# Assessing the Effects of Gender-Affirming Hormone Treatment on Transgender Voices: Pedagogical Insights for Singers, Voice Teachers, and Choral Directors

Ashley Vance

Syracuse University

December 16, 2024

**Abstract**

Transgender and gender-expansive individuals may choose to pursue hormonal treatment to alleviate symptoms of gender dysphoria and to feel more aligned with their gender identity. Testosterone treatment causes significant changes to the vocal folds, so voice teachers and choral directors need to understand these changes to teach appropriate vocal techniques to transitioning singers.

Different administration methods for testosterone therapy can lead to varying outcomes, but typically, recipients start to experience vocal changes within the first year of treatment. To manage these vocal changes effectively during testosterone therapy, individuals should practice a series of rehabilitative vocal exercises. Prioritizing proper breathing techniques and balanced onset phonation is crucial. Exercises such as semi-occluded vocal tract exercises and closed vowel exercises help maintain flexibility and strength in the voice. A transitioning singer's voice is more likely to stabilize and improve in range with a daily practice routine that incorporates these exercises. While estrogen/androgen therapy does not change the size of the vocal folds and does not significantly alter the voice's sound, these exercises can still assist individuals aiming to speak or sing at a higher pitch.

Each transgender and gender-expansive singer will have unique goals for their voice, and music teachers must tailor their teaching methods to align with their student's individual needs and desires. There are strong correlations between a person's voice in relation to their gender expression and their overall satisfaction and well-being.

## Foreword: Terminology

Many individuals who do not identify with their sex assigned at birth do not consider themselves transgender but rather gender fluid, genderqueer, non-binary, and a variety of other expressions. The term “gender expansive” has recently become an umbrella term for non-cisgender individuals. To be inclusive towards all gender expressions that are not cisgender, the term TGE (transgender and gender expansive) will be used.[1]

In some instances, the term trans*+ will be used, defined as “an inclusive label for diverse gender identities beyond the cisgender binary, emphasizing fluidity and expansiveness.”[2] When referring to a woman who was assigned male at birth, the term trans*+ woman will be used. When referring to a man who was assigned female at birth, the term trans*+ man will be used. The terms “male-to-female” (MtF) and “female-to-male” (FtM) are criticized for being outdated, over-medicalized, and insensitive.[3] Instead, “Assigned female at birth” (AFAM) and “assigned male at birth” (AMAB) will be used.

[1] Stevie J. Hirner, “(Trans)Itioning Voices: Inclusivity through Line Recombination.” The Choral Journal 63, no. 4 (2022): 8.
[2] Christopher Cayari, “Demystifying Trans+ Voice Education: The Transgender Singing Voice Conference,” International Journal of Music Education 37, no. 1 (2019): 118.
[3] Hirner, “(Trans)Itioning Voices: Inclusivity through Line Recombination,” 8.

## Introduction

One in 250 adult Americans identifies as transgender, and that number is likely larger when including all non-cisgender expressions.[4] As a choir director, voice teacher, or other collaborative musician, one is likely to have engaged with individuals who identify as TGE, whether within ensembles, voice studios, or audiences. It is well-known that TGE people face many societal disadvantages and discrimination, and music educators must play a role in creating safe spaces for TGE students. Since vocal music is a vulnerable art form that utilizes the entire body, vocal and choral teachers must create environments where all of their students, regardless of gender identity, feel safe to express themselves. This is not just achieved through advocacy, inclusive language, and teaching methods, but also understanding the voice changes that many TGE singers experience if they choose to undergo hormone therapy.

Gender-affirming hormone therapy (GAHT) is a type of treatment for individuals experiencing gender dysphoria, which is "a transgender identity that is 'associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning' as defined by the Diagnostic and Statistical Manual of Mental Disorders."[5] Because of the varying administration methods, overall results and vocal changes vary widely between patients. Although there is recent research on the topic, advocacy for TGE individuals is historically undervalued, so the data remains limited. That being said, there are helpful studies and literature from speech therapists and vocal coaches who have worked with TGE patients, whether their goals are to change their speaking, singing, or both. Applying this knowledge to vocal coaching sessions and choral rehearsals is essential to the physical and emotional

---

[4] Esther L. Meerwijk and Jae Sevelius, "Transgender Population Size in the United States," American Journal of Public Health 107, no. 2 (2017): e1.
[5] Tamar Reisman and Roy Zucker, "Medical Management for Transgender Patients," in *Voice and Communication in Transgender and Gender Diverse Individuals: Evaluation and Techniques for Clinical Intervention.* 1st ed. 2023. Springer International Publishing (2023): 7.

comfort of TGE singers, and every music educator should know how to train a voice student undergoing GAHT.

