

How to Assess Tongue Tie

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Disclosures

- Financial – Meredith White is the owner and lead speech-language pathologist for a private practice clinic in Atlanta, GA.
- Nonfinancial – Meredith is a member of GSHA and receives no financial compensation from GSHA.
- Meredith is an active member and certified by the International Association of Orofacial Myology (IAOM). She receives no financial compensation from the IAOM.

What is Tongue Tie?

- Lingual Frenum (Frenulum)
- Ankyloglossia
- Ankylo: (Greek) fusion of a joint/crooked/bent
- Glossia: (Greek) tongue
- Tongue fusion to the floor of the mouth appearing bent or fixed.

Lingual Frenum / Frenulum

- Development of the tongue as early as 4 weeks.
- First trimester of development
- “During early gestation (as early as 4 weeks) the lingual frenum serves as a guide for the forward growth of the tongue. After birth the tip of the tongue continues to elongate, giving the impression of the frenulum retracting, though in reality this has been going on for some time before birth.”
- Facia covering muscles and tissue throughout the body.

Ankyloglossia / Tongue Tie

- “Tongue tie is a congenital condition, recognised by an unusually thickened, tightened or shortened frenum, which limits movement of the tongue in activities connected with feeding and which has an adverse impact on both dental health and speech.”

. Carmen Fernando, 1998

Prevalence of TT

- Research reveals very mixed results
- No reliable prevalence research
- It is believed the rate is higher in boys
- It is believed that inheritance plays a role.
- Somewhere in the range of 1-2% possible overall prevalence

Why does it matter?

BABIES: Restricted tongue movement can affect:

- Ability to nurse /latching/ lip tie
- Mother nipple pain from nursing
- Abnormal development of suck-swallow-breathe coordination
- Nutritive concerns
- Bonding with parent
- Abnormal oral tongue pattern development
- Can affect oral, dental and speech development

Why does it matter?

Alison K. Hazelbaker, PHD,
 Tongue-Tie: Morphogenesis, Impact, Assessment and Treatment; (2010); pg 67.

“Tongue-tie interferes with the tongue’s fundamental role in initiating and controlling the subsequent phases of the swallow. Compromises to the entire suck-swallow-breathe mechanism can occur as a result, setting the stage for compromises in swallowing and airway patency later on”

Why does it matter:

- ADULTS:
 - Articulation (lingual lifting: R, S, L, SH, CH, J)
 - Temporomandibular Joint Pain (TMJ)
 - Lack of lingual-mandibular dissociation
 - Tension in Jaw and Shoulders
 - Headaches
 - Partner intimacy (lack of lingual mobility)
 - Dental carries
 - Lack of lingual-mandibular dissociation to clear teeth of debris

Role of SLP:

- Not just speech:
- Identification and referral system.
- Holistic examiner
- Identify for frenectomy?
- Identify for breathing/Otolaryngology referral?
- Identification of airway
- Part of a bigger system

Red Flags: Babies

- Failure or abnormal pain for parent to nurse
- Difficulty with latching onto nipple
- Heart-shaped tongue tip
- Tongue not lifting when crying
- Flip the lip: is there tethered tissue to labial frenum?

Red Flags: Children

- Lingually tipped lower-central incisors
- Wetness below the mouth/ dribble/ drool
- Messy eating
- Cross-bite or open-bite dental malocclusion
- Drinking lots of fluids with meals.
- Mumbling: Difficulty with speech sounds requiring lingual lifting: R, L, S, SH, CH, J
- Cavities

Red Flags: Adults

- Assessing the temporomandibular joint
 - Crunching, popping, discomfort
- Discomfort speaking
- Headaches
- Clenching
- Tension in shoulders

Assessment Babies

- SLPs in the NICU;
- Alison K. Hazelbaker: Assessment Tool for Lingual Frenulum Function (ATLFF), 2009; newborns to six-months:
- Function
 - Lateralization
 - Cupping of the tongue
 - Lift of Tongue
 - Peristalsis (Progressive Contraction)
 - Extension of Tongue
 - Snap back
 - Spread of Anterior Tongue

Assessment Babies

- SLPs in the NICU
- Alison K. Hazelbaker: Assessment Tool for Lingual Frenulum Function (ATLFF), 2009; newborns to six-months:
- Appearance
 - Of tongue when lifted
 - Elasticity of lingual frenum
 - Length of lingual frenulum when tongue lifted
 - Attachment of lingual frenum to tongue
 - Attachment of lingual frenulum to inferior alveolar ridge

Assessment: Babies, Children & Adults

- SLPs in Private Practice, Schools, Hospitals
- Carmen Fernando, SLP: Tongue Tie Assessment Protocol (TAPs)
- Based on 7 Criteria (scores of 0-4)
 - Cosmetic Appearance
 - Oral hygiene and dental health
 - Feeding skills
 - Lingual movement (protrusion-down, protrusion-horizontal, protrusion-upward, circumlocution, lateral movement, retraction)
 - Oral Kinaesthesia (age 2+:DDK: 2-3 consonants for 15 reps, fast)
 - Speech
 - Emotional Status
 - *Score above 15 indicates functional lingual frenum

Dynamic Assessment

- Think: Tethered Oral Tissue (TOT).
 - Don't worry about terms, "anterior/posterior TT"
 - Is tethered oral tissue affecting overall oral function?
 - Can the tongue lateralize without jaw shifting (jaw shifting puts pressure on the TMJ)?
 - Can the tongue clear food from gumline along upper- and back-molars?
 - How much is the jaw shifting to complete this function?

