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2024 ICAP Convention

“Collaboration Rocks”

May 2-5, 2024
Cleveland, Ohio



Friday, May 3

Plenary 1: Ultrasound Analysis of Sucking Problems: Implications for Care

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Abstract. Objective analysis of tongue movements during feeding helps differentiate patterns typical of ankyloglossia versus musculoskeletal or neurological conditions. This presentation shared both published and as yet unpublished data on sucking patterns in a selection of conditions, along with breastfeeding strategies and appropriate team member referrals for each.

Summary

Patient selection for frenotomy is still an inexact science, leading to suboptimal results and missed diagnoses of other conditions impacting infant feeding.¹ During breastfeeding, healthy infants use the tongue in a coordinated manner. Normal orofacial muscle activation relies on positional and gravitational stability and a deep attachment to the breast. Persistent nipple pain is more likely to be attributable to incorrect latch than to tongue-tie, particularly in first-time mothers.² During normal sucking, the anterior tongue holds the breast and moves up and down as a unit with the mandible. The balance of the tongue continues this movement in a peristaltic-like pattern, downward for effective sucking and upward for safe swallowing.³ Tongue mobility can be reduced by either compacted sublingual fascia or sublingual mucosa that is inelastic or connected near the tip of the tongue.⁴ ⁶ Restricted anterior tongue mobility in infants with tongue tie results in nipple slippage at the end of each suck cycle.⁷ The mid- to posterior-tongue wavelike motility is eliminated in symptomatic infants with tongue tie.^{8,9} Normal kinematics can be restored by frenotomy.⁹ Other important parameters of sucking are the

smoothness and reproducibility of sucking motions. Infants with congenital muscular torticollis have a less organized sucking pattern on ultrasound and asymmetrical tongue mobility on clinical examination.⁹ This is likely from communication of tension from the fibrosed sternocleidomastoid muscle to the fascia of the floor of the mouth.¹⁰ Other differences in organization of sucking and swallowing are identified during bottle feeding and in an infant with neurologically based dysphagia.⁹

Each of these conditions can result in breastfeeding difficulties and may be difficult to distinguish. Clinical assessment, breastfeeding strategies and appropriate referrals for tongue tie, torticollis, and neurologically based dysphagia are briefly reviewed.¹¹⁻¹⁴ Finally, the similarities between tongue kinematics of adult swallowing and swallowing during breastfeeding are highlighted, providing evidence that the major difference is the infant's need to retain the breast stably in the mouth, which prevents peristalsis of the anterior tongue.⁹ This provides evidence against the tongue-thrust model of infant swallowing, and suggests breastfeeding provides practice for adult swallowing. A basic understanding of the conditions that cause sucking difficulties that are sometimes incorrectly attributed to tongue tie can help avoid unnecessary frenectomies and improve outcomes by allowing individualized care by the optimal members of the healthcare team.

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What about Mom? Considering Maternal Factors when Evaluating and Treating Tethered Oral Tissues in Breastfeeding Infants

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Abstract. This presentation examined how maternal factors, such as discomfort, milk supply, birth experience, and support impact breastfeeding infants with tethered oral tissues (TOTs). Assessing both TOTs and maternal readiness for intervention is crucial for successful outcomes.

Summary

The presentation emphasized the importance of assessing maternal factors in breastfeeding success and evaluating readiness for a tongue tie procedure. The key points were as follows:

1. *Maternal Factors Affecting Breastfeeding Success.* Emotional status, including sleep deprivation, anxiety, depression, and feelings of inadequacy, can impact breastfeeding. Maternal comfort, including addressing nipple and breast concerns, is crucial. Milk supply, including perceived insufficient supply and various risk factors, can also affect breastfeeding.
2. *Maternal Assessment.* Maternal history, including medical, surgical, and emotional factors, should be considered. Previous breastfeeding history, depression, anxiety, and concerns/goals should be assessed. Maternal physical examination, including breast and nipple assessment, is important. Feeding assessment, including current method, frequency, and any pain, must be considered.
3. *Tongue Tie Assessment.* The presentation emphasized the need to assess the entire breastfeeding dyad, not just the tongue tie. Maternal readiness for a tongue-tie procedure should be evaluated, considering factors such as physical recovery, sleep, preparation, medical concerns, and optimized milk supply.

The presentation highlighted the importance of a comprehensive assessment of both the mother and the infant in order to achieve successful breastfeeding outcomes. It suggested a multidisciplinary approach involving lactation consultants and healthcare professionals. Overall, understanding and addressing maternal factors are crucial for supporting breastfeeding infants and optimizing their feeding experience.

Unearthing the Hidden Functional Implications of Tethered Oral Tissues - Case Presentations

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Abstract: The functional implications of tethered oral tissues can vary in individuals, ranging from feeding, breathing, postural, speech and dentofacial development, across the lifespan. Recent years have seen an increase in the need for functional deficits to be the driving force behind the decision to release oral restrictions.

Summary

Understanding the functional deficits associated with tethered oral tissues continues to pose a challenge amongst many health care professionals. Collaboration and improved consensus between medical, dental and allied health care professionals is crucial for accurately diagnosing, treating and monitoring associated dysfunctions, ensuring better outcomes for patients. A comprehensive case history and functional assessment allows for a differential diagnosis of any underlying dysfunctions with which a patient may present. Tethered oral tissues have been associated with orofacial myofunctional disorders, speech distortions, breastfeeding difficulties, swallowing and feeding impairments, underdevelopment of the maxillofacial skeleton, predisposition to sleep and breathing disorders and postural imbalances. Increased awareness of the potential dysfunctions related to tethered oral tissues allows for a more robust decision-making process when coupled with structural assessment of the oral frenula in determining the appropriateness of a release.

