Tongue-Tie

Also known as "ankyloglossia," tongue-tie refers to the impairment of tongue mobility. Tongue-tie most commonly impacts speech and/or feeding.

• Treatment may consist of surgical intervention to release the frenulum for more mobility. Speech therapy alone cannot improve mobility.
• Physical characteristics usually consist of a short frenum which may be thick or thin. Some are unseen with a manual lift of the tongue.
• Most common phonicemic errors are /i/ and /u/. /w/, /l/, /n/, /t/ (Messner & Lalakea, 2002)

Incidence: worldwide

Grade public school, special education services in cross-neighborhood classrooms. Participants:

• SF, 10-year-old Caucasian male with the following: moderate articulation disorder, mild expressive language delay, and secondary encoding and decoding deficits.
• Homeschooled with 4 other siblings who also have speech disorders.
• Previous raw scores on GFTA-3:
  • Fall 2016: 44
  • Fall 2017: 28
  • Fall 2018: 26

HJ, 8-year-old Caucasian female with the following: moderate articulation disorder, oro-facial myofunctional deficits, oral dysphagia, and language processing deficits.
• Received Myobraces on 11-7-2018.
• Attended 3rd grade public school, special education services in cross-categorical classrooms.
• Previous raw scores on GFTA-3:
  • Spring 2016: 54
  • Fall 2016: 30
  • Fall 2017: 15

*Raw scores are total articulation errors made*

Ingram, J., & Botzer, H. (2015). Effect of Ankyloglossia on Speech in Children (Messner & Botzer, 2015). Additionally, because he was homeschooled, SF’s communication models were limited to his immediate family who all have speech impairments of their own.

For this specific client, the frenotomy was not enough to correct the speech limitations associated with his tongue-tie as there possibly was not enough of a release to make a significant difference in his articulation ability.

HJ’s (8-year-old female) post-FRENOTOMY articulation assessment revealed that 5 of the 10 phonemic errors associated with tongue-tie resolved thereby by 1-month post-surgical intervention.

HJ received a complete frenectomy; therefore, a full release of her tongue may have allowed for significant increase in its mobility and articulation accuracy. Therapy focused on articulation accuracy and orofacial myofunctional deficits including: swallowing, resting posture of the tongue, lingual-palatal suction, bite transport, and overall oral dissociation tasks.

Relation to Past Research

• Similarities:
  • Results for the participants were consistent with Ito et al. (2015). The lack of progress in 1 of SF’s participants and 1 rs the current patient may have due to the development of compensatory strategies.

• Differences:
  • SF’s age was slightly older than those of the participants in the comparative past research. Ito’s reference frenuloplasty/frenectomy whereas this research refers to a frenotomy and frenectomy. In the comparison research, the length of time passed was nearly 2 years whereas this research was conducted over one semester consisting only of 3 data points.

• Overall:
  • Surgical intervention may influence articulation ability, but more studies must be conducted in order to confirm this statement.

Clinical Implications & Future Research:

• Findings suggest that surgical intervention may improve articulation ability for those with tongue-tie.
• The type of surgical intervention who conducts it, and the age of the participant must be taken into consideration.
• Challenges: Limitations
  • Co-occurring diagnoses, knowing the full profile of the client and how the diagnoses may impact articulation ability
  • Age – consider development of articulation disorders and compensatory strategies

• More research:
  • The type of speech therapy provided (consonal myofunctional therapy vs. traditional articulation) should be further investigated in this population.
  • Ongoing diagnostic criteria for tongue-tie across professions
  • Teaching speech-language pathologists to objectively assess oral structures
  • Prevent misdiagnosis
  • Re-surgicalizing the look and surgical interventions available

• Utilize a larger population sample of those who receive intervention related to articulation and surgical intervention for tongue-tie

References


Tongue-Tie and Speech Articulation

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Participants

Tongue-Tie and Speech Intelligibility

• Evaluation of Speech Intelligibility in Children with Tongue-Tie (Dolberg, Manor, Makia, & Botzer, 2011).

• Over the course of several years, research found that children who had surgical remediation of tongue-tie in infancy were more intelligible than children who had tongue-tie but never received surgical remediation.

• The Effect of Ankyloglossia on Speech in Children (Messner & Lalakea, 2006).

• Researchers determined the difference in lingual movement and articulation pre and post surgical intervention in 30 children ages 1-12. Speech evaluation revealed that 11 of the 30 children had articulation errors related to limited mobility.

• 1-week, 1-month, and 3-month post-op data revealed that 9 of the 11 children demonstrated increased lingual mobility and articulation accuracy.

• The children who did not show gains included one young child who still had developing speech sounds and another child who had an ongoing articulation disorder post-surgery.

• Effectiveness of Tongue-Tie Division for Speech Disorder in Children (Ito, Shimizu, Nakamura, & Takata, 2015).

• Reviewed the impact surgical intervention had on five children from ages three to eight years old with co-occurring tongue-tie and articulation disorder.

• Four of the children improved in articulation accuracy post-surgical intervention while the child who already developed articulation compensation strategies did not make gains. The results were collected 1 month, 3-months, and 1-2 years post-op. Most articulation errors were on the phonemes /t/, /d/, /n/, and /b/.

Purpose

• The purpose of this case study was to determine if there was a difference in accuracy of articulation in children diagnosed with tongue-tie and co-occurring speech disorders pre/post surgical intervention using the Goldman Fristoe Test of Articulation, Third Edition (GFTA-3).

- Interest in this study stemmed from lack of research related to surgical intervention of tongue-tie and its potential impact on articulation.

Surgical Intervention Type

SF, 10-year-old male: FRENOTOMY

A reduction, release, or partial removal of the frenulum. Frenotomy may improve the length or mobility in the tongue, but often does not provide a full release of the frenulum. Patient’s often require follow-up intervention for additional reductions if the tongue is not fully released or the frenulum remains. SF’s frenotomy was completed by a board certified pediatric dentist who specialized in tongue-tie remediation.

HJ, 8-year-old female: FRENECTOMY

A complete removal of the frenulum via laser. HJ’s frenectomy was completed by a board certified pediatric dentist who specialized in tongue-tie remediation. (Baxter & Hughes, 2018)

Conclusions

SF’s (10-year-old male) post-FRENOTOMY no improvement in articulation.

Considering his age, it is likely SF has already developed his speech patterns and compensatory strategies, therefore, making his frenotomy not as impactful related to articulation accuracy.

HJ received a complete frenectomy; therefore, a full release of her tongue may have allowed for significant increase in its mobility and articulation accuracy.

Therapy focused on articulation accuracy and orofacial myofunctional deficits including: swallowing, resting posture of the tongue, lingual-palatal suction, bite transport, and overall oral dissociation tasks.

References