

Laryngology Part 2 with Dr. Ronda Alexander

Ologies Podcast

February 1, 2023

Oh hi, hi. So, it's still that bobby pin under the couch cushion, it's Alie Ward, we're back with Part 2 of Laryngology. So, if you are tuning in without Part 1, I don't know what to tell you, go to Part 1 and then we'll see you in, like, an hour for this follow-up featuring wall-to-wall questions from folks supporting the show at [Patreon.com/Ologies](https://patreon.com/Ologies).

Also, thank you to everyone who rates the show and leaves reviews. I do read them all. Here's a little fresh proof, thank you Ktedmonb, who left the review:

Been listening since 2019 and it's still my favorite podcast. You've been with me through college, pandemic, and now through every relocation and long-distance flight.

Honored to be jammed in your ears. Thank you, Ktedmonb for that. Okay, let's move on. Part 2. Thank you to everyone also who let me know while some docs may say, like, "eh" to the HPV vaccine after the age of 26, you *can* still request it and probably get it covered by insurance much later in life than that if you want. So, talk to your doctor, you totally have my blessing. Also, those beats were made by Jason Scardamalia, thank you for making those, that was amazing.

Okay, so get yourself a cup of warm tap water and let's hear your questions as I say them with my mouth. We'll cover whistle tones, Mariah, damage to your voice box, the lowest voices, throat singing, perfect pitch, stress, and voice cracks, and more, with surgeon, MD, icon, and your new favorite laryngologist, Dr. Ronda Alexander.

Aside: Okay, let's start your questions with GG and first-time question-asker, Chris Lipford's inquiries about, in Chris' words, what the heck is going on when people sing in the whistle register? I need to know everything, please and thanks.

Alie: Okay, I have these on my phone, so many. Erik K wants to know: Is it possible to make a sound outside of the human hearing range?

Dr. Alexander: Would we know? *[laughs]*

Alie: I don't know! I don't know. Do we need, like, a bat detector?

Dr. Alexander: We could detect that with specialized audio equipment. I don't think we've ever tried.

Alie: I don't know, I'll look it up. Maybe ultrasonic, who knows?!

Aside: Okay, so I checked into this and according to one BBC report, we can hear frequencies up to 20 kHz but most human beings cannot shriek higher than 3 kHz, unless you're Mariah Carey singing her 1991 ear-splitting single, "Emotions." *[clip of Mariah Carey singing several whistle tones, then "You've got me feeling higher, emotions."]* So good. So, that was from the 1991 VMAs which experts say was her highest recorded note at a G#7, I think, which would be 3.3 KHz. Is that, like, dolphin range? Almost. I checked it and those marine mammal friends of ours can whistle at 3.5 to 10 KHz. And actually, in looking that range up, I stumbled across an absolute Venn diagram of this aside which was a 2021 TikTok of Mariah in the ocean, singing a whistle tone to a dolphin who seems to react with some kind of surprise, maybe glee. I shouldn't anthropomorphize, but speaking dolphin, Mariah, and setting world records.

But then... along came Georgia Brown, which is a stage name for an Italian-Brazilian singer who was able to best Mariah and hit a G10 note. So, I'm going to play it. If you have really sensitive ears just turn down your volume for a second or skip ahead 15 seconds because it is bonkers. [*prolonged whistle tone, sounds like a kettle whistling, followed by laughter and applause.*] So, that would be around a 5.5 kHz, like mid dolphin range. So, if you're carpooling with dolphins, they loved it. But those are the highest of highs, there's got to be a low.

There is. And its name is Tim. Tim Storms, an American country crooner, can sing 8 octaves below the lowest piano key, making a sound that is less than a single Hertz, 0.189 Hz to be exact. So, we can't even hear it, but we can feel the vibrations. And of course, I don't have a recording of that because, again, we can't hear it. But here's an example of Tim's just casual, everyday, non-record-breaking singing. [*clip of Tim Storms singing "Lonesome Road"*] one of the top comments on that YouTube video is, "Thanks, this dislodged my kidney stones."

Now, of course our hearing can change over time but what happens to our voices over the whole course of our lives? So many of you had this question including Virginia Bruce, Hannah Lapham, Leanna Shuster, Celia Bell, Andrea Crain, Meredith Snowlander, first-time question-askers, Laura Roser, and Coco & Zozo, and...

Alie: Courtney K wanted to know: Are there strategies to prevent our voices from aging?

Dr. Alexander: So, to reduce the impact of aging on the voice, stay hydrated, take good care of your voice, again those three rules: no cell phone outdoors, no yelling, no whispering. And if your voice is in trouble for more than about ten days to two weeks, come see somebody who can talk to you about options. [*"I need a doctor."*]

Alie: I really love this question. Delaney, Jen A, Greg Walloch, Bennett Gerber, Jade Walker, wanted to know, in Jade's words: Voice breaks, what are they? Bennett asked: Why does my voice still crack? Also, Jen A and Delaney wanted to know: Why does being nervous make our voices shake? Like, when you watch a TED Talk and you can tell someone's nervous, a little warbly, what's happening when our voice cracks?

Dr. Alexander: Okay, so there's two different kinds of cracks that I'm hearing in these questions. One is the crack that happens when you haven't made the switch from your chest voice to your head voice, or the falsetto. So, if you're trying to sing with full power at a note that's outside of what your voice box is physically able to do, it's going to say no, it's going to sit down like an angry dog and say no, and that's when you get the [*simulates a voice crack*] while you're trying to sing.