Considering some of these dysfunctions in more depth, the impact tethered oral tissues may have on infant feeding ranges from breastfeeding¹ to bottle feeding² and reflux.³ In older children and adults, unresolved oral restrictions have been reported to impact masticatory efficiency⁴ and swallowing. A case presentation of a 4-year-old boy revealed improvements reported in his ability to use his tongue to clear a bolus 1 week post lingual frenuloplasty whereas previously he would use his hands to push in food and clear residue with his fingers.⁵

There is a growing literature base on the direct impact of ankyloglossia and frenectomies on speech sound production; however, there are still some conflicting results. The tongue is a prime articulator, but the heterogenous nature of individuals with ankyloglossia, learned compensations and lack of standardized definitions and protocols may contribute to the ambiguity of outcomes.⁶ Considering Van der Merwe's⁷ model of sensorimotor control in speech, a tethered tongue hypothetically results in an impairment in the execution stage of the model. Alternative motor programs would compensate for the restricted tongue, with parameters such as muscle tone, directional movement, range and force adversely impacted.⁸ Post frenectomy improvements in tongue mobility, articulation and intelligibility of speech have been

reported.⁹⁻¹¹ However, systematic reviews by Visconti and colleagues¹² and Wang and colleagues¹³ indicated a lack of strong conclusive evidence. There is a continued need for more studies with robust designs and participants, widely accepted assessment tools and definitions, and clearly detailed protocols for pre- and post-release therapeutic care.

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Tongue and Lip Tie Beyond Breastfeeding Difficulties: Malocclusion is One of Them

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Abstract. A new approach that is not just about tongue tie is that of Tethered Oral Tissues (TOTs). TOTs correlate with breastfeeding problems, malocclusion, jaw growth, developmental abnormalities, speech, respiratory disorders, sleep disorders, dental caries, reflux, and more. However, unlike tongue-tie, which has a rich literature, studies on lip-tie are scarce. Furthermore, according to some authors, the region of the superior labial frenulum is not normally part of the baby's examination routine. Different classification schemes and grading systems have been proposed for tongue and lip tie, but none is universally used and many of them are difficult to implement in clinical practice. Although a vast literature has been published relating TOTS to breastfeeding problems, there are few records relating TOTs, and particularly lip-tie, to malocclusion.

Evidence-based clinical findings from an integrative tongue tie center: The implications for your discussions with parents

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Abstract. Data from a comprehensive frenectomy clinical practice and research center were analyzed to derive evidence-based, clinically-relevant findings that providers can utilize to help patients make informed decisions about frenectomy diagnosis and treatment.

Summary

This study involved a review of 4 years of clinical examinations and follow-up data from a comprehensive tongue-tie clinical center. Data were derived from three data-collection techniques in clinical practices. Techniques included use of 1) aggregate well-designed clinical encounter forms with repeated follow-up visits; 2) Google forms to collect symptom information from current and prospective patients; and 3) a modified medical history and intake questionnaire paired with dental exam data. Statistical analysis was performed using SPSS (SAS Corporation), and included descriptive

statistics, unpaired t-tests, and analysis of variance (ANOVA).

The top 10 reported breastfeeding symptoms were identified and corroborate previous research findings by other authors. Lactation support during post-frenectomy recovery created a significant difference in symptom resolution, but is not required for symptom resolution. Labial tie restrictiveness is not associated with a change in caries risk. Incidence of future speech or eating problems requires further ongoing studies.

The findings of this study provide evidence-based support for use by clinicians during patient encounters. These statements pertain to the areas of symptom presentation, the effects of lactation support in a small, well-controlled convenience study, long-term sequelae after frenectomy, and the idea that a lip tie is associated with greater risk for dental caries. The evidence suggests that providers should refine their discussions with parents to help provide objective evidence-based management of tongue tie in infants with breastfeeding difficulties. These findings help to modify anticipatory guidance for parents who are deciding whether to pursue frenectomy surgery for their infant.

Plenary 2: Early Childhood Malocclusion and Sleep Disordered Breathing Comorbidity: an anthropological perspective

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Abstract. Early childhood malocclusion (ECM), defined by poorly developing jaws and misaligned teeth in preschool-age children (under 6 years of age), is a highly prevalent public health problem within industrialized societies. This presentation develops an argument that timely intervention for poorly developing jaws in young children can coincide with optimization of sleep-related respiratory health in pediatric patients.

Summary

ECM often coincides with impaired sleep hygiene, respiratory incompetence and sometimes other problems associated with general health, such as suboptimal somatic growth, neurobehavioral/neuro-cognitive deficits, early cardiovascular disease, and poor quality of life. Therefore, it is important that all health professionals who care for children become aware of these potential ECM-associated co-morbidities.

This presentation reviewed the reliable persistence of specific skeletal malocclusion traits that are often first recognizable in early-childhood (also called primary) dentition (≤ 72 months old). Lateral and posterior-anterior (PA) cephalometric images from the Case Western Reserve Bolton-Brush longitudinal cohort (1930s – 1950s) closely approximate the sagittal, transverse and vertical dimensions of pre-industrial crania specimens observed within archived museum specimens. In addition, evidence gathered from the New Zealand longitudinal Dunedin Study (1972/73 – present) provide support for their hypothesis that poor impulse control in childhood increases risk for accelerated aging, poor general health and other diminished quality-of-life metrics.