**Understanding Gender-Affirming Hormone Therapy**

Although not all TGE individuals experience gender dysphoria, many pursue GAHT to address gender dysphoria or to align more closely with their authentic sense of self.[6] Some TGE individuals don't seek hormonal treatment at all. For AMAB TGE individuals (who may be referred to as trans*+ women) seeking GAHT, estrogen, and anti-androgen hormones are administered, "Aim[ing] to decrease T to the female range (<100 ng/dL) while avoiding supra-physiological levels of estradiol (>200 pg/mL)."[7] For AFAB TGE patients (who may be referred to as trans*+ men), testosterone is administered and "titrated to achieve a mid-normal male physiological range (300-1000 ng/dL)."[8]

There are several methods of administering testosterone therapy available to trans*+ men. The most recommended method by doctors is injection because it is fast-acting, does not require daily dosages, and can be cost-effective. Patients can schedule injection appointments that fit their schedules and budgets. However, this can mean that injections are inconsistent, leading to a lack of stability in physical (and vocal) changes. The testosterone patch is a better alternative for those seeking consistency since it is a low dose every day; however, it is gradual. The testosterone pellet is a slow-working method as well, absorbing the hormone beneath the skin. Although the patch and pellet can be easier to manage because the low doses are more predictable, these methods may not be ideal for patients who wish to relieve gender dysphoria in a relatively short amount of time. Testosterone transdermal gel can be applied at a consistent rate, but its concentration is higher and more unpredictable than the patch, which can result in

[6] Reisman and Zucker, "Medical Management for Transgender Patients," 7.
[7] Ibid, 9.
[8] Ibid, 13.

rapid changes. The most ideal option for those seeking consistent administration is the testosterone pill because the dose is controlled.[9] For most TGE individuals undergoing testosterone GAHT, the factors that influence their choice of administration method are finances, insurance coverage, availability, general preference, and desired outcomes.

The estrogen and anti-androgen hormonal therapies available for trans*+ women are similar in administration methods, but in terms of vocal change, “Testosterone therapy is the only type of hormone therapy that permanently changes the voice and most often results in a dramatic lowering of a person's spoken fundamental frequency.”[10] It is important to acknowledge the physical and psychological changes that trans*+ women experience during and after estrogen treatment, but the changes to the voice are minimal.

An option for trans*+ women who are looking to make significant changes to their voice is a glottoplasty. This surgical procedure, which modifies the glottis, was not commonly performed for transgender and gender-expansive (TGE) individuals until the 1980s.[11] The technique varies based on the patient’s goals and can involve tissue removal or augmentation. Glottoplasty is typically conducted under general anesthesia and can be performed through direct laryngoscopy or, in some cases, an external incision. While glottoplasties offer a viable option for those wanting to alter their voice, access to this procedure is limited for many individuals due to its cost and the risks associated with surgery. According to the 2015 US Transgender Survey (USTS), which analyzed responses from over 30,000 transgender individuals across the United States, vocal feminization was one of the most sought-after

[9] Tessa Romano, “Types of Testosterone Therapy and their Effects on the Voices of Transgender Singers,” Journal of Singing 78, no. 3 (2022): 332-334.
[10] Ibid, 327.
[11] Max Lichtenstein, “Strategies for Evaluating Patients’ Readiness for Surgical Intervention,” in *Voice and Communication in Transgender and Gender Diverse Individuals: Evaluation and Techniques for Clinical Intervention.* 1st ed. 2023. Springer International Publishing (2023): 17.

therapies among transgender women, although vocal surgeries such as glottoplasty were less desired.[12]

**Vocal Changes**

The primary change in the vocal mechanism for individuals undergoing testosterone therapy is the thickening of the vocal folds. Testosterone therapy is often likened to male puberty. However, during gender-affirming hormone therapy (GAHT), the thickening of the vocal folds does not occur to the same extent as it does during male puberty. The “voice drop” associated with male puberty can occur quickly over a few months; however, the comprehensive transformation extends over several years. Conversely, trans*+ men undergoing hormone therapy can experience drastic changes, including vocal fold thickening, within the initial four months of treatment. Furthermore, no evidence suggests that the vocal folds lengthen during testosterone treatment. The absence of vocal fold lengthening is likely due to the increased rigidity of the laryngeal cartilage in adulthood, which limits the potential for growth in the vocal folds.

