

The Vocalist's Guide to Recording, Rehearsing, and Performing:

Care and Maintenance for Singers in Every Genre



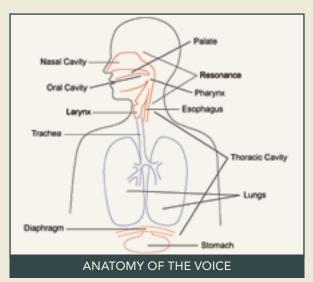
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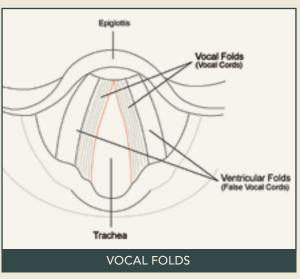
INTRODUCTION: Sing Child, Sing...

The Anatomy of Sound

Though housed within you, you should think of your voice as a musical instrument. Like any other acoustic instrument, it has a motor (your breath), a vibrating element (your vocal folds, aka vocal cords), and a resonant chamber (throat, oral cavity, nasal cavity). And just as with any other instrument, proper care and handling is required to maintain its optimal tone and longevity. Of course, your voice has fundamental differences compared with any other instrument, most notably is that it is part of you and your physiology. What affects your general health can impact the quality of your instrument and your ability to perform.

While singing can be the most simple and natural thing in the world, becoming a great vocalist requires the same dedication, study, practice, and discipline necessary to excel at any musical instrument. It starts with a basic understanding of the structures that comprise the vocal instrument, and the mechanics of producing sound.





Voice Production

Voice production begins with your breath. When you inhale, the diaphragm — a large, horizontal muscle below the lungs — lowers, and the lungs expand and fill with air. When you exhale, air is expelled via elastic recoil of the lungs and thoracic cavity, aided by the abdominal muscles.

The larynx houses the vocal cords, and as the air rushes through them, the resulting pressure causes them to vibrate hundreds — even thousands — of times per second. The sound this creates is then shaped by your throat, lips, tongue, palate, and jaw to form words and sounds. With healthy individuals, the vocal cords open when we are breathing and close when we are voicing, coughing, or swallowing.

Next to and above the vocal cords are the false vocal cords (ventricular folds). Typically, the false vocal cords don't vibrate when you're voicing, but they may come together if you have muscle tension dysphonia, a fairly common condition where excessive muscle tension occurs with voice production.

Resonance

Like all acoustic instruments, your voice has its own special chambers for resonating tone. Once a tone is produced by the vibrating vocal cords, it resonates in and through these chambers, including the throat, mouth, and nasal cavity. While the area above your nasal cavity (the head) and your chest don't literally resonate, singers and vocal coaches will often refer to them as resonant chambers.

These different chambers are often described as having different colors or timbres, from dark (chest) to bright (head/nasal). The greater command you have of all the colors in the resonant spectrum, the greater your dynamic range of tones, notes, volumes, and sounds.

Head voice: Softer singing primarily occurs in the head voice (head resonance), which feels as if the sound you were producing is resonating in your head.

Nasal (mask) resonance: Nasal resonance is bright and is generally part of any well-balanced tone. Combined with the mouth, this can create a resonance that is placed forward, or in the mask (the front part of your face).

Chest resonance: While not precisely resonating in the chest, the sensation is that this tone emanates from below your throat, providing a rich, dark, deeper tone with power and warmth.

Voice Registers and Categories

In regard to singing, vocal register generally refers to a particular part of the vocal range, such as the falsetto, upper, middle, or lower registers. There are seven major voice categories, with various sub-types and classes, recognized across the standard voice classification systems. Women are divided into soprano, mezzo-soprano, and contralto, and men into countertenor, tenor, baritone, and bass.

Soprano: The highest female voice, the typical soprano lies between middle C (C4) and high C (C6). The low extreme for sopranos is B3, and several standard soprano roles call for D6 on the high end.

Mezzo-soprano: The mezzo-soprano is the middle-range — and most common — female voice type. The mezzo-soprano voice lies between, and overlaps, the soprano and contralto voices. The typical mezzo-soprano range is between A3 (the A below middle C) and A5 (two octaves up).

Contralto: The contralto voice is the lowest (and rarest) female voice, with a range between F3 (the F below middle C) to F5.

