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Contact Author
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ijom@iaom.com

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2022 IAOM Convention

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Kansas City, Missouri

Friday, October 21

Body Reading the Fascial System: Stability and Plasticity in Tissue Patterns

Thomas Myers, CBSI
Anatomy Trains, Walpole, ME, U.S.

Abstract. This course reviews new research on the 'fascial system' and its relevance to physical development and contemporary therapy. We outline relevant myofascial connections related to the jaw, breath, and orofacial function. Skills in visual assessment of body-wide patterns are conveyed via the 12 longitudinal myofascial meridians.

Dopamine Nation: The Neuroscience of Addiction and Its Implications for a Dopamine-Overloaded World

Anna Lembke, MD
Stanford University School of Medicine, Stanford, CA, U.S.

Abstract. The presenter, author of *Dopamine Nation: Finding Balance in the Age of Indulgence*, decodes complex neuroscience into applicable strategies that explain why the relentless pursuit of pleasure can lead to pain. An expert in treating addictions of all kinds, Dr. Lembke discusses the biology and psychology of why people become addicted to certain substances and behaviors and the key role that our dopamine balance plays in creating addiction. Learn how conducting a dopamine fast can help curb our innate desire to overindulge, be it drugs, alcohol, food, work, the internet, or sex, and find contentment and connectedness by keeping our dopamine in check.

Saving Face: Managing OMT Practice Pitfalls

Paula Fabbie, RDH, BS, COM®
Paula Fabbie LLC, Highland, NY, U.S.

Abstract. This course will teach myofunctional therapy to speech-language pathologists, dental hygienists, dentists, orthodontists, and other health care professionals. Myofunctional therapy involves several disciplines and fields, and this course connects these fields, especially appreciating the work of the interdisciplinary team. This course will also cover anatomy and physiology of the oral area, and methods of assessing and treating myofunctional disorders.

Orofacial Pain: An Overview

Sowmya Ananthan, DMD, MSD
Garden State Orofacial Pain, LLC, Red Bank, NJ
Rutgers School of Dental Medicine, Newark, NJ

Abstract. Although the field itself is not new, Orofacial Pain is a new specialty of dentistry that includes diagnosing and managing disorders of the mouth, face, head and neck (1). In general, the orofacial pain dentist is trained in diagnosing painful conditions, where the source is not tooth related but can mimic a toothache. From this presentation, participants will learn about the diverse presentations of orofacial pain conditions, to distinguish the varying presentations, and to make appropriate referrals.

Summary

Temporomandibular disorders are a common type of non-odontogenic facial pains (2). These include the arthrogenous and myogenous types of temporomandibular disorders. These can cause facial pains, limitations in mouth opening, clicking, and popping noises in the temporo-mandibular joints. Neuropathic orofacial pains include the episodic type such as trigeminal neuralgia, which manifests as sharp, shooting pain, frequently described as electric like, in one or more distributions of the trigeminal nerve (CN V), frequently affecting the second and third divisions (3). The more continuous type of neuropathic orofacial pain includes post-traumatic trigeminal neuropathic pain, that can occur secondary to dental implant placement, endodontic therapy to name a few dental procedures (4). Post-herpetic neuralgia in the orofacial area can occur secondary to a herpetic outbreak in the face or mouth, frequently affecting the first branch of the trigeminal nerve (5).

Neurovascular orofacial pains are the occurrence of migraine headache in the second and third divisions of CN V as opposed to the first division, which is typically affected when a migraine headache occurs (6). In addition to the symptoms listed previously, the orofacial pain practitioner is confronted with patients affected by movement disorders such as dystonias and dyskinesias (7).

Sleep and pain are closely interlinked –lack of proper restorative sleep has been known to increase pain levels, whereas a patient suffering from pain is unable to get good sleep. Recognizing this relationship, the orofacial pain dentist is able to expertly manage patients having obstructive sleep apnea and primary snoring by the fabrication of oral appliances (8).

Typically, a patient with orofacial pain will have seen multiple other healthcare professionals prior to getting a diagnosis for their pain problem. One of my patients told me that he had seen 19 healthcare providers (physicians and dentists), prior to finding me! This highlights the lack of access to qualified orofacial pain practitioners (9). We have to do more to increase awareness that this field exists and direct our patients in an appropriate manner, so that they are able to get a diagnosis for their pain problems and have a good quality of life.

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Saturday, October 22

Are We Missing Something Obvious With the Mouth – Osteopathy?

Charlie Beck, DO, FAAO
Osteopathic Vision, North Lebanon, IN, U.S.

Abstract. This session will explore what can be added (and what you may not even recognize is missing) by adding an osteopath to your treatment team for every patient. From how the eyes affect the teeth and tongue to how you can use timed muscle tension to move the bones of the face, this session will explore many untaught facets of how the face, mouth and head interact – and how to use them to improve treatment outcomes.

Three Simple Steps for Healthier Sleep

Stasha Gominak, MD
Right Sleep®, Tyler, TX, U.S.

Abstract. Low Vitamin D levels affect our sleep and our intestinal microbiome resulting in a cascade of deficiencies related to sleep disorders and chronic illness. Developing a better understanding of this mechanism provides an opportunity to reverse chronic illness, delay aging, and most importantly, treat and prevent increasingly common sleep disorders in children.