ECM will seldom, if ever at all, self-correct and will usually persist and worsen into later childhood, adolescence and adulthood if left untreated. Otherwise, treated ECM can not only improve the quality of life of affected children, but also might likely increase their longevity (lifespans), slow down rate of aging, and accordingly, optimize their health status during their middle age and senior years (i.e., increase their healthspans). More healthcare providers who are trained in identifying early signs of ECM, managing active children and anxious parents, and educating families about risk factors for ECM, are needed to provide effective management for the benefit of these children and future generations.

The Joys and Challenges of Incorporating TOTS, Airway and Laser Procedures into Your Pediatric Dental Practice

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Abstract. Are you interested in "jumping into the rabbit hole" of incorporating tethered oral tissues, airway dentistry and laser procedures into your pediatric dental practice, but are overwhelmed with where to even begin? This presentation provided a brief overview of numerous topics, including developing a collaborative team with other medical professionals, making appropriate referrals, incorporating forms/educational materials/systems, insurance and billing, screening and educating your patients, discussing and implementing multiple sedation options where applicable, performing laser procedures, follow up care, wound management of TOTS, and more.

Retained Primitive Reflexes and Tongue Function: Unveiling the Connection

Jenna Davis, DC, FIAMA

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Abstract. The connection between retained primitive reflexes (RPR) and tongue function has important relevance in our development. This presentation discussed this connection between RPR and oral function for all ages and abilities. It provided attendees with skills to recognize and assess the top clinically relevant primitive reflexes, the potential developmental impact of RPRs and the importance of the team approach and potential targeted collaborations to assist in RPR integration and optimize neurodevelopment.

Summary

Neurodevelopment begins with every movement and exposure *in utero* and continues throughout life. There is an intriguing interplay between retained primitive reflexes (RPR) and tongue function. Primitive reflexes are essential hardwired movements present in infancy that are expected to integrate throughout development in the first year of life. When restricted tongue movement, oral dysfunction, compensatory and altered movement patterns impact our primitive reflex patterns, we cannot create our sensory memory file which allows these reflexes to integrate and shift into higher functioning postural reflexes. When we do not fully integrate our primitive reflexes in their clear and distinct order it can affect everything from movement, eating, speech, sleeping, swallowing, behavior, learning, and every aspect of our neurodevelopment. This presentation provided an overview of primitive reflexes, including the seven oral reflexes and the top five clinically relevant primitive reflexes and how they may present. It explored their normal developmental timelines and discussed the consequences if they are retained. It then delved into the intricate relationship between RPR and tongue/oral function, highlighting how these reflexes can impact posture, mobility, strength of the tongue, behavior and focus. Practical implications were discussed, addressing the relevance of this connection in clinical settings for many healthcare providers. The presentation offered insights into assessment methods and strategies aimed at initial assessments and addressing RPR as well as improving tongue function for all ages and abilities.

Beyond Surgery: Exploring Pre- and Post-operative Care in Children with Ankyloglossia

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Abstract. Ankyloglossia or tongue-tie can restrict movements of the tongue. This study explored approaches to pre- and post-operative care for children with ankyloglossia having surgery. A scoping review identified 23 studies and revealed substantial variability in pre- and post-operative care protocols, including dosage, frequency, duration, and care regimes.

Summary

Surgical intervention, such as frenotomy can be performed by pediatric dentists to alleviate symptoms and functional limitations of tongue tie in infants and children. Despite widespread practice for frenotomy, there are currently no clinical guidelines or consistent research to support pre- and post-operative care protocols for children.

A scoping review was conducted of peer-reviewed articles in four electronic databases. Studies reporting pre- or post-operative regimes for children (0 to 18 years) undergoing frenotomy were included and quality assessments performed. Twenty-three studies were identified, with seven studies incorporating both pre- and post-operative care, and 16 studies focusing solely on post-operative care. Lingual exercises were commonly prescribed, and only three studies examined the relationship between post-operative care and recovery outcomes. Considerable variability existed in study design, prescribed care, and outcome measures. Further research is needed to determine the most effective course of pre- and post-operative care for children undergoing ankyloglossia surgery.

A strategy for success: Avoiding potential frenectomy shortcomings to optimize outcomes and raise the standard of care

Rene Moore, IBCLC, CLE

Private Practice IBCLC, First Food for Baby, Cave Creek, Arizona, U.S.

Summary

Tongue ties often interfere with breastfeeding and can reduce the likelihood that breastfeeding will continue for 2 years as currently recommended by the World Health Organization and American Academy of Pediatrics. The condition can take a toll on mothers' health as well, both physically and emotionally. A frenectomy, a simple, non-invasive procedure, often relieves symptoms within a few days or weeks, if not immediately. In the recent decade, this procedure has become increasingly more common but outcomes still tend to vary greatly even with more information and professional training available. This presentation focused on shortcomings of the release procedure that might be possible to avoid. This can only help improve practice success rates and foster improved family health.

Saturday, May 4

Plenary 3: Teamwork Makes Dream Work: Collaboration on Clinical and Evidence-Based Practices
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TalkTools, Charleston, South Carolina, U.S.*

Abstract. The research on oral ankylofrenula has grown in recent years. Interdisciplinary teams have united to investigate clinical findings, expand research, and propose topics for future research. Topics have included the impact of tethered oral tissues (TOTs) beyond breastfeeding, voice and ankyloglossia, a proposed system of classifying buccal ties, and the impact of myofunctional therapy when paired with frenectomy.

