

# The Evolution of the Female Broadway Belt Voice: Implications for Teachers and Singers

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**Summary: Background.** Traditionally, the female belt range extended to C5, but in current rock/pop Broadway productions, women are often required to belt up to an F5. This recent extension of the belt voice beyond C5 is a significant change, and female musical theater singers need effective strategies to produce these higher belt notes.

**Objective.** The intent of this study was to gain a clear understanding of the strategies used to successfully teach and produce the higher range of the female musical theater belt voice.

**Methods.** The study is a qualitative design composed of two data collection methods: interviews with four nationally recognized master musical theater voice teachers and 17 of their female belt students, and observations of the master teachers working with these students in their private studios.

**Results.** There was much consensus among the teachers and singers on the strategies of producing the higher belt range, such as incorporating more head voice involvement with closed vowels and maintaining a speech-like quality. Singers report that they produce high belt notes with more of a mix vocal approach. Teachers suggest that female voice type may determine the extent of a singer's ability in this high belt range.

**Conclusions.** The high belt will be narrow, based on closed vowels, mixing in some degree of head voice function. Although this study has revealed some guidelines for the female musical theater high belt and similar strategies among master teachers, voice teachers should be aware of the variability of their female musical theater voice students.

**Key Words:** Female belting–Belt voice–Musical theater–Broadway–High belt–Contemporary belt–Teaching–Singing.

## INTRODUCTION

Female belt singing is an established form of female vocal production, and the demands for this type of singing in musical theater are increasing and evolving. The female musical theater belt voice emerged on the musical comedy stage at the beginning of the 20th century as a way for the unamplified female voice to be heard in its middle, more speech-like range.<sup>1</sup> Thus, the Broadway belt sound emerged as female musical theater singers reworked their vocal approach to sound more like speech in the range of C4 to C5. The original Broadway belt sound is most often credited to Ethel Merman in the 1930 Gershwin production of *Girl Crazy*. In this production, Merman sustained a C5 in the song "I Got Rhythm" with a powerful sound, giving her, and the Broadway belt sound, immediate recognition.<sup>2</sup> Currently, within musical theater singing, the female belt is the most archetypal sound.

The traditional female belt range, exemplified by singers like Ethel Merman and Patti LuPone, typically extended to a C5. However, in a little over a decade, the range of the female belt voice has changed more drastically than in the previous 7 decades because of the rapid increase of the rock/pop musical. On the basis of the July 2012 theatrical listings found in *Playbill*, 14 of the 25 musicals being produced on Broadway were written in the style of the rock/pop musical. In rock/pop inspired productions, such as *Wicked* (2003) and *Heathers*

(2014), women are now required to sound like rock/pop singers and produce the belt sound to the top of the staff and beyond, up to an E5 and F5.<sup>3</sup> This higher extension of the female musical theater belt voice, demonstrated by singers like Idina Menzel and Eden Espinosa, is a significant change. Similar to how female musical theater singers had to adjust their singing technique to produce the Broadway belt sound in the 1930's, current female musical theater singers have had to adjust their vocal strategies to sing these higher belt notes.

One of the unique characteristics of the female belt voice is that it is often defined by what it is not: the classical voice. It is generally accepted that the physicality of the female musical theater belt sound is produced by a different set of vocal functions than those of classical singing.<sup>3</sup>

Determining the specifics of those vocal functions is challenging to establish. Studies aiming to define the traditional belt range (to C5) through physical and acoustic characteristics of the belt voice have produced inconclusive data.<sup>4</sup> Furthermore, at the time of the research of this article, little research has been published on the physical or acoustic characteristics of the female belt voice in the higher range above C5.

Voice teachers have differing views on the physical characteristics of belting and mainly debate its registration. Perhaps the oldest and most prevalent belief is that belt singing is completely a thyroarytenoid (chest voice) function that is forced beyond its typical classical vocal range of E4 or F4, thus deeming it a controversial technique.<sup>5</sup> Yet, many voice teachers believe that belting is a chest voice dominant function that also uses mechanisms of cricothyroid (head voice) function. These teachers believe that the belt sound is created using a mix of the chest and head registers, particularly as the pitch ascends. However, for some voice teachers who consider all singing, regardless of style or genre to be created by a mix or

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blend of vocal registers, this limiting definition of the belt voice is problematic.<sup>6</sup>

