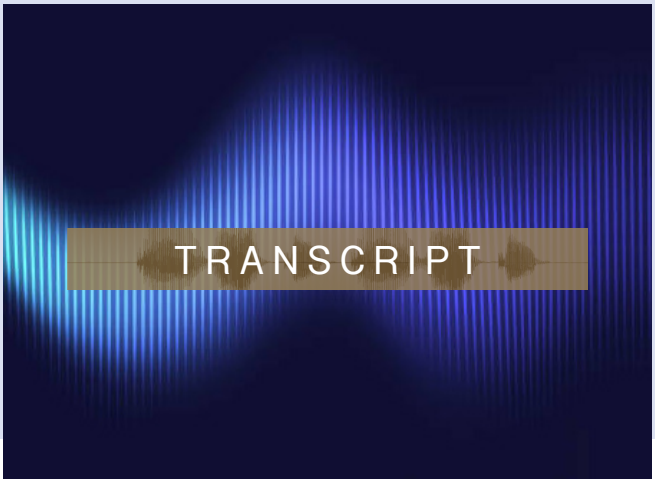
Voice & Swallow Mechanics Lab

Gender and Communication

AUTHORS: VICTORIA MCKENNA, PH.D., CCC-SLP AND RENEE GUSTIN, M.S., CCC-SLP



	TIME (MM:SS)	TRANSCRIPT PAGE 1/5
1	00:00 — 00:35	***Dr. Victoria McKenna, Ph.D., CCC-SLP:*** Welcome to the module series Culturally Inclusive Education for the Speech Sciences. My name is Victoria McKenna, and I am an assistant professor and the director of the Voice and Swallow Mechanics Lab at the University of Cincinnati. I am here with Renee Gustin, a Speech-Language Pathologist, who specializes in gender spectrum communication at the University of Cincinnati and UC Health. Together, we are discussing gender and communication as it relates to speech science and clinical practice.
2	00:36 — 00:50	This educational module series is funded by the Advancing Academic Research Careers Award from the American Speech-Language-Hearing Association, also known as ASHA, and the College of Allied Health Sciences at the University of Cincinnati.
3	00:51 — 01:17	Here is a brief outline of this presentation. I will be discussing gender differences for communication. This will include anatomical and physiological differences between male and female speakers, how that manifests in the acoustic signal, and how listeners perceive a speaker's gender. Then, Renee will discuss her clinical experiences in gender spectrum communication therapy. That will include what therapy is, why it matters, and what it usually entails.
4	01:18 — 01:41	To best understand the content of this module, we are assuming some prerequisite knowledge. Namely, that you have a basic understanding of the vocal tract, larynx, and speech articulators. Secondly, that you have experience with traditional speech and voice acoustics, such as fundamental frequency and formants, and thirdly, that you understand some basic terminology related to gender, sex, and sexuality.
5	01:42 — 02:14	Before we begin our discussion of gender and communication, we thought it first necessary to define what gender is. The World Health Organization defines gender for us, saying "Gender refers to the characteristics of women, men, girls, and boys that are socially constructed. This includes norms, behaviors, and roles associated with being a woman, man, girl, or boy, as well as relationships with each other. As a social construct, gender varies from society to society, and can change over time."
6	02:15 — 02:53	We will focus on American culture and its social trends. In the first part of the presentation, I will be discussing communication characteristics as a binary construct related to the sex of the speaker. Meaning that, I will be discussing male and female speakers wherein male characteristics are perceived as more masculine and related to men, and female characteristics are perceived as more feminine and related to women. Later in the presentation, Renee will delve deeper into the idea of gender as a spectrum, and the role speech-language pathologists play in assisting clients to meet their gender expression goals as they relate to communication.
7	02:54 — 02:57	I will now begin with some gender differences for communication.