Now, the effect that you see when someone's doing a public speaking event when they're having nerves, that's coming from adrenaline or epinephrine that's coursing through the body. Because all of our threats are now mental and psychological, largely, instead of physical, our body perceives danger the same way. So, there's no difference between, "I'm about to be interviewed by Alie Ward," and, "I'm being chased by a tiger," right? [*laughs*] So your body's nervous system, again that sympathetic nervous system is like, [*imitates 'bro' voice*] "All right gang, we're in danger, everybody get pumped. [*Alie laughs*] Let's do it! Kidneys shut off, blood vessels to the outside parts, clamp down, we don't want to bleed to death. Heart, let's go! To the big muscles in the close part of the arm and in the leg because we're going to run or we're going to kick *A double-S.*" So, [*pants*] that adrenaline feeling is going to make your voice box just a little bit shakier because your breathing is more erratic also.

Alie: Ohh! And that's the power.

Dr. Alexander: There you go. The lesson stuck.

Alie: And then, is there anything a person can do?

Dr. Alexander: What I did before you came was, I sat still [*laughs*] and I did some breathing exercises to help myself settle in. One of them is box breathing. I love this one very much, where you pick the number and you count in-breath, hold, out-breath, hold for whatever that number is. So, in the beginning I usually start with a three count and then as I get more relaxed, I can get to a five-count because I can hold my breath that long. Those breath holdings are going to activate the balancing system, the parasympathetic system, to calm you down.

Alie: So, deep breathing does work neurologically.

Dr. Alexander: It does, yeah.

Alie: It's so funny because it's like, if you're freaking out a little bit, it seems so difficult to sit down and have a deep breath even though you know it's going to help. Same thing if you're depressed; if you can get up and walk, it's probably going to make you feel better but you're like, [*weepy voice*] "It's the hardest."

Dr. Alexander: Yeah, the activation energy to do the thing is the hardest part.

Aside: Activation energy? Executive function, anyone? So, we have a three-part series on ADHD from February 2022 with Dr. Russell Brand. [*"Come again."*] Oh my god, what the fuck, Russell Brand is not his name. His name is Russell Barkley. Russell Brand is the British guy with the hair that looks like it smells like nag champa who was married to Katy Perry. [*"Not an evil version but just, you know..."*] Russell Barkley. I had to go step out of the audio booth and look that up on my phone. I've recently given up caffeine. Let's get back to it.

Like I was saying we have a three-part series on ADHD from February '22 for you, and yes, I will link that in the show notes to make it easier because I get it, I see you. [*whispers*] I'm one of you.

Speaking of, patron Jasmine Kwasa asked: Why can I always tell the other person on the line is also Black, like me? I know that race is a construct with no biological basis and that accents and dialects are the things that can be reliably associated with race, and I know that this is a sticky question, but is there something about ancestral origin that can affect the quality of the voice just like the eye shape and hair textures, and how they vary across the planet?

So, I looked into this, and I found a few papers such as, "Do African Americans really have lower voices? Pitch, gender, and ethnicity in Memphis," and another one titled, "Variation in global and intonational pitch settings among black and white speakers of Southern American English." Guess who wrote 'em? None other than 2018 Phonology guest, Dr. Nicole Holliday, who has been on the show and whom we love. So, one of the points that she makes in her research is that AAVE, African American Vernacular English, sees more pitch variation. And I texted Dr. Alexander between the Part 1 and Part 2 episodes about this question, and she said:

Sometimes we are tricked. These intonations and flavors in the voice are learned and often we put on the affectations we think the audience or other person will connect to best. I've had at least three accents throughout my life, but I've been the same person the whole time.

And she ended that with a heart emoji because she's the best. Also, we have a Melanology episode coming up about race, and biology, and skin pigments, and so much good stuff with

Dr. Tina Lasisi, so that's coming out in a few weeks, so hang on tight for that because we'll address that very question.

And on the note of pitch being acquired or biological, Specs Owl and Tristan Debrunner asked about the sociology between femme and masc voices. And Gabe Knuth said: Sometimes someone speaks, and I'm surprised by the way their voice sounds, so I often wonder why I even had that expectation in the first place?! They were not alone.

Alie: RJ Doidge said: Ask about gay voice, please and thank you. And Elijah said: Also, mommy voice. Is it really an evolutionary thing that sparked human language? You know, speaking in a register that's higher. Red Cedar also said: I've heard rumors that some deep voice guys are totally faking it and that the gay voice might be more natural. Do you ever have patients who are trying to modify the way they sound for cultural reasons?

Dr. Alexander: Absolutely. And overall, the umbrella term for that is affectations. So, the "gay voice" is about signaling in-grouping when you're with your people, and to find your people, and it can be a way of determining very quickly who is for or not for you with all of the vocal affectations. And so, if you are a vocal fry kind of a talker, people who are irritated are going to gravitate away from you and you're going to keep people around you who are your in-group. If you're putting on or exaggerating the gay voice, as people do call it, that also signals, "This is who I am, I'm comfortable with who I am and if you're not, that is your problem, not mine." We just had the Theranos... that's an affectation, the documentary exposed, that wasn't her voice. She was up there [*voice lowers and sounds rougher*] on the TED stages and such, talkin' all like this. And then when you catch her a side question she would talk in her more natural voice. But there are connotations of power, vulnerability, in-group belonging, all of which can be signaled with the voice. So, we're all doing it.

My voice that I'm talking with to you now signals in-group to the family I was born into because this is around where my mom talked, so this is what I grew up hearing as a woman's voice, so when mine comes out this way, that's fine. Now sometimes, maybe if I'm a little excited or we're having a very femme-y time, my pitch might go up a little bit, [*pitch raises slightly*] and I might be talking up here, [*returns to normal*] but this is my relaxed register, right here. I probably even did it during this recording.

Alie: When you listen back, you're going to have to hear it.