Because the physical characteristics of belting are unclear, the techniques and pedagogy for this style of singing are also unclear. The numerous techniques and beliefs used to teach female belt singing are often contradictory and most voice teachers at colleges and universities do not have specific training in musical theater singing because it is such a recent area of academic study.<sup>7</sup>

Voice teachers in academia, public schools, and private studios are encountering a growing population of students wanting to study and perform this genre, yet its pedagogy remains unsettled. A synthesis of successful and reputable teaching of the belt singing technique, particularly the more recent higher range of belting, seems to be lacking, even while the style continues to be modeled and used on Broadway. This complicated singing style must be taught carefully to create the specific and age-appropriate sound, while avoiding vocal damage. Therefore, to appropriately address the needs of female musical theater singers, established and effective strategies for teaching the high belt voice are needed.

## METHODS

### Overview of method

The purpose of this study was to explore high belt singing with four master teachers of the style, to determine the extent to which they use common techniques to teach this skill and agree on general characteristics of its parameters. To carry out this purpose, the following research questions were explored:

1. What strategies do teachers use to train the high belt technique?
2. What strategies do singers use to produce the high belt technique?

To answer these questions, the study was a qualitative design composed of two data collection methods: interviews with four nationally recognized master musical theater voice teachers and 17 of their students, and observations of the master teachers working with these students in their private studios.

### Role of researcher

The researcher has been a female musical theater belter for over 25 years. The researcher's development as a belter began before the progression of the higher female belt range, and traditional female beltters have been greatly influential on the researcher's belt voice and preferences. Understanding the current industry demands of musical theater, the researcher wanted to remain open-minded to the strategies and styles associated with the high female belt production to help voice teachers connect to this material. From an educational standpoint, the researcher has served as head of several collegiate musical theater degree programs, primarily teaching voice lessons to musical theater students. In qualitative research, the experience and knowledge of the researcher is considered to be a benefit to the study. In this way, the researcher's personal experience with the female

musical theater belt voice, from performance and educational perspectives, was beneficial for analyzing the results of the observations and facilitating the interviews of this study.

### Research approach

Female musical theater high belt pedagogy was examined through the lens of qualitative research, using interviews and observations to create case studies of four nationally recognized master teachers. Case studies can reveal "knowledge we would not otherwise have access to."<sup>8</sup> Observing voice lessons in the studios of master teachers gave access to a typically private occurrence. Qualitative interviews were used to gather data and insights on how teachers and singers work with the female musical theater belt voice.<sup>9</sup> The interviews were semistructured and exploratory to allow the teachers' and singers' experiences with female musical theater belt pedagogy and production to be heard.<sup>10</sup> Interviewing the teachers and their students, and observing their work in private voice lessons, gave direct access to the process of female musical theater belt pedagogy.

Detailing the context of teaching female musical theater singers to belt in a voice lesson is imperative to understanding its comprehensive pedagogy. To document "human behavior and experience in context," portraiture approaches were used during the observations and interviews, and this approach also considers the background of the researcher to be essential to the outcome of the research.<sup>11</sup> In this way, the researcher's experience as a female musical theater belter and teacher was an asset for this study.

To create the case study of each master teacher, at least 2 days were spent at their private studio, interviewing and observing them. Each master teacher was observed during eight-hour-long lessons, for total of 32 hours of observations. Field notes were taken during these observations to capture the overall experience of the voice lessons and specific high belt singing techniques and exercises. The master teachers and their students were also interviewed, yielding a total of 13 hours of interviews. These interviews were audio-recorded and transcribed. To increase validity, the transcribed interviews were sent to each master teacher and student via e-mail for member checks.

### Participants

The principal participants of this study were four nationally recognized voice teachers who primarily teach musical theater singers. For a balanced perspective, two male and two female participants were selected. The master teachers' age range is between 45 and 65 years. Additionally, 17 students of the master voice teachers were interviewed. These students were female musical theater singers, and their age range was between 18 and 40 years.

### Recruiting

Because of the evolving nature of the discipline, having hands-on teaching experience with female musical theater singers is imperative for understanding its current pedagogy. With this in mind, four master teacher participants were identified as having at least 15 years experience teaching musical theater

singing in a musical theater conservatory, university, or private studio setting; current practical work with musical theater professionals in the field; past and/or current students performing on Broadway; personal professional performance experience in musical theater; active participation in nationally recognized voice organizations such as the Voice Foundation and the National Association of Teachers of Singing; and contributing to musical theater singing research and publication. Each master teacher participant was asked to select at least three of their female musical theater students for purposes of observing them work on the belt technique in a voice lesson setting. The master teachers were asked to select the students on the basis of the following criteria: performance credits in musical theater or participation in a musical theater undergraduate or conservatory program; the ability to produce the belt technique. A total of 17 students participated in the study. All participants complied with IRB protocol, and to maintain anonymity, pseudonyms were used.