Countertenor: The highest male voice, countertenors generally sing in the falsetto register (sometimes using their modal, or speaking, register for the lowest notes). The countertenor ranges from about G3 to E5 or F5.

Tenor: The tenor is the highest male voice using the modal register. The typical tenor voice lies between C3 (one octave below middle C) to C5, though some tenors can sing up to the second F above middle C.

Baritone: The most common type of male voice, the baritone range lies between the bass and tenor ranges, overlapping them both. The typical baritone range is from F2 to F4 (the F above middle C).

Bass: The lowest male voice, the bass voice lies between E2 to E4 (the E above middle C).



PART 1: Take the time, do it right...

Vocal Care and Maintenance

Maybe it's true that some elements of being a great vocalist come by way of a blessed, genetic gift, but most truly inspiring vocalists put enormous time and energy into their craft — and continue to do so throughout their careers when they want to endure for the long haul.

You might not think of a vocalist as a world-class athlete, but some medical professionals are making the case that the demands put on your voice when singing one to three hours a night is as intense as those made by a marathon runner on his body. Additional factors such as nutrition, smoking, drug use, noisy environments, and proper voice training (or the lack thereof) play a role in your ability to hit the stage night after night and perform at your best.

Vocal Lessons

Just as an athlete will train, focus, and warm up for an event, a vocalist should consider singing as an endeavor that requires the same preparation and dedication. And while different genres and styles of singing require different approaches to the craft, proper technique and a knowledge of the vocal process will translate across all styles and genres.

Plus, "The singing voice carries with it an inherent risk, in that you only get one instrument," cautions Daniel Ebbers, Associate Professor of Voice at the Conservatory of Music of the University of the Pacific. "If you ruin a clarinet or a guitar, you can buy another one, but you can't get another voice. You don't get another chance."

Taking voice lessons and studying with a vocal coach obviously costs money, notoriously something a lot of musicians aren't blessed with, but if you want to be challenged, learn how to sing properly, and preserve your "one instrument," vocal lessons are worth investing in.

"To me, the most important thing is information," explains Ebbers, "to equip my students with as much knowledge as possible. And on the practical side, they say luck is when preparation meets opportunity. If you get to that day when you have to sing, and you have to sing well, would you want to go into that opportunity not knowing anything about your instrument or vocal technique? You wouldn't want to miss that opportunity because you weren't prepared."

Warming Up

If you sing without warming up, you can encounter all sorts of problems. Warming up is very much about relaxing and preparing the muscles and mechanisms for what they are about to do, and it is also about getting your mind and body into the flow of breathing correctly.

If you attempt to sing, particularly a higher note in your register, without any sort of preparation, your instinct might be to tighten up and force out the note, precisely the opposite of what you want to do. If you take the time to gradually wake up your diaphragm, tongue, and the muscles in your jaw and neck, and get your breathing rhythms and air support in place, you will sound and feel better during and after the performance.

"Different singers have different thoughts about what they should do to warm up," says Ebbers, "and it all goes back to knowledge of your own instrument. At the very least, you need to dip your toe in the water of what your voice is like that day. Very often, I find, 'Oh wow, I'm not ready,' and I'll determine what different things I need to do. Scales are essential, because they teach you flexibility, breath control, breath management – all sorts of things that make your instrument function well. Just singing a scale isn't what I mean, singing a scale in a certain way is really important, where you are completely aligned with your support system."

"First, you need to make sure you can hear yourself," advises vocalist, recording engineer, and producer Jon Marc Weiss. "Sometimes when I practice, I'm one foot from a wall, which is going to give me my voice really, really clear right back into my ears."

What you'll find every vocal coach mention is that good singing comes down to breath. Breathing is not just about holding notes longer — how you breathe affects the tone, the power, and the range of your voice.

"I talk a lot about resonance, certainly," says Ebbers, "but almost always it comes down to the way you take your air in or the way your air is being expelled. Many students find it a revelation that how you sing is determined, in large part, by what you do in those moments before you sing. What you do when you're not singing is just as important as what you do while you're singing. It's setting up your body to be in a position of mechanical advantage, to make sure you're not stressing your instrument unnecessarily, and using your body in the best way possible.