Some individuals taking testosterone experience entrapment, which is “the encasing of thickened vocal folds within an already established laryngeal structure resulting in a highly pressurized, weak, and permanently hoarse sound that lacks the ‘right’ harmonics.”[13] Entrapment is more likely to occur in testosterone recipients over the age of forty. Research has shown that older trans men who receive testosterone may experience permanent hoarseness due to improper descent of the larynx. Additionally, overusing the voice can lead to extralaryngeal tension and excessive adduction of the vocal folds, contributing to the problem. In the early stages of their transition, some trans men may push their voices to fit into typical cisgender male sound patterns, but attempting to force low notes or expedite vocal changes can

[12] Lichtenstein, “Strategies for Evaluating Patients’ Readiness for Surgical Intervention,” 18.
[13] Romano, “Types of Testosterone Therapy and their Effects on the Voices of Transgender Singers,” 329.

result in hyperfunctional voice production. This, in turn, may cause permanent damage or reduce the flexibility of the vocal folds. Other possible issues include phonation breaks, challenges with register blending, and limited vocal flexibility, all of which can arise from the extreme and sometimes unpredictable changes that occur during testosterone therapy.

In a 2021 survey conducted by Hancock, Childs, and Irwig, which continued their research from 2017, seven trans*+ men underwent two vocal assessments before gender-affirming hormone therapy (GAHT) and one assessment at the 3, 6, 9, and 12-month intervals. The primary vocal qualities examined were the mean fundamental frequency (MF0) and the phonation frequency of the voice. The findings indicated that the mean fundamental frequency (MF0) during reading decreased, though this occurred to varying degrees and at differing rates. Additionally, the phonation frequency range shifted downward; however, some participants experienced an increase in range while others saw a decrease.[14] This aligns with other data indicating that not all trans*+ men experience substantial changes in their vocal range or develop a lower voice. Moreover, even when trans*+ men do experience a lowering of their voice, the resonance still differs from that of cisgender males.

> "The typical lack of cartilaginous growth coupled with vocal fold thickening in transgender recipients of testosterone results in a unique vocal timbre, which might be characterized as a lean sound. While speech masculinization techniques can help "round" resonance for those who would like to have a vocal timbre closer to cisgender "male" voices, some timbral differences will always be present. Additionally, the singing voice after testosterone therapy will never completely resemble the typical range and tessitura of a cisgender tenor, baritone, or bass."[15]

[14] Adrienne B. Hancock, Kayla Childs, and Michael Irwig. "Trans Male Voice in the First Year of Testosterone Therapy: Make No Assumptions." Journal of Speech, Language, and Hearing Research 60, no. 9 (2017): 2472–82.
[15] Romano, "Types of Testosterone Therapy and their Effects on the Voices of Transgender Singers," 329.

**Recommended Vocal Exercises for Changing TGE Voices**

Whether a TGE individual is looking to sing and speak at a higher pitch (a common desire among trans*+ women) or looking to sing and speak at a lower pitch (a common desire among trans*+ men), speech pathologists and vocal coaches generally recommend the same foundational exercises for vocal modification: activities that connect breath to sound. Anyone aspiring to sing healthily and sustainably must engage their breathing muscles, which include the lower abdominal muscles, obliques, and intercostal muscles located beneath the ribcage. Singers should practice taking full, deep breaths, focusing on expanding their midsection and ribcage rather than elevating their shoulders or puffing out their chests. Engaging in a deep breath, followed by activating the breathing muscles, leads to supported and healthy phonation. There are various methods available to train for proper breath utilization.

Semi-occluded vocal tract (SOVT) exercises are the most widely recommended methods for training breath support and healthy onset. “Because of the relative occlusion, the sound produced is not very loud and the force with which the vocal folds collide is minimized. Thus, the client may be free to engage fully the breathing system and experience the strong vibratory sensation of forward oral resonance without the inhibition sometimes associated with making loud sounds, and without the concern of phonotrauma.”[16] Some examples of SOVT exercises include humming, lip or tongue trilling, singing an [u] vowel through a straw, or singing on a voiced consonant such as [z] or [v].