**Setting**

The observations and interviews with the master teachers took place in their private studios. Geographically, the voice teachers were located in New York City or the surrounding areas. Because of the demands of Broadway, New York City is the center of musical theater performance. Therefore, the teachers and students of this study were located in the New York City area to remain active in the musical theater business.

**Plan of analysis**

The data from the interviews and field notes from the observations were analyzed in three sections. The interview responses and field notes from the teachers were compared for similarities, differences, and emergent themes. Similarly, the interview responses and field notes from the singers were also analyzed in this manner. Finally, a cross comparison of the responses of the teachers and the singers was analyzed for consensus or conflicting information on female musical theater high belt pedagogy.

**RESULTS**

This section includes a case study of each master teacher, created from the interviews and observations of the master teachers, as well as interviews with their students.

Although many commonalities emerged from interviews and observations of the master teachers, each teacher had preferred strategies for the female belt voice. These strategies were often not unique or even incompatible with each other. Each master teacher simply seemed to favor certain aspects of technical work more than the other teachers. A brief description of the preferred strategies of the master teachers can be found in [Table 1](#).

**Case study of master teacher—“Veronica”**

Veronica has been teaching at a prominent musical theater conservatory in New York City for 17 years. She was the director of this conservatory, as well as the chair of the voice and music department. Her doctorate was in Vocal Performance, focusing on classical vocal performance. Professionally, she has played

**TABLE 1.**  
**Master Teachers’ Preferred Belt Strategies**

Teacher	Preferred Belt Strategies
Veronica*	Light chest voice: balance and negotiation of registration and resonance
Charles*	Whistle register: exploring the upper range of head voice, into whistle register, to increase high belt ability
Gregory*	Acoustic strategies: adjusting shape of mouth and tongue to produce different resonance qualities
Kathy*	Speech exercises: use of spoken phrases on high pitches; use of phrases on sung exercises instead of single syllables

\* Pseudonym.

roles in operatic productions and musical theater, soloed with major symphonies, and published a well-known instructional book on singing.

Veronica’s approach to teaching the female belt voice, regardless of range, involved balancing registration and resonance. Veronica’s initial exercises helped her students find a light chest voice registration by incorporating the head voice into the belt sound, while still remaining connected to chest voice. Once the light chest voice registration was in place, Veronica’s exercises focused on resonance strategies to find a high, forward “pocket” of resonance. Her women first became comfortable adjusting their amount of chest voice and resonance to negotiate a traditional belt voice song, typically up to a B4 or C5. To sing the more contemporary belt songs, which often extended into the range of C5 to F5, her women simply continued to negotiate the balance of registration and place the sound into the highest “pocket” of resonance.

Each lesson started with two or three head voice–dominated exercises, usually starting with an /i/ or /u/ vowel. Veronica’s high belt exercises typically started with the students and Veronica saying or squealing a modified, “yeah” (/jæ/) with a bit more nasality so it sounded like, “nyeah,” (/njæ/) on a very high pitch. They would say this word using different forward dialects to find the right resonance. Once in the right place, or pocket of sound, the exercise modified to singing “nyeah” on a descending pattern. The pattern would either start in the high belt range and descend by half steps or start in the traditional belt range and ascend. If the students were doing the exercise descending, Veronica would advise them to add in one more pinch of chest voice, with every half step. When the exercise was ascending, the students were reminded to narrow their sound. Much time was spent on perfecting this exercise with Veronica reminding them to stay forward and narrow with their sound.

Veronica’s students’ approach to higher belt notes, above C5, did not differ from their approach to belting in the more traditional belt range. Belting, regardless of the pitch, was a constant negotiation of register and resonance. “You need to marry the resonance and register so that it comes into that really sweet

spot ... so you don't feel it in your throat." For higher belt notes, these students discussed the need for very high resonance, more head voice, and letting go of a lot of chest voice weight while still maintaining a thread of connection to it. For some students, producing the higher belt notes was easier than the traditional belt range. "It's funny that being a soprano, those notes are easier for me. It's easier to add in chest to my upper register than it is to add in head to my lower register." When asked if the use of their mix voice played into the production of the higher belt range, the singers responded yes. "The notes that are in that high, high belt are in a mix. Mixing and belting are pretty synonymous. If it is in full chest, the audience is going to worry about the singer. But, I know how it feels and it feels different than when I am belting."