Summary

Background. The presenters have recently worked on several papers together, sharing these studies and reviewing the latest literature to assist with critical thinking when reviewing research. Clinical evidence, also known as internal evidence, is very valuable and an equal pillar in the evidence-based practice map. It is the purpose behind the duo's passion for research.

Purpose. The presenters examined which topics in oral ankylofrenula have the most robust research to date, such as breastfeeding, and which topics need more research, such as buccal ties and wound care. Attendees were taught about the pillars of evidence-based practice

and the tiers of research design. Variations of studies, such as quantitative versus qualitative research and scoping versus systematic designs, were explored. Studies on oral ankyloglossia over the past decade were organized into evidence tiers with multiple Level 1 systematic reviews and meta-analyses.¹⁻¹¹

Method. The four MYO domains of airway, feeding/swallowing, structure, and speech were explored in addition to evidence-based surgical practices. These domains were introduced to aid in the understanding of the functional implications of TOTs and how this understanding drives research. Considering the functional implications of oral ankylofrenula according to these domains can assist therapists and surgeons in developing screening tools, case history forms, assessments, and patient outcomes tracking. This collected data can then serve as the basis for research studies. The presenters described how data collection started in their clinics, how they identified common themes amongst their patients, and how this facilitated the process of publishing their research.

Conclusions. The benefits of a collaborative model and the necessary steps for embarking on research were outlined. The importance of collaborative teams was reinforced through interdisciplinary and multi-facility models. Sample forms, clinical pearls of wisdom, and multidisciplinary reference lists can assist ankylofrenula-release providers and clinicians who are considering involvement in collaborative research.

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To Release or Not to Release? That is the question

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Abstract. The order of care in treating tethered oral tissue is paramount to optimal outcomes. Many schools of thought are shared among providers on the order of care through the release process. This presentation examined the current literature and provided case studies to empower the learner to examine each patient to optimize outcomes.

Summary

A paucity of evidence in the medical literature outlines the negative effects of tethered oral tissue on breastfeeding.^{1,2} Undesired, early weaning can often be caused by difficulties with latch, painful breastfeeding and low milk supply.³ A collaborative approach to tethered oral tissue release yields the best outcomes.⁴ The triad approach, involving a body worker, release provider, and oral functional specialist (usually IBCLC) results in decreased patient discomfort, minimized reattachment of tissue, and improved oral functionality. Each member of the triad should have some knowledge regarding the role of each provider. Providing patients a full functional assessment

with attention given to the muscles and bones of the head, neck and shoulder, full oral assessment involving range of motion, oral function, and nasal breathing gives clues to how to guide the patient in the triad of care.⁵ Attention should be given to tension, poor strength and tone, and limited lingual mobility. The appropriate order of care within the triad is also necessary to achieve ideal outcomes. A detailed history involving age of the patient, birth process, birth trauma, underlying medical conditions, compensatory feeding practices, feeding style, and needs and desires of the family help to give direction on the appropriate order of care. Each patient needs to be independently assessed and guided to help optimize outcomes and improve function.

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Foundations of Motion: Breastfeeding's Role as the Inceptive Motor Milestone in Human Development

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Abstract. A paradigm shift is proposed to understand breastfeeding as a first movement milestone and foundation in shaping human development. Objectives include appreciating breastfeeding as a nurturing ecosystem; recognizing how postural asymmetry, neuromuscular imbalance, oral restrictions and milestone delay affect feeding function; and optimizing

multidisciplinary breastfeeding promotion and care collaboration.

Summary

Many contemporary factors challenge the biological norm of breastfeeding. This presentation examined movement-related factors that impair breastfeeding. While breastfeeding provides essential nourishment, it initiates a unique cascade of physiological and neurological processes fundamental to motor development.^{1,2} Human coordination, strength, and stamina begin with feeding to develop musculoskeletal symmetry of craniofacial structures as a foundation for whole body movement. Breastfeeding is an intricate interplay between body systems. It requires and fosters infant oral motor skills, neuromuscular coordination, normal fascial patterns and sensory integration, all imperative to subsequent motor milestone progression.³ Through lenses of an International Board of Certified Lactation Consultant (IBCLC) and physical therapists (PT), breastfeeding is defined as a vital sign, advantageous in any amount to the maternal child ecosystem yet possibly indicative of issues related to body systems when difficult.

Maternal lactogenic physiology and infant movement progression are synchronized with breastfeeding. Initial maternal hormonal levels facilitate milk supply in combination with early infant movement that is predominantly reflexive to sustain a supply demand process. As weeks and months unfold, maternal hormonal levels down-regulate while repetition up-regulates infant voluntary strength and coordination to sustain supply and growth. Effective breastfeeding relies on and facilitates interdependence between structure and function requiring balance between neuroanatomy and biomechanics with sufficient repetition and frequency to optimize movement quality.

Neuroanatomical and biomechanical balance related to breastfeeding relies on cranial nerve function. Each cranial nerve crosses the cranial base which can be stressed by intrauterine constraint, strenuous birthing journeys, and asymmetries that impede breastfeeding movement. Functional progression and balance can be disrupted by consequences of movement impairment including torticollis, plagiocephaly and oral restrictions that affect unique oral-motor and whole-body mechanics necessary for breastfeeding.^{4,5} Movement disruptions are often compounded by modern environmental and circumstantial factors such as excessive container time, swaddling, narrow-based

bottle and pacifier use, and scheduled sleeping and feeding.^{6,7,8}

Strategies for overcoming movement-related difficulties begin with skin-to-skin contact, the earliest form of “tummy time” where an infant can feel safe to explore and practice the cascade of reflexes necessary to establish functional sensorimotor pathways for breastfeeding.^{9,10} Frequent, consistent latching, skin-to-skin contact, safe bedsharing and tummy time in the early days all display similar movement patterns that enhance muscle memory and coordination for breastfeeding.^{6,11,12} Evidence that motor development fosters breastfeeding confidence and longer duration of breastfeeding is associated with better motor outcomes aligns with functional and nutritional aspects of health.^{1,12,13} Food is medicine, movement is medicine, and breastfeeding provides both to a developing human.