Summary

Effects of vitamin D and B supplementation on sleep. Vitamin D receptors demonstrated in the brainstem sleep switches (1,2) prompted an uncontrolled trial of vitamin D in over 1000 patients with low D levels and sleep disorders. The D *blood level* that consistently produced better sleep was 60-80 ng/ml. (3) The positive D-sleep effect failed after 2 years and pain and sleep complaints returned. Articles documenting that several B vitamins are vital for normal sleep prompted a second uncontrolled trial in the same group. A large dose B complex, B50 was added to the recommended D supplementation. Most patients had an immediate improvement in sleep and pain. One third of the patients also had irritable bowel symptoms that resolved by the end of three months of D plus B50. (4)

Discussion. We are self-repairing organisms that evolved on a planet with two repeating, planetary cycles; the 24-hour daily cycle, and the 365-day, annual cycle. Our biology and our sleep are linked to both cycles. Self-repair happens in sleep, with suboptimal sleep our repairs lag and myriad medical challenges result. Our sleep is coordinated to the 24-hour cycle by sunlight entering our eyes sending messages to the brain using "retinoids" like vitamin A. (3) Sleep is also linked to the winter/summer cycle through a hormone made on our skin called ''vitamin D". (1-3) Because food is less plentiful in winter, we ''hibernate'' (store fat and sleep longer). These changes in our body are run by vitamin D levels. Winter vitamin D levels are lower and cause changes in our intestinal bacteria. (4, 5) Low D favors ''winter bacteria" that release chemicals making us crave high fat, high calorie food. These same "winter bacteria" help us convert what we eat into fat to survive the winter. (6, 7) The "summer bacteria" show up when our D is higher. They tell our body to put on muscle instead of fat, stop being dormant and be more active. The "summer bacteria" produce the B vitamins needed for normal sleep, they also produce the building blocks that become the endocannabinoids (needed for sleep) and they help us absorb minerals needed for sleep such as iron, zinc and copper. (8-10) The last 40 years of decreased sun exposure have produced a pandemic of humans that are in permanent winter. Once D is very low it appears that the brain becomes deficient in several things it needs for sleep. (4) D and B5 are both needed for normal production of acetylcholine, a neurotransmitter that is needed for normal transition between sleep stages and normal paralysis during sleep. (11, 12) Acetylcholine is also the neurotransmitter used by the parasympathetic autonomic nervous system and it is needed for normal function of the cholinergic anti-inflammatory pathway. (13) This implies that combined D/B5 deficiency produces a "cholinergic deficiency" resulting in unopposed sympathetic tone and increased inflammation linked to many of the chronic illnesses that are epidemic today. On a more positive note, it also suggests new forms of treatment by learning how to correct or prevent these deficiency states.

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Idiopathic Condylar Resorption

Attila Nagy, DDS, MS
Nagy Orthodontic Academy, Sunbury, OH, U.S.

Abstract. This introductory level course will teach how we identify, diagnose, and treat patients with Idiopathic Condylar Resorption to speech-language pathologists, dental hygienists, dentists, and orthodontists. Participants will learn to identify patients with risk factors, and symptoms of Idiopathic Condylar Resorption across multiple age, and sex groups, and how to refer and/or treat these patients with Idiopathic Condylar Resorption properly.

Sunday, October 23

Lymphatic drainage and massage for orofacial issues

M. Julia Schandelmeier, LMT, CDT
Masterful Massage, Pittsburgh, PA, U.S.

Abstract. This session provides an introduction to manual lymph drainage along with new discoveries about the lymphatic system. Combining manual therapies including manual lymph drainage, gliding cupping, and neuromuscular therapy, is used to soften fibrotic tissue, reduce inflammation and tightness in the head and neck, thus facilitating freedom of movement, pain reduction, and improved muscular function.

Summary

Our understanding of the lymphatic system has deepened in the last 15 years. New discoveries such as how the lymph is absorbed and circulated, to new insights into lymphatics in the brain have opened up possibilities on the benefits of how manual lymph drainage can be utilized. Swelling and inflammation can have a number of causes: steroid use, sinus issues, surgery, radiation, stress, bruxism, and others. Being able to reduce the swelling helps provide muscles with fluidity and freedom of movement. Swelling can be painful, and to reduce pain and discomfort is to help the muscles to function optimally. We will review how the lymphatic system drains and how the lymphatic pathways all end up at the supraclavicular region. Indications and contraindications for manual lymph drainage are especially important since the lymphatic system is a part of our immune system. Another advantage to manual lymph drainage is that it is a gentle technique that can be taught to our clients so they may work on themselves when needed and appropriate. The opportunity for self-care can have a profound impact on our clients.

For a client who has substantial swelling, tightness and/or tough scar tissue, adding therapeutic cupping to help move lymph can do much more than just manual drainage due to the swelling which has become firm (gel and sol state of the interstitium). Cupping decompresses the interstitium to allow freedom for the lymph to flow. Lymph is predominantly water, and water moves through the path of least resistance. The type of cupping for lymph drainage is gentle and gliding, as opposed to the traditional cupping that places cups and leaves them “parked” in one location for 3 to 15 minutes. In practicing gliding cupping, we are still following the lymphatic pathways to help this fluid reabsorb back into our circulation.