### Case study of master teacher—"Charles"

Charles has been teaching musical theater voice for over 20 years. He has been on the voice faculty of a major musical theater conservatory, a major musical theater program at a large university, and a major vocal performance program at a large university. Charles created his own private music studio in New York City, and his students have included over 100 Broadway performers. Charles received his M.M. in Vocal Performance from a major music conservatory. Professionally, Charles has sung roles with major opera companies throughout the country and has performed leading roles in national and international musical theater productions.

For a female to extend her belt range above the more traditional C5 range, Charles believed she must be a lyric soprano or coloratura soprano. "The most critical piece of this is the voice type ... looking to extend the belt range above C5 for mezzo sopranos is a mute point." Women with a higher soprano range will experience a turnover around Dflat5 to correctly execute belt notes past that point. There is a transition on the notes leading up to that turnover point. Charles believed if women do not start to narrow in before the turnover at Dflat, they will start to yell. In addition to voice type, establishing an extended head voice range is very important for the high belt voice capacity. "I'm looking for a direct match in the head voice to the belt capability an octave lower, which I call the octave rule." His work in lessons also supported this claim because he vocalized each student above C6 and explained that creating the higher belt sound is largely dependent on the range and ease of the whistle register. The whistle register, which has a different vibratory cycle from head voice, is the highest register for women and generally starts at C6.<sup>12</sup>

Every lesson started with a descending arpeggio on "wee" (/wi/) that would explore the entire range of the singers, starting from the middle voice and going down, and then all the way up to the extremity of their head voice and back down again. Charles's series of belt exercises started using /ma/ on an alternating progression. As the singers approached C5, he would occasionally ask them to modify the sound to /mæ/. His singers' voices would also get narrow and brighter around this C5 area, but Charles never specifically told them to do this with their voice. Charles's next belt exercise used the /ei/ vowel on the word "way" (/wei/). Charles asked his singers to sing this word on

a descending arpeggio. With this exercise, the sound was immediately narrow, bright, and pointed. Again, Charles never instructed his singers to do that with their voices, but instead used phrases such as, "Forward energy," and "No vibrato." Using this exercise, the highest note his singers were typically able to belt ranged between an E5 and an A5.

Charles's students' approach to the higher belt notes, above C5, does differ from their approach to belting in the more traditional belt range. For higher belt notes, these students discussed the need for a higher placement, more physical energy, modified vowels, less vibrato, and fighting the urge to flip to a legit, lofty sound. In musical theater, the term legit refers to a vocal technique that is similar to female classical singing, and produce primarily by the cricothyroid muscles.<sup>13</sup> One student described the higher belt sound as a "high energy scream with control." For some students, producing higher belt notes was easier than the traditional belt range. "For me, for sopranos, it goes into like a mixy-belt and it is actually easier for me than a B(4) and a C(5). A D(5) or an E(5), I can flip it up into a mix. It is less tiring." When asked if the use of their mix voice played into the production of the higher belt range, the singers responded yes. "When I go above a C(5) I would say it switches to a mix. You can trick the listeners into hearing the mix and they think that you are belting but you are really saving yourself."

### Case study of master teacher—"Gregory"

Gregory has been teaching musical theater voice for over 26 years. He has been on the voice faculty of a major musical theater program at a large university and the voice faculty of two large universities. Gregory created his own private voice studio in New York City and is on the voice faculty at a large university in the Northeast. He has a degree in classical singing. Professionally, Gregory originated a principal role on Broadway and has performed in numerous musical theater productions. Gregory has also performed title roles in opera, toured internationally with an opera company, and won several prestigious classical vocal competitions.

For a woman to extend her belt range above the more traditional C5 range, Gregory believed it is "completely pharyngeal resonance." For pharyngeal resonance, the voice must flip into a lighter mechanism while widening the mouth posture to stay connected to a sense of speech. Gregory also pointed out that the woman who sings in the higher range of belting was going to be a soprano. "The traditional belter is going to be an alto or contralto. The contemporary belter is more likely in her legit voice to be a soprano." Gregory believed that women who have been singing in the traditional belt range may not always trust the lightness of the higher belt production because they are used to the power and pressure associated with the traditional belt. Whereas a soprano "who finds her high belt in that way is pleased and amazed ... she is motivated to do it." The use of the mix voice does come into play for this higher belt range, as well as the traditional belt range because Gregory said that all singing is a mix of registration. "We know there's a mixture. We know it's not all chest voice. We know it's a harmonic strategy. But if it sounds like a belt, it's a belt."