"If you're not connected to your breath supply, if your voice is not riding on top of your breath, then your body is going to compensate and use something else to support your instrument, and probably use something that requires tension in an unnecessary spot that is ultimately unhealthy. It's all about connecting to the breath supply."

Warm Up Routine

A basic warm up, like a series of stretches before an athletic event, can be customized for each individual, but here are a few basics to consider.

Diaphragmatic breathing: When you breathe correctly while singing, your rib cage will lift and your stomach expands. That's how

you know you're using your diaphragm to help fill your lungs. Then use your abs to give you more sustained, controlled, and powerful exhaled breath. To wake up your diaphragm, take six to eight deep breaths with your stomach — not your chest and ribcage — expanding. For three or four breaths, fill your lungs with air, hold it for three beats, then expel all the air in a long, sustained hiss. For the next three or four, let the air go in a series of staccato punches, using your abdominal muscles to push the air out. During all of this, work to keep your face, neck, and throat loose and relaxed.

Lip roll: Take your big diaphragmatic breath, and then hum scales ("me me me me me me me") rolling your lips, like the sound you might make when you're exasperated. Produce a tone without straining your throat, and "sing" — moving up the scale — rolling your lips. This helps you focus on producing the breath and power you need to sustain your singing voice without straining the vocal cords. If you're having trouble getting your lips to roll, press your index fingers on either side of your cheeks to help take the weight of the cheek out of the equation. (Check out Paul Smith's Seven Techniques to see a video of this warm up.)



Relax your throat, face, and mouth: Opening your mouth to it's widest, inciting a big yawn, sticking out your tongue, opening and closing your jaw, doing tongue twisters — even loosening your jaw by massaging the muscles in your jaw and face — can all help to relax your muscles and prepare your instrument for singing. Tongue twisters can be variations of singing and speaking, during scales or vocal phrases, taking special care to enunciate every vowel and consonant. The idea is to get your mouth and mind attuned to placing the all important vowel sounds in the right places to produce clear and well-bodied sounds.

Hum: Without opening your mouth and keeping all the muscles you've just warmed up relaxed, sing a "zzz" then "eee" then "ahhh." Test the top and lower part of your range, never straining, and starting with a comfortable volume. As you warm up, increase your volume.

Sing scales: Using a piano (or a recording of a vocal lesson or piano scales), sing scales from the middle of your range (you can start at middle C) going down to the lowest part of your range, and then go higher and higher to the top of your range. Remember to focus on staying aligned with your support system and having your voice ride on top of the air you're expelling with your abdominal breathing. Trying different vowel sounds will also help you focus on placement and shaping the sounds with your mouth.

Vocal Cool Down

Just as with any strenuous physical activity, a vocal cool down routine can help prevent damage to the vocal cords after a performance or rehearsal. When singing, and even prolonged speaking, blood flow to the larynx increases. Stopping immediately after a performance can result in a collection of blood in the larynx, and speaking or singing while the folds are swollen can aggravate the cords. A gentle, relaxed version of the humming warm-up routine can be an easy way to alleviate this situation.

PART 2: Don't you know that you are a shooting star...

Kill 'em with Your Live Show

What makes a great vocal performance? There are many answers to that, and they don't all require being the most technically gifted singer with a five-octave range. Confidence, charisma, and the right repertoire are among the many subjective elements that go into any great performance, in addition to having chops as a singer.

"'Synthesis' is this fancy word we throw around," says Ebbers, "and I do think it's important. We study all these things individually, but it's the synthesis — a command of your instrument plus a command of the stage — that matters. In classical we also study language, and a command of the language and the words you use, in any genre, is also part of what makes a great vocalist. All these things synthesized together make a great performance."

Of course, much of what helps a performer reach the point where all these elements come together is preparation, practice, and experience.

Performance Preparation

When preparing for a performance or studio date, "the obvious thing to do is rest," recommends Ebbers. "But there are environmental things you might not be aware of or consider an issue, like being in a place where the decibel level is much higher than you think it is. In order to compete with the sound, you have to strain your voice to speak louder to be heard or understood. Many times, people are unaware that they're in such an environment, because there are so many noisy places in our world, and we've come to accept them and adjust. But when you're a singer, you have to be more aware of these environmental conditions."