**10-Minute Vocal Exercise Sequence for Trans*+ Individuals During GAHT**

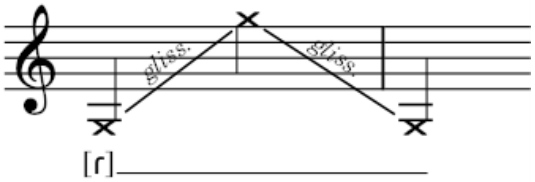
Note: The written keys are just for reference. Start in a comfortable key, and go up or down by half steps as desired.

---

[16] Alison Behrman and John Haskell, *Exercises for Voice Therapy, Third Edition.* 3rd ed. Plural Publishing, Inc., 2020: 115.

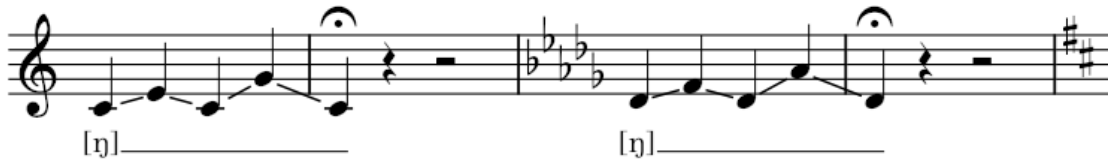
1. **Posture alignment:** Spend a couple of minutes stretching, rolling the shoulders, bending the knees, massaging the neck muscles, etc. The goal is to create a relaxed but open posture.
2. **Deep breathing:** Inhale through the nose for 4 counts, then exhale through the nose for 4 counts. Repeat this a few times until relaxed breathing is achieved. Then, repeat and breathe through the mouth. Breathe quietly and evenly, and focus on expanding the midsection, lower back, and ribcage. Do not let the chest or shoulders rise during inhalation.
3. **Breath support:** Inhale through the mouth for 4 counts, then exhale on a [s] for 8 counts. With each repetition, increase the exhalation period to 12 counts, then 16, then 20. Tip: Place hands on hips and feel the expanse of the midsection during inhalation. Stay in the mode of inhalation, keeping the ribcage open during exhalation.
4. **Siren (range reinforcement):** Start on a low pitch and gradually slide on rolled [r] to a comfortably high pitch, then slide back down to the starting pitch. If a rolled [r] is not achievable or preferred, slide on a vowel, starting with [u] and opening to [a] towards the higher end of the register, then closing back to [u] when coming back down. (Do not force uncomfortable high or low notes.) Voice cracks are normal and will not damage the voice. (See figure 1.)

Figure 1. Glissando vocal exercise.



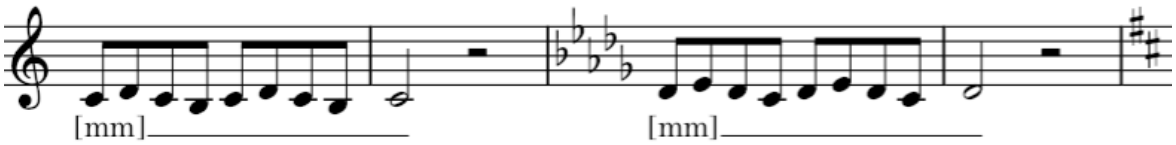

5. **SOVT (connecting breath to sound).** Sing the following pattern on a [ŋ], [v], [z] or all three. Slide from note to note slowly (figure 2):

Figure 2. Semi-occluded vocal tract exercise, sliding up and down in a triadic pattern of increasing intervals.



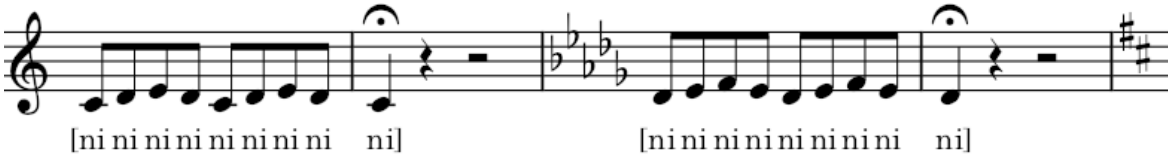

6. **Humming (connecting breath to sound).** Hum with the mouth closed, keeping the jaw relaxed and leaving space between the top and bottom teeth (figure 3):

Figure 3. Humming (semi-occluded vocal tract) exercise, up and down in an interval of a second.



