



# The **Sound** of One's Own Voice

Voice and speech therapy can help transform identity and aid in gender affirmation  
by **Stephanie Dutchen**

She had tried to feminize her voice on her own, but by the time she came to Barbara Worth for help, her voice was stuck at an unnaturally high pitch. ■ “I think there was a lot of fear in her,” says Worth, a speech-language pathologist at Beth Israel Deaconess Medical Center. “She didn’t want to be outed as transgender.” ■ After decades of presenting as a man, Worth’s patient had over-compensated. Following do-it-yourself programs had caused the muscles of her larynx to tighten to such an extent that she couldn’t produce the lower tones of a typical female speech range, let alone a male range. ■ Worth designed a voice therapy program to undo some of the damage, but progress was slow, and her patient, who didn’t have health insurance, couldn’t afford to continue with therapy. Ultimately, Worth had to discharge her before her goals were met.

LIU BOLIN AND THE KLEIN SUN GALLERY

◀ Liu Bolin  
*Hiding in the City –  
Sunflowers*  
2012

**Sound Track**

Voice is a gender signifier. Although some people whose gender identity differs from the sex they were assigned at birth are happy with their voices, others yearn to change the way they sound, often as they transition from one gender presentation to another.

Having a voice that doesn't match one's gender can cause stress and unhappiness, compound anxiety or depression, or trigger gender dysphoria. Some transgender people who aren't comfortable with how they sound won't speak in public or pick up a phone; others won't go out at all.

Developing a natural-sounding voice that matches one's gender expression, whether it is masculine, feminine, gender-neutral, or any of a spectrum of identities, can improve quality of life. Doing so with professional guidance addresses the full range of communication variables and lowers the risk of damaging the delicate tissues of the vocal folds and surrounding structures, damage that can include lesions, hemorrhage, scarring, polyps, nodules, muscle tension, and inflammation.

Although not every case turns out as well as the clinician or patient may hope, voice and speech therapists like Worth are generally able to help transgender patients gain confidence in home, work, school, and social settings.

There are difficulties for those interested in seeking the help of professionals and for physicians who want to help. There's a shortage of speech-language therapists trained in transgender care and a scarcity of hard data about what works. There's also spotty awareness among both doctors and transgender people that speech-language services can help during gender transition. In addition, insurance policies generally don't cover speech-language therapy to assist with gender affirmation.

"I don't think every doctor knows voice therapy is something that can be done to affirm gender identity," says Worth. "Our efforts are successful and can make a difference in these patients' lives."

**When Voice Betrays**

"I have a wonderful student who presents as a gorgeous woman—makeup, beautiful hair, outfits with heels," says Sandi Hammond, a Boston-area vocal coach and director of the Butterfly Music Transgender Chorus, which she believes is one of only two all-transgender choruses in the country. "She'll walk into a Starbucks, and she's passing, she's passing, she's passing. Then she opens her mouth to order a coffee, and boom."



**PITCH PERFECT:** Sandi Hammond (clockwise from top left), Ruben Hopwood, and Barbara Worth work with transgender individuals who seek to retrain their voices.



JOHN SOARES

A disconnect between a person's voice and gender expression, even something as unconscious as a sneeze or a laugh, can out them as transgender, potentially costing them their jobs or making them a target of violent acts.

This fear of talking to others "really hampers people's lives," says psychologist Ruben Hopwood, coordinator of the transgender health program at Fenway Health in Boston. "It's not just inconvenient, it's debilitating, and can be dangerous."

A June report from the National Coalition of Anti-Violence Programs found that although reports of overall violence against members of the nation's LGBTQ community declined between 2013 and 2014, homicides rose 11 percent, with hate crimes disproportionately targeting transgender people, particularly women and people of color.

No wonder, then, that many of the nation's estimated 700,000 transgender people strive to masculinize, feminize, or otherwise adjust their voices to better align with their appearance. Given the difficulties of accessing professional care, some will, like Worth's patient, attempt to modify their voices themselves. This carries health risks.

**Roughing It**

The larynx is exceptionally sensitive to changes in sex hormones, including estrogen, progesterone, and androgens, most notably testosterone. Extended exposure to testosterone permanently lowers the voice, while some studies have found that the larynx is as responsive to estrogen as the cervix, with the female voice undergoing predictable changes at menopause and during menstrual cycles.

Trans men—people who were assigned female at birth but identify as male—who choose to undergo hormone therapy get a head start on voice modification; one of the masculinizing effects of testosterone is that it thickens and lengthens the vocal folds, which tends to lower speaking pitch by about an octave. The voice generally starts deepening within the first few months of treatment and settles into its new pitch in a year or two.

But not all trans men can or want to take testosterone, and among those who do, not all are satisfied with the resulting voice changes. Hopwood has known patients who started smoking to roughen their voices in lieu of taking testosterone.