If you're playing club dates, bars, or parties, the quality of your performance can be severely impacted in the hours leading up to your set by your talking and socializing before you get on stage. "Don't go screaming at a football game or tax your voice before a session," warns Weiss, "even if it's two weeks before a session. That can take its toll on your throat and vocal chords and can really mess you up. Keep in mind that you need to keep your voice in tip-top shape so that when you're called on, you can perform."

But it's not just prior to a given night's performance, especially if you are singing in a stage production or any performance ensemble that requires nightly or continuous performances. "Very often, after a performance there's a party, a reception or something," cautions Ebbers, "and many famous singers will say, 'I'd love to come, but I can't, it's not possible.' It's all common sense stuff that revolves around rest and awareness of your instrument.

"All instruments are subject to environmental conditions - humidity, heat, all sorts of things. But instrumentalists get to put their instrument in a case and walk away, or put it in a room that's ideally suited to make it sound good. We have to take our instrument everywhere, and there's this intersection of our lives and this instrument. So there are all sorts of things you need to pay attention to that other instrumentalists don't have to. But good health is good singing, and whatever you can do to keep yourself healthy is important."

What If You're Not "In Voice?"

So what happens on the day that you wake up and you have a show, and from the moment you open your mouth to speak, you know you're not in voice? Maybe it's environmental, or you've got allergies or a cold coming on, or you pushed yourself too far the night before, but tonight's the night and you have to sing your best.

Warming and lubricating your vocal cords is one obvious remedy, which could include a steamy shower or a few minutes over a sink running with hot water and a towel over your head. Warm tea with honey and lemon is also a go-to remedy to help coax a tired throat back to normal. Keeping warm, your throat and entire body, is also a good idea, as is eating healthy and staying hydrated. Vocal exercises done throughout the day, lightly and never pushing beyond what's comfortable, can also bring your instrument back to operational by performance time.

"It's important to be familiar with how your instrument works," encourages Ebbers. "A lot of students will say, 'I'm not feeling well today, maybe I shouldn't have a lesson.' Now, there are different kinds of not feeling well: if you have a serious medical issue or strep

throat or something, I certainly wouldn't want a student to sing. But if you just feel that you're not in good voice that day, it's an opportunity to learn how to sing when your instrument isn't at it's best. Practice on a day that you have allergies. Become familiar with what your instrument can and can't do on that day. And if you have to sing, you have to sing. Better to come into that situation knowing what it is you can do and can't do, and how you can get around it.

"I've had students have technical breakthroughs on days when they've had colds. Because the illness isn't something that's on their vocal chords, it's up in their nasal cavity, and they have a certain awareness or sensation that they don't have when they don't have the cold, and they're able to find the resonance when they hadn't before. Some people actually make strides when they're sick."

Nothing beats experience paired with dedication to improvement. Live performances — be they big gigs, camp fires, open mics, musical theater, choir — are a great teacher and present challenges and expectations you won't find in a rehearsal situation. But even professional and famous singers have fallen into a cycle of poor technique, overuse, and a regimen that taxes their instrument beyond its limitations.

PART 3: Doctor, doctor, gimme the news...

The Consequences of Poor Vocal Technique

Not all the conditions that adversely affect vocalists are caused by poor vocal technique, but many of the disorders listed here are caused in part by overuse or misuse of the vocal instrument, and many not listed are exacerbated by the same. Below are some common issues for vocalists, including causes, symptoms, and remedies.

Laryngitis

Laryngitis is the inflammation of the vocal folds and larynx, and can cause your voice to be hoarse and deeper in pitch. Chronic laryngitis refers to long-term inflammation of the vocal folds, which can cause persistent hoarseness and vocal fatigue. Overuse and misuse are often responsible, and smoking, dehydration, and acid reflux are also common causes. Treatment varies depending on the cause of the condition.

Vocal Fold Hemorrhage

A vocal fold hemorrhage occurs when a blood vessel ruptures and bleeds, affecting the pliability and limiting the vibration of the vocal cords. Hoarseness, vocal fatigue, and decreased range can signal a vocal fold hemorrhage, which is usually painless. As a hemor-



rhage is often the result of a single traumatic event — such as loud or sustained shouting or singing — the related symptoms develop rapidly. If a hemorrhage is a one-time event, rest is usually sufficient treatment. If repeated vocal hemorrhaging occurs, it probably points to overuse or misuse of the voice, or a problem or irregularity in the vocal folds that could require surgery.