Dr. Alexander: Yeah, like a range of your own pitch is also normal because the voice is an emotional experience also. And so, yeah, when I'm super excited, when my Mets are killing it and we make the playoffs, my pitch goes a little higher, I get excited. And when things are a little 'eh', maybe I'm a little bit down here when maybe I'm giving some disappointing news, or I don't want to talk about the thing, I might be down here. But that entire range is natural for me. If it's taking a lot of work, I wouldn't recommend it, because again, then you're putting too much tension on the voice box. If you ever feel pain, either in the neck or in the throat when you're speaking, that's an indication for a medical exam immediately.

Alie: What about baby talk? When we see something cute, why does it go up [*super high pitch*] so many octaves?

Dr. Alexander: And is attached with violence called cute aggression.

Alie: Yes!

Dr. Alexander: So, that I think is more cultural, it's not physiological. But gosh darn it if babies don't respond to those high pitches. [*laughs*] Gosh darn it if they don't love it and so we do it more.

Aside: And just a side note, we side-noted about this in the Teuthology (squid) episode with Dr. Sarah McAnulty. But if something adorable makes you want to destroy a vase or kick your couch, this is indeed what Yale researchers have studied and dubbed 'cute aggression'. And one hypothesis is that the brain simply cannot deal with that much positive stimulation at once and turns some of it into the opposite, like a negative emotion which, for most people, ends up being aggression, or screaming, or squealing, or slapping themselves about the face.

But what if you squeal in the presence of a baby? Do they like it? I don't know. I asked the fourth dimension called the internet and it pointed me toward the 2017 *Current Biology* study titled, "Mothers Consistently Alter Their Unique Vocal Fingerprints When Communicating with Infants." And yes, parents raise the pitch of their voice around babies across so many cultures and languages, even monkeys do it. And scientists think that the exaggerated speech patterns can maybe help babies pick up on communication faster. But I also think that when we see something cute, what happens is that there's a variety of ghosts in the room who also see the cute thing, and since they can get away with a lot of weird shit, the ghosts experience that cute aggression and then they try to choke us, and then it compresses our resonators and our larynx, making us squeal. And that theory isn't proven but it is correct.

So, patrons Sydonie S and Madi East wanted to know: If you're with child, why your voice might sound different to you? And the reason is, because it *is* different. Have you ever seen a pregnant person's feet? A lot of the body swells up and the vocal cords just do not have a 'Get out of swelling free' pass here folks, so that's what's going on. Whacky, huh?

Now, Earl of Greymalkin and patron David wanted to know, in David's words: Am I correct that some health issues can be diagnosed by speech? If so, how does that work? Dr. Alexander, that's how.

Dr. Alexander: So, there are signs that we can hear in the voice, there are certain categories of neurologic voice disorders that are attached to things that go throughout the whole body, among them includes Parkinson's disease; the Parkinson's voice tends to be very low in volume, so very quiet, and also a little bit garbled or jumbled because they're not moving their lips and face as well, their resonators and articulators as well. So, sometimes we can get an inkling that way. There are some autoimmune diseases that show up in the voice box because they make deposits or changes in the shape of the voice box or even narrow part of the breathing passage. So, that'll give us a hint.

And then there are also some nerve diseases of the voice box itself. Those of us who are experienced with it can begin to diagnose it just on the story and listening to the person's voice, which is one of the tensions of having a voice practice is, the person's coming to me with a voice problem or concern and then I ask them to talk. So, they often will come with a family member who wants to talk for them, and I have to tell them, "I know this is a loving attempt to make this easier for them, but me hearing their voice is a part of my diagnostic process so as much as you can, tell me your story and when you cannot anymore, we'll go to your reliable, loving helper." And I always frame them that way as a support. "I know you're not trying to ruin this, but when they can't tell their own story, we will absolutely come to you and I will come to you for any details you think they missed," because the sick person is going to miss things pretty often. So yeah, we have to hear the voice to diagnose the voice.

Aside: But let's move onto something more critical. Like, when your roommate goes to Spain for three weeks and comes back with an accent. Patrons Amy Vigallon, Savannah McGuire, Ava Schaefer, Jesse Hurlburt, and Jacqueline Puschmann asked, in Jacqueline's words: Do accents have an impact on voice boxes, or the other way around?

Alie: A lot of people asked about accents, and do they have an impact on voice boxes or do they play a role? Or is that completely just affectation and that's something our brain is doing?

Dr. Alexander: So, that's going to be articulators, again, the way that we sound, the way that we shape the sound with our mouth, throat, lips, tongue, teeth. Accents are particularly lips, tongue, and teeth, and it has to do with the fact that when you're young and learning language, your primary language or languages that you get when you're a kid train how your mouth, lips, tongue, and teeth move when you're making language. So, there are some sounds that if you never practiced doing them, it's harder to do it when you're an adult.

Alie: Oh, for sure. So many folks, I will list them in an aside...

Aside: Here we go: AP, Miranda Hulse-Vincent, Megan Duffy, Ariel Vanzandt, Emmett Wald, Sharika Elahi, Julia Chirka, Mark Hewlette, McCorndog [phonetic], a Bob's Burgers fan, Yukari Peerless, Dantooine, Rachel, Garvey's, Patty Bergmann, Specs Owl, Meredith Snowlander, Connie Brooks, Julie Spradley, and first-time askers, Ashleigh Rivers, Wendi Sue Grover, and Louise Combate.

Alie: ... want to know what happens when you are losing your voice, where does it go? Rachel asked if it's normal to be hoarse after shouting or cheering at events? I recently went to Disneyland and screamed my face off [*Dr. Alexander laughs*] and then my episode that came out that week I sounded like I should be in the hospital.