After starting each lesson with lip trills, Gregory moved on to more head voice–dominated exercises, such as “onset staccati” to continue work on breath, as well as a clean onset of phonation. Gregory’s initial belt exercise was a descending five-note pattern on “nyeah” (/njæ/). In this exercise, he asked his singers to keep wide, “pharyngeal resonance.” His main belt voice exercise used “yay” (/jei/) on an alternating pattern. He wanted his singers to “keep the tongue in a high arch” for this exercise, so he sometimes had them do it first with a straw held horizontally under their tongue. As they ascended, Gregory advised them to close down the front space of the mouth, while keeping a big space in the back of the mouth. The sound of his singers on this exercise became very pointed and focused as it ascended into the high belt range. Gregory did talk with his students about feeling a “mechanism shift” during the transition into the high belt, but it was audibly imperceptible. Most students were able to take these exercises up to G5.

Gregory’s students’ approach to these higher belt notes, above C5, did differ from their approach to belting in the more traditional belt range. For higher belt notes, Gregory’s students focused on the direction and placement of the sound, and trying to feel pressure in their face, not the throat. There are five or six notes in the high belt range that could be produced either more legit or more belt-like, and it is a choice to keep them belt-like. One student said the high belt is “pushed forward, through your nose. Almost in front of your teeth, very pinpointed and very razor.” When asked if the use of their mix voice played into the production of the higher belt range, the singers responded yes. “I call it a mix. I flip from where my natural traditional belt is. I have learned, instead of having it fall backwards ... you have to push that sound forward. So it goes forward and goes into this very biting sound. But it parallels what needs to be heard by anyone in the industry, but it also is something that someone can consistently do it.”

### Case study of master teacher—“Kathy”

Kathy has been the head of vocal instruction for the undergraduate and graduate Musical Theater programs at a large university in the Northeast. She has taught at this institution for 14 years, in addition to maintaining a private voice studio in New York City for professional performers. Her students have been employed in over 20 Broadway productions. Her degree was in music. Professionally, Kathy has performed on Broadway, Off-Broadway, and on national tours. She has performed as a cabaret soloist, a member of a prestigious association of singing teachers, and has produced a series of educational DVD’s for women and men featuring her techniques for musical theater singing.

Kathy got her female singers to extend their belt voice into the higher belt range using speech exercises, a calling out in high speech. Kathy believed that most women access this high speech place during a moment of great excitement, such as warning someone, “Don’t go into the street!” The high belt voice is going to be in the same place. For Kathy, all belting

is a function of “coordinated registration,” and she believed the high belt has more head voice. “You feel a tremendous amount of release in the best high belters, but you still identify it as speech.” Most women with a middle voice are able to create this sound naturally because it is the “acoustic arch of their voice.” If a woman has a divided voice, with a strong soprano and chest, but no strength in her middle voice, “the high belt is not a place for her.”

Kathy started each lesson with a “neutral” middle voice exercise, using /i/ and /a/ vowels, and she would take this exercise up into the head voice range. To get her women into a more speech-mix quality of their middle voice, Kathy would model a phrase in a spoken, high, bright, forward production. Kathy used phrases like, “Never, Never, No,” or “Oh no you don’t” during her exercises. She would have the student call out the phrase, and then sing it. If the student did not have enough energy or range in their voice during the speaking or singing portion, she would ask them to sing it with a specific intention. For a student in her 40s and a mother of two, Kathy told her to use the phrase, “No you don’t” as if she was getting her children in from outside. The student’s voice immediately took on a new, high, bright quality and she easily performed the exercise up to a D5. She replied, “That was fun! I only had to think about saying it!” If the singer had trouble increasing the range of these exercises, Kathy would have them call out the phrase at a high pitch, and then try the exercise again. This repetition of calling out and singing the phrases helped her singers find the right balance of registration and resonance for the belt sound. In these exercises, Kathy explained that notes under a D5 could be belted by singing open vowels. If a female chose to close the vowels below D5, her sound became more of a speech-mix. However, Kathy pointed out that once the women got into the high belt range beyond D5, vowels would need to become closed and narrow, not nasal, in the exact manner of high speech.