Vocal Fold Nodules

Sometimes called "singers nodes," vocal fold nodules are benign masses of tissue that grow symmetrically on both sides of the vocal cords. Though they probably won't affect your general health, they can severely deter your ability to speak, sing, or produce a powerful vocal tone. Symptoms include hoarseness, pain when speaking or singing, loss of vocal stamina, breathiness, and a reduced vocal range. Typically a result of overuse and/or misuse, they can vary in size, and chronic nodules are akin to calluses within the vocal fold tissue. If caught early, voice therapy can be used to treat nodules, though surgical removal is sometimes necessary.

Vocal Fold Polyp

Generally painless, a vocal fold polyp is a fluid-filled mass that usually develops on one or both sides at the midpoint of the vocal cords. In addition to hoarseness, breathiness, and noisy breathing, polyps can cause diplophonia — two distinct tones heard when speaking or singing. Vocal polyps are likely a result of heavy use of the vocal cords, use under adverse (e.g. noisy) conditions, trauma, cigarette smoking, or a vocal fold hemorrhage. Surgery is likely necessary to remove a vocal fold polyp, though voice therapy may also be part of the regimen for recovery.

Vocal Fold Cysts

A vocal fold cyst is a fluid-filled growth that may appear on one or both of the vocal folds — and even when they are unilateral (on one side), the opposite fold may become irritated and inflamed. As with vocal fold nodules and polyps, the size and location of the cyst will affect the severity of the voice problems, which include hoarseness, breathiness, and voice and pitch breaks. Voice therapy may alleviate the symptoms, though surgery is often required to regain full range and use of the voice.

Granuloma

A granuloma is a benign growth on or around the vocal process, which is part of the cartilage on either side of the larynx. Vocal quality isn't always affected by a granuloma, but common symptoms are hoarseness, breathiness, reduced range, vocal fatigue, voice breaks, and the sensation of something being caught in your throat. Granulomas can be painful, and can be caused by vocal misuse or persistent coughing and throat clearing. They can also be associated with acid reflux, and can be treated with diet and medication, though vocal therapy is also a key to recovery — especially if the condition is a result of overuse and misuse, in which case the granuloma can be more stubborn and persistent.

Dry Mouth

Dry mouth can be a by-product of nervousness — if you're stressed enough, your fight-or-flight response kicks in and as a result, your saliva glands and digestive system shut down. Finding psychological methods to help you cope with stage fright or performance anxiety will help. But dry mouth can also be a side effect of prescription and non-prescription drugs, associated with the use of cigarettes and chewing tobacco, or a symptom of dehydration. Throat lubricating sprays, drops, and gum can help, as will drinking plenty of water, using a room vaporizer, and practicing good oral hygiene.

Phlegm

Excessive phlegm can result in constant throat clearing and coughing, not to mention an inability to sing, particularly in the higher register. This can be a temporary situation caused by infection, food allergies, seasonal allergies, diet, smoking, stress, acid reflux, and environmental conditions — though these same factors can result in prolonged struggles with excessive phlegm. In addition to treating colds or allergies with medication for relief, smoking cessation and drinking plenty of fluid can also help. Diet is also a consideration, and eating dairy, and in some cases wheat and egg products, can aggravate the symptoms. Alcohol and caffeine can also cause the drying up of mucus. As a general rule, if phlegm is a concern, limit or avoid milk, yogurt, cheese, creamy soups, pudding, and creamy beverages (i.e. hot chocolate, lattes).

Visit The Voice Center and Voice Medicine for more information on voice disorders and maintenance.

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The Voice Center

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Advice for vocalists and producers for recording vocals

A conversation with Jon Marc Weiss, accomplished recording engineer, studio designer, and vocalist.

Adele commented on how her producer got her to sing notes she didn't know she could sing — she was able to discover new facets to her voice because of a producer she obviously trusted. How do you know how far you can push an artist?

I think the producer's experience plays a big part in this. How many artists they've worked with in their career has a lot to do with their ability to get the most out of people.