Dynamic Assessment

- TOTs: Tethered Oral Tissue:
 - Can the tongue lift to make appropriate contact with palate for speech sounds?
 - Are dental malocclusions or dentition affected?
 - Does the client complain of headache or evidence tension in the neck-and-shoulder region
 - Watch the client eat and swallow? Is there good bolus manipulation? Is a clear bolus performed and placed mid-tongue for oral transfer?
 - Does the client have any irregular feelings in the TMJ?

Quick Tongue Tie Assessment

- Request client open mouth as wide as possible.
- With caliper, measure from upper-central incisor to bottom-central incisor.
- Then ask client to form a lingual-palatal seal with tongue-tip on the "spot."
- With caliper, measure from upper-central incisor to bottom-central incisor.
 - Maintain widest-mouth opening while acquiring measurement
- If width is less than 50% of the maximum with tongue-to-spot, then the lingual frenum is restricting tongue movement.
- ** If a lingual-palatal seal cannot be made: Request client lift tongue tip to the incisive papilla, aka, "spot,"
 - Maintain maximum wide-mouth opening, while making contact with tongue to spot.

Tongue Examination

- Appearance
 - Are lower central incisors lingually tipped?
 - When asked to protrude tongue in different directions, do we see a heart-shaped tip or other visual signs of tongue restriction?
 - Is the tongue functioning appropriately during eating and drinking?
 - Could the parent nurse comfortably

Examination of Lingual Frenum

- Look under the tongue. Ask the client to lingually elevate.
 - Can the client even perform this task?
 - Do we see what appears to be TOTs?
 - Where does the frenum insert into the lower floor of the mouth?
 - Right on alveolar ridge? Teeth lingually tipped?
 - Between lower alveolar ridge and tongue base?
 - Where does the frenum insert into the tongue?
 - Is it embedded throughout the length of the tongue?
 - Is it lower 1/3 of tongue?
 - Mid-tongue?
 - Upper 1/3 of tongue?
 - Sagittal view
 - Do you see webbing?
 - Is the frenum thick upon touch or pliable?

Tongue Function

- Don't get bogged down with terms such as "posterior" or "anterior" tongue tie.
- Examine and think in Tethered Oral Tissue (TOTs)
- Do we see concern for TOTs?
- If so, is the TOTs having a negative impact on tongue function?:
 - Feeding, Speech, TMJ, Dentition, Oral Development, Airway

Labial Frenum

- Whenever conducting an examination of the lingual frenum, one must also examine the labial frenum, as there is an anecdotal correlation between the two. An upper-lip tie can also have negative consequences for comfort during nursing and the ability for the baby to latch. Aside from that side affect, a labial frenum can result in a gap between the upper- central incisors.

Results from Examination

- If TOTs is determined as having a negative effect on tongue function, speech, feeding and/or oral development, how do we proceed?
- Frenotomy, Frenectomy, Clipping, Z-Plasty?
- To whom do we refer?

Intervention

- What is recommended when a client presents with TOTs that is affecting speech, dentition, feeding, tongue function, etc...
 - Clipping:
 - Pro: Many health professionals can perform (ENT, dentist, pediatrician). This is when the lingual frenum is clipped with scissors to release the tongue for feeding. Most often with babies.
 - Con: Anecdotally, it is believed that this procedure causes the tongue to re-attach and can lead to scar tissue
 - Laser Frenectomy:
 - Pro: Better results as tongue does not as easily re-attach. Fast procedure
 - Con: More difficult to find experienced practitioners. Can be dentists, periodontists and sometimes ENTs.
 - Frenoplasty”
 - More invasive procedure. Typically recommended when the laser frenectomy is not successful. Often recommended for children with genetic disorders.

Post Surgical Instructions

- Post-surgical maintenance is essential to a successful frenectomy.
 - If working with a certified orofacial myologist, schedule first appointment within 3 days post-surgery
 - Every day for the first week, perform exercises at least 3 times per day
 - Every day for the second week, perform exercises at least 2 times per day
 - Tongue clicking, tongue elevation, tongue lateralization
 - With gloved fingers, massage all around the wound site

SLP Role Post Frenectomy

- Post surgical instructions
- Focus on lingual-mandibular dissociation
- Re-train tongue function for speech and swallowing
- Refer to an IAOM certified Orofacial Myologist
- www.IAOM.com

What do you see?



What do you see?



What do you see?: Sagittal View



What do you see?: Sagittal View



Examine Parents!



TOTS: Insertions



TOTs: Insertions



TOTs: Incisors Lingually Tipped



Post Frenectomy



Post Frenectomy



What the ??



Resources

- Tongue Tie: Morphogenesis, Impact, Assessment and Treatment; (2010); Hazelbaker, Alison K.; Aidan and Eva Press
- Tongue Tie: from confusion to clarity;(1998); Fernando, Carmen; Australian Print Group
- Lingual Frenulum Protocol for Infants; (2015); Martinelli; Brazil
- Lingual Frenulum Protocol; (2014); Marchesan; Brazil