8	02:58 — 03:30	We know that speech requires coordination across different systems in the body. First is the respiratory system, where the lungs create the power source for sound. Second, is the phonatory system: the larynx, which houses the vocal folds, helps to create the sound. And finally, the resonatory system that includes the structures of the vocal tract that helps us to shape sounds into meaning. The vocal tract includes the pharynx, as well as the oral and nasal cavities. This is also where different articulators can be found such as the lips and tongue.
9	03:30 — 05:17	As humans grow and develop, the size of the anatomical structures for speech and voice change. The changes to the system are dependent upon the sex of the person; that is, whether or not they are male or female. The physical distinction between males and females is often referred to as sexual dimorphism, and can be brought on by hormones. For example, males develop longer and thicker vocal folds and larger laryngeal cartilages. This can be observed as a more prominent thyroid notch, or what we usually call an Adams apple. The increase in the size of the laryngeal structures is brought on by a hormone called testosterone, which begins around the time of puberty. The increased size of the vocal folds corresponds to a lower vocal pitch, which is often perceived as a more masculine speech and voice characteristic. ***(cont. on next page...)***

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9	03:30 — 05:17	***Dr. Victoria McKenna, Ph.D., CCC-SLP (cont.):*** Females, however, do not have the same impact of testosterone on their laryngeal structures, which keeps these structures relatively smaller, and maintains a higher pitch of the voice. Importantly the effects of testosterone are not reversible. This means that once testosterone has acted on the structures of the larynx, taking testosterone away, or blocking testosterone, will not result in the structures becoming smaller or reverting back to their pre-puberty form. In addition to the masculinizing effects of testosterone on the larynx, there are also size differences across other structures of the body. Generally, males have larger lung capacities compared to females. Males also have longer vocal tracts at approximately 17 centimeters, whereas females have shorter vocal tracks at about 14 centimeters. Of course, these anatomical size distinctions also depend on the overall size or height of the person. There can still be overlap between males and females, but the characteristics outlined on the slide are a general guide for you.
10	05:18 — 05:32	The physical characteristics of the lungs, larynx, and vocal tract impact subsequent acoustic measures of speech and voice. Pitch, resonance, and vocal quality are three areas that have been shown to be different between males and females.
11	05:33 — 06:21	Male speakers use a lower speaking fundamental frequency, or pitch. Their average speaking pitch ranges anywhere from 90 to about 150 Hertz; meaning that, the vocal folds are vibrating approximately 90 to 150 times per second on average. This is due, in part, to the large size of the vocal folds for males. Also, males tend to speak in a more restrictive pitch range during conversational speech. Conversely, female speakers have higher speaking frequencies, at about 180 to 250 Hertz, due to the smaller size of the vocal folds. Females also tend to use the larger range of pitch and intonation during conversational speech. Thus, higher frequencies and a greater range of intonation patterns are often perceived as being feminine.
12	06:22 — 06:56	As mentioned previously, the length of the vocal tract is different between male and female speakers and impacts their resonance characteristics. Males tend to have lower formants and a smaller space between each formant. This means that their articulatory space is smaller when compared to females, who exhibit higher formants, a greater space between each formant, and a larger articulatory space. Female speakers are often known for having more precise articulation, with a greater distinction between speech sounds as compared to male speakers.
13	06:57 — 07:44	In addition to pitch and resonance, there are also vocal quality characteristics of male and female speech in American culture. First, males tend to exhibit a greater use of vocal fry during conversational speech. Vocal fry is characterized by low pitch and an aperiodic voice, which you can think of as sounding more gruff. Female speakers tend to use more of a breathy vocal quality. Breathiness is correlated to a posterior glottic gap between the vocal folds, or an extra space remaining between the vocal folds during phonation. The extra space allows more air to escape across the vocal folds making the voice sound light, airy, and breathy.
14	07:45 — 8:25	Previous research has investigated which speech and voice characteristics contribute to the perception of the speaker's gender. One study by Whiteside completed a controlled experimental design in which they manually manipulated speech characteristics from male and female speakers. They took vowels produced by male and female speakers and linked their vocal pitch with the opposite gender's formants. That is, male pitch was combined with female formants and female pitch was combined with male formants. Then, they had 50 listeners rate whether the speaker was a man or a woman based on these modified samples.
