 policy statement under the area of Practice, Patient Care Services 9-92: The ADHA acknowledges that the scope of dental hygiene practice includes the assessment and evaluation of orofacial myofunctional disorders; and further advocates that dental hygienists complete advanced clinical and didactic continuing education prior to providing treatment.

In 1993 the American Association of Orthodontics adopted a policy statement indicating the benefits of OMT treatment, but acknowledging the need for more research.

The parameter of treatment provided by the orofacial myologist depends on their formative core professional accredited education and licensure, and the extent of their post-licensure didactic and clinical training in areas of orofacial myology, dentistry, dental hygiene, speech function, and other areas of medicine. However, in general treatment may include:

- Correction of resting postures of the tongue, lips, and mandible;
- Establishing a consistent oral (dental) freeway space;
- Balancing and equalizing the muscle function and tonicity of the tongue, lips, muscles of mastication and deglutition and including muscles of the face, head and neck;
- Encouraging nasal breathing and normalized respiration;
- Eliminating oral habits/behaviors and oromotor/orofacial functional behaviors negatively affecting muscle tone and/or impacting the growth and development of the face and dentition (non-nutritive sucking and noxious oral habits, dual bite patterns, establishing oromotor consistencies);
- Correcting abnormal chewing and deviated swallowing patterns; correcting muscular deficiencies of resting postures of the tongue, lips, mandible, head and neck; correcting 'tongue thrusting' swallowing (preparatory and oral phases); eliminating parafunctional habit patterns that may cause destruction of the dentition (especially bruxism, muscle bracing, and/or clenching); providing neuromuscular reeducation and retraining to eliminate impairment in muscle tone and function;

eliminating deviated range of motion muscular and functional deviations of the mandible, especially those related to resting postures, chewing, open/closure patterns, speech functional movements/patterning of the tongue, lips and mandible, and orofacial/oromotor functions of related activities of daily living.^{1, 2, 5, 6, 7, 11, 12, 16, 20, 24, 42, 45, 47, 57-59}

OM concepts and principles are rooted between professional domains in dentistry, dental hygiene, physical medicine, and speech pathology. Many professionals still refer to orofacial myology as 'tongue thrust therapy'. Most call it 'myofunctional therapy'. Others call it 'myofascial therapy'. Some even report it as 'oral physical therapy, oral physiotherapy, or oral posturology' for the face, head and neck. References to treating orofacial myofunctional disorders (OMD) appearing in the literature also reference many names. The best name determined by the IAOM to offer and promote to a patient is: orofacial myology or orofacial myofunctional therapy. It seems to say it all. Nomenclature consistency facilitates communication and research across professional domains. It also allows consistency for international coding and insurance submissions. Professionals including dentists and most of the dental specialties, dental hygienists, physicians, otolaryngologists, speech pathologists, along with physicians, ENTs, osteopaths, physical therapists, occupational therapists, massage therapists, chiropractors, and naturopaths are increasing their awareness and understanding of orofacial myofunctional and functional oromotor issues, TMD, respiration, and sleep apnea's impact on the orofacial environment and total health.

Best Practice - Incorporating a Process of Care

Behavioral studies add to the evidence that function can impact form across categories of age, race, culture, and pre-/post-orthodontics in a similar manner.^{6, 16, 31, 44, 53} The challenge of discovery for each

Assessment & Examination

Structural

Anatomical: airway/head, neck, face, dentition

Muscular: capacity/tonicity

Neurological response: motor/sensory

Functional

Resting postures/
Mastication,
Deglutition, ROM/
Speech patterning

Behavioral

Habit patterns –
present or past
Parafunctional
habits/patterns

clinician/practitioner begins in a similar manner. It happens through experience gained by treating cases utilizing orofacial myofunctional therapy while a pre-licensed professional student, or figuring it out by oneself once in clinical practice through trial and error. Best practice, regardless of when one begins this journey, requires each case considered for treatment utilize a process of care. Best practice process of care includes:

- Completing a comprehensive assessment and examination.
- Developing a differential diagnosis.
- Incorporating both function and form into the treatment planning process.
- Implementing an inter-disciplinary therapeutic approach.
- Continuing an on-going evaluation process through the habituation/rehabilitation phases.