Dr. Alexander: That's right. That's right, young lady. [*both laugh*] So, when you lose your voice, it is because we have lost the ability for the vocal folds to do their vibration and that can happen from swelling, or from new stiffness from something like a blood vessel breaking. So, shouting in particular can put blood vessels at risk in the voice box to break and when... Well, let's talk about the structure of the vocal cords. So, they've got a lining, what we call epithelium, and then just under that is a special jelly layer called the superficial lamina propria, and that jelly layer is what lets the skin, the epithelium, the mucosa, the lining, vibrate to make the sound while the rest of the vocal fold is changing positions to breathe and speak. This very thin vibration is what's really making the sound.

And so, if that gets stiffened by swelling, or an injury from a blood vessel being broken, or from chronic aggressive use, since the vibration is part of the source of the voice, when the vibration stops then you get no sound, or reduced sound, or reduced reliability of the sound because they can't do their normal work. And so, oftentimes I'll think about if you buy a very expensive violin and you know how to play it really well and then somebody puts a wet paper towel on the strings, it's not going to sound good. And that's what happens when we've got a lot of mucus down there, or if somebody puts their hand on the strings, that can be like what the swelling and stiffness are, you're not going to get good sound from that violin either.

Alie: [*whispers*] Wow. And do you think if a person is screaming on a roller coaster, or let's say the Mets win, is there a possibility for broken blood vessels in there that just need a minute?

Dr. Alexander: Yeah. So, this is one of the few times that I do encourage vocal rest, when we have a broken blood vessel. You have to ride that out. Ride it out and that's real vocal rest which is, like, you talk if it's an emergency like a kid is going to get hit by a car, or someone is going to get burned by fire. For almost everything else, you want to be silent.

Alie: What about crying?

Aside: Patron Delaney asked: When you're about to cry, why does talking or trying to talk open the floodgates? And other patrons with questions included our emotionally honest

friends Jen A, Snarky Mermaid, Multi987, Connie E Carringer, Hryfna, and the wonderful Greg Walloch who asked about being verklempt. *[sniffles]*

Alie: Does crying mess up our vocal cords?

Dr. Alexander: Crying itself, no. The sobbing though, because the sobbing is a modified cough, so it's *[fake sobs]* so it's doing the same trauma to the voice box. So, cry quietly. *[laughs]*

Alie: Yeah, I mean not that we've cried at all the last couple of months.

Dr. Alexander: Not at all. Even today. *[laughs]*

Alie: Just totally...

Dr. Alexander: It's been a great three years.

Alie: Great couple years.

Dr. Alexander: We've been doing great. *[laughs]*

Alie: What about... Did I ask you about burping already?

Dr. Alexander: No!

Aside: Patron Zed Shirogane wanted to know: Why do burps sound the way they do? It would be nicer to have more of a pleasant sound for off-gassing. That last part of the question was more of a comment, but I hear you.

Alie: Is burping just coming from a completely different passageway? Why are burps so guttural?

Dr. Alexander: So, burping is coming from the esophagus and stomach, so that's air that you shouldn't have swallowed in the first place making its way out before it becomes a gaseous emission from below. So, it's socially unacceptable but better for you than if it makes its way all the way through and you can get lots of discomfort in the intestines. So, it's just that air getting organized and sending itself back up.

Alie: And it's bypassing the larynx completely because it's a different tube?

Dr. Alexander: So, they are neighbors, and they share a foyer. The foyer that they share is the mouth and the upper part of the throat, what we call the pharynx. And then they divide into the trachea, which is underneath the larynx, and the esophagus which is for food stuffs and liquids.

Aside: How loud can someone burp? It's a good question that no one needs to know, but 112 decibels, that's the world record, which is about as loud as a rock concert. And I listened to a recording of that, and it made me involuntarily wretch so I'm not putting it in.

But speaking of which, how does acid reflux mess up your larynx exactly? Well, your beautiful lips are the doorway to the alimentary canal, which is a long, fleshy, pool noodle tube that's made up of your esophagus, your stomach, your intestines, your colon, and finally, your beautiful little butthole which is only one sphincter along that whole journey. Did you know your mouth has a sphincter? And you have them all the way down, like one-way doors. You have an esophageal sphincter, that's a polite barrier between your stomach and your throat, and sometimes it's just a little lax directionally and your stomach acid does an unannounced backtrack drop-in to be like, "Hi!" into your throat and your throat is like, "No. I don't appreciate the visit." And it responds with a sore throat and an irritated voice box.

So, how do you avoid this? Experts say, don't wear tight clothing, maybe consider sleeping in a recliner, which Dr. Alexander has done, and talk to a doc about some lifestyle or maybe dietary changes too, but do not suffer with it in silence.

Now, what if one of your lifestyle changes is taking up throat singing, which is using the vocal cords and the resonator of the larynx and parts of your lips and jaw, to produce a few different notes at a time? What a hobby. So many cultures do practice this from parts of central Asia like the region north of Mongolia called Tuva, which has developed this continuous circular breathing to sing different notes; it's an art known as Khoomei. And they developed it to replicate and pay reverence to nature but there are also groups from Japan and Italy, Peru, India, South Africa, China, all over that practice throat singing. There are Alaskan Inuit groups that throat sing to lull their babies to sleep but, unshockingly, they were banned from throat singing by religious colonist missionaries who thought that the art sounded satanic, but a few elders preserved the technique and they've been able to pass it on to future generations.

But many patrons wanted to know, what is going on here? For example, Erin Gunderson, Chris Curious, Buhbrie, Michael MacLeod, Sonjabird, Sarah King, Emilio Donnelly-Ramos, and Nico Peruzzi, and first-time question-askers, Sherrie Dennehy and Krystal Symons.