The addition of Neuromuscular therapy for muscles that have been compressed by inflammation can help with the movement and function of the muscles. Trigger points can create referred sensations such as tinnitus from trigger points in the masseter muscle, Vertigo from trigger points in the sternocleidomastoid muscle, and difficulty swallowing from trigger points in the longus colli muscle. Being aware of trigger points and how they can affect our clients can lead towards a solution in otherwise unexplained sensations.

When working with manual therapies, combining techniques and tailoring each session to the individuals’ needs is very effective in achieving results. For a client undergoing a dental procedure, manual lymph drainage alone can be enough for pain management, healing, and reducing post procedure swelling. Manual therapy with a post-operative mandibular cancer patient can be adapted to their stage of treatment: post-surgery, radiation, and rehabilitation. In any manual therapy there is also the benefit of touch after a traumatic life event, providing comfort and support.

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Multidisciplinary Approach to Tongue Space Surgery

Kevin Coppelson, DDS, MD
The Breathe Institute, Los Angeles, CA, U.S.

Abstract. Abnormal development of the jaws leads to tongue-size:tongue-space discrepancies. Insufficient tongue space results in compensations, malocclusions, and sleep-related breathing issues. Skeletal expansion surgeries like Minimally Invasive Nasomaxillary Distraction (M.I.N.D.) and Maxillomandibular Advancement Surgery (M.M.A.) are safe and effective means to increase tongue space. Addressing functional needs with an orofacial myologist improves surgical outcomes and patient satisfaction.

Summary

Tongue space is the area within the oral cavity that the tongue occupies while the patient is at rest. Adequate tongue space should allow the patient to have proper resting tongue posture without narrowing the oropharyngeal airway, disrupting occlusion, or causing compensations. Although macroglossia is a rare cause of tongue-size:tongue-space discrepancies, a great majority of patients suffer discrepancies due to underdevelopment in the space required for a normal-sized tongue.

Normal growth and morphology of the maxilla and mandible are crucial for the development of adequate tongue space. Disruptions in anterior-posterior, transverse, and/or vertical growth of the jaws can lead to insufficient tongue space, leading to possible compensations, malocclusions, and sleep-related breathing issues.

Diagnosing a patient with tongue space deficiency is achieved through a combination of subjective symptoms, physical examination, radiographic examination, and objective clinical studies. The physical exam should look for tongue scalloping, Friedman tongue position, tongue overflow (in lingual palatal suction), mandibular and/or palatal tori, and examine the morphology of the palate. Examining the relationship of the dental arches (overbite/overjet, angles classification, open bites, and crossbites) will further cue the provider regarding the possible presence of dentofacial disharmonies.

Radiographic examination via 2D (lateral cephalograms) and 3D (CBCT) techniques can further analyze the maxilla and mandible to look for disturbances in jaw growth, jaw shape, and airway dimensions. Additionally, clinical studies such as drug induced sleep endoscopies (DISE) can provide further insight into the nature and severity of airway obstruction.

After a patient is diagnosed with inadequate tongue space secondary to a maxillofacial skeletal disharmony, treatment should be prescribed that best addresses that patient's particular deformity and needs. For example, maxillary transverse hypoplasia (narrow nasomaxillary complex/palate) can lead to loss of tongue space, a smaller oropharyngeal airway, dental crowding, increased nasal airflow resistance, increased nasal obstruction, and increased pharyngeal collapsibility. Maxillary expansion has long been the gold standard when treating this condition.[1] Modern techniques like Minimally Invasive Nasomaxillary Distraction (M.I.N.D.) allow for safe, predictable, and minimally invasively ways to expand the entire nasal cavity, palate, and volume of alveolar bone. This results in improved nasal airflow, increased tongue space, decreased pharyngeal collapsibility, and room to decompensate crowded teeth.

Maxillomandibular Advancement Surgery (MMA) is a version of corrective jaw surgery geared towards skeletal expansion and airway improvement in patients with sleep-related breathing disorders and insufficient tongue space. It is the most effective surgery at treating obstructive sleep apnea.[2] In addition to the expansion of the jaws, modern surgical technologies allow for precise correction of jaw orientation and asymmetries, further enhancing the cosmetic benefits of this surgery.

Addressing and correcting functional issues that contributed to the development of dentofacial disharmonies improves surgical outcomes and patient satisfaction.[3] An orofacial myologist's role in tongue-space surgeries is to prevent relapse by working to remove orofacial dyspraxias, work on breathing, work on swallowing, restore normal movement to the temporomandibular joint and facial muscles, and help with postoperative pain and swelling.

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Early Brain-Body Connections and Development for Feeding, Swallowing, and Speaking

Diane Bahr, MS, CCC-SLP, CIMI
Ages and Stages®, Las Vegas, NV, U.S.

Abstract. Literature-based information assists clinicians in assessment and treatment of breathing, feeding, swallowing, speaking, and related systems. Oral development begins *in utero* and continues throughout critical periods in life. While effective lip, cheek, and tongue movement are crucial to the aforementioned processes, the jaw is now viewed as foundational for oral maturation.

Summary

Brain Development and Sensory-Motor Learning

Significant brain development and neural control occur *in utero* through the first 2-years of life (Kent, 1999). Sensory-motor learning requires attention and concentration and uses a variety of brain processes (Fabbri-Destro & Rizzolatti, 2008). This takes place in stages and steps (Luft & Buitrago, 2005 in Kent, 2015).