I usually go in, put the mic up, and let the vocalist run through the track a few times. I'll let them roll for a little bit, and I'll tell them I'm not even listening, I've got the monitors down, but once in a while I'll listen in to see where they are. And just from that you almost can identify where the peak is — you can hear an artist and determine, "I know where their strengths and shortcomings are and it's going to get to this level." Or sometimes you'll know that last record or demo didn't really showcase the best of this singer and you can get something better and you push for more.

Before the session, you also have to sit with the artist and get a feel for what the style of music is, and how much experience they have in the studio. I think that's really important for the recording engineer to know, to know how to coach the person. Someone who's recorded in studios for years and knows how to work the mic is going to put the headphones on and start singing and you're probably going to get what you need. When it's someone's first time in the studio, or maybe they go in once a year, they're going to be a bit greener and they're going to need some coaching.

The transition to recording can be difficult. You're wearing headphones, standing in a room all by yourself. How do you help ease that transition?

Not too many artists work with both phones over their ears, they want to hear their voice in the room as well. So one mistake artists make is putting both ears on. And a mistake an engineer often makes is not cutting the feed to one of the ears when the artists has it off and then you've got the playback noise coming into the microphone.

You want to have a really good mix for the vocalist. They need to be able to imagine their voice in that track. It needs to be sitting in that track in a place that's comfortable for them. A lot of engineers won't put delay or reverb on a track until they mix, but with vocals, you really want it to sound good, you might even want to pick out the reverb you're going to use when you mix, and give the vocalist what they want. When they're hearing what they want in the cans, then you're ready to start the recording process.

Also, with most singers, try to get as many people out of the control room as possible. If it's just the engineer and producer, that's probably the best case scenario. Occasionally someone from the band wants to be in there to critique and hear what's going down, but a lot of times I think the artist is more comfortable if it's just the engineer getting the sounds to tape and the producer getting the best performance out of the person.

Unlike most any other instrument, there's a fatigue factor that's going to affect vocals differently than other instruments. Is that a concern?

What's interesting, I've found that often the singer does best at the end of the night. It's so strange, but the best takes come out of those last, "I want to do it one more time!" takes right before we leave for the night. You've already heard yourself quite a few times coming through the cans and the mains in the control room, you know where it's lacking, and the singer starts taking mental notes of where they're having problems.

And, to get the great vocal track means you have to record multiple tracks, and keep multiple tracks. Whenever possible, I'd say the vocalist should have three full tracks recorded, and from there you can build a comp track. It's really common, when you're working with a vocalist, to work one line at a time. You're not rolling through the entire song.

One thing you can do to prep the vocalist ahead of time is have them come in warmed up. Tell them, "You're in the studio on Thursday, so for the next few days, I don't want you to do any strenuous physical activity, I want you to keep yourself warm and watch your diet..." There are so many little things. When you start getting

some experience, you know these things, but not when you're starting out.

Would you say creating a comfortable environment is important?

Yes, absolutely. Sometimes you just have to let them know that there's time, there's no pressure and no hurry, and I'm not going to press record until they're ready. Of course, a lot of times you're still pressing record to see if you can catch something magical.

I had this one session, with a young woman, and her dad and her husband were there, and they thought she was going to be the next big thing. But we just couldn't get a good take out of her. Her dad was totally on her — he was like, "Why, when you're in front of your mirror in your bedroom, you do such a good take, and then we come into the studio and you can barely perform?" Part of the problem was that her dad and her husband were putting way too much pressure on her. You're not going to get a great performance out of anyone that way.

I asked her, "What's different about when you're in your room?" Obviously, she's in a comfortable environment and she's relaxed in her own room — so guess what we did? We brought the mirror, and her bedside table, and candles from her room, and you wouldn't believe it, but it actually worked. She just needed something familiar to make her feel at home.

Bringing a little bit of home along is a great idea.

Well, sure. When you're rehearsing, it's typically in a room with the whole band, and everyone steps on each other enough to create this blanket of comfort. Then you step into a studio and it can be almost a clinical environment. You've got to be careful as an engineer not to make it too sterile. You've got to keep the smiles going and keep the vibe going.

And eat potato chips.

I know! It's a crazy trick for recording vocals, but it works. Have the singer eat his/her favorite regular potato chips before you cut their vocal track. Not Pringles, something greasy. You'll be blown away when you hear the difference. The salt eats away at phlegm, and the oil lubricates the throat, and it just gives the voice a little more crispness.