Research suggests that mothers are placing significant pressure on themselves to breastfeed and are consequently reporting adverse breastfeeding experiences.¹⁴ Our clinical experience suggests that when parents are empowered with understanding of breastfeeding-related movement and educated on techniques that foster mobility and development, pressure dissipates and breastfeeding outcomes improve, especially in the presence of preparing for and healing from oral-restriction procedures. Considering the health, economic and environmental advantages at stake, collaboration with IBCLCs and other allied-health providers should be prioritized, and breastfeeding across all pediatric healthcare frameworks should be acknowledged as a vital sign.

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Lessons from Professional’s Journeys: Collaborative Care-"Capitalizing on Caregiver Cognizance"

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Summary

Ten months ago, my life completely changed with the birth of my first child. He has taught me more about

myself (and my speech-language pathologist self) than I could have ever imagined, and I am so grateful for this journey together. One of the biggest lessons I learned was to follow my intuition, which ultimately led to finding and establishing a collaborative care team for my son, one that gave me a seat at the table (but this was no easy feat). For the first time, I was on the other side of the table discussing my concerns with providers about my son's feeding and motor development, however there was a glaring and recurrent problem – they weren't listening or validating my concerns, and at times brushed them off. I found myself wearing my SLP hat when all I wanted to do was be a mother and it was exhausting. Eventually, I was able to find the right providers who addressed my concerns, encouraged me to follow my intuition, and most importantly viewed me as a vital member of the collaborative care team. Improved collaboration with caregivers may provide us with important pieces to a clinical puzzle that could very well aid other team members in accurately diagnosing and treating patients, which will ultimately improve quality of life.

Lessons from Professional's Journeys: A Frenulum, A Grand Baby and an IBCLC: A Case Study

Renee Beebe, M.Ed., IBCLC

The Second 9 Months, Seattle, Washington, U.S.

Summary

When your daughter has a baby, it is a magical, profound experience. When an IBCLC's daughter has a baby it's a fascinating opportunity for a case study as well. Lucky for me, we live in an age where everything is easily documented with videos and photos. And also lucky for me, my daughter and son-in-law went along with my desire to document and share their baby's journey with you all. I noticed "Bubba's" lingual frenulum within hours after his birth. I noticed other "soft signs" of tongue tie as well. But as you know, things aren't always what they seem. Or maybe they are? In this presentation, I will take you on my IBCLC/Grandma journey with "Bubba" and his lingual frenulum. You will be included in my thought process and the many decisions that his parents and I made together along the way. And you can see how it all turned out (so far)!

Plenary 4: New Validated Tool to Assess Breastfeeding Dysfunction*

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Background. Breastfeeding behaviors and experiences exist on a continuum. What differentiates normal from dysfunctional is defined by frequency and severity. No current validated tool addresses the subjective experience of dyads with a predictive score that can be followed over time.

Research Aim. To create and validate a self-report tool to assess breastfeeding and evaluate its ability to predict risk of breastfeeding dysfunction.

Methods. This study used a cross-sectional design to determine the validity of a novel instrument to assess breastfeeding dysfunction. We gave the initial questionnaire to 2085 breastfeeding dyads. We assessed content validity by comparison with other tools. We used exploratory factor analysis with varimax rotation for concept identification and Cronbach's alpha for internal consistency. We employed logistic regression to assess the tool's ability to differentiate between normal breastfeeding and breastfeeding dysfunction.

Results. Factor analysis mapped 17 questions to four concepts to create a score (FLIP; flow, latch, injury [to the nipple], and post-feed behavior). Internal consistency and reliability of the scores in these concepts were acceptable (Cronbach's alpha ≥ 0.087 for all measures). A logistic regression model that controlled for infant age, with a breastfeeding dysfunction risk classification threshold of 60%, yielded a correct classification of 88.7%, with 93.1% sensitivity, 64.6% specificity, and a 6.5% false positive rate.

Conclusions. The FLIP score was determined to be a valid and reliable instrument for quantifying the severity of breastfeeding dysfunction in children under 1 year old. Further studies will assess its usefulness in the management of breastfeeding dysfunction.

**Abstract reprinted from: Agarwal R, Eddis-Finbow M, Tam J, Broatch J, Bussey KJ. New Validated Tool to Diagnose Breastfeeding Dysfunction. Journal of Human Lactation. 2024;40(1):120-131.*

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Measuring Lingual Frenulum: An Osteopathic Point of View

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Abstract. In recent years, several methods have been described to define the shortness of a lingual frenulum. All of them were based on the patients' ability to touch

their palate with the tip of the tongue, regardless of how much they opened their mouth or how big the effort is to do that. Actually, we thought it is not a matter of whether it is possible or not, but how it happens. The tongue is connected to the hyoid bone, which is a kind of gyroscope, which distributes loads and muscle tension from top to bottom, from right to left, from front to back and vice versa. Research shows that the hyoid bone should be below the line between C3 e retrognathion and nothing can lift the hyoid except the tongue. It is therefore important to check that the floor of the mouth is not raised, that is, it does not lift the hyoid bone with all its muscular chains, when the tongue reaches the palatine spot with the usual 40 mm opening between the lower and upper incisor edges. In this way, we can quickly see how easy it is for the patient to raise the tongue. The more difficult the position is to perform, even if the tip of the tongue is perfectly on the palatine spot, the less likely it is to be the usual one. We must swallow 2000 times a day and therefore the whole body must adapt to this physiological commitment. From this point on, if we understand all the anatomical connections, we can explain the typical “short frenulum posture” in our patients and all their symptoms.

