

Dr Sean Pert (he/him) & Ellissia Porter (she/her), Indigo Gender Service

## Objective evaluation of pitch and loudness by speech and language therapists can enhance voice and communication therapy for gender-diverse individuals.

Pitch and loudness are the vocal aspects most frequently identified for modification by trans and non-binary people. Objective measurements of voice using a computer optimally set up (Švec & Granqvist, 2018) is non-intrusive, rapid and accurate. Free software such as Praat (Boersma & Weenink, 2023), provides an accurate analysis of frequency and intensity useful for both voice evaluation and therapeutic purposes.

'Pitch' is the subjective term for the vocal fundamental frequency and is equivalent to the number of vocal fold vibrations per second measured in Hertz (Hz). Objective frequency measurements confirm subjective observations of voice and provides baseline data, prior to commencing therapy. This information guides safe, person-centred goal setting. Frequency data helps service users to understand what pitch is and how to change to the frequency range to match their authentic voice. During therapy, pitch readings can facilitate the gradual change of pitch to the desired range, whilst avoiding vocal strain (Adler et al., 2006; Mills & Stoneham, 2021).

'Loudness' is the subjective term for intensity, or Sound Pressure Level (SPL) measured in decibels (dB). The SPL, combined with clinician's observations, can support therapeutic targets such as, improving breath support via diaphragmatic breathing (Mills & Stoneham, 2017) and improving voice projection.

Authenticity of voice is unique to each service user, in contrast to stereotyped voices of the cis-binary masculine/feminine. This is an important consideration when working with trans and non-binary service users. Voice goals may differ from societal neurotypical expectations.

Praat provides graphs and objective feedback of abstract concepts, such as pitch, intonation and loudness during therapy. Objective voice evaluation can therefore empower service users by providing objective feedback and facilitating understanding of the vocal mechanism.

**WORD COUNT: 297**

## References

- Adler, R. K., Hirsch, S., & Mordaunt, M. (2006). *Voice and communication therapy for the transgender/transsexual client: A comprehensive clinical guide*. San Diego, CA: Plural Publishing.
- Boersma, P., & Weenink, D. (2023). *Praat: doing phonetics by computer [Computer program]*. Retrieved 6th April 2023 from <https://www.fon.hum.uva.nl/praat>
- Mills, M., & Stoneham, G. (2017). *The Voice Book for Trans and Non-Binary People: A practical guide to creating and sustaining authentic voice and communication*. London: Jessica Kingsley Publishers.

## Objective pitch and loudness evaluation for trans and gender-diverse individuals for gender-affirming voice and communication therapy

Mills, M., & Stoneham, G. (2021). *Voice and Communication Therapy with Trans and Non-Binary People: sharing the Clinical Space*. London: Jessica Kingsley.

RCSLT. (2018). *Clinical Guidance for Trans and Gender Diverse Service Users*.

<https://www.rcslt.org/members/clinical-guidance/trans-and-gender-diverse-voice-and-communication/trans-voice-guidance/>

Švec, J. G., & Granqvist, S. (2018). Tutorial and guidelines on measurement of sound pressure level in voice and speech. *Journal of Speech, Language, and Hearing Research*, 61(3), 441-461.