15	08:26 — 09:10	Results showed that listeners perceived samples with a male pitch and female formants as produced by a man an average of 94% of the time, with a range about 78 all the way up to 100% of the time for the different vowels. However, when listeners rated speech with a female pitch and male formants, they only rated the samples as coming from a woman an average of 84% of the time. There was also a much larger range, which went as low as 36%. So, what does this tell us about the importance of pitch and formants on the perception of gender? And, what does it say about how male and female speakers are perceived differently from one another?

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TIME (MM:SS)	TRANSCRIPT PAGE 3/5
16 09:10 — 09:48	***Dr. Victoria McKenna, Ph.D., CCC-SLP:*** We can conclude that pitch is the most salient cue to determine a speaker's gender. We can also conclude that formants have a smaller role in the perception of gender because the listeners were less likely to align their ratings with the formants in the sample. However, we do see a difference between male and female speakers and how formants might influence how people perceive them. Speakers with female pitch, but male formants, will be inconsistently perceived as feminine. This has implications for how we address discrepancies between pitch and formants when completing gender-related speech and voice therapy services.
17 09:49 — 10:18	Knowing this information, it begs the question: what happens when a patient's voice, speech, or communication is not aligned with their gender? And, how do we use speech and voice science concepts to help these patients in therapy? In the next portion of this module, Renee Gustin, a speech-language pathologist and specialist in gender spectrum communication, will begin to answer these questions.
18 10:19 — 10:40	***Renee Gustin, M.S., CCC-SLP:*** Hello everyone. My name is Renee Gustin, and as Dr. McKenna mentioned, my specialty is in gender spectrum communication therapy. I started the UC Health Voice Center's Gender Affirming Voice Therapy Program back in 2016 and I've seen over 100 patients in the Greater Cincinnati community for gender-related care.
19 10:40 — 11:48	Before we dive into the specifics of gender-diverse health care, it is essential to make sure that we are all well acquainted with these important concepts relating to sex, gender, and sexuality. So, without further ado, I present the gender bear. Please do not let this adorable looking bear deceive you. Although it may appear simple, it represents a complex structure of terms that are often misunderstood and misused in our society. Now, let's start at the top with gender identity. Gender identity is one's internal deeply held sense of one's gender. It is self-defined. Then we have sexual orientation, which refers to an individual's physical, romantic, and emotional attraction to another person. Then there is the term sex as assigned at birth, and this is the assignment and classification of people as male, female, and/or intersex based on a combination of anatomy, hormones, and chromosomes. And lastly, there is gender expression, which is the external manifestations of gender, expressed through one's name, pronouns, voice, behavior, and appearance.
20 11:49 — 12:59	Now, it is also essential to understand why therapies for gender-diverse people are so important and sometimes, frankly, life-saving. Transgender people are medically underserved, highly marginalized, and suffer significant health disparities. Discrimination in the provision of services causes transgender people to delay or avoid necessary healthcare, often to the point of putting their overall health at severe risk. This group of statistics comes from the 2011 National Transgender Discrimination Survey. It surveyed transgender people and found that 28% reported delaying seeking medical care due to past discrimination. 41% reported having attempted suicide, which is 26 times higher than the general population. 50% of respondents reported having to teach their providers about their own healthcare. 19 were outright denied medical care, and 26% reported current or former alcohol or drug use as a means of coping with societal mistreatment.