Maintaining the long-term stability of orthodontics and orofacial orthopedics is achieved by combining the orthodontic process and orofacial myofunctional therapy with routine monitoring until full habituation is achieved.^{6, 31, 32, 53} Mechanotherapy should be approached along with facilitating the individual's neuromuscular and bio-physiologic capacity while reducing, redirecting, and eliminating all negative orofacial/oromotor myofunctional disorders, orofacial muscular imbalances, and noxious parafunctional behaviors. Muscles always win! So, it is better to work with them than be surprised by their

ability to unravel things later!^{4, 6, 7, 16, 31} Incorporating orofacial myofunctional therapy as a fundamental element in the treatment planning when orofacial myofunctional disorders, oromotor imbalances, or parafunctional orofacial/oromotor behaviors are identified assists in successfully completing and producing more desirable outcomes. Addressing long-term stability actually should begin during the assessment and examination process by recognizing all factors that can present issues down the road. Cases with functional disorders detected at any stage of the pre- or post-treatment process will benefit

from incorporating orofacial myofunctional therapy and facilitate achieving stability. However, incorporating orofacial myofunctional therapy as early as possible, or even before orthodontics are initiated, is usually advised as a best practice in order to reduce/eliminate the risk of orofacial functional imbalances/interferences impeding or slowing the orthodontic process, or as a worse case scenario, leading to orthodontic relapse. One of the few times you would not begin orofacial myofunctional therapy prior to or simultaneously at the onset of orthodontics is if the overjet is so severe that the lips cannot close to maintain a lip seal (even a very strained one) or if the open bite is severely excessive. Even with skeletal orthognathic surgical cases, it is best to do a portion of the OMT prior to the surgery and then continue again following the surgery. Therapy proceeds more smoothly with therapeutic goals achieved more quickly once the structural environment (form) is slightly more conducive.^{2, 6, 7, 12, 16}

Assess Functional & Structural

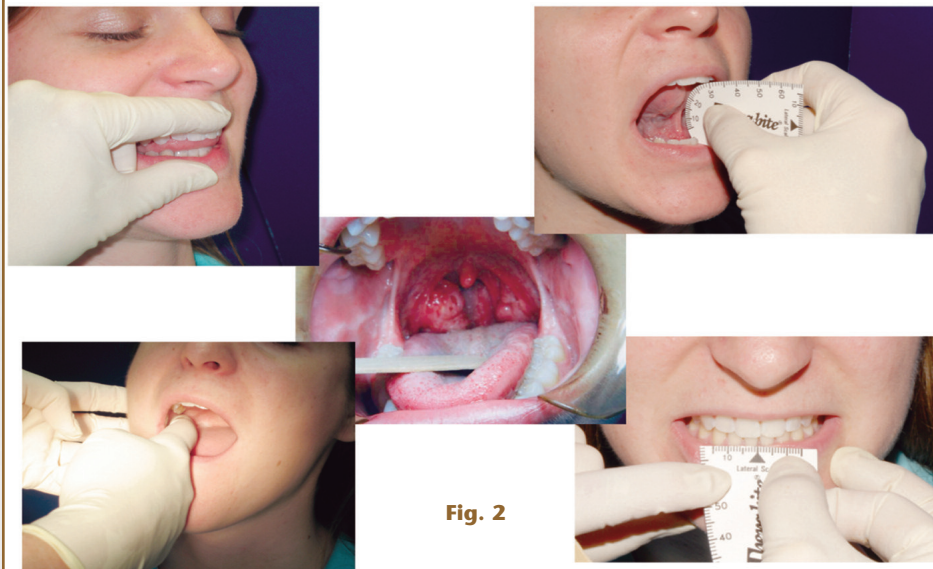


Fig. 2

Determining Need (Figs. 2 & 3)

The comprehensive orofacial myofunctional assessment and examination reveals the presence of structural, functional and behavioral clinical deviations. These most often are identified and related to:

- Orofacial myofunctional disorders (OMD).
- Incorrect resting postures of the tongue, lips, and mandible.
- Bruxism, clenching, muscle bracing symptoms (and the oral/dental freeway space).
- Functional dysphagia: related to the preparatory and oral phases of the swallowing pattern: biting, chewing, and/or incorrect swallowing (what used to be called the 'tongue thrust swallow').
- Orofacial related parafunctional behaviors (bruxism, muscle-bracing, clenching).