Two learning hypotheses are discussed by Kent (2015) and Braun et al. (2010). Specificity of learning involves practice within conditions similar to a task, while structure learning encompasses movements that may apply to a variety of activities.

Eating, drinking, and speaking appear to be habit systems requiring consistent practice to attain automaticity (Lally et al., 2010). Blocked practice seems effective in early learning, while random practice appears to result in generalization (Grigos, 2016; Hall & Magill, 1995). Knowledge of performance seems effective in learning new skills, while knowledge of results/accuracy appears to be most useful during skill acquisition (Grigos, 2016; Schmidt, 2003). Integral stimulation is a systematic way to attain automaticity (Rosenbek et al., 1973).

Specifics of Oral Development

Oral maturation begins in the embryonic period and continues through the fetal period. Oral and hand-mouth reflexes develop during the fetal period. Newborns appear to have similar features to adults in the upper and mid-face areas. However, retruded lower jaws, sucking pads, and the relatively horizontal positioning of the Eustachian tubes are unique to full-term newborns.

Significant structure and function changes occur in the first two years of life with oral and feeding experiences. Proper breastfeeding is biologically normal and mechanically different than bottle feeding. This likely accounts for cranial, facial, and oral differences found in these two groups.

While generalized mouthing begins *in utero*, discriminative mouthing begins around 5- to 6- months of age (Morris & Klein, 2000). Silveira et al. (2013) found oral exploration positively influenced later developing feeding skills such as cup drinking. Guilleminault et al. (2019) reported that children could discriminate between differing oral forms and could respond appropriately to requested tongue movements by 3 years of age.

Spoon feeding, open-cup drinking, and finger feeding often begin between 6 and 8 months of age when children are safely provided with these experiences. Oral management of food becomes increasingly sophisticated between 6 and 24 months with suitable and safe-feeding practices.

In speech development, a couple of vowel-like sounds are heard at 1 month of age. Most vowels are heard by 6 months. Babbling is usually heard between 6 and 7 months, while jargon is often heard between 7 and 9 months. The first meaningful word approximations typically occur between 9 and 12 months of age. By 21 to 24 months, children use a full range of vowels, diphthongs, and consonant sounds in word approximations.

The Jaw as a Foundation for Lip/Cheek, and Tongue Function and Tooth Development

The jaw elevators are likely larger than the mandibular depressors because they move the developing mandible against gravity. Teeth emerge with biting and chewing on appropriate mouth toys and foods. Mastication and mastication-like activities build and form bone impacting maxilla, mandible, midface, sinus, and cranial development (Inoue et al., 2019).

The jaw becomes dynamically stable over time via eating, drinking, appropriate oral experiences, and speech development. This allows the tongue, lip, and cheek muscles to move independently of the jaw. However, jaw movements for speech are qualitatively different from those used in eating and drinking.

Graded jaw movement during vowel production is essential for speech intelligibility. Vowels use a wider jaw range than most consonants. Clinically, bite blocks and jaw-closure tubes can facilitate appropriate jaw heights and lip movements utilized in front and back vowel sounds. Solomon et al. (2018) found small bite blocks allowed tongue and jaw dissociation for the speech sounds they studied. This is hopefully the beginning of future investigations on dynamic jaw stability used in speech production.

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Poster Presentations

Oral Material Microbiological Hazard Risk Analysis

Heidi A. VanRavenhorst-Bell, PhD

Department of Human Performance Studies, and the Human Performance Laboratory, Wichita State University, Wichita, Kansas, U.S

Sarah Nickel, MS

Department of Medical Laboratory Sciences, and the Molecular Diagnostic Laboratory, Wichita State University, Wichita Kansas, U.S

Abstract. An "anti-slip patch" was developed to help reduce slippage of a commercially available tongue bulb from its intended lingual placement. This study evaluated the microbial safety of the patch when adhered to the bulb for oral cavity use. When following bulb washing procedures, microbiological hazards were not found to increase.

Summary

Orofacial Myofunctional Disorders (OMDs) are often associated with abnormal functional lingual movements. It is important when diagnosing or treating OMDs to assess a patient's tongue strength and endurance[1,2,3]. The Iowa Oral Performance Instrument (IOPI) is a portable and convenient tool often used to measure lingual performance, but when the IOPI bulb encounters saliva, it is reported to move from its intended position and may negatively alter the reliability of the measures[4,5]. An "anti-slip patch" has been developed to reduce bulb slippage and deliver more reliable region-specific lingual measures[5]. The purpose of this study was to determine the microbial safety of the patch for use in the oral cavity.

Methods. Batch 1 included a total of three IOPI bulb conditions (with patch washed, with patch not washed, without patch washed) submerged and soaked in saliva across three durations of time (15, 30, and 60 min). Select IOPI bulb conditions were then washed (hot water, disinfectant soap) for 30 s, streaked on individual plates, and incubated for 48 hr before being examined for bacterial growth. At the 48-hr window, Batch 2 involved streaking each of the Batch 1 IOPI bulbs again on individual plates, incubating for 48 hr before examining changes in bacterial growth.