Alie: So many folks wanted to know about throat singing. Sarah King says: Throat music!! Tell me how they do it, please. Does it hurt?? Like Tibetan monks and stuff? Chris Curious asked: What's happening in the voice box? And my brother-in-law does throat singing.

Aside: Shoutout to the lovely and talented Kyle Sleeper of Whitefish, Montana. [*clip of Kyle throat singing*]

Alie: He does not sound human when he does it. What's going on?

Dr. Alexander: So, we naturally use our larynx, our true vocal folds, as our vibrator. Under certain training, and that's what throat singing is, it's very specific training, they're using other vibrators so other parts of the throat are doing more intense vibration than you and I are trained to do. So they are able to make multiple sounds at the same time and also a sound that has a totally different shape, because if you are vibrating some of your resonators instead of just your primary vibrator, then we get a whole different sound.

Alie: So, training is key for that.

Dr. Alexander: Mm-hm. And that's another one, I'm impressed with your brother-in-law because that's another thing where if you don't get it early, I don't understand how you learn that at, like, 30.

Aside: I asked him for tips, and he sent me this video.

[*Kyle speaking to Alie:*]

The dogs are going crazy, but I think advice would be, is relaxing and as you're vibrating your vocal cords down here, it shouldn't hurt. It's less Cookie Monster, which would be like [deep, grumbly voice] "Hm, I'm Cookie." It's less that, it's a little bit lower down and a little more relaxed like [throat sings]...

Also, I was like, "Kyle Sleeper, my brother, can I tell people that you're cool and happen to be single?" And he said "[chuckles] No." And then I was like, "But ologites are the best." And he's like, "I mean..." So, hmm, @KyleSleeper on Instagram, just say, "Dad says hi."

Okay, as long as we are tossing out my recommendations, we're going to hear about a few sponsors of *Ologies* coming up who make it possible for us to donate to a cause of Dr. Alexander's choosing and that is once again the Laryngology Education Foundation Health Equity Grant program which supports endeavors that increase understanding and awareness of how racial disparities impact laryngology and speech language pathology care in the US,

specifically for patients of a Black diaspora, and it supports initiatives that address these disparities in our communities. So, thank you, Dr. Alexander, for doing the show and for pointing us toward the Laryngology Education Foundation Health Equity Grant program, we'll link them in the show notes. And thank you to these sponsors for making the donation possible.

[Ad Break]

Okay, where were we? We were throat singing. So, for more throat singing tunes you can look up performances by Tuvan throat singing ensemble Alash. You can seek out throat singing groups on whatever your favorite music app is, or you can buy music by smaller artists on sites like Bandcamp and look for local Indigenous performers that you can support, so jam it in your brain. Okay, more questions.

Alie: Christine Parker-Graham, Jen Logan, Jesse Rose, Jasmine Kwasa, Tonia D'Amelio, and Lianne Murray, Lianne long time listener, first-time question asker and asked: As a singer, I'm curious what is actually happening when a vibrato happens. And is there truth to what their teacher said about always really being hydrated for singers? "Pee clear, sing clear," is what they heard. [both laugh] All these folks wanted to know what is vibrato?

Dr. Alexander: Yeah, so vibrato is an additional layer that we put on top where we are gently varying the resonator. So, that would be like if you had maybe a flexible piano where you could squeeze it in and out, that would change the frequency in a different way than changing the actual tone that's being struck. And so, vibrato, you'll see when you watch the neck of someone who is singing with vibrato, you'll see the whole voice box moving often, and so that is doing some subtle changes to the shape of the resonating cavity and that's what's changing it, that's what vibrato comes from.

Peeing clear is probably a little bit over-achieving, but the more hydration that's available in your body, the more your body can distribute it to the places that need it. So, I would say, definitely drink when you're thirsty, drink a little ahead of being thirsty, and don't cross your singing teacher.

Alie: Can you learn vibrato? Or it's just some people can use those muscles, some can't?

Dr. Alexander: Oh, it's something that can be taught and, in my practice, I spend a lot of time taking my singers out of it because the way that our machine works, to do the imaging of the voice box, we need you to make a single frequency for the machine to work. So, they naturally want to give me all of [*sings the word 'this' with vibrato*] this and really, I want [*sings with a single tone*] this, a flat tone. Their brains are so focused on making the sort of theatrical sound that lets them be as long as possible. I'm like, "I don't need it to be that long, but I need you to make one frequency please for this machine to work, stay with me, kid."

Aside: So, a few machines that an ologist of this ilk might employ are video strobe-laryngoscopy or a laryngeal electromyography. What they'll do is they'll hook you up to it and then they'll maybe make you pronounce those words, and if you can't pronounce them then they're like, "You're normal, those are very big words." That's not true.

But what if your voice, really though, isn't fine? We covered gender-affirming vocal surgeries and therapies in Part 1 too but many people asked about just repairing vocal cord damage, and voice box transplants, and just tune ups. I'm looking at you Kelsy Simpson, Patrick W, Shannon Ryan, Emily Okerlund, Kathleen Deyling, Jessie Dragon, Courtney Peterson, Dawn Ewald, Ellen Voss, Nancy Kay Clark, Alia Myers, Polina Nechaeva, Katie Munoz, and Patty Bergmann, and first-time question-askers, Adam Silk, Emmett Wald, and Arian Leroux who

asked: Voice surgeries, what sort of black magic is that? And in this specific case, I think it would technically be Black girl magic, but I'll let the voice surgeon speak to the other questions.