Fig. 3 Various Open Mouth Resting Postures, Mandibular Functional Deviation, Incompetent Lips, Tongue Resting Postures & "Tongue Thrust" Swallow Patterns



- Facial muscle spasms from over-closure/over-extension of the dental freeway space.
- Tight lingual or labial frenums, and associated dysfunction of the lips, tongue.
- Oral behaviors (non-nutritive sucking of thumbs, fingers, pacifiers; extended sippy-cup use; chronic chewing/biting of nails, clothes or hair, chronic pen/pencil chewing, lip & cheek biting/chewing, lip sucking/propping, unilateral and/or deviated chewing patterns, etc.).
- Respiration functional issues (open mouth posturing and/or mouth breathing, over-enlarged tonsils & adenoids, engorged inferior nasal turbinates, deviated septum, untreated allergies, other airway issues).
- Oromotor dysfunction, especially in the ROM of the mandible (range of motion deviations in the functional movements/patterning of the mandible) including functional shifts and dual biting patterns, oromotor planning issues.
- Muscular/functional temporomandibular dysfunction (TMD) – pain, clicking, popping symptoms in the temporomandibular joint region.
- Functional speaking pattern deviations (mechano-functional patterning movement deviations of the tongue, lips, and jaw during speaking); ‘funny-looking’ speaking patterns
Note: A lisping pattern may/may not be present.
- Unresolvable speech disturbances that are more functionally related than articulation related.

Raising the Bar on the Standard of Care

The orthodontic assessment and examination process that includes a

comprehensive orofacial myofunctional assessment and examination raises the bar on the standard of care delivered to the patient. The comprehensive orofacial myofunctional assessment portion may be completed by the dentist/orthodontist, or it is a great time to incorporate the orofacial myologist into the process to provide a comprehensive assessment and examination. A comprehensive assessment and examination includes taking a comprehensive medical and dental history; dental occlusal assessment with measurements and Angle classification; determining the severity of orofacial myofunctional disorders (OMD); assessing for functional dysphagia (difficulty in the preparatory and oral phases of chewing and swallowing); observing resting postures of tongue, lips, mandible with philtrum, lip, lingual frenum stretch, inter-labial gap and lip resistance measurements; identifying and measuring the freeway space; determining the presence of noxious oral behaviors; assessing the impact of temporomandibular muscle dysfunction (TMD) including palpation of musculature and imaging; utilizing a self-reported pain scale if pain is present; assessing and measuring the range of motion (ROM) and muscular patterning of the mandible; measuring postural (CO), functional (CR), and speaking deviations of the mandible; identifying functional deviations in the mechanic-physiologic movement of the tongue, lips and jaw during speaking patterns (as related to dental interferences, occlusal and incisal attrition patterns, or anterior/lateral functional patterns); assessing attrition of the dentition related to parafunctional patterns of bruxism, muscle bracing and measuring abfractions, or clenching; assessing the periodontium impact of bruxism, bracing, and clenching; assessing orofacial muscle dysfunction on oral hygiene; assessing the oral and nasal airway with a visual inspection^{6, 55, 56} and utilizing a sleep apnea questionnaire if symptoms are present.

What are the Goals?

Addressing adjunctive issues of OMD, oral behaviors, and muscular TMD increases orthodontic treatment planning potential for successful outcomes and remains critical to facilitating long-term stability. The on-going evaluation of functional patterns continues through treatment and post-treatment phases.^{2, 6, 12} Orofacial myofunctional and neuro-muscular retraining encourages habituation and adaptation to new neuro-muscular patterns. It is most ideal to begin OMT in cases where the dysfunction is more severe prior to the onset of orthodontics. It also usually makes the early orthodontics move at a more predictable speed. Oral habits, especially digit or lip sucking should be eliminated prior to beginning ortho to eliminate potential orthodontic interference. If the patient is referred while the orthodontics are in progress, it is best to do so with enough time remaining prior to debanding to allow for new patterns to become well-established. If referral is made after relapse is noticed, it is wise to strongly refer as soon as relapse appears. When caught early enough in a relapse situation, often correcting the function will allow the dentition to return to its pre-debanded orthodontic form. If retreatment is planned for an orthodontic relapse case, OMT should be initiated prior to retreatment. However, habit patterns may be successfully corrected at any point along the lifetime continuum of pre- to post-orthodontics.^{2, 6, 30, 31, 53} Establishing new orofacial myofunctional patterns is similar to a rehabilitative process. Habituation levels increase in depth the longer and more often the new patterns/functions are correctly repeated.^{6, 31, 53}

Who Provides OMT Treatment?