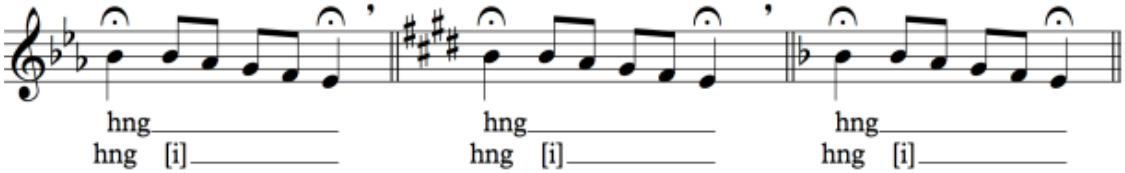

7. **Closed vowels.** Sing on [ni], making sure to sing through the [n] consonant (figure 4):

Figure 4. Closed vowel vocal exercise, sung on [ni], up and down in an interval of a second.



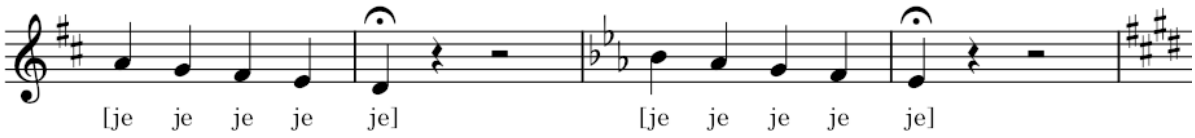

8. **Closed vowels.** Start the exercise on [hng], and then on the second note of the exercise, open to [i]. Keep the tongue lifted in the back of the mouth, just as it was for the onset of [hng]. Staying on [hng] for the whole exercise is another option (figure 5):

Figure 5. Vocal exercise starting on the SOVT [hng] and moving to closed vowel [i].[17]




9. **Closed vowels.** Sing on [je], making sure to keep the jaw relaxed and stable with each note (figure 6):

Figure 6. Closed vowel vocal exercise with glide [j] onset on a descending 5-note major scale.




**Exercises for Trans*+ Women**

Although AMAB individuals who receive estrogen/androgen hormone therapy do not experience any significant changes in the vocal folds or laryngeal structure,[18] there are still ways that trans*+ women can train their voices to speak and sing in a higher range if desired. If a trans*+ woman already has a comfortable and established falsetto voice, she can continue singing in her falsetto, which would likely classify her as an alto or soprano in a choral setting. She could also work to increase the vocal range of her chest/modal voice by doing semi-occluded vocal tract exercises to establish resonance and breath support. Speech pathologist Shelagh Davies recommends the following exercise:

[17] Gerald Dorsey Gurss, “Translucent Voices: Creating Sound Pedagogy and Safe Spaces for Transgender Singers in the Choral Rehearsal.” ProQuest Dissertations & Theses, 2018: 71.
[18] Ibid, 63.

"...The clinician and client find a speaking pitch that is either in gender neutral or low cisfemale range and can be produced without strain. This is used as a training pitch and is prolonged using semi-occluded-vocal-tract techniques. Speech sounds, words, then longer utterances are intoned then modulated in a natural way, always keeping the voice easily produced without the need for excessive vocal effort."[19]

Davies also recommends singing a three-note scale (e.g., do-re-mi) and having the client hold the third note to train vocal comfort at higher pitch levels. She suggests having the client start sessions with their natural speaking voice and then slowly raise their voice higher (without straining) as the session progresses. These methods, combined with daily vocal exercises, can ease the vocal folds into speaking and singing at a higher pitch without causing damage or fatigue.

Sometimes, to sound or be perceived as more "feminine,"[20] trans*+ women will produce a breathier sound than is healthy for long-term vocal production. This is called hypofunctional phonation, which is "the failure to demand enough appropriate activity of the laryngeal mechanism."[21] The use of SOVTs and closed vowels is recommended for correcting this habit. Often, singers (of any voice type or gender) experience hypofunctional phonation because they have poor posture and/or breath support. Some possible ways to encourage better breath support and posture are:

1. Sing or vocalize while stretching a resistance band apart with both hands in front of the chest, keeping the elbows slightly bent.
2. Sing or vocalize while holding a plank position against the wall.