Alie: What about damaging or repairing a voice box? Kelsy Simpson, a host of other people, want to know: After being damaged, will your voice box repair itself, or will you just have to live with the damage forever, or are there surgeries to repair it?

Dr. Alexander: So, that very much depends on the nature of the injury. So, if the injury was something like they were in a car accident and the voice box, the cartilage, is actually broken, that's going to need medical help. If it is a phonotrauma from the way that they use the voice, that can be coached often, but sometimes there are parts of that that need surgery, like a cyst or a polyp often will end up needing surgery. There's a thing called a pseudocyst that we will often treat with anti-reflux medication and also good habits against reflux, (get a recliner, guys!) [*Alie laughs*]

But there also can be injuries from medical care that then we have to come behind and fix. So, breathing tubes in the throat, intubation. Sometimes if there's an emergency like a car accident or heaven forbid, some kind of medical emergency that's what we call "Out in the field," not in the hospital, not in a doctor's office, the emergency medical technicians are doing their best and so they're just trying to have you alive when you get to us. And so, some of the things that they may do with a breathing tube, or a feeding tube may do some bumps and bruises of the voice box and we're here to help rescue that. So, contact your local laryngologist for some help.

Alie: And with stroke victims, is it the articulators that need to be retrained or have lost some of their function?

Dr. Alexander: So, often with stroke survivors, it is what we call dysarthria. *Dys* means 'bad' or 'wrong' and *arthria* is 'shaping.' So, they're going to have, oftentimes, problems moving the lips, tongue, cheeks, face, so they're not shaping the sound well. And so, again, the exam is yes, I'm looking at my patient but I'm listening equally hard. Do they have a strong sound, but the shape is garbled? Or can I just not hear them at all? And so, I have to sort out, "Is it a problem in the mouth? Is it a problem of... they lost their dentures?" Because not having teeth, it impacts the way your lips lie and that will change the sound of your speech but not necessarily the voice.

But then we also examine to see if there are any issues with movement of the voice box itself, so one or more vocal cords can be paralyzed but usually not from a stroke where the person has recovered because you have to lose a *lot* of brain to get a vocal fold not to move after a stroke. But we always examine to see what's happening.

Alie: And is there a lot of hope in terms of rehabilitation for that, or is it a pretty tough road?

Dr. Alexander: So, kind of the trajectory of the rehabilitation and recovery goes along with the brain recovery. So, getting good physical medicine and rehab treatment with physical therapy, occupational therapy, speech therapy are all going to be important as the rest of the body and brain recover. We can additionally get better strength and also making sure that the lungs are working well, and they're well supported, and their breathing is organized.

Alie: Let's talk about tone and range. Some people want to know...

Aside: Patron Natalie Prince and first-time question-asker Hope Shinn asked, in Hope's words: Why are some people naturally good at matching musical pitches, (i.e., singing) while others aren't? And a flock of songbird patrons such as Jade Walker, Iris Hutchings, Emily

Layfield, Quinn Newman, and Tristan Debrunner wanted to know why it's harder for some folks to carry a tune.

Alie: Why do some people just not have, in Dave Schuster's words: The balance between innate ability/talent and formal training when it comes to range and understanding and replicating tone. Do some people's resonators just not give them a good idea of what sound they're making?

Dr. Alexander: Oh gosh, we can ask my dad. [*Alie laughs*] He's what we call wrong and strong when he's singing. It's precious now but oh boy was it embarrassing for about 30 years. So, it's outside the field of laryngology but there's something in the brain where they're not hearing what they sound like to the rest of us. And it's not even a matter of just tone difference in the temporal bone or around the temporal bone. They're just not getting it and I don't know how they would survive in a language setup that is tonal. So, like, don't be one of these people and be born to a Mandarin-speaking family because you're not going to be able to communicate.

Alie: Wow, I didn't even think about how different languages rely on tone so much more.

Dr. Alexander: Oh yeah.

Alie: Wow.

Aside: So, now onto a question that was just swelling up in the back of the throats of Melanie Lee, McKenna Speed, Celia Bell, and me.

Alie: What about tonsils? Allie Paul, first-time question-asker, says: How much do tonsils affect the voice? Allie's been told, I have huge tonsils, but no doctor even suggested they be removed. I had mine removed at 26.

Dr. Alexander: I'm sorry.

Alie: Oh god, it was the worst thing.

Dr. Alexander: It was terrible.

Alie: It was the worst.

Dr. Alexander: It was a hate crime.

Alie: It was. I got... I thought I was getting better and then I ate a piece of chicken which got lodged in the hole in my throat.

Dr. Alexander: I'm sorry.

Alie: It was not a good time.

Dr. Alexander: Yeah, we have pretty high hurdles for adult tonsillectomy, you really have to earn it because we know it's terrible. [*"You earned it." "No, I didn't."*] And so, tonsillectomy can affect the voice because it's changing the shape of your resonator. Again, imagine you change the shape of the piano, it's going to sound different. So, if you have these big lumps in your throat and we take them out, you have to reorient yourself to how you're shaping your sound and also, it's just really a bad surgery. We don't have a good time doing it, so that's why if your doctor is like, "I don't think you need a tonsillectomy," it's because we have seen how bad it is. I like to explain, it hurts, it hurts more than you think, it hurts in a way that I can't really explain. Women who have given birth without any medicine tell me tonsillectomy hurts.

Alie: Really? [*Dr. Alexander laughs*] Well, as a person who has not had a baby and isn't going to, that makes me feel a little bit more like a badass.

Dr. Alexander: Yeah, tonsillectomy is right up there. *[laughs]*

Alie: Yeah, I woke up crying; days and weeks into it, I woke up crying because it was just like knives, constant knives. A few people, Aven wants to know: What happened to Julie Andrews' voice? I guess she had surgery on her vocal cords. A lot of people want to know about Julie Andrews.