Orofacial Myologists focus on treatment issues related to the orofacial/oromotor functional, dento-facial functional aspects, and oral-related parafunctional and behavioral issues. In the US, referral

Orofacial Myofunctional Therapy

Fig. 4

Developing a lingual-palatal seal (suction) and utilizing neuro-muscular facilitation to elevate the genioglossus and hyoglossus



Reeducating the Range of Motion (ROM) patterning, stretching the lingual frenum, elevating the digastrics & mylohyoid muscles



Increasing orbicularis oris tone and eliminating incompetent lips



Neuro-muscular facilitation toning the styloglossus, palatoglossus, superior & inferior longitudinal, vertical & transverse muscles, and facilitating middle and posterior tongue elevation



Retraining an incorrect swallowing pattern



for orofacial myofunctional therapy is primarily to a Registered Dental Hygienist (RDH), Dentist (DDS), or Speech Pathologist (SLP) specifically trained in Orofacial Myology.³⁹ The International Association of Orofacial Myology (IAOM) recognizes the education and licensure of the RDH, DDS, and SLP as the pre-requisite education for training and becoming certified in Orofacial Myology. The IAOM is the international, inter-disciplinary association of RDH, DDS, and SLP professionals from around the globe who practice in the specialty-focused area of Orofacial Myology or participate as

a supporting member. The IAOM is currently the only certifying body. Institutional education, both didactic and clinical, is scant in US and Canadian dental, dental hygiene, and speech pathology programs due to 1) other curricular demands, and 2) lack of faculty trained and certified in the specialty area. Countries, such as Japan and Brazil, are more routinely including orofacial myofunctional therapy (OMT) within their formative professional educational programs in dental hygiene, dentistry, and speech pathology. In the US and Canada, didactic and clinical training

courses are still mostly taught on a professional continuing education basis. Courses are available in seminar format, internship style, and web-based.^{2, 51} Many other countries are recently discovering the concepts of orofacial myology and recognize this as a desirable practice area to assist their patients.^{5, 15, 40-46}

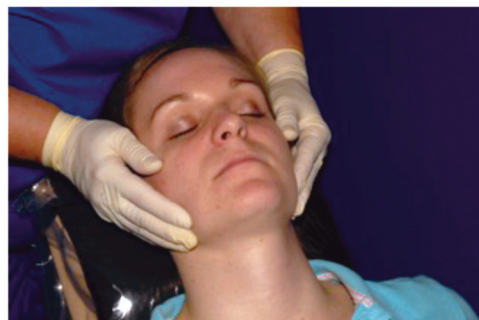
How Long Is Therapy and What Happens? (Figs. 4 & 5)

Depending on the degree of orofacial/oromotor dysfunction, an average orofacial myology program will consist of weekly appointments, approximately 30-60 minutes in length (depending on appointment goals) and may range from 3-7 sessions (visits) to approximately 24-32 sessions (visits) over a 12-24 month period. Appointments are usually weekly for the intensive therapy program, depending on severity and when the patient is in a neuro-muscular retraining, muscle toning and development, and muscle conditioning phase. Dysfunctional processes are broken down into all of the bio-physiologic movements and activities of daily living (ADLs). Each muscle group activity, functional movement, and muscle functional pattern is retrained using correct bio-physiologic movements, patterning, and actions in a normalized manner while incorporating dental concepts of centric occlusion (CO), centric rest (CR), and balancing functional use of anterior, posterior, and lateral group actions and being mindful of speech concepts of tongue positioning for the on/off glide of the tongue on the palate and mandibular range of motion (ROM) mechanical movements during speaking. Lingual frenum stretching is addressed through exercise and/or referral for a frenectomy with exercises pre-and post-procedure. ROM patterning of the mandible incorporates normalized jaw mechanics and establishing an appropriate dental freeway space with an emphasis placed on nasal breathing and lips closed, muscularly relaxed resting posture. The intrinsic and extrinsic muscles of the tongue, soft palate, lips, facial muscles, muscles of

