

Western Classical Singing and Tongue-Tie Research



Project Overview

► Research Question:

*Are there any **links** between **ankyloglossia** and **muscle tension** relating to the voice in Western classical singers and what are the **recommendations** for **singing teachers** in recognising potential **symptoms** and offering **guidance**?*

Research Context

- ▶ **Western Classical singer**, diagnosed with Muscle Tension Dysphonia and **tongue-tie**
- ▶ Discovered **anecdotal evidence** online
(Csok, 2023; Freedman-Muchnick, n.d; Algoet, 2024; Davis, 2024; Radosz, 2024; Glen Park Dental, 2025; Luffey, 2025)
- ▶ First-hand experience of **lack of knowledge** in vocal community

Methodology

- ▶ **Pragmatism** = overarching paradigm
- ▶ Focused on practical approach to research and applicable outcomes
(Pretorius, 2024)
- ▶ **Embedded mixed methods** design

Methods

- ▶ **Literature review, questionnaire, interviews**
 - ▶ Methods selected to provide **richer theory evidence** – quantitative provided **larger sample** (Baran, 2019)
 - ▶ **Semi-structured interviews** selected to provide valuable insight into niche topic area
- (Lim, 2024; Masoodi, 2017; Degu and Yigzaw, 2006).

What is Ankyloglossia? (Tongue-tie)

- ▶ **Lingual Frenulum** = layer of fascia attaching underside of tongue to floor of mouth
- ▶ Tongue-tie = **tethered, tight, thick frenulum** impacting **tongue mobility**
(Zaghi et al, 2019; Mills et al, 2020; Wang et al, 2021; Summersgill et al, 2023)
- ▶ Symptoms include **tension, speech and singing issues**
- ▶ Incidence Rate:
 - ▶ O'Shea et al, (2017): **4-11%** of the population
 - ▶ Baxter, Lashley and Rendell (2022) = **26.1% (1 in 4)**

TRMR-TIP

Assessment of:
Anterior Tongue Mobility
Tongue to Incisive Papilla (TIP)



Grade 1: TRMR-TIP > 80%
Significantly Above Average



Grade 2: TRMR-TIP 50-80%
Average



Grade 3: TRMR-TIP < 50%
Below Average



Grade 4: TRMR-TIP < 25%
Significantly Below Average

Degrees of tongue-tie classification

(Zaghi et al; 2021)

← Anterior tongue
mobility test

TRMR-LPS

Assessment of:
Posterior Tongue Mobility
Lingual Palatal Suction (LPS)