Results. Two separate repeated-measures ANOVAs (Batch 1 and Batch 2) each revealed significant within-subjects main effect across bulb conditions ($p < .001$), respectively. The main effect for time and the time x condition interaction for each were not found to be significant. Post-hoc comparisons for bulb condition found that the bulb with patch not washed produced significantly more bacterial colonies than the bulb with patch washed and the washed bulb with no patch (p= 0.001, p= 0.001), respectively. No significance was found between the IOPI patch washed and the IOPI no patch washed. A significant difference in bacterial growth count between Batch 1 and Batch 2, $F(1, 4)$= 7.875, p = .049, np^2= .663, power = .565, was found; however, a pairwise comparison further showed that Batch 1 (M = 35.074, $\pm$ SE= 0.392) presented with significantly greater growth of bacteria than Batch 2 (M= 33.519, $\pm$ SE = 0.392).

Discussion. Overall, these preliminary findings suggest that use of an anti-slip patch in combination with the IOPI bulb does not increase microbiological hazard risks when standardized washing procedures are followed. A second round of analysis using the same methodology is being administered when using the same adhesive material without a manufacturer's pre-treated anti-bacterial applique applied. Such findings will further guide the next steps in the Hazard Risk Analysis process and seek to support our intent toward FDA medical device clearance.

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It's All Tied Together: Addressing Ankyloglossia with a Multidisciplinary Team

Rachel Best, MS, CCC-SLP, COM®
Small Steps Therapy, LLC, Providence, Rhode Island, U.S.

Jamie Smith, MS, OTR/L, BCP
Small Steps Therapy, LLC, Providence, Rhode Island, U.S.

Alyssa Morron, RD, CD-N, LDN, CLC
Small Steps Therapy, LLC, Providence, Rhode Island, U.S.

Abstract. Developing and working with a multidisciplinary team allows for patients to be viewed as a whole person, comprehensively addressing overlapping needs simultaneously. Clinicians within the team are able to discuss challenges and concerns from their unique perspectives in order to more effectively meet the individual's needs and goals.

Summary

A multidisciplinary team approach is optimal for all clinicians working with individuals diagnosed with ankyloglossia. A tongue tie has implications beyond one's ability to speak or eat and challenges vary across the lifespan. When only one domain is addressed in treatment, individuals may be observed to achieve progress but frequently demonstrate persistent dysfunction. (Baxter et al., 2018) (Baxter et al., 2020) (Zaghi et al., 2019)

A comprehensive team may vary across settings but should seek to collaborate in order to provide optimal care. In our private practice setting we developed a team including speech-language pathology, occupational therapy, nutrition, and lactation. Additionally, we strive to establish communication with other community providers including: primary care physicians, otolaryngologists, gastroenterologists, dentists, orthodontists, body workers, and the educational team.

Ideally ankyloglossia is identified and treated in infancy. When this diagnosis is not made or properly addressed, symptoms can persistent across the lifespan. (Fernando, 1998) When evaluating an infant, the SLP/COM assesses and treats oral and swallow dysfunction. The occupational therapist addresses cranial development, positioning and motor development. The registered dietitian manages caloric intake, weight/growth and diet changes. The lactation counselor will assess and support the feeding dyad. Older children, teens and adults will complete a similar evaluation where the SLP/COM assesses and treats oral motor skills, swallow function and will assess speech and language development. The occupational therapist will assess postural stability and motor development. The registered dietitian will assess diet, nutritional intake and growth, and the contribution of allergens or gastrointestinal concerns. (Merkel-Walsh & Overland, 2018) (Bercik et al., 2018) (Hazelbaker, 2022) Within our multidisciplinary approach each team member is present throughout the evaluation and collaborates to establish an appropriate plan of care. Follow-up care is generally provided weekly. Treatment is often established within a multidisciplinary setting; however, one discipline may take priority.

When one seeks to form their own team, it may be difficult to find the right providers. In our clinic we created a specialty with one discipline. As more families sought treatment under this specialty, a clear need for other disciplines was identified. As more providers within our clinic and community sought specialty training, we developed our reputation and attracted additional specialty team members. Another idea for creating the dream team is to train graduate and post-graduate students with the intention of developing the skills of the future generation of treatment providers.

There are many benefits of a multidisciplinary team but some challenges have also been identified. There may be increased cost to the family including multiple co-pay and deductible payments. Insurance may not cover multiple disciplines treating the same disorder on the same day. There is an increased impact on the business when a family cancels an appointment. Additionally, there are time constraints that limit each session and it may be difficult to adequately target all goals.

Collaboration is the key to success and achieving the best outcomes for our patients. When the multidisciplinary team takes the time to listen to one another, learn from one another, and focus on patient care, we are able to provide a unique, comprehensive opportunity that truly benefits the patient.

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Two Phases of Post-Operative Frenectomy Care: Active Wound Management and Neuromuscular Re-Education

Robyn Merkel-Walsh, MA, CCC-SLP, COM®
Robyn Merkel-Walsh, MA, CCC-SLP®, Ridgefield, New Jersey, U.S.

Lori Overland, MS, CCC-SLP, C/NDT, CLC, FOM
Alphabet Soup, Norwalk, Connecticut, U.S.

