

# The Voice

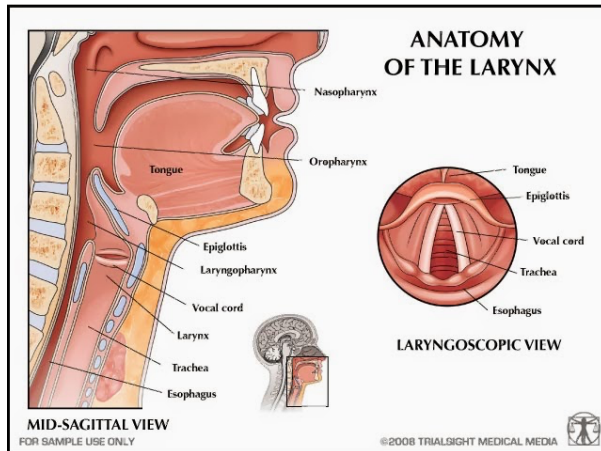
## How Does It Work?

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**Your voice is the first and last voice you hear.**

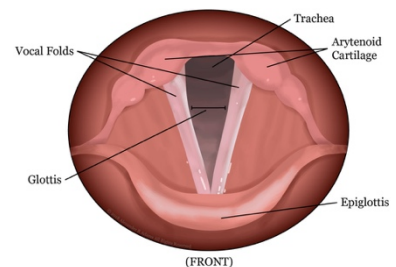
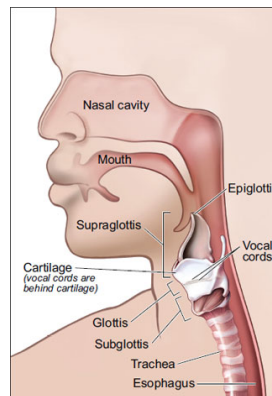
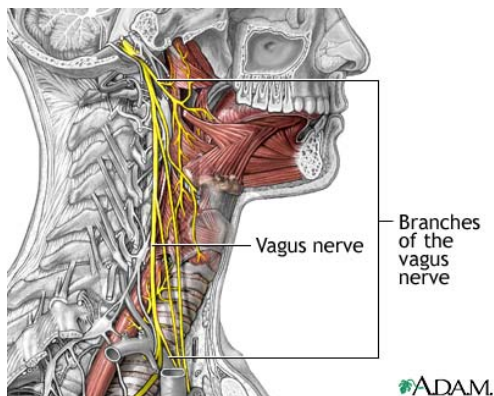


- **Respiration** – the fuel
- **Phonation** – the ripple, snap and buzz of the vocal folds
- **Articulation** – the pitch-maker, vowel maker and sound maker.

### What is Phonation?

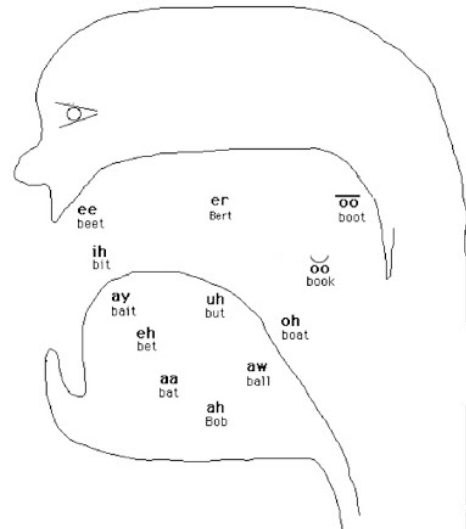
- The vocal folds (or cords) function like a valve, allowing varying amounts of air to pass out of the lungs.
- The vagus nerve in the brain activates the vocal cord length and width.

- As air passes over the vocal cords, the vibration creates sound.



The larynx is made up of a series of cartilages placed above the trachea. Breathing is when air is passed through the trachea up through the larynx and over relaxed vocal cords/folds. Your vocal cords tense up and draw close together when you are about to speak or sing. Your muscles push air up from your lungs and through the narrow opening between the vocal cords. The force of air causes the vocal cords to vibrate. Vibrating vocal cords produce sound waves.