21 13:00 — 14:06	So, what can we do to help bridge this gap in care? We can start by becoming better versed in trans specific healthcare issues and terminology. So, let's start with the term gender dysphoria. Gender dysphoria is defined as the distress or discomfort that may occur when gender identity and birth assigned sex are not completely congruent. For many transgender individuals, the lack of congruity between their gender identity and their birth sex creates stress and anxiety that can lead to severe depression, suicidal tendencies, an/or increased risk for alcohol and drug dependency. It is very important to note, however, that although the diagnosis of gender dysphoria has become a requirement for receiving most medically necessary care for gender-diverse patients, not all trans people experience gender dysphoria, and considering it as a diagnosis stigmatizes gender diversity, instead of seeing it as part of the human experience.

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TIME (MM:SS)	TRANSCRIPT PAGE 4/5
22 14:07 — 15:06	***Renee Gustin, M.S., CCC-SLP:*** The next term that is crucial to discuss is gender affirming care. Gender affirming care is health care that facilitates the affirmation of a patient's gender and alleviates feelings of gender dysphoria. There are two main ways to provide patients with gender affirming care. First is within the context of the general care we provide patients within our specialties, while respectfully using a patient's chosen name and pronouns that reflect their gender identity. An example of this kind of gender affirming care would be like when an audiologist fits a transgender patient for hearing aids, but does so while respecting that patient's pronouns, name, and gender identity. The second opportunity comes by way of addressing health concerns that are specific to transgender patients. An example of this would be like when a speech-language pathologist provides a patient with a course of gender spectrum communication therapy.
23 15:07 — 15:49	The care we provide matters. Accessing gender affirming care has been shown to improve patient's quality of life by reducing the risks of rejection, discrimination, and victimization. Alternatively, patients who do not have access to gender affirming care can experience significant stress and gender dysphoria, which is well linked with increased rates of anxiety, depression, and suicide. The moral of the story here is: through our role as clinicians, we really do have the opportunity to make a positive impact in the lives of this highly marginalized and at-risk population.
24 15:50 — 17:05	Now listed here are some of the more commonly used terms that describe gender identity. First is transgender, which refers to individuals that feel a disconnect from the gender they were assigned at birth based on their assigned sex. For example, a transgender woman is a person who was assigned the male sex at birth and identifies as a woman, and a transgender man is a person who was assigned to the female sex at birth and identifies as a man. Second is cisgender. Cisgender refers to a person whose personal identity matches their assigned gender at birth. Then the next term is nonbinary, which is an umbrella term covering all gender identities and expressions outside of the gender binary of male and female. Nonbinary persons may use the gender-neutral pronoun "they" in the place of "she" or "he." It should be noted that this list is by no means exhaustive. There are many other gender related terms that are important to learn. Some of those other terms include *gender fluid, gender queer*, and *gender nonconforming*.
25 17:06 — 17:59	Now, let's transition to talking about gender spectrum communication therapy specifically. Our primary goal as board certified speech-language pathologists, is to, of course, provide effective and meaningful therapy to this patient population. And in particular, we strive to help our patients find and develop voice and communication that reflects their individual sense of gender so that their outside expression reflects the person on the inside. Being comfortable using one's voice is essential for effective verbal communication. For many transgender people, however, one's voice can be a source of great anxiety, depression, and dysphoria. And this could result in avoiding social situations, not voicing valuable opinions at their jobs, and anxiety around many activities of daily life.