Abstract. The Certified Orofacial Myologist (COM®) is skilled to assess and support the functional challenges associated with tethered oral tissues (TOTs), but it is important to understand the specific stages of post-operative care and scopes of practice. Professionals must delineate the goals of active wound management (AWM) and neuromuscular re-education (NMR).

Summary

TOTs is a congenital anomaly wherein frena are unusually too short, thick, and/or tight, or in an atypical location Researchers found frena to be dynamic three-dimensional structures that vary in morphology along a spectrum and that are created by sheets of fascia (Mills et al., 2020; Mills et al., 2019).

It is imperative to delineate AWM and NMR and specific roles of the COM® dependent on 1) the age and cognitive status of the patient; 2) functional challenges; 3) professional training; and 4) state and national guidelines. For example, RDHs' scope of practice includes removing surgical debris and other duties during oral surgery (ADHA, 2021).

In 2014, de Castro Rodrigues and colleagues suggested that the frena could not be stretched due to collagen fibers, but the fascial fibers entwined with the collagen would possibly respond to intervention. Despite this research, there is a lack of consensus regarding therapeutic aftercare and the roles of professionals to include feeding, speech and/or myofunctional therapy.

Experts agree that pre- and post-operative care is necessary to improve functional symptoms of TOTs (Brooks et al., 2019; Kotlow, 2001; Siegel, 2016). There has also been research looking at the importance of orofacial myofunctional therapy in conjunction with frenectomy (Zaghi et al., 2019). Despite the evidence, COMs® face lack of acceptance from other colleagues regarding the relevance of therapeutic care to improve frenectomy outcomes. This could be due to the confusion of AWM versus NMR.

"AWM care is performed to remove devitalized and/or necrotic tissue to promote healing of a wound on the skin and helps to prevent scarring and reattachment" (CMS, 2011). Surgeons prescribe AWM to maintain the integrity of the wound for guided healing. It is important in frenectomies because a wound undergoes predictable changes, migrates toward the center to eventually zipper together with a mucous membrane. Then granulation tissue fills the wound and if this migration occurs too quickly, scar tissue may form (Larjava, 2012).

In contrast, COM®s direct NMR toward functional goals and consider the patient's underlying oral sensory-motor skills that are impacted by TOTs. NMR deals with retraining the brain and spinal cord in voluntary and reflex motor activities (Huddleston, 1954). NMR focuses on goals to reduce compensatory patterns that have resulted from impaired range of motion as well as fascial restrictions such as feeding and speech (Baxter et al., 2020). In addition, NMR supports wound healing by guiding mobility to avoid fibrosis by reducing inflammation and proliferation, and supports remodeling to reduce pain (Pavan et al., 2014).

In summary, it is important for professionals treating TOTs to understand the variations of AWM and NMR. Techniques are often overlapping, but it is imperative to be cognizant of the specific goals targeted, one's professional scope and the internal and external evidence to provide the most ethical patient care.

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Functional Frenotomy and Breastfeeding Outcomes in Infants with Oral Ties: A Longitudinal Study

Shifa Shamsudheen, BDS, MDS
We Little Hospitals, India

Padminee Krishnan, BDS, MDS
We Little Hospitals, Chennai, India

Sreelakshmi Dhananjay, BDS, Orofacial Myologist
We Little Hospitals, Coimbatore, India

Abstract. The tongue and lips play a major role in breastfeeding. A physical restriction at the fascial level can lead to compensated and painful breastfeeding. The tip of the tongue is connected to the toes through a complex myofascial system. Hence, infant functional frenuloplasty protocols should go hand in hand with body work.

Summary

Breastfeeding is the first exercise for the orofacial muscles. The process happens unhindered only when the oral muscles function optimally. Tethered oral tissues can lead to difficulty in extraction of milk from the breasts. The tightness is found at the fascial level not allowing the muscle to fan out to its full potential. Therefore, it is important to excise the fascia and give exercise for the muscle to achieve optimal oral function. This is what functional frenotomy does. A frenotomy shouldn't be an anatomical release where the entire chunk of tissue is cut out without working on the functional aspect. A functional tie release includes a fair amount of pre-operative myofunctional therapy to strengthen the tongue before the release. Once the excision of the fascia is done, exercise for the glossal muscles need to continue until desirable outcomes are achieved. However different schools of thought exist when it comes to managing ties. A large portion of healthcare professionals are not trained to diagnose oral ties. This often leads to missing the oral ties or dismissing them off as a fad. Tethered oral tissues are anatomical variations that do not favor the optimal muscle range of motion. Whenever there is a tethered oral tissue, uncompensated breastfeeding cannot happen. The infant will learn to compensate for the compromised movements of the tongue or lips with the help of other orofacial muscles, which in the long term will be seen as various oral dysfunctions. Hence, a functional frenotomy to facilitate uncompensated breastfeeding in infants becomes imperative.

The current study was conducted as a prospective study among a cohort of 54 breastfeeding mothers and infants with oral ties. A detailed maternal and infant history along with symptoms were recorded using a structured and validated questionnaire tool adapted from the Tongue Tie Institute, Australia (Lawshe CH, 1975). All the infants were put through a similar myofunctional protocol to improve muscle strength and endurance. Once the pre-operative preparations were completed, tie release was done using diode lasers. The post-operative follow up was done up to 3 months during which the myofunctional therapy was also continued. The breastfeeding variables for both the mother and the infant were noted through a questionnaire at 2-week, 1 month, and 3-month intervals. The study outcomes were statistically analyzed to understand the effect of myofunctional therapy and frenotomy on each variable.