Kathy’s students’ approach to the high belt was similar to how they produce a belt sound in the more traditional range. They linked the high belt sound to speech. “When I do it, I just feel where I would say it in that range and that’s where I put it.” The students also mentioned the need for a more forward and pointed resonance for the high belt, as well as closed vowels. Two students, sopranos with classical training, compared the feeling of high belt to their experience with whistle register. “It almost feels the same as my high whistle register. It kind of feels like it has a lot of that in it. It’s just thinning out.” When asked if the use of their mix voice played into the production of the higher belt range, the students responded yes. Several students mentioned that their chest voice and head voice are being used. “It’s just a matter of how much each you use. I believe that when I belt high, there is still that technique I use for head voice working.” Another student discussed the use of head voice and vowels for her high belt range. “If you want to talk specifically, there is head. But we’re not singing it with the same vowel that you would sing in classical. But to me it just has a lot of /æ/. Just totally out of the throat. It’s like narrowing.”

## DISCUSSION

The master teachers did have varying ways to approach the female high belt voice. However, several common techniques did emerge.

### Common strategies to train the female high belt voice

**Use of head voice.** The master teachers talked about the importance of head voice and middle voice for their female belters, and they were observed to work on head voice–dominated exercises in every lesson. In fact, each master teacher started every lesson with a head voice exercise. This is not to suggest that the master teachers did not use specific high belt voice exercises. But head voice work signified their belief in the importance of developing the entire range of their female musical theater singers. A study of musical theater vocal production and pedagogy by Bourne et al<sup>14</sup> also suggests that female musical theater singers need to “practice in both chest register (for belt) and head register (for legit).” In addition, Sanders-Barton, a musical theater voice specialist, agrees that female musical theater singers should be singing in head voice to help blend registration.<sup>15</sup>

**Exercises to reduce chest voice.** In interviews, the master teachers talked about the female belt voice being created by a blend of registration, but not from a completely chest voice production. In lessons, exercises that created lighter belt sounds were always present and a full chest voice “yell belt” was never encouraged. This view of belting is supported by numerous musical theater pedagogues, in an article summarizing their work, who recognize that belting is predominately a chest register function, but “is not pure chest voice.”<sup>16</sup>

**Use of specific vowels.** Although the master teachers used different words in their technical belt work, similarities of vowel choices did emerge. To understand the significance of the master teachers’ use of specific vowels for high belt work, it is important to note the response of the throat and vocal folds to the shape of vowels. The throat and the mouth are filters for the vocal sound, and different vowels change the shape of these filters.<sup>17</sup> The master teachers’ use of more closed vowels, such as /e/, generally means the singer is using a more closed mouth. Because parts of the mouth, such as the tongue and jaw, are connected to the throat, a closed mouth generally means a more opened and released the throat.<sup>18</sup> An open throat may help to balance registration. By balancing registration, air pressure is also more balanced. This balance may create a higher open quotient of the vocal folds, as compared to an unbalanced or pressed phonation, which is produced when the closed quotient is much higher than the open quotient.<sup>19</sup> The closed quotient of the vocal folds is the amount of time they touch during the vibratory cycle.<sup>20</sup> When singing using chest voice, the closed quotient of the vocal folds is generally accepted to be greater than 50%.<sup>21</sup> When singing using head register, the closed quotient of the vibratory cycle decreases and is closer to 25%, and conversely, the open quotient increases.<sup>22</sup> An increased or higher open quotient of the vocal folds suggests a lighter vocal mechanism. In this way, the teachers’ use of specific closed

vowels, such as /e/, may create a more efficient, lighter strategy for belting in a higher range.

If a technical exercise specifically addressed the higher belt range, the master teachers used closed vowels such as /e/. For example, the /e/ vowel was used in Charles’s high belt exercise on the word “way” (/wei/) and Gregory’s exercise that used the word “yay” (/jei/). In addition, the consonants of these vocalises were also important. The initial consonants of [w] and [y], combined with the closed /e/ vowel, were helpful in accessing placement. And [y], the final consonant of both exercises, is produced with a more narrow, taut tongue. This tongue position helps to keep the sound forward with more oral resonance, which produces a more speech-like, or belt, sound quality.