Grade 1: TRMR-LPS > 60%
Significantly Above Average



Grade 2: TRMR-LPS 30-60%
Average



Grade 3: TRMR-LPS < 30%
Below Average



Grade 4: TRMR-LPS < 5% or unable
Significantly Below Average

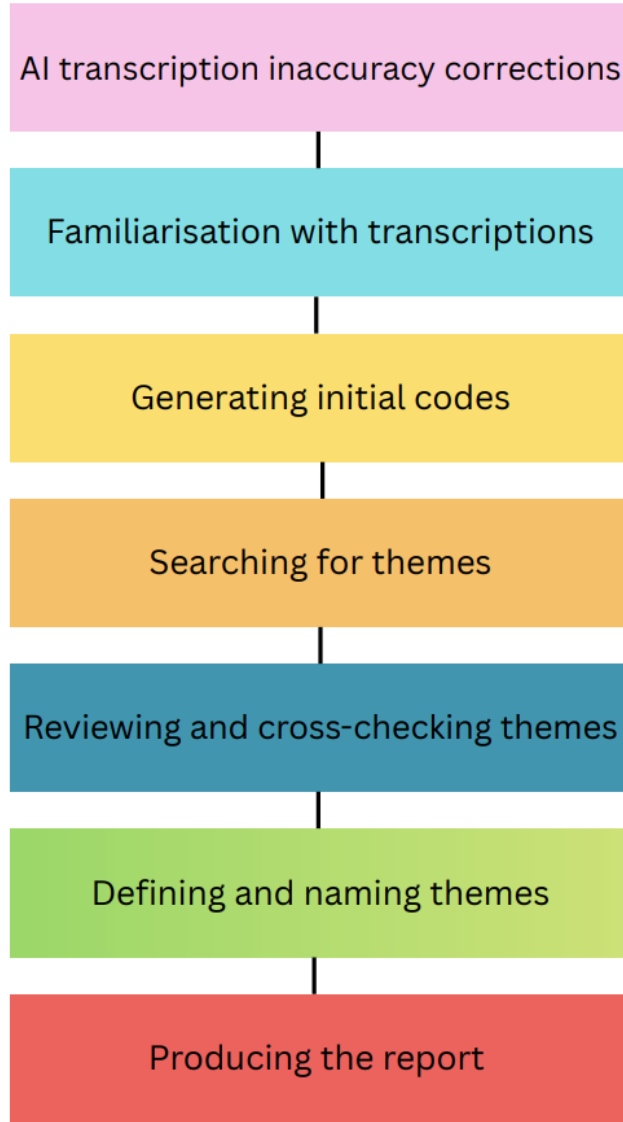
← Posterior tongue
mobility test

Data Collection

- ▶ Participants recruited predominantly via Facebook groups
(Franz et al, 2019; Ashfield et al, 2023)
- ▶ **21** participants = singers with personal experience and experts
 - ▶ **19** completed the quantitative questionnaire
 - ▶ **6** selected for interviews (2 both singers and experts)
- ▶ Questionnaire and interviews designed with 2 question pathways dependent on experience/profession

Ethics and Insider Research

- ▶ Ethical approval was granted by the UWTSD Ethics Committee
- ▶ All participants received an **information sheet** and **consent form**
- ▶ Participants provided with details of anonymity, data protection, right to withdraw



Data Analysis

- ▶ Interviews = **Reflexive Thematic Analysis (RTA)**
- ▶ As an insider researcher RTA selected as supports involvement in research (Braun and Clarke, 2019)
- ▶ Questionnaire = **Descriptive Statistics** - embedded into qualitative findings

THEME-1:

*Lack of vocal
community
knowledge*

THEME-2:

*Emotional
impact*

THEME-3:

*Tension and
compensation*

THEME-4:

*Integrative
approach to
intervention*

SUBTHEME-1A:

*Hindered vocal
development*

SUBTHEME-1B:

*Arming
teachers with
knowledge*

SUBTHEME-2A:

*Life-changing
vocal
improvements*

SUBTHEME-2B:

*Surgical
remediation*

Theme 1: Lack of Vocal Community Knowledge

- ▶ Voice professionals unaware of tongue-tie
- ▶ **4 out of 14** questionnaire respondents = tongue-tie noticed by singing teacher - teachers often first to recognise vocal issues (Scearce, 2024)
- ▶ Singers' technical development stunted
- ▶ Lack of awareness feeds false narratives
 - “...people are assumed that they're stupid, that they're dumb, that they're lazy.” –T3*
 - “...my teacher [...] actively encouraged me to pursue a different career.” –T5*

Theme 2: Emotional Impact

“I don't think I'm cut out for this. I guess I'm not talented enough.” –T3

- ▶ Teachers misjudge students with hidden restriction = psychological consequences
- ▶ Low self-worth
- ▶ Thoughts of quitting singing

Theme 3: Tension and Compensation

- ▶ Tongue-tie produces muscular tension and compensation = difficult vocal development
- ▶ Tension particularly in **larynx, orofacial structure, neck/shoulders**
- ▶ Singers compensate around restriction = high physical cost:

“I was able to manufacture a very high-pressured tongue roll...that was so muscular and intense in pressure that my eyes would vibrate and I couldn't see.” –T5