Estrogen, by contrast, doesn't raise pitch. In addition, trans women—people who were assigned male at birth but who identify as female—can have a harder time overcoming the anatomical and physiological factors that shape their voices, such as trying to keep their voices high and expressive when they're over 6 feet tall and barrel-chested.

"That larynx is big, those vocal folds are big," says Worth. "It can be a challenge, but we can help them modify other aspects of their speech to help them sound more feminine."

The extra hurdles for trans women help explain why speech-language therapists are more likely to hear from trans women than trans men. Coaching videos and smartphone apps are also more likely to focus on voice feminization than on voice masculinization.

Do-it-yourself options can be empowering, allowing transgender people to experiment with their voices in private at little to no cost. A few apps provide quantitative feedback on pitch. Worth, Hammond, and others are optimistic about the potential of certain programs but stress that because of the risks to vocal health, they are best used as a complement to professional voice therapy.

When a patient, particularly a trans woman, is faced with the knowledge that it can take from three months to two years of daily practice to achieve a differently gendered voice, vocal surgery may seem like an attractive solution. A few procedures are available, such as shortening the vocal folds, tightening cartilage, or shrinking or raising the larynx. The results, however, are unpredictable and irreversible, and the best outcomes still require pre- and postoperative voice therapy. Most trans-health specialists recommend against such surgery.

"It's hard when one option for trans women is expensive, high-risk, and fraught

**The first thing we tend to hear when characterizing a voice's "gender" is pitch, the human ear's perception of how fast the vocal folds are vibrating.**

with peril, while the other requires you to work and work and work and spend money to get frustrated," says Hammond. Still, "habit change is really the best option."

**The Gendered Voice**

Voice and speech therapy begins by identifying and addressing any underlying pathology and reviewing vocal hygiene. Otherwise, exercising the voice "would be like running on a bad knee," says Hammond. Only when the voice is healthy does attention turn to gender work.

The first thing we tend to hear when characterizing a voice's "gender" is pitch, the human ear's perception of how fast the vocal folds are vibrating. Vocal therapy therefore gives a lot of attention to raising or lowering pitch by training patients to speak within a certain range of tones. Men's vocal folds open and close about 110 times a second, on average. Women's vocal folds average 220 such movements per second, producing a pitch that's about an octave higher than men's. For those who struggle to reach a desired masculine or feminine pitch, a gender-neutral pitch in the middle range can be enough to avoid being misgendered, especially if the patient incorporates other vocal characteristics traditionally associated with their gender. For others, gender-neutral would be the goal.

What are such characteristics? There's intonation, often called the melody of speech. Popular conception is that women use a wider pitch range and engage in rising pitch or "upspeak." There's resonance, the difference between a man's booming chest-based voice and a woman's more contained head-based one. Speech rate and pausing are factors; men supposedly talk faster and more choppy while women stretch out their vowels and use more words. And there's volume (men are louder), clarity (men articulate more), and breathiness (more pronounced in women).

All of these measures and more, of course, are based on stereotypes and exaggerations. They're also culture dependent. Hence, trans patients are encouraged to pay closer attention to how men and women speak by studying the speech of media personalities and that of people in their own communities, so they can spot gender signifiers and choose voice role models. The goal is for the patient to reach for a caricature and break out of lifelong vocal habits, then scale back to something that feels and sounds more natural.

Voice and speech qualities are like a grab bag that trans patients can select from to piece together their desired gender presentation. Small changes can go a long way, especially when accompanied by nonverbal cues that carry gender connotation, such as body language, eye contact, proximity, touching, and smiling, as well as clothes and hairstyle.

**Comfort Zone**

Trying on a new voice can feel like acting, but, over time, the brain replaces old behavior pathways with new ones.

"When you're learning to play a sport," says Hopwood, "at first you have to think about every muscle movement. With practice, it becomes automatic and you can focus on other things. It's the same with speech."

As more people come out as transgender at younger ages, patients and clinicians wonder whether retraining the voice earlier would be easier than having to undo forty or sixty years of vocal habits. Questions spring up around the possibility: What does suspending puberty mean for the transgender voice? How should older patients be advised on finding their natural pitch after years of affecting unnatural changes to their voices?

As yet, no one has reliable answers to these questions. Whether because it's a young subspecialty or because its subjects have long been stigmatized, Hammond says there is a research "black hole" for transgender voice and speech therapy. A 2012 literature review found that 83 percent of studies on transgender voice and communication sat on the bottom rung of the evidence ladder.

Hammond and others hope that an influx of funding and trained clinicians will close the research gap and help reduce health disparities as transgender communities continue to gain a voice. ■

*Stephanie Dutchen is a science writer in the HMS Office of Communications and External Relations.*