Kathy was the only master teacher observed to use the closed vowel, /ou/, in her belt exercises with words like “no” and “don’t.” This vowel created a higher and more forward placement. Once again, the initial consonants were also important. The voiced consonants [n] and [d], followed by the release of a vowel, created a more explosive, resonant attack into the words “no” and “don’t” of Kathy’s vocalises. In addition to these benefits, Kathy’s vocalise word choices may also be related to her belief in the importance of connecting belting to speech. All of Kathy’s belt exercises used a spoken phrase to get the singer to not only connect to the physicality of belting, but also to the inherent emotional expression. It is possible that she also selected her spoken phrases for belt work because of their communicative and acting possibilities for her singers. A summary of the vowels commonly used by the master teachers in high belt vocal exercise work is listed in Table 2.

### Different strategies to train the female belt voice

**Use of speech.** The use of speech as a teaching tool for the female belt voice had the largest divergence among the master teachers. On a spectrum, speech exercises were not used at all in Charles’s work, used occasionally by Gregory, used consistently by Veronica, and used predominantly by Kathy. Similar to Kathy’s calling vocalises and Veronica’s spoken dialect work, a perceptual study of the Broadway belt voice by LeBorgne et al<sup>23</sup> suggests that speaking exercises may be the initial way to approach belting. It is interesting to note that only the female master teachers used speech as a primary tool to access and develop the belt voice which may be due to their

**TABLE 2.**  
Summary of Vowels Commonly Used by Master Teachers

Teacher	High Belt
Veronica*	/æ/, /e/
Charles*	/æ/, /e/
Gregory*	/e/
Kathy*	/ou/

\* Pseudonym.

firsthand experience of the connection between speaking and the female belt voice. This divergent use of speaking as a teaching strategy for the belt voice did not appear to have a significant difference on the actual belt ability of the students. All of the observed singers were able to produce a speech-like belt sound, regardless if actual speech exercises were used as a strategy to create the belt sound. The speech-like qualities of the belt voices of the students in this study are supported by the work of Stone et al,<sup>24</sup> who found that belt singing, when compared to operatic singing and loud speech, is more similar to speech.

**Voice type.** Considering female voice type as a predictor of ability in the higher range of belting also had divergence among the master teachers. Although Gregory and Charles were the most specific about voice type, Veronica also believed that sopranos “manage chest voice differently and can easily belt all the way up and down the scale.” Gregory agreed, pointing out that the woman who sings in the higher range of belting is going to be a soprano, whereas “the traditional belter ... is going to be an alto or contralto.” Charles agreed with Veronica and Gregory, believing that female voice type is directly related to the belt range. He said, “the most critical piece of this is the voice type ... looking to extend the belt range above C5 for mezzo sopranos is a mute point.” This concept of the master teachers was supported by several of the soprano singers in this study, who stated that producing the higher range of belting was easier for them than the traditional range. This reported ease of production for sopranos may be due to their belief that they are mixing, or using more head voice involvement in this higher range of belting, which may be more comfortable for them than use of chest voice.

**Summary of strategies to train the female belt voice**

The strategies of the master teachers shared several commonalities, as well as some differences. Although the master teachers used different technical exercises, the purpose of the exercises was often similar. The strategies of the master teachers are summarized in Table 3.

**Strategies to produce the female high belt voice**

The singers reported that to produce belt sounds in this higher range, they use their mix voice. This finding is extremely interesting because there is strong agreement among the

singers about a subject that is typically viewed as indefinite. Mixing seems to have emerged as a new type of belting technique to produce the higher range of belting in an easier way.<sup>25</sup> Defining the high range of belting by using the term mix is problematic because it is not truly defined. However, the women in this study, when using the term mix, are most likely referring to the physical feeling of the shift of registration and resonance to produce a high belt sound, as compared to a traditional belt sound. Simply put, it felt different for the singers.

This difference in feeling, which is sensory feedback, is supported by the strategies the singers used to produce the higher range of belting. The students reported that they produced higher belt notes with a higher placement, modified bright vowels, and a physical energy to fight the urge to flip to a more lofty or legit sound. This need to resist a legit sound in the high belt range most likely referred to the singers’ perceived use of head voice. Although their registration may be more head voice dominated, they aimed to make the sound more bright and narrow because they were “not singing it with the same vowel that you would sing in classical.” When discussing strategies to produce the high belt, the singers were more aware of adjusting their vowels and sound quality. But it is important to note that the articulation of the initial consonants of words and phrases, particularly in the vocalises taught by Charles, Gregory, and Kathy, also had a positive influence on the singers’ high belt production. A summary of the strategies that female singers used to create the female belt sound is listed in Table 4.