Theme 4: Integrative Approach to Intervention

- ▶ Surgical intervention = largely **positive results** for tension release/vocal improvement
- ▶ BUT... optimum results dependent on combined approach:
(Zaghi et al, 2019; Baxter et al, 2020)
 - ▶ **Myofunctional Therapy**
 - ▶ **Bodywork**
(Baxter, 2022)
- ▶ Neuromuscular repatterning via exercises to embed new-found freedom
“Myo is habits, chewing, tongue posture, swallow...” – T3

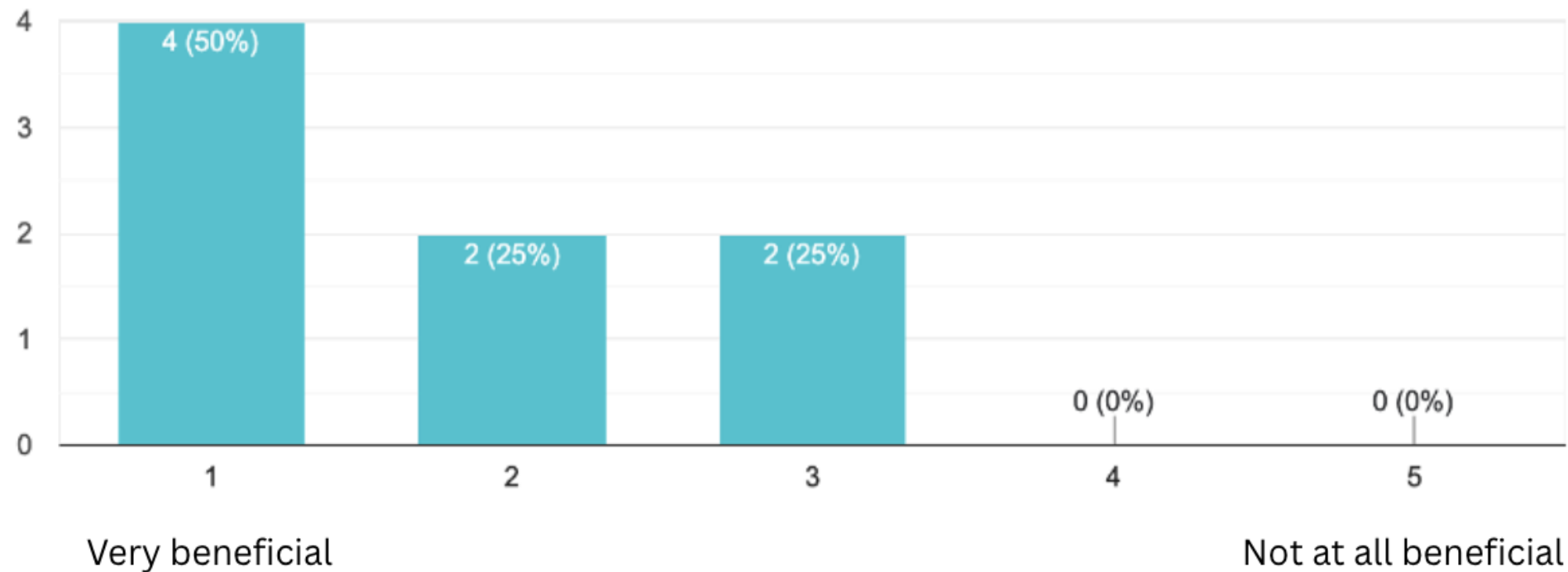
Outcomes

- ▶ Proper engagement with holistic intervention = **singer quality of life improvement**
- ▶ Improvement to symptoms that held back vocal development = **better career prospects**

“I would not be able to consider a professional career in singing without having done the thing.” –T2

Overall, how beneficial was the surgery to your quality of life as a singer?