Fig. 5

Myofascial Release Therapy

A therapeutic physiological approach to reducing muscle restrictions/spasms, facilitating lymphatic drainage, & eliminating locked-in pain syndromes



Gehin, Alain, Atlas of Manipulative Techniques for the Cranium & Face, 1985. Eastland Press

mastication, and neck muscles with hyoid elevation are exercised as needed to achieve treatment goals. As needed, chewing and swallowing exercises are incorporated, along with noxious oral habits and parafunctional habits addressed. Many articulation errors (lisping patterns) improve significantly once the tongue, lips, and mandibular patterns function correctly. If speech articulation is an issue, a RDH orofacial myologist will coordinate treatment with a speech pathologist to address non-self-correcting errors. The appointment schedule decreases as habituation increases and exercises are weaned while maintaining corrected function. Appointments decrease to an annual re-evaluation for 1-5 years following the completion of a comprehensive therapeutic program to monitor long-term stability. Digit sucking habits eliminate completely or significantly come under control on their way to extinction within the first 24-72 hours of the therapy program. It is literally a 'Quit in A Day' behavior modification program for 80-90% of the individuals, however, continued monitoring for 30-60 days with a 3 or 6 month recheck insures full extinction of the behavioral habit, allows monitoring of natural changes to the form, and follows best practice of behavior modification principles and theories. A TMD patient with pain symptoms or a patient with special needs treatment program may take less/more time than other OMD patients to complete, based on treatment goals and case complexity.^{2, 6, 9-12, 16, 31, 34, 45, 46, 53}

Most parafunctional patterns are addressed during the course of an orofacial myofunctional therapeutic program. The background and training of the orofacial myologist will determine the extent and ability to address the orofacial myofunctional disorders and parafunctional habits present. Not all orofacial myologists are trained to address muscular TMD and parafunctional habits/patterns. As with any case assessment, the time and intensity of treatment is determined by the severity and

complexity of the orofacial myofunctional disorders. As a best practice, orthodontists should also include the orofacial myologist in the re-evaluation of the patient for 1-3 years following the completion of an orthodontics and orofacial myofunctional therapy program.^{2, 6, 53} On the longer term of 4-6 or more years following completion of an OMT program (in the US) the general dentist and dental hygienist continue monitoring the long-term stabilization.^{6, 20, 24}

Moving Forward

Orthodontic practitioners are increasingly aware of negative changes created in the dentofacial environment due to interferences, destruction, damage, and unwanted change in the dentition, dental arches, TMJ functional patterning, and presence of parafunctional habits and patterns. These orofacial myofunctional behaviors make orthodontic treatment more difficult, delay the normal progression of treatment, and leave beautifully completed cases at risk in an unstable neuro-muscular environment. Tongue and orofacial muscular 'issues' can occur in any area of the face/head/neck. OMD and muscular TMD can impact the mouth and face in an anterior, lateral, and/or posterior pattern on a unilateral or bilateral basis. Dysfunction is recognized as abnormal movements and functional patterning of the tongue, lips, and mandible occurring during resting postures; chewing; swallowing of liquids and foods; during speaking; sleeping; abnormal jaw muscular and postural patterning, noxious oral related behaviors, or parafunctional habit patterns.

Orofacial myofunctional therapies (OMT) can positively impact and/or eliminate these disorders and dysfunction. OMT was most commonly called 'tongue thrusting', however orofacial myofunctional therapy more completely encompasses the issues. Therapy involves establishing correct orofacial muscle tone, creating a

Orofacial Myology Policy Statements

American Association of Orthodontics (AAO) – Policy Statement adopted 1993

American Dental Hygienists' Association (ADHA) – Policy Statement 9-92 adopted 1992

American Speech, Hearing-Language Association (ASHA) – Policy and Position Statement adopted 1991

balanced equilibrium and harmony in the functional resting posture, chewing patterns, swallowing pattern, and functional speaking patterning utilizing the tongue, lips, mandible, perioral musculature, cheeks, and head/neck orofacial environment in a correct bio-physiologic manner as they relate to maintaining a dental freeway space, neuro-muscular stimulus/responses, activities of daily living involving sitting at rest, mastication (chewing) and deglutition (swallowing) issues, eliminating functional dysphagia (preparatory, oral, and in some cases the pharyngeal phase), functional eating and feeding, size of food bites and bolus formation, saliva/food/liquid transfers, elimination of digit (thumb/finger) and other non-nutritive (pacifier, sippy-cup) sucking habits, and additional related noxious oral habits (nail biting/object chewing), along with addressing the parafunctional oral habits/behaviors of bruxism, muscle bracing, clenching, and inappropriate ROM patterning (range of motion) of the mandible.