Aside: So, Aven asked: What happened to Julie Andrews' voice? She had such incredible range, what went wrong? They want to know. And Bees Knees and first-time asker Sarah Roh, also wanted to know more about the *Sound of Music* and *Mary Poppins* star and the 1997 vocal cord surgery she underwent. So, she was doing *Victor/Victoria* on Broadway and had some hoarseness from just the nonstop shows and had surgery to remove nodules she was told she had. Although, she actually didn't have nodules and the needless surgery apparently destroyed her singing voice forever, it resulted in a malpractice lawsuit to the New York City hospital that performed the surgery. She's now 87 and she hasn't regained her voice, but she spoke to Barbara Walters a year or so into losing it.

[clip of Barbara Walters interview with Julie Andrews:]

Julie: I went in for a routine procedure that I was told would not be threatening to my vocal cords. And since then, as you know and as everybody's been talking about, I've just been unable to sing.

Barbara: That's the big question, will Julie Andrews be able to sing again?

Julie: Well, I can only say I hope so.

Alie: Do you have any thoughts about her?

Dr. Alexander: Thoughts about Dame Julie Andrews, number one, she's a queen.

Alie: Absolutely.

Dr. Alexander: Everything from Maria to Mary Poppins, to the Queen of Genovia, full support. What happened, we believe... Again I'm not privy to her medical care and we respect her privacy. But anytime we operate on the vocal folds, remember I described that superficial lamina propria, that special jelly layer, every time we open it or operate into it, we are increasing the risk that there could be a scar that develops, and if you scar or lose that SLP layer, you can't make that vibration and that's why she can't sing the way she used to.

Alie: Aww. There must be a lot of grief, I imagine, for her.

Dr. Alexander: Yes, singing is her identity. For me, the voice is... that's our imprint, that's our real signature, these days in particular. You know who is on the phone without the caller ID when you hear them. Infants know our voices; infants know their mom from what they heard inside. So much emotion is attached to the voice.

So, that's why even though I do lots of voice surgeries, I don't take it lightly. Every time we're operating on the voice, we're taking a risk that the voice will be different in a bad way when we're done. So, we have specialized techniques, we do things like add injection of liquid to float the lining away from that layer so that we can operate on it safely. And just all kinds of things to protect that voice because we haven't developed a good replacement for it yet. There's lots of labs that are trying to engineer a replacement for superficial lamina propria but it's just not there yet.

Aside: And remember from Part 1 that the superficial lamina propria is that layer right under the moist epithelial tissue and the superficial lamina propria covers the muscles of the vocal cords and you do not want to fuck that up and ruin Julie Andrews' life. No thank you.

Also, from Part 1, we covered Adam's apples a little bit in an aside, but listener Gabe Knuth is not a fan of getting smacked in theirs and other folks had questions, Lila Mankad, Ira Gray, Danae DeJournett, and Cass all wanted to know essentially: What's the deal with Adam's apples.

Alie: And then last listener question I realized I forgot to ask: What about Adam's apples? Some people want to know, why does it hurt so much when you get clotheslines on the Adam's apple? Like, eugh! Also, surgeries for reduction of that, does that affect the voice or is that just all kind of a bulk of cartilage?

Dr. Alexander: So, getting a clothesline injury to that area hurts because it's supposed to hurt because you're not supposed to do that. Again, it's that flexible, the soft cartilage, it'll flex but it can also break so if you're having pain, please seek medical attention, that's number one.

And then, when it comes to reducing the prominence of it, that is part of our gender-affirming surgery protocols that we can do. We make small incisions up under the chin and we use special instruments to shave that area down so that it's smoother and easier to either camouflage with makeup or just not obvious at all. We set the surgery up so that we can watch the voice box at the same time to make sure that we're not entering because it shouldn't affect the voice. We affect the voice for our femmes in other ways with voice rehab or with the endoscopic, through the natural hole, surgery to shorten the vocal folds. But when we're shaving down the Adam's apple, our goal is not to change the voice.

Aside: So, let's get to a critical question. Patron Jessica Janssen asked: Why can I not sing? While Alexandre Catulle asked: Why can't I sing? Antonia Clark wanted to know: Can anyone learn to sing or are just some of us just hopeless cases that should keep it to the shower? Likewise, Hester Dingle inquired: Can one learn to sing nicely or am I forever doomed to sound like a squawking cockatoo? Gracie Zrain, Jolin Bloom, Popita, Lee T, Scott Gilb, Erica Periandri, Celeste Rousseau, and Meredith Snowlander all had similar questions but I'm going to put it in the first person because I'm also ashamed and desperate.

Alie: Do I have hope as a singer? My husband once got me vocal lessons because we once were in the car on a road trip and he was like, "What's a class that you would want to take that scares you?" And I was like, "Oh, a singing class." I'm terrified but I've always wanted to sing. And because of COVID, I've put it off now for like a year and also because I'm scared. Do I have hope?

Dr. Alexander: So, I would say unequivocally, yes.

Alie: Okay, appreciate that.

Dr. Alexander: And the reason for that is that singing is not always about what comes out but where it's coming from. So, if the sound that comes out of your mouth came from joy in your heart, then you're already a success.

Alie: Thank you. I'm going to form a band with your dad.

Dr. Alexander: *[laughs]* It's going to be rough for the rest of us.

Alie: We're just going to do duets, duets all the time.

Dr. Alexander: My poor dad.

Alie: Other than me and your dad singing, hardest thing about your job? Hardest thing about being a laryngologist? Anything, floor is yours.