The Learning objectives of the study were as follows

1. To understand the importance of early intervention for oral ties in infants
2. To appreciate the role of tongue and orofacial muscles in breastfeeding
3. To recognize the importance of myofunctional therapy and frenotomy for establishing uncompensated breastfeeding.

The results of the study emphasizes that a functional frenotomy significantly improves the breastfeeding process for the infant-mother dyad.

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The Effect of Training Jaw Stability on Speech Sound Production in Children

Tiffany Nagai, MS, CCC-SLP
Rocky Mountain University of Health Professions, Provo, UT, U.S.

Ignatius Nip, PhD, CCC-SLP
San Diego State University, San Diego, CA, U.S.

Nancy Pearl Solomon, PhD, CCC-SLP
Walter Reed National Military Medical Center, Bethesda, MD, U.S.

Abstract. The jaw plays a foundational role in speech production, yet little research examines the jaw's role in speech sound disorders (SSDs) or about the effects of orofacial myofunctional therapy (OMT) for improving speech production. This study investigated whether a jaw strengthening, stabilizing, and grading program (Rosenfeld-Johnson, 2005) as compared to standard speech therapy was effective in improving jaw stability and speech production in two young children with SSDs. Although jaw stability during word production improved somewhat for both participants, changes in speech were negligible or nonsystematic after four sessions of either intervention. Future studies should extend the intervention periods and consider combining the interventions.

Summary

The jaw provides a structural base for the tongue and lips and contributes to early orofacial volitional controls (Humphrey, 1971; Green et al., 2000; Nip et al., 2009) as predicted by Davis and MacNeilage's (1995) Frame, then Content hypothesis. However, there is a paucity of research on the role of jaw stability in disordered speech. Orofacial myofunctional therapy (OMT) is a behavioral approach aimed at improving orofacial resting postures and muscle function for a variety of purposes including speech. The literature lacks evidence examining OMT exercises involving the jaw for improving speech production.

This investigation addressed the following research questions: 1) Does sequential jaw strengthening, stabilizing, and grading program (Rosenfeld-Johnson, 2005) and standard speech therapy reduce jaw lateralization during single word production in young children with SSDs who exhibit jaw lateralization while speaking? and 2) Does sequential jaw therapy and speech therapy improve speech production in these children?

Two children, a boy age 4 years 9 months, and a girl, 5 years 8 months, demonstrated: (1) severely reduced speech intelligibility [<66% on the Children's Speech Intelligibility Measure (Wilcox & Morris, 1999), Beginner's Intelligibility Test (Osberger et al., 1994), and picture book description (Mayer, 2003)]; (2) clinically observable jaw lateralization during speech; (3) receptive language and cognitive skills within normal limits; and (4) adequate attention and ability to follow directions. Additional assessments included the Talk Tools® Grading Bite Block Assessment (Rosenfeld-Johnson, 2005), Goldman-Fristoe Test of Articulation (3rd ed) (Goldman & Fristoe, 2016), and Dynamic Evaluation of Motor Speech Skill (McCauley & Strand, 2019).

The protocol involved baseline sessions before, between, and after interventions, and interventions of four 30-minute sessions each (order alternated between participants). The experimental intervention was the Talk Tools® Jaw Grading Bite Blocks (Rosenfeld-Johnson, 2005), and the control intervention was standard speech therapy. The primary outcome measure was the extent of jaw lateralization during single words, as measured with video imaging software (Image J). Speech production was evaluated with intelligibility and articulation tests.

Participant 1 demonstrated variability in jaw lateralization between baseline sessions, a slight decrease in median jaw lateralization and increased variability after jaw therapy, and no additional change in jaw lateralization after speech therapy. After each intervention, there were minor changes in consonant and vowel productions, and nonsystematic changes in intelligibility.

Participant 2 increased jaw stability during words somewhat after speech therapy and more so after jaw therapy; these apparent benefits trended back towards baseline levels after each intervention. No meaningful changes were noted in speech production for any measure, with the exception of an increase in overall accuracy in motor speech skills after standard speech therapy. This benefit was not sustained.

In general, jaw lateralization during single word productions appeared to have decreased after four sessions of jaw strengthening, stabilizing and grading therapy for both children, but the small degree of change and extensive variability challenge whether the changes were meaningful or sustainable. Speech production accuracy changed minimally and nonsystematically after each intervention. Limitations of this investigation include the brevity of therapeutic intervention, inadequate amount of practice, absence of home assignments, and small number of participants. Future research should include longer baseline periods to establish stability, longer intervention periods, and consideration of simultaneous rather than sequential interventions.

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The Use of Myofunctional Devices in Oral Care and Swallowing Function: A Protocol for a Feasibility Study in an Aged-Care Population

Hollie-Ann Shortland, Speech Pathology Casual Academic/Clinical Educator/PhD Candidate

School of Health Sciences, College of Health, Medicine and Wellbeing, University of Newcastle, Merewether, New South Wales, Australia, AUS

Abstract. Poor oral health is a known predictor of aspiration pneumonia in vulnerable populations such as those in residential aged care. This project describes a feasibility study involving a five-week intervention for oral hygiene and dysphagia for residents ≥65 years old in an aged care setting using a myofunctional device.