---

[19] Shelagh Davies, Viktória Papp, and Christella Antoni, "Voice and Communication Change for Gender Nonconforming Individuals: Giving Voice to the Person Inside." *International Journal of Transgenderism* 16 (3): 134.
[20] J. Van Borsel, G. De Cuypere, R. Rubens, and B. Destaerke, "Voice Problems in Female-to-Male Transsexuals." *International Journal of Language & Communication Disorders* 35, no. 3 (2000): 427–42.
[21] James C. McKinney, *The Diagnosis & Correction of Vocal Faults: A Manual for Teachers of Singing & for Choir Directors.* Waveland Press, 2005: 82.

3. Sing or vocalize while wearing a belt around the waist, ensuring it is tightened just enough that the belt will fall if the ribcage collapses.
4. Shout “Hey!” as if calling for someone across the room.
5. Use [h] onsets to train balanced onset (ex. Singing [hi hi hi] or [ho ho ho]).
6. Imitate an opera singer.

**Psychological Implications**

TGE individuals often experience feelings of stress, anxiety, and isolation. This can be caused by a lack of support from family or friends, feelings of gender dysphoria, fear of being targeted for their identity, anti-LGBTQ+ politics and rhetoric, religious trauma, and more. Stress can cause a lack of sleep, poor eating habits, a compromised immune system, and difficulty concentrating, all of which affect how someone participates in a rehearsal. Additionally, the singing mechanism can be greatly impacted by stress. Some symptoms include dry throat, hoarseness, excessive throat-clearing, tremor, restricted range, lack of breath support, and more.[22] Even a singer’s resonance and harmonics can change and become less optimal under stress. So, it is important to remember that if a TGE singer is experiencing vocal problems, it may not just be due to their hormonal treatment.

The relationship between voice and identity must also be considered. Early studies on trans*+ voices looked primarily at how one’s fundamental speaking/singing frequency ($F_0$) affected their perception of gender. However, more recent studies have shown that there is a much more complex relationship between vocal communication and one’s sense of self.[23] In a study conducted by Emma J.M. McNeill et al., the data concluded that trans*+ women’s $F_0$ did

[22] Willy A.R. Wellens and Magda J.M.C. van Opstal, “A Comprehensive Model of How the Stress Chain Affects Voice.” In *Emotions in the Human Voice. Volume 2, Clinical Evidence*, edited by Krzysztof Izdebski. Plural Publishing, Inc., 2008.
[23] Shelagh Davies et al., “Voice and Communication Change for Gender Nonconforming Individuals: Giving Voice to the Person Inside.”

not correlate with their vocal satisfaction. Instead, their vocal satisfaction largely relied upon how others perceived their femininity.[24]

Similarly, since vocal satisfaction often correlates with perceived gender, pushing TGE singers to reach their vocal goals too quickly can cause anxiety, stress, or increased feelings of gender dysphoria. Having trans*+ men sing in their falsetto can also cause gender dysphoria if they are not comfortable or ready to sing in a range that is typically perceived as “feminine.” Having trans*+ women sing in their lower range could cause the same anxiety or stress. While many trans*+ singers are comfortable in their pre-transition voices, it is an important aspect of gender identity to take into account.

**Voice Teachers’ Perspectives on TGE Singers’ Experiences in the Studio**

In a study conducted by Brian Manternach et al., voice teachers across the United States were interviewed about their experiences with TGE voice students.[25] They described how their work with trans*+ singers affected their pedagogical methods. The first interviewee, Michael Chipman, is the Assistant Professor of Music at Westminster College in Salt Lake City, Utah. He taught a 22-year-old trans*+ woman, named T.G., who wanted to remain a bass-baritone during and after she transitioned. Chapman expressed that he did not change his teaching methods during T.G.’s transition, and T.G. continued to sing bass-baritone repertoire. She did not express any desire to take hormones or other surgical procedures as she transitioned.