8 responses



Question	Mean	Median	Mode	Standard Deviation (2.d.p)
Singer Questions				
Overall, how beneficial was the surgery to your quality of life as a singer? (1 = very beneficial / 5 = not at all beneficial)	1.75	1.5	1	0.83

Potential Symptoms

Description	Signs
Difficulty building reliable technique / slow development despite practice and comprehension	<u>May have issues with:</u> • rolled R (tongue-trill) • articulation • mouth opening wide • range • stamina • fatigue • breathing • intonation • mid tongue dip when singing • posterior tongue lift • palate lift
Persistent tension despite technical training	<u>May be felt in the:</u> • orofacial structure • tongue/ tongue root • jaw • larynx • neck/shoulders • diaphragm • pelvic floor • head (tension headaches/migraines)
Tongue mobility and function issues	<u>May have issues with:</u> • range of motion • ability to raise tongue tip to incisive papilla with mouth wide • ability to perform lingual palatal suction hold • ability to perform lingual palatal suction hold with wide mouth • floor of mouth compensation/lifting in order to perform these actions
Structural characteristics	<u>May present with:</u> • poor posture/postural alignment • Forward/hunched head/neck position (pulled forward by tongue-tie) • narrow face shape/undeveloped jaw • narrow / high palate (upper maxilla forms around proper resting tongue position = difficult with tie) • crooked teeth • history of orthodontics • deviated septum • dysphagia
Sleep	• light / disrupted sleep • mouth breathing at night • feeling groggy / unrested • sleep apnoea
Digestion	• IBS symptoms • acid reflux

► Key takeaway:
Symptoms over appearance

Conclusion and Reflection

- ▶ **Tension findings** particularly relevant for research question
- ▶ Learning outcomes = teaching level enhancement
- ▶ Future avenues of research should include larger studies on tongue-tie and...
 - ▶ tension
 - ▶ vocal quality
 - ▶ psychological effects

References

- ▶ Algoet, S. (2024) 'Understanding and Overcoming Tongue Tie in Singers' [blog]. 12th October 2024. Available at: <https://www.singsing.be/onlinecourses/2023/06/18/understanding-and-overcoming-tongue-tie-in-singers/> (Accessed 12th April)
- ▶ Baran, M. (2019) *Applied Social Science Approaches to Mixed Methods Research*, United States: IGI Global.
- ▶ Baxter, R. et al, (2020) 'Functional Improvements of Speech, Feeding, and Sleep After Lingual Frenectomy Tongue-Tie Release: A Prospective Cohort Study', *Clinical Pediatrics*, 59 (9–10), pp.885–892. doi.org/10.1177/0009922820928055
- ▶ Baxter, R. Lashley, A. and Rendell, N. (2021) 'Tongue Restriction Questionnaire: A New Screening Tool to Identify Tongue-Tied Patients', *Compendium*, 42 (3). Available at: www.dentalaegis.com/cced (Accessed 27th May 2025).
- ▶ Baxter, R. et al, (2020) 'Functional Improvements of Speech, Feeding, and Sleep After Lingual Frenectomy Tongue-Tie Release: A Prospective Cohort Study', *Clinical Pediatrics*, 59 (9–10), pp.885–892. doi.org/10.1177/0009922820928055
- ▶ Baxter, R. (2022) 'Tongue-Tie Update: What Florida's Dentists Need to Know About This Common Condition', *Florida Focus*, Available at: <https://www.lightscalpel.com/publications/tongue-tie-update-what-dentists-need-to-know-about-this-common-condition/> (Accessed 14th February 2025).
- ▶ Braun, V. and Clarke, V. (2019) 'Reflecting on reflexive thematic analysis'. In *Qualitative Research in Sport, Exercise and Health*, 11, (4), pp. 589–597. doi.org/10.1080/2159676X.2019.1628806
- ▶ Csok, A. (2023) *How Does Tongue-Tie Impact Your Speech and Singing Quality?* Available at: <https://www.clevelandtonguetiecenter.com/blog/does-tongue-tie-affect-ability-to-speak-and-sing/index.html> (Accessed 20th April 2025).
- ▶ Degu, G. and Yigzaw, T. (2006) 'Research Methodology Lecture Notes for Health Science Students', *Ethiopian Public Health Training Initiative*, pp.1-138.
- ▶ Freedman-Muchnick, D. (n.d.) *Voice, Resonance and Tongue Tie*. Available at: <https://myofunctionalspot.com/voice-therapy%2Ftongue-tie> (Accessed 13th April).
- ▶ Glen Park Dental, (2025) *Can a Tongue-Tie Impact Singing and Voice Quality?* Available at <https://www.glenparkdental.com/tongue-tie/can-a-tongue-tie-impact-singing-and-vocal-quality/> (Accessed 13th April).