The singers’ claim, that the high range of belting is created by a head voice–dominated registration and forward, bright resonance may be supported by a study that compared the legit, mix, and belt sounds of musical theater. In this study, the subject was a female singer who sang identical pitches and excerpts of repertoire in each of the operatic, mix, and belt styles so the vocalizations could be directly compared. This twofold study examined phonation and acoustic characteristics, as well as size and shape of the pharynx for each singing style. The results of this study, examined by a qualified panel of vocal experts, showed that the mix vocal production was similar to the operatic sound in terms of subglottal pressure and closed quotient of the vocal folds, and similar to belting in terms of resonance.<sup>26</sup> These results support the high belt strategies of the singers of this study, and their belief that they are mixing when producing this technique.

**TABLE 3.**  
**Summary of Strategies to Train the Female High Belt Voice**

Teacher	Use of Head Voice	Reduce Chest Voice	Use of Specific/Similar Vowels	Use of Speech	Voice Type as Predictor of Ability
Veronica*	Every lesson	Every lesson	Every lesson	Every lesson	Seldom
Charles*	Every lesson	Every lesson	Every lesson	No	Yes
Gregory*	Every lesson	Every lesson	Every lesson	Seldom	Yes
Kathy*	Every lesson	Every lesson	Every lesson	Every lesson	No

\* Pseudonym.

**TABLE 4.**  
**Summary of Singers' Strategies for the High Belt**

Singers	Use of Entire Voice	Physical Energy	Bright, Forward Vowels	Closed Vowels for High Belt	Use of "Mix"	Use of Speech	Specifically Modifying Vowels, Changing Mouth and Tongue Positions
Veronica's students*	Yes	Yes	Yes	Yes	Yes	Yes	No
Charles's students*	Yes	Yes	Yes	Yes	Yes	No	No
Gregory's students*	Yes	Yes	Yes	Yes	Yes	No	Yes
Kathy's students*	Yes	Yes	Yes	Yes	Yes	Yes	No

\* Pseudonym.

## CONCLUSIONS

The master teachers' strategies to teach the female high belt voice shared several commonalities. Every teacher was observed to use exercises that developed their students' head voice and reduced chest voice involvement. The master teachers viewed the ability to create a lighter belt to be an advantage because it is better for transitioning into the higher belt range. Additionally, the master teachers were observed to use closed vowels with their students on high belting exercises. However, the biggest difference of the teachers' strategies was the use of speech. Only two of the four teachers used speech as a primary strategy for producing the female high belt voice.

The singers reported that they only used the vocal exercises of their teachers to work on their high belt voice technique. In this way, because the strategies of the master teachers shared many commonalities, the strategies of the students were also similar. Because the singers reported that they mix in their high belt range, suggesting there is most likely more head voice involvement, the development and coordination of head voice is also helpful for high belting.

The master teachers and singers spoke clearly about the perceived differences of the high belt.

When asked to describe the sound of the female high belt voice, the master teachers agreed that it will be narrow, based on more closed vowels, mixing in some degree of head voice function, and with very little use of vibrato so that it remains speech like. Within the category of the high belt, the teachers identified other types of belt sounds, such as rock belt and pop, but considered these different sounds to be stylistic choices, and not necessarily unique types of belt voice production.

However, determining a fixed definition of the high belt sound is problematic due to the unique nature of every female musical theater singer's voice. There seems to be an element of impenetrability surrounding the definition of the belt sound, yet its essence is recognizable. As Charles says, "I know it when I see (hear) it." Although this study has revealed some guidelines for the female musical theater high belt, voice teachers should be aware of the variability of their female musical theater voice students.

Future studies of the female belt voice might benefit from observing how specific female voice types react to high belt

techniques. A study of only sopranos, or mezzo-sopranos, might produce a clearer understanding of the unique belt strategies that work for that voice type. Finally, additional acoustic and physiological studies of the female belt voice are needed. Scientific studies of the female belt voice may never uncover its exact combination of registration because this combination is not only influenced by the physiology of the vocal folds and shape of the resonators, but also by the unique personality and performance choices of each singer within the context of a song. However, physiological and acoustic studies that examine the higher range of the contemporary belt are presently uncommon and might be beneficial for the overall comprehension of the female belt voice.

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