Although Chapman did not change his pedagogical approach with T.G., they did have several conversations about repertoire. When T.G. first came out to Chapman, she conveyed her feelings of anxiety towards continuing to sing with a lower voice as a trans*+ woman. She

[24] Emma J.M. McNeill et al., “Perception of Voice in the Transgender Client.” Journal of Voice 22 (6): 727-733.
[25] Brian Manternach, Michael Chipman, Ruth Rainero, and Caitlin Stave, “Teaching Transgender Singers. Part 1: The Voice Teachers’ Perspectives.” *Journal of Singing* 74, no. 1 (2017): 83-88.

was worried about being cast in male roles or having to sing heavily male-gendered music. Chapman says, “We talked at length about this, and after discussing the fact that opera is and has always been replete with gender-bending roles (pants roles for women, castrati, etc.), T.G. seemed content to settle into her new identity as a woman with an extremely low voice who may occasionally have to dress in "drag" to play male roles.”[26] Chapman also recommended that T.G. sing art songs written for women but transposed to a comfortable key (ex. “Gretchen am Spinnrade” by Franz Schubert and “Frauen-Liebe und Leben” by Robert Schumann). As T.G. became comfortable as a trans*+ woman with a bass-baritone voice, she was able to explore the fluidity of classical singing, especially through art song. Chapman reported that T.G. planned to continue her voice studies at the graduate level.

The second participant in the study was Ruth Rainero, a private voice teacher based in San Francisco. In 2014, she started working with a voice student, E.F., who had been singing professionally for decades but lived with gender dysphoria and decided to start testosterone therapy at age 50. Since E.F. was a trained vocalist, he knew that testosterone treatment would be risky, but he was willing to try in order to feel more like himself and be entirely comfortable with his identity as a trans*+ man. E.F. dealt with significant vocal changes during his hormone treatment and Ruth returned to voice basics in every lesson: breath support, passagio management, and vowel formation/modification. Even though E.F. had been singing professionally for years, he was dealing with a new instrument that was changing daily. Ruth states, “Although every singer presents slightly differently at each lesson – influenced by physical, emotional, and psychological circumstances – these differences are minuscule compared to the wildly swinging pendulum that was E. F.'s voice in transition.”[27]

---

[26] Brian Manternach et al., “Teaching Transgender Singers. Part 1: The Voice Teachers' Perspectives,” 84.
[27] Ibid, 85.

After three years of Ruth working with E.F. once a week, he had made good progress. His baritone range was growing and stabilizing ($C_3$-E♭$_4$ as of April 2017), but still too limited to sing standard opera and oratorio repertoire. However, Ruth continued to assign E.F. art song repertoire, transposing as necessary. In her words, “Only time will tell whether E. F. will eventually gain the minor third below and above his current range that he needs in order to re-enter the professional singing world.”[28]

These interviews prove the importance of considering each student’s unique desires and needs during transition. Some singers, like T.G., want to train their voices just as they had before transitioning. Others, like E.F., knew that changing their voices would help their feelings of gender dysphoria. Additionally, a singer’s voice type is not the only consideration. Conversations about appropriate repertoire are just as important in assisting trans*+ singers in feeling comfortable exploring their identities through singing.

[28] Ibid, 86.

## Conclusion

In conclusion, the integration of specialized vocal training methods is vital for the physical and emotional well-being of TGE singers. Music educators play a crucial role in fostering an inclusive and supportive environment where all vocalists can thrive. By consistently implementing vocal exercises that enhance posture, breath control, healthy phonation, and gradual range extension, educators can empower TGE singers to develop sustainable vocal habits that align with their individual identities and vocal goals. Acknowledging the diverse approaches of trans*+ singers—whether they wish to maintain their pre-transition voice category or explore new ranges—is essential. Ultimately, creating a voice studio or rehearsal space that celebrates and intentionally includes queer musicians not only enriches their musical experiences but also ensures that every singer feels safe and valued to explore their artistry.

**Bibliography**

Adler, Richard K., Sandy Hirsch, and Jack Pickering. *Voice and Communication Therapy for the Transgender/Gender Diverse Client: A Comprehensive Clinical Guide.* 3rd ed. San Diego: Plural Publishing, Inc., 2018.

Behrman, Alison, and John Haskell. *Exercises for Voice Therapy, Third Edition.* Vol. Third edition. San Diego, CA: Plural Publishing, Inc., 2020.