Therapy incorporates appropriate use of a patent nasal breathing pattern and patent airway maintenance; works well with the orthodontic practitioner to eliminate muscular and functional

Benkert Pearls

- Chart and document all orofacial myofunctional and TM functional deviations along with parafunctional habits/patterns.
- Collaboratively co-treat patients with a RDH or SLP certified in Orofacial Myology (COM) to achieve balanced function and increase long-term stability.
- Take an orofacial myology course for self-knowledge and gain additional oromotor/oral health perspectives.
- Intern for a day with a COM to understand how Orofacial Myofunctional Therapies fit specifically into your practice treatment needs.
- Encourage local dental hygiene programs to add didactic and clinical training course materials on OMD/TMD and parafunctional habit elimination.
- Request CE programs be offered through your professional association.
- Visit the IAOM website for a certified therapist in your area: www.iaom.com.

tooth movement interferences; assists in maintaining arch expansion by achieving correct tongue and jaw posturing with pressures exerted by the tongue on the hard palate and developing a lingual-alveolar seal/pressure with correct lateral and posterior-lateral pressures of the tongue; focuses on eliminating labial (lip) incompetency through lip neuro-muscular toning and/or lip stretching exercises; addresses dentofacial functional abnormalities and the functional impact on the growth/development of the face and dentition.

The IAOM defined a collateral scope of practice (1993) in order to create a commonality among health professionals who participate or engage in activities related to OMD and OMT. The essence of the scope of practice provided basic statements of agreement on what craniofacial conditions were most relative to orofacial myology. The

licensed professional background and training of the orofacial myologist practitioner will determine the extent of the services and treatment offered. The American Speech-Hearing Language Association, Scope of Practice, Task 9.0, lists areas a SLP may not engage in providing treatment of parafunctional problems related to temporomandibular joint disorders and myofascial pain dysfunction, craniosacral manipulation or practices within the scope of physical therapy, practices related to the reduction of medical conditions, such as sleep apnea.⁵¹ The American Dental Hygienists' Association policies and code of ethics do not include limitations placed on patient services offered to the head/face/neck by a registered dental hygienist, support the US Surgeon General's 'Call to Action' on Oral Health in America, and are supportive of the recommendations in the Health People documents.⁴⁸

Conclusion

With such a variety of orofacial labels and issues to observe, it is no wonder why many orthodontic practitioners become confused or concerned about this topic. Most are interested in how to address these issues for their patients. Embarking on this journey begins with determining if your practice needs include orofacial myofunctional therapy. The next step is identifying the licensed professional you want to work with in a collaborative manner to provide therapeutic services either within your own office or on a referral basis to their office. Then it's time to begin collaborating on patient assessment, examination, treatment planning, implementation of coordinating programs, and continue a joint evaluation throughout treatment and during the habituation/follow-up phases. The rest of this story ends with providing collaborative care for patients, reducing your treatment risk factors, and enjoying the results! Contact Kimberly Benkert at kbenkert@gmail.com or (708) 309-3844 for information regarding training seminars and lectures.

Disclaimer: Kimberly Benkert teaches OMD/TMD seminars and offers training courses nationally and internationally. Her clinical offices are located in suburban Chicago. She is a past president of the ADHA, former IAOM Board member and OM Certification Examiner, and achieved Fellowship status (FAADH) in Orofacial Myology and TMD with the AADH. Benkert is CEO of MYO USA, Inc. and Midwest Orofacial Myology. MYO USA, Inc. is the US and Canadian distributor of the MYO Munchie, peri-oral, oromotor chewing brush. Benkert has a financial interest in the sale of the MYO Munchie in the US and Canada. She may be reached at 708-309-3844 or kbenkert@gmail.com

Editor's Note: Article references are available upon request or for download in the digital version at www.orthodontics.com.