Integrative Models for Care: Improving tongue-tie knowledge in health care personnel in Vestfold and Telemark county, Norway

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Abstract. To increase knowledge and give healthcare professionals in Norway better self-efficacy on tongue-tie issues we, as a part of a PhD project, offered a 1.5 hour “crash-course” in evaluating breastfed babies with feeding difficulties for tongue ties and how to offer good breastfeeding counseling.

Summary

In Norway, healthcare professionals have had little knowledge about tongue-ties and its potential effect on breastfeeding. Even though there has been more awareness the last couple of years, many healthcare professionals are uncertain in how to evaluate for tongue ties in breastfeeding babies. A 1.5 hour course on this topic was offered to midwives, public health nurses, nurse assistants and doctors in two county hospitals and well-baby centers in two counties in Southern Norway over a 6-week period. The course was followed by practical workshops for a selected group of participants.

After the course and the workshops we asked the participants to measure their self-efficacy in detecting tongue-ties and provide breastfeeding counseling to mothers with babies with tongue ties. We used an electronic anonymous evaluation tool to record the participants’ responses.

Integrative Models for Care: The Why’s and How’s of Collaborative Approach to Infant Frenectomy

Rishita Jaju

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Summary

It’s become a common scenario: A lactating parent with nipple pain, difficulty latching, poor weight gain, or other concerns hears from friends or social media about tongue tie. Without resources to truly evaluate the situation, they scour the Internet for a provider to perform a tongue tie release. They make an appointment, assuming the surgery will fix their problems. In reality, tethered oral tissues (TOTs) require a comprehensive model of care addressing the health of both the parent and the infant. Successful treatment involves a gentle yet thorough release by a skilled pediatric laser dentist as well as communication and collaboration between IBCLCs/Feeding Therapist/Body work provider (as applicable) before, during, and after surgery. In this talk, a board certified pediatric laser dentist brings years of expertise to the table, sharing the keys to a collaborative, holistic model of care. Misconceptions and knowledge gaps about tethered oral tissues abound. The talk aimed to provide attendees with a tool for reliable, systematic and consistent approach for documentation and communication so that they can serve as a resource for accurate, comprehensive information and care.

Feeding Outcomes: Research into Practice: Differential breastfeeding symptom resolution associated with a lip tie versus a tongue tie revision in an infant

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North Carolina Tongue Tie Center, Cary, NC, U.S.

Abstract. Interest in ankylofrenula and the sequelae of restrictive labial and lingual frenula has increased significantly, but the body and quality of supportive

research that specifically delineates which symptom is associated with the labial versus lingual frenum is unclear in the published scientific literature, with some doubt as to whether the labial frenum should be considered for surgical intervention in infants with breastfeeding difficulties.

Summary

This case is an infant that presented with a restrictive lip tie, restrictive tongue tie, and ranula on the floor of the mouth. The child subsequently had a lip tie laser frenectomy with a follow-up period, a surgery to resolve the ranula that was non-contributory to breastfeeding symptom resolution, and a separate tongue-tie laser frenectomy with follow-up period. Buccal ties were present, but not revised. Of 11 symptoms reported, labial frenectomy resolved six, improved one, and did not affect four symptoms. After lingual frenectomy, the remaining 5 symptoms resolved.

This case study illustrates that lip and tongue restrictions can be involved in dysfunctional breastfeeding symptoms, and that some symptoms can be affected by a restrictive lip only, a restrictive tongue only, or by both a restrictive lip and tongue. This case study also provides preliminary evidence of the specific symptoms associated with a restrictive labial frenum, which has limited published evidence to support surgical intervention. Breast anatomy appears to affect symptom resolution. The applicability of the findings from this case study are limited, but informs that more research should focus on evaluating cases in which the lip and tongue are revised separately to understand the differential effects of frenectomy on breastfeeding symptoms and subsequent resolution.

Feeding Outcomes: Research into Practice: Parental Bliss and Clinical Success? Feeding Outcomes After Tongue Tie Release

Sharon Smart, PhD BSc CPSP FHEA

Senior Speech Pathologist & Lecturer Curtin University, Perth, Western Australia, AUS

Abstract. Given the impact of tongue tie (TT) on challenges with breast and bottle feeding, there is a pressing need to better understand the clinical and parental impacts. This study found improvements in clinical and parental outcome measures after TT release in 19 infants.

Summary

Background. Infants with TT often encounter difficulties in breastfeeding and bottle feeding. In recent years, there has been a growing emphasis on the need to define TT by considering both its functional and structural impacts on feeding function. However, the existing body of TT literature lacks comprehensive research that directly compares clinical and parental outcomes resulting from TT surgery in infants. This gap in knowledge is compounded by the lack of clinical consensus when it comes to assessing, diagnosing, and managing TT.