Constansis, Alexandros N., and Aglaia Foteinou. 2017. "Case Study of a Performance-Active Changing Trans* Male Singing Voice*." *Voice and Speech Review* 11 (2): 154–75. doi:10.1080/23268263.2017.1383555.

Cayari, Christopher. "Demystifying Trans+ Voice Education: The Transgender Singing Voice Conference." *International Journal of Music Education* 37, no. 1 (2019): 118–31. https://doi.org/10.1177/0255761418814577.

Cler, Gabriel J., Victoria McKenna, Kimberly Dahl, and Cara Stepp. "Longitudinal Case Study of Transgender Voice Changes Under Testosterone Hormone Therapy." *Journal of Voice: Official Journal of the Voice Foundation* no. 34,5 (2020): 748-762. doi:10.1016/j.jvoice.2019.03.006.

Courey, Mark S., Sarah Rapoport, Leanne Goldberg, and Sarah Brown. *Voice and Communication in Transgender and Gender Diverse Individuals: Evaluation and Techniques for Clinical Intervention.* 1st ed. 2023. Cham: Springer International Publishing, 2023. https://doi.org/10.1007/978-3-031-24632-6.

Davies, Shelagh, Viktória Papp, and Christella Antoni. 2015. "Voice and Communication Change for Gender Nonconforming Individuals: Giving Voice to the Person Inside." *International Journal of Transgenderism* 16 (3): 117–59. doi:10.1080/15532739.2015.1075931.

Romano, Tessa. "Types of Testosterone Therapy and Their Effects on the Voices of Transgender Singers." *Journal of Singing* 78, no. 3 (2022): 327–36. https://doi.org/10.53830/GFWW5031.

Hancock, Adrienne B., Kayla Childs, and Michael Irwig. "Trans Male Voice in the First Year of Testosterone Therapy: Make No Assumptions." *Journal of Speech, Language, and Hearing Research* 60, no. 9 (2017): 2472–82. https://doi.org/10.1044/2017_JSLHR-S-16-0320.

Gurss, Gerald Dorsey. "Translucent Voices: Creating Sound Pedagogy and Safe Spaces for Transgender Singers in the Choral Rehearsal." ProQuest Dissertations & Theses, 2018.

Gurss, Gerald Dorsey. “A Brief Discussion of the Potential Vocal Hurdles for Singers Who Are Trans and Suggested Vocalises for Navigating a New Voice.” *The Choral Journal* 60, no. 9 (2020): 73–84. https://www.jstor.org/stable/27033868.

Hirner, Stevie J. “(Trans)Itioning Voices: Inclusivity through Line Recombination.” The Choral Journal 63, no. 4 (2022): 6–23. https://www.jstor.org/stable/27190715.

Manternach, Brian, Michael Chipman, Ruth Rainero, and Caitlin Stave. "Teaching Transgender Singers. Part 1: The Voice Teachers' Perspectives." *Journal of Singing* 74, no. 1 (Sep, 2017): 83-88. https://libezproxy.syr.edu/login?url=https://www.proquest.com/scholarly-journals/teaching-transgender-singers-part-1-voice/docview/1938589679/se-2.

McKinney, James C. *The Diagnosis & Correction of Vocal Faults : A Manual for Teachers of Singing & for Choir Directors*. Long Grove, Il: Waveland Press, 2005.

McNeill, Emma J.M., Janet Wilson, Susan Clark, and Jayne Deakin. “Perception of Voice in the Transgender Client.” *Journal of Voice* 22, no. 6 (2008): 727-733. doi:10.1016/j.jvoice.2006.12.010

Meerwijk, Esther L., and Jae Sevelius. “Transgender Population Size in the United States: a Meta-Regression of Population-Based Probability Samples.” *American Journal of Public Health* 107, no. 2 (2017): e1. https://doi.org/10.2105/AJPH.2016.303578.

Van Borsel, J., G. De Cuypere, R. Rubens, and B. Destaerke. “Voice Problems in Female-to-Male Transsexuals.” *International Journal of Language & Communication Disorders* 35, no. 3 (2000): 427–42. https://doi.org/10.1080/136828200410672.

Wellens, Willy A.R., and Magda J.M.C. van Opstal. “A Comprehensive Model of How the Stress Chain Affects Voice.” In *Emotions in the Human Voice. Volume 2, Clinical Evidence*, edited by Krzysztof Izdebski. Plural Publishing, Inc., 2008.