Dr. Alexander: I would say the hardest thing about being a laryngologist includes sometimes having to tell people they have cancer.

Alie: Oh fuck. Yeah.

Dr. Alexander: And having a surgical non-success for getting out one of those airway tubes, and just having to tell them flat out, "What we tried didn't work and I'm sorry."

And not so hard, but occasionally hard is that sometimes... Medicine is one of these things where you walk into a room with a stranger and they ask you a bunch of personal questions, and some of my patients... they tell me really, really bad truths about their lives or their situation. And to be able to balance my human heart, and give them encouragement, and also do the medical diagnostic work I have to do, because sometimes I just want to go down the rabbit hole with them.

Whether it's, "Oh, I'm here because I survived an abusive situation and I did have an injury to my voice box, what can we do to make it better?" All the way to, "Oh, I'm back, I'm trying to stop smoking but I'm just out from incarceration, but I've got this great job." And for me to be able to be present, and encouraging, and neutral in their lives and be like, "Well, thank you for sharing that, that's not something you can share with everyone and I thank you for trusting me with your truth," it's a real responsibility to be authentically here and present with patients so they can tell us the truth and we can get to the root of the matter. So, it's sometimes hard but it's also a privilege to be just that trusted.

It can be tough but we're trying to show up for our patients as real people, so sometimes your doc is having a bad day, sometimes you're having a bad day, so we want to offer our patients grace and we hope that you can offer us grace as well. And you know, I think sometimes people don't always remember that we may have just come from a room where we gave super, super discouraging news to someone and then we're coming to something that's either good or mildly frustrating. And we work really hard internally to meet you where you are because for you, whatever we're talking about is serious and it doesn't really matter for that encounter what I just came from.

But your doctor is a person, so they have to make that transition. So, I hope sometimes if we're like, 5, 10, or even 40 minutes late, that people can understand that sometimes the person with cancer's 20-minute appointment was not appropriate and I have to stay with them until we get through what they need to get through so that I can go in and tell you, "No, you don't need a tonsillectomy."

Alie: Yeah, yeah. That's such a good perspective to give people. Especially as people who have recently lost people, you know what those appointments are like and I'm so thankful for the other patients who did wait while I was in the room with my dad, you know? I'm sure you know that too. What about your favorite thing? What is it that just gets you out of bed?

Dr. Alexander: So, top two is taking out someone's tracheostomy tube and they get to have their natural voice with no yucky appliance; those are their words. And restoring someone's ability to communicate, so getting them back their voice, whether it's with surgery, medicine, or rehab and collaboration with my speech language pathologists, just getting back their confidence and their spark. I love when in the middle of the visit I'll just go, "Do you know how much brighter you are than when you came here the first time? Do you feel different? Because I'm experiencing you differently." And they go, "Yeah, yeah!" And helping them identify that

insight, that the work that they invested in rehabilitating their voice is showing up in their life and the way they just generally present.

Alie: Well, thank you for using your voice. I mean, this is a joy, you are an absolute joy. I'm using my voice to say, I love you, I'm so glad you do what you do.

Dr. Alexander: Well, I am so glad that you do what you do.

Alie: You're the best, thank you for doing this.

Dr. Alexander: Thank you, Alie Ward. *[both laugh]*

Alie: What a great episode!

So, there it is y'all, Part 2. Ask smart surgeons unsmart questions and follow Dr. Ronda Alexander at the links in the show notes on Twitter and Instagram. There's also a link to the Laryngology Education Foundation Health Equity Grant program. We are @Ologies on Instagram and Twitter, and I'm @AlieWard on both and I'm on TikTok @Alie_Ologies if you're into that.

Smologies are shorter, filth-free episodes of the show that are classroom safe, so you can find those at AlieWard.com/Smologies; those are linked in the show notes. Thank you, Zeke Rodrigues Thomas and Mercedes Maitland for editing those. *Ologies* merch is available at OlogiesMerch.com, there are hats, there are shirts, totes, stickers, and more. Thank you to Erin Talbert for adminning the *Ologies* Podcast Facebook group with assists from Boni Dutch and Shannon Feltus. Thank you, every person supporting at Patreon.com/Ologies. Emily White of The Wordary makes professional transcripts and Caleb Patton bleeps them. Those are up at our website at AlieWard.com/Ologies-Extras, linked in the show notes.

Noel Dilworth does all of our scheduling and so much more. Susan Hale handles the merch and a million other things. Kelly R. Dwyer works on our website, and she can make yours too. Nick Thorburn wrote and performed the theme music. Jarrett Sleeper is both handsome and an assistant editor on this episode. And huge thanks to lady of the north, Canadian and lead editor, Mercedes Maitland of Maitland Audio, what a wonder and a joy she is.

And if you stick around to the end of the episode, I reward you with a confession. And this week is that it's drain snaking time, people. It seems like once a year, I get the rare pleasure of sticking a Velcro-tipped wire that I got for \$7 down my shower drain and then just birthing from the muck, something that looks like the child of a squirrel and a sock, covered in hair, a jellyfish made out of hair. It's disgusting and I love it. I love it.

Let me tell you, let me tell you something, all right? I never ever want you to look up reviews for something called a drain snake or a drain weasel on, say, Amazon, because if you click on those customer ratings and reviews and you scroll down and then you look at the gallery of customer images, *[whispers]* never do that. I did it! I did it because I wanted to see, I wanted to see what comes out of other people's drains, I need to see, it was so gross. I have a disgusting goblin gene and I just needed to see what else comes out of people's drains! Augh! It's catharsis, and it's horror, and it's no longer my secret, now you know. *[gagging noises]* Okay, berbye, sorry!

Transcribed by Aveline Malek at TheWordary.com

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