Methods. This prospective longitudinal cohort study recruited 19 infants under 6-months of age with TT. Inclusion criteria comprised infants diagnosed with TT who were breast and bottle-fed or bottle-fed only, had no underlying medical conditions, and had not previously had a TT release. Clinical evaluation of tongue appearance, feeding function, and parental measures of feeding function were conducted before surgery, after surgery and four to six weeks post frenotomy.

Results. The study's findings revealed notable improvements in both clinical and parental outcome measures after TT release. However, the data indicated only minimal improvements in feeding function after TT surgery. Importantly, the absence of significant correlations between clinical and parental assessments suggested that these assessments were capturing different constructs.

Conclusion. The results of this study underscore the importance of employing comprehensive assessments that incorporate both parental and clinical evaluations to inform the management of TT. This approach ensures a holistic understanding of TT and measures both structural and functional outcomes over time. By considering both clinical and parental perspectives, healthcare providers can make more informed and patient-centered decisions in the management of TT in infants.

Sunday, May 5

Plenary 5: Treatment of TOTs in the Atypical Neurological Patient: A Shift in Paradigm

Scott Siegel, MD, DDS, FACS, FICS, FAAP

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Abstract. Office-based treatment of tethered oral tissues (TOTs) is continuing to rise. This results in treatment of

populations of patients from infants to adults that may have significant medical comorbidities. In conjunction with medical feeding therapists and speech-language pathologists, the presenter has been treating patients with significant neurological impairments that have been condemned to a life without the ability to orally feed and nasally breathe. He presented cases of significant medical compromise, more specifically the challenges that face the population of children diagnosed with Hypoxic Ischemic Encephalopathy (HIE). This lecture considered the role of neuroplasticity and how to teach these children to gain oral function in conjunction with the treatment of TOTs and intensive feeding therapy. The session included a review of the literature and presentation of multiple case studies to illustrate how to safely and effectively treat this population in the office setting.

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Plenary 6: Beneath the Surface: Anatomy and Physiology and How These Influence the Approach to Frenectomy

Justin Roche, MB ChB, FRCPC, FRCPI (Paeds), IBCLC
 Medical Director, National Tongue Tie Centre, Ireland, U.K.

Abstract. The management of tongue tie has many approaches. In this presentation we will explore the anatomy and physiology of normal tongue frenulae and that of ankyloglossia. How the structures affect function and how to manage them to optimize function. We will also discuss the problems that can be seen following incomplete release and reattachment. We will also cover complications during surgery and management options.

POSTERS

Long distance effects of a short lingual frenulum

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Summary

Breathing, chewing and swallowing are our three fundamental, obligatory and stereotyped activities. They affect each other and the whole body together, especially if they are not performed correctly, just because we simply must do them one way or another. Oral breathing is not the same as nasal breathing, just as bilateral chewing is not the same as unilateral chewing. This difference is even more valid if you pay attention to swallowing, a peculiar movement that begins at the end of the third month of fetal life. Normally swallowing is a vertical activity, with the tongue spreading the roof of the mouth 2,000 times a day. Incorrect swallowing occurs when the vector becomes horizontal, even worse if the lingual frenulum is short or ankylotic. First, the short frenulum affects the development of the palate and nasal cavities and causes painful breastfeeding and all kinds of future malocclusions. Therefore, the imbalance of the airways and the thrust of the tongue move the head and neck forward, causing compression of the upper cervical vertebrae and modifying the functional axes of the TMJ and eyes with possible onset of cephalalgia, dizziness and tinnitus and eye problems. An advanced head position implies greater loads on the pelvis, hips, knees and ankles and therefore coxarthrosis, joint wear, bulging of the lumbosacral discs and different foot support. The shoulder can also be affected by a short lingual frenulum, slowing down or even stopping its movement if it is too painful. A proper myofunctional therapy in most cases can correct everything, or at least reduce and improve the current situation, even after decades. It is more effective than any functional appliance.

Breastfeeding: A Whole-Body Experience

Gwendolyne Aquije, PT, DPT, NCS
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Summary

Entering a new chapter in life as parents can be overwhelming and daunting with the plethora of information available. Breastfeeding is usually a goal for

many but becomes secondary once barriers arise. Oral ties are foreign to many parents and they become aware once secondary complications arise as their infants become toddlers and older school-age children. Physical therapy is an essential piece of the dream team for oral tie releases and treatments. We approach each patient with a whole patient lens and treat the whole body.

Physical therapy brings a specialty of incorporating motor control, neuroplasticity, neural re-education, neuromuscular anatomy and wound-healing principles. Our International Classification of Functioning, Disability and Health (ICF) model allows us to use a wide lens to optimize the success of each of our patients. Every patient who receives a release is unique and requires a personalized program pre- and post-release. We work with the whole body and are movement experts that not only consider the tongue, but the whole body as well. We release muscle tension, balance muscles, and train a newly available range of the tongue to optimize its use, especially with breastfeeding.

Experience in the clinic has strengthened the value of a team approach for successful outcomes and long-term success, especially with breastfeeding and post-wound healing. Each team member has their strength and can contribute to parents having a beautiful breastfeeding experience, as well as setting each child to thrive. We are given the opportunity to provide education prenatally, as well as post-partum. This allows parents to be prepared and make educated decisions when they are presented with uncertainty. It is our job to provide quality evidence-based education to our audience and continue to empower parents to make educated decisions regarding oral ties.

Evaluation of Problematic Infant Feeding Symptoms for Infants With and Without Tongue-tie

Rebecca Hill, PhD, DNP, FNP-C, CNE

Associate Professor MGH Institute of Health Professions, Boston, Massachusetts, U.S.