References Continued...

- ▶ Lim, W. (2024) 'What Is Qualitative Research? An Overview and Guidelines', *Australasian Marketing Journal*, 00, (0), pp.1-31. [10.1177/14413582241264619](https://doi.org/10.1177/14413582241264619)
- ▶ Luffey, J. (2025) *Tongue Tied Singers: The Hidden Cause of Vocal Struggles (What Teachers Miss)* [video]. Available at: <https://www.youtube.com/watch?v=EoLJQWfGhAE&t=15s> (Accessed 15th May)
- ▶ Mills, N. et al (2020) 'Understanding the Lingual Frenulum: Histological Structure, Tissue Composition, and Implications for Tongue Tie Surgery', *International Journal of Otolaryngology*, 2020, pp.1–12. doi.org/10.1155/2020/1820978
- ▶ O'Shea, J. et al (2017) 'Frenotomy for tongue-tie in newborn infants', *Cochrane Database of Systematic Reviews* (3). doi.org/10.1002/14651858.CD011065.pub2
- ▶ Pretorius, L. (2024) 'Demystifying Research Paradigms: Navigating Ontology, Epistemology, and Axiology in Research', *The Qualitative Report*, 29, (10), pp.2698-2715. [10.46743/2160-3715/2024.7632](https://doi.org/10.46743/2160-3715/2024.7632)
- ▶ Radosz, J. (2024) *The Myofunctional Singer*. Available at: <https://www.voicewithjulia.com/the-myofunctional-singer> (Accessed 13th February 2025)
- ▶ Searce, L. (2024) *What Every Singing Teacher Should Know About Vocal Health: Fact-finding and Myth-busting* (Part 2) [video]. Available at https://voicestudycentre.instructure.com/accounts/1/external_tools/111?launch_type=global_navigation (Accessed 15th July 2025).
- ▶ Summersgill, I. et al (2023) 'Muscle Tension Dysphonia in Singers and Professional Speakers with Ankyloglossia: Impact of Treatment with Lingual Frenuloplasty and Orofacial Myofunctional Therapy', *International Journal of Orofacial Myology and Myofunctional Therapy*, 49 (1), pp.1–8. doi.org/10.52010/ijom.2023.49.1.1
- ▶ Wang, J. et al (2021) 'The effect of ankyloglossia and tongue-tie division on speech articulation: A systematic review', *International Journal of Paediatric Dentistry*, 32, (2), pp.144–156. doi.org/10.1111/ipd.12802
- ▶ Zaghi, S. et al (2021) 'Assessment of posterior tongue mobility using lingual-palatal suction: Progress towards a functional definition of ankyloglossia', *Journal of Oral Rehabilitation*, 48 (6), pp.692–700. doi.org/10.1111/joor.13144
- ▶ Zaghi, S. et al (2019) 'Lingual frenuloplasty with myofunctional therapy: Exploring safety and efficacy in 348 cases', *Laryngoscope Investigative Otolaryngology*, 4 (5), pp.489–496. doi.org/10.1002/liv.2.297