26 18:00 — 20:49	What does gender spectrum communication therapy look like? At the end of the day, gender spectrum communication therapy is still just good old-fashioned speech and language therapy. We use the same evidence-based classic voice therapy techniques that we would use with any other voice therapy patient. We simply tailor the strategies to target a specific set of goals for this population. Many voice pathologists, myself included, introduce gender spectrum communication therapy by breaking the concept of communication down into the following six categories: pitch, intonation, nonverbal language, resonance, word choice, and speech sounds. The patient and the SLP then work together to develop individualized voice therapy goals that address each of these subsets of communication. It is also very important to note that we first address any baseline vocal pathologies, or voice disorders, prior to the initiation of specific gender spectrum communication goals, and we make referrals to ENT-laryngologists when warranted. Dr. McKenna previously discussed the parameters of resonance and pitch in the vital role they play in the perception of gender, and now I will introduce a few more communication categories. Intonation. Intonation refers to the rises and falls of the voice during connected speech. Feminine voices are associated with using more inflection, particularly in the upwards direction, while flatter voice lines are perceived as being more masculine. ***(cont. on next page...)***

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26	18:00 — 20:49	***Renee Gustin, M.S., CCC-SLP (cont.):*** Women are also known for drawing out the voice a little at the end of words and phrases, rather than clipping the words, as men tend to do more of. An example of this would be, “Hello, how are you?” versus “Hey, how you doing?” Speech sounds. Greater articulatory precision can be perceived as being more feminine. The generalization is that women overall use better diction and mumble less than men. Word choice. Some studies have shown that women’s’ language, relative to men’s, is commonly characterized as being more polite, less direct, less interruptive, more elaborative. I personally am not a fan of addressing spoken language choices in therapy because I find the generalizations to be grossly outdated and not based on current sociolinguistic trends. The last category is nonverbal communication, which includes body language, facial gestures, and hand gestures. How a patient sits, walks, and moves, can all aid and informing their gender. Here are some examples. Women tend to sit in an S-shape posture, whereas men tend to sit in an A-shaped formation. Women use more facial expressions and hand gestures in communicating overall, and women cross their legs knee to knee, whereas men cross them ankle to knee.
27	20:50 — 21:34	The specific goals targeted in therapy can greatly differ depending on who the patient is and what they hope to achieve in therapy. In general, patients will express the desire to learn the use of more feminine, masculine, or gender-neutral communication patterns. Some patients may want to work on a combination of communication styles. The most important thing for the clinician to remember is to never assume which specific communication style a patient may want to be trained in, based on their appearance or gender perception. Just as gender can be a fluid construct, so can one’s communication patterns.
28	21:35 — 23:08	Here are some examples of commonly utilized therapy activities. The first exercise is related to training feminine communication. Female speakers are known for speaking with more forward nasal resonance. In order to achieve this vocal quality, patients are encouraged to subtly smile while they talk. This strategy is very successful at keeping patients’ voices sounding bright and resonant—like the sound is coming from the front of the face—and this resonant quality is very strongly associated with feminine voicing patterns. A recent study Dr. McKenna and I completed on 16 patients seeking voice feminization showed that resonant voice changes significantly changed pre-to post-therapy. Specifically, F2, which we know reflects tongue position in the oral cavity, significantly increased. This means that patients were able to have a more forward tongue replacement that assisted in changing their resonance. The second exercise is related to training masculine communication patterns. Male speakers are known for speaking with more darker, oral resonance. to achieve this, patients are encouraged to round their lips while talking. This technique is successful in teaching patients to maintain a lower perceived speaking pitch and a more mouth focused resonance—both qualities that are more correlated with masculine communication styles.
29	23:09 — 23:41	Before we conclude this presentation, I would like to share with you a quote from one of my patients. “Voice therapy for transgender people is a true blessing. If someone is willing to put the time in outside of the therapy session, they can see wonderful changes in the pitch of their voice without surgery. Voice therapy has not only allowed me to reach the pitch I want for my voice, it has boosted my confidence level because I no longer get misgendered.”
30	23:42 — 24:05	Gender identity is just one part of who we are. How someone is perceived can impact their view of themselves and their quality of life. Gender-related communication therapy uses speech and voice scientific concepts to shape the speaker’s communication to meet their expression needs.
31 32	24:06 — 24:24	Please find a list of the references used during this presentation on this and the next slides.

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33	24:25 — 24:50	***Renee Gustin, M.S., CCC-SLP:*** Should you be interested in further education and resources, please take a look at the links and the organizations listed here, including the World Professional Organization for Transgender Health, ASHA's statement on transgender communication care, and our transgender voice therapy services at the University of Cincinnati."
34	25:51 — 25:00	Thank you very much for your time, and please feel free to reach out with any questions.