Summary

The link between poor oral health with systemic disease, morbidity and mortality has been demonstrated extensively throughout allied health, nursing, and dental literature [1, 2, 3, 4].

Reduced oral health and an inability to manage oral health independently is a predictor of aspiration pneumonia in vulnerable populations such as the elderly and chronically ill [5]. If oral health is reduced, people are at risk of pain or poorer dentition, impacting on mastication and swallowing, with the potential for malnutrition, poorer health outcomes and reduced quality of life [4].

Currently there are limited oral care protocols with measurable outcomes that are used in hospitals and care facilities in Australia [6]. These protocols have been described as ad-hoc and often not prioritized in patient care [6]. This is of concern to speech pathologists due to the impact of poor oral health on mastication, swallowing function and increased risk of aspiration. However, a recent literature review highlighted improvements in swallowing function, oral behaviors, speech, and oral hygiene with the use of orofacial myofunctional therapy and myofunctional devices [7-8]. A review by Slack-Smith and colleagues [9] in aging and oral health indicated that on entering aged care facilities many older people are in urgent need of oral care. However, there continues to be barriers to improving oral health due to reduced health literacy, lack of knowledge and understanding, cost, and complex medical conditions [9-10].

Given the rapid rise in an aging population, the limited access to oral health systems in aged care facilities, and increased dependency on care once entering a facility [11], it would be appropriate to consider the use of myofunctional devices in oral health and swallowing due to the reported improvement in orofacial function [8].

A protocol was designed to examine the feasibility of using a myofunctional device to improve oral health for swallowing function in a residential aged care population. A 5-week intervention period involves twice daily use of a myofunctional device called MyoMunchee© [12]. Participants will actively chew the device following its placement in the oral cavity. The treatment involves gradually increasing the amount of time the device is used weekly to allow for adjustment to oral comfort as per the MyoMunchee© guidelines for device use [13] and previous research in oral neuromuscular training in those aged 65 years and older [7]. The duration for device use will start at 1 minute twice a day in the first week, and increase by one minute each week, to 5 minutes twice a day by the fifth week of intervention [12].

The protocol has been developed to determine the feasibility of the use of myofunctional devices with an aged care population, and to improve oral hygiene, swallowing function and/or dysphagia.

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A Case Study on Early Intervention Orthodontics and Myofunctional Therapy

Seema Virji, BSc, RDH, COM®
Orofacial Myology Edmonton, Edmonton, Alberta, Canada, CA

J. Crichton, DMD, MSc, FRCP (C)

Abstract: Removable oral myofunctional appliances are popular with dental providers due to their low cost and reduced chair time. These appliances are worn to help establish correct oral rest postures and aid in redirecting growth and development. This case study uses an oral myofunctional appliance in conjunction with an orthodontist and a certified orofacial myologist.

Summary

Early orthodontic treatment refers to orthodontic intervention before the eruption of permanent dentition (except third molars) is complete.[1] "The goal of this early intervention is to intercept skeletal or dental imbalances to provide a better, more stable result that would be possible if treatment is delayed"[2](p.17). Early intervention allows the orthodontist to use the child's natural growth pattern to aid ideal development and promote the correct use of the muscles of the orofacial structure. This case study uses a Vivos Guide in conjunction with an orthodontist and a certified orofacial myologist (COM®). Appliances such as the Vivos Guide can be used as early as age two when the child has primary dentition. These appliances are often given to patients with a generic recommended exercise regimen to improve orofacial muscle strength and promote nasal breathing. However, adherence with these exercises may be an issue and there is no uniform exercise regimen for any part of the body including the face. The oral appliances are quite large and incompetent lips and poor oral motor control of the tongue can make them difficult to wear, difficulty with wear can lead to noncompliance. Integrating a certified orofacial myologist (COM®) aids in compliance as the therapist is able to give each patient an individualized treatment plan of neuromuscular exercises to promote correct oral rest postures and strengthening of the orofacial muscle complex.

The patient in this case is a healthy 4.1-year-old male with no underlying health conditions. The orthodontist diagnosed this patient with a skeletal Class I malocclusion with a Class 3 tendency (ANB angle -1.8 deg) and a dental Class III malocclusion with moderate to severe maxillary crowding, mild to moderate mandibular crowding, a supernumerary tooth, an anterior crossbite, and a possible lingual frenum restriction. The recommended treatment was a Vivos Guide followed by a maxillary expansion appliance for phase one of the orthodontic treatment. The patient was also referred to a COM® for evaluation of the lingual frenum and for myofunctional therapy to aid with oral muscle dysfunctions. With the help of the COM®, the patient's compliance with the oral appliance improved and the patient was then able to gain maximum wear time of the appliance. The establishment of correct oral rest postures of the lips and tongue helped to establish a correct swallow pattern and promoted a nasal breathing pattern. The patient has been using the oral appliance for one year and continues to wear the appliance nightly. Myofunctional therapy was conducted once a month for 7 months. The patient's bite has changed significantly – the anterior crossbite is no longer present. The anterior teeth are now in end-to-end occlusion. The patient had significant improvement in tongue range of motion and in orofacial muscle use and strength through myofunctional therapy.

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