Abstract. Tongue-tie is a congenital anomaly in which the tongue is abnormally connected to the floor of the mouth, limiting mobility, affecting approximately 8% of infants. Based on survey results, this study provided evidence of improvements in eating and gastrointestinal symptoms in infants with tongue-tie before and after frenotomy and infants without tongue-tie.

Summary

Purpose. There is inadequate data to predict which infants will benefit most from frenotomy, and little information on the effects of tongue-tie on infant feeding or gastrointestinal symptoms. This study compared problematic feeding symptoms using the Infant Eating Assessment Tool (InfantEAT) between three distinct groups of infants (Pados & Hill, 2024). This study also compared gastrointestinal (GI) symptoms between the three groups using the Gastrointestinal and Gastroesophageal Reflux (GIGER) Scale for Infants and Toddlers (Pados et al., 2021).

Methods. Parents of infants with tongue-tie completed an online survey prior to frenotomy and repeated this survey when the infant reached 4 months of age. A survey was sent to parents of infants less than 4 months of age, diagnosed with tongue-tie that was not treated. The same survey was sent to parents of infants without a diagnosis of tongue-tie. Multiple linear regression was used to compare scores between groups before and after the treatment, controlling for variables that may account for differences in InfantEAT and GIGER scores (e.g., gestational age at birth).

Results. Controlling for age and gestational age at birth and adjusting for multiple comparisons, there were statistically significant differences (with large effect sizes) in InfantEAT and GIGER scores between infants with tongue-tie prior to frenotomy compared with infants with tongue-tie without intervention and infants without tongue-tie. After frenotomy, the intervention group's scores were not significantly different from the comparison groups.

Conclusions. This study identified significant differences in InfantEAT and GIGER scores between infants with treated and untreated tongue-tie. This suggests that there are specific factors in decision making to treat tongue-tie. Understanding symptoms associated with tongue-tie can assist the mother-infant dyad and their feeding journey.

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Self-reported Mouth Breathing Habits during Sleep and its Effects on Sleep-Disordered Breathing: A Case-Controlled Study

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Abstract. This retrospective case-controlled study from a cardiology practice compared records of home-sleep study results in 313 adults who self-reported mouth breathing or no mouth breathing during sleep. Overall, the group that reported mouth breathing during sleep had higher odds of greater sleep apnea severity.

Summary

Background. Mouth breathing has been associated with increased pharyngeal collapse, which may contribute to an obstructive form of sleep-disordered breathing. However, little is known about the relationship between mouth breathing and key variables in home-sleep studies (HST) among patients seen in a cardiology practice.

Objective. To assess the key indices of home-sleep studies [Apnea Hypopnea Index (AHI), Respiratory Disturbance Index (RDI), Oxygen Desaturation Index (ODI)] in patients who self-report mouth breathing (MB) versus those who are non-mouth breathers (NMB) during sleep.

Methods. This retrospective case-controlled study reviewed electronic medical records of adult patients managed in a cardiology office who underwent a Type 3 HST between January 2019 to June 2023. Inclusion criteria consisted of positive screening for MB tendencies and completion of an HST; patients actively treated for OSA were excluded. The primary endpoint was the difference in average AHI, RDI and ODI between MB and NMB patients. Subgroup analysis across different severity levels was conducted across the following subgroups: Set 1 – Severe SDB versus Normal or AHI, RDI and ODI ≥ 30 vs. < 5 ; Set 2 – severe SDB versus non-severe SDB or AHI, RDI, and ODI ≥ 30 vs. < 30 ; Set 3 – moderate-severe SDB versus normal/mild SDB or AHI,

RDI and ODI ≥ 15 vs. < 15 . Odds ratios (OR) were calculated with MB as the exposure.

Results. 377 patients met inclusion criteria; 64 were excluded due to inadequate responses to the mouth breathing question, leaving 211 MB and 102 NMB patients. The groups did not differ significantly for age (M = 62 and 63 yr, respectively), sex (56% and 51% male), body mass index (M = 30.7 and 29.7), or history of coronary artery disease (28% and 25%). Primary endpoint showed that MB was associated with an abnormal AHI, RDI, and ODI (OR = 2.5, 2.3, and 2.2; $p = .0005$, $.02$, and $.002$, respectively; sensitivity of using MB as a factor for ruling out an abnormal AHI, RDI and ODI were 79%, 92%, and 67%, respectively). In all sets, MB was associated with higher AHI, RDI and ODI. Specifically, Set 1, OR = 5.5, 5.0, and 12.0; $p < .001$; Set 2, OR = 3.5, 2.9, and 8.9; $p < 0.005$; and Set 3, OR = 2.0, 1.9, and 3.2; $p = .007$, $.007$, and $.0004$, respectively). There was a significantly greater incidence of hypertension, snoring and daytime fatigue in MB vs NMB (62% vs 50%, 79% vs 44%, and 69% vs 52%, respectively; $p < .05$).

Conclusion. Self-reported mouth breathing during sleep is associated with increased odds of greater sleep apnea severity in patients in an outpatient cardiovascular medicine practice.

Six Months to Six Years – Functional Frenuloplasty in the Most Challenging Age Group – a Review of Over Three Hundred Patients

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Abstract. Optimizing outcomes of tongue tie surgery in the preschool child can be challenging for both clinicians and the child's family. At the National Tongue Tie Centre, we have developed a pathway based on available evidence and professional experience which offers a child-friendly service integrating pre- and post-op therapy with surgical management.
