Tongue-tie and Speech Clarity: What We Think We Know

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INTRODUCTION

Presentation explores 1) controversies regarding articulation deficits correlated with tongue-tie; 2) evidence based issues with tongue-tie and articulation and 3) clinical implications for assessment and treatment.

OBJECTIVES

1) Participants will be able to state at least one type of articulation error correlated with ankyloglossia.
2) Participants will list 1 way in which ankyloglossia may impact speech sound production.
3) Participants will describe an example of how ankyloglossia and speech are correlated in the literature.

DISCUSSION

Tongue-tie prevalence ranges from about 3% (Amir, James, & Donath, 2006) to 1-10% (Isaacson, Messner & Armsby, 2017); however, a recent study from Brazil showed that this number may be higher, after 32.54% of 1,715 infants were found to have posterior tongue-tie after a specialized maneuver for inspection (Martinelli, Marchesan & Berretin-Felix, 2018). Tongue-tie is considered an Orofacial Myofunctional Disorder (OMD). OMDs are often associated with speech sound errors including ankyloglossia. It has been suggested by some that there is "no evidence" to support the correlation between tongue-tie and articulation issues.

Merkel-Walsh & Overland (2018a) discussed TOTs: *A Hot Topic* at the 2018 ASHA Convention. One of the debates was whether or not TOTs impacts speech clarity. In their book *The Functional Assessment and Remediation of TOTs* (2018b), the authors correlate speech sound errors with tongue-tie based on the oral placement skills that are impacted by limited lingual range of motion. Many speech-language pathologists treating speech sound disorders pre- and post- frenectomy might agree. In contrast, The American Speech-Language and Hearing Association (ASHA, 2018) suggested there is limited data indicating the link between tongue tie, division procedures (i.e. clipping), and speech sound production outcomes based on Chinnadurai, Francis, Epstein, Morad, Kohanim & McPheeters (2015) and Webb, Hao, & Hong (2013).

LITERATURE REVIEW

A literature review of a correlation between tongue-tie and speech revealed:

- Early studies in the 1950s reported improved speech post ankyloglossia release (Brown, 1959; Oldfield, 1959.)
- Williams & Waldron (1985) suggested that before a cause and effect relationship between tongue-tie and oral motor and speech can be established, an objective and replicable system of measurement must be defined.
- Messner & Lalakea (2002) found that while some children with tongue-tie learned to compensate and developed normal speech, up to 71% had certain symptomatic error patterns as a result of limited lingual range that impacted speech sounds and the rate of articulation.
- Merdad & Mascarenhas (2013) point out that the lack of an accepted definition and classification of ankyloglossia makes comparisons between studies almost impossible. In an effort towards clarity, there have been several attempts at classification through protocols by Fernando, Martinelli, Marchesan, Kotlow, Hazelbaker and Coryllos & Genna, but no single descriptive measure has been universally adopted amongst professionals (Merkel-Walsh & Overland, 2018b). Others have attempted to standardize the visual inspection of the frena (Ghaheri, 2014; Martinelli, Marchesan & Berretin-Felix, 2018).
- Meaux, Savage & Gonsoulin (2016) looked at speech pre- and post-frenectomy in two subjects. Study found that subjects significantly decreased fronting (90% to 10%) and fronting/stopping (40% to 0%).
- Baxter and Hughes (2018) published a five subject case study. All five patients showed improvement in speech after frenectomy.

BUCCAL	LABIAL	LINGUAL
• Reduced contraction in the cheeks for /w/ production • Reduced ability to support cheek contraction for /r/, /ʃ/, /tʃ/, /dʒ/and /ʒ/ • Lips may be flat and distort the sound if cheeks are not contracted • Reduced contraction in the cheeks for /f/ and /v/ production	• Reduced /poor lip closure for the bilabial production of /p/, /b/, and /m/ • Reduced/poor lip rounding for the production of /w/ • Reduced ability to protrude the lips for /r/, /ʃ/, /tʃ/, /dʒ/and /ʒ/ • Reduced /poor lip retraction for the production of /f/ and /v /. • Errors include omissions, p/f, b/v, w/f, w/v or θ/f or ð/v	• Reduced/absent tongue tip elevation for t/d/n/l/s/z • Interdental productions which will not be scored on the GFTA-3 Lateral distortions of s/z Interdental lisp. • Impaired /poor tongue retraction can result in weak /k/ and /g/ production • Reduced ability to retract the tongue with back side spread for /r/, /ʃ/, /tʃ/, /dʒ/and /ʒ/

TOTs and SPEECH CONSIDERATIONS

1. Assess acoustics of the sounds with standardized tests such as GFTA-3.
2. Analyze placement of the sounds and note any atypical compensatory patterns.
3. Accept that if the etiology is structural it is therefore not developmental.

CONCLUSION

Summary, it is a fallacy to state that there is "no research" to support a correlation between tongue-tie and articulation errors. When using the evidence based map it is important to recognize various types of EBP. Clinical evidence, data, patient feedback and case studies have suggested that TOTs may impact speech and that the release of a tethered tongue may improve speech production. Further research is warranted.

REFERENCES

For a list of all references used please visit:
https://talktools.com/pages/tongue-tie-and-speech-clarity-resources