VOWELS		
Front:	Middle:	Back:
Beet	Bert	Boot
Bit	But	Book
Bait	Bob	Boat
Bet		Ball
Bat		Bob
Bob		



### Vocal Exercises

- Relax, let air out and feel what happens
- Keep the throat open and sigh
- Yawn again and make a full-blown sigh
- Yawning relaxes the voice, lowers the larynx and widens the airspace between vocal folds.
- “Woo woo woo” as high as you can go.
- “Wee wee wee” as low as you can go.
- Sirens.
- Vocalize higher than your voice will go.
- Vocalize lower than your voice will go.

### How Can I Keep It?

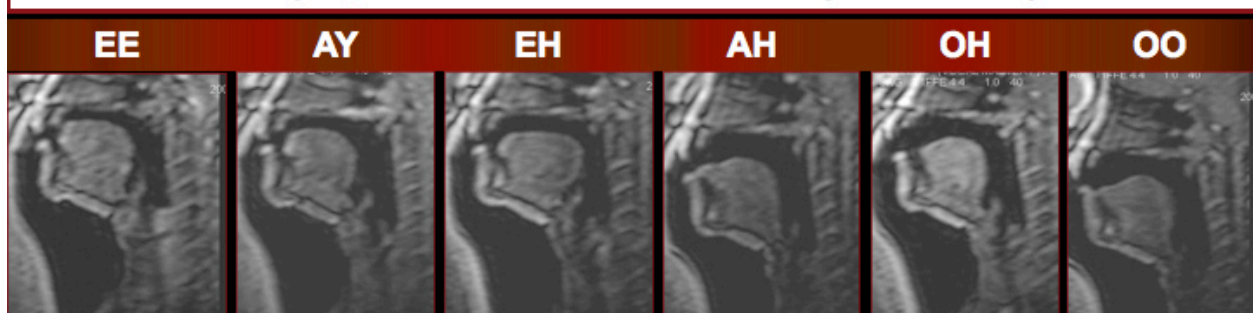
- Resist clearing your throat and coughing
- Drink for hydration – not to wet your vocal cords
- To wet your cords, use steam or a vaporizer
- Keep hormones checked
- Improve breath support – It takes more air to sing the older you get
- Medications can dry you out

### Posture For Singers



### CORRECT PLACEMENT OF VOWELS IN MIDDLE FRONT

Vocal tract is open; vocal folds free to vibrate for optimal sound production



## Gastro-Esophageal Reflux Disease (GERD) - Reflux

- Besides smoking, one of the most damaging factors to the vocal cords is Gastro-Esophageal Reflux Disease (GERD)
- When stomach acid is allowed to enter the esophagus and make its way to the vocal cords, it can do great damage.

### FOODS TO AVOID

French fries  
deep-fried onion rings  
potato chips  
butter  
whole milk  
cheese  
ice cream  
high-fat sour cream  
creamy salad dressings  
creamy sauces and dips  
processed foods

high-fat cuts of red meat, such as marbled sirloin or prime rib  
pineapple  
citrus fruits, such as oranges, grapefruit, lemons, and limes  
tomatoes and tomato-based foods, such as tomato sauce, salsa, chili, and pizza sauce  
garlic and onions  
chocolate  
peppermint or spearmint  
iron or potassium supplements  
antibiotics  
aspirin or other pain relievers

### Build Vocal Samina

- If you never did a warm-up...start doing warm-ups
- Start with a hum
- Bubble
- Vocalize on a "v"
- Start vowel singing in the middle voice
- Work up first – save the chest voice for last
- Vocal "slides" keep the registers connected
- Staccato becomes harder with age
- Straw Therapy.



### You Only Get One Voice!

- Use it or lose it!
- Exercise it DAILY
- Hydrate inside with fluids
- Vocal cords need steam
- Stay fit – especially work your breath support
- Have your hormones checked to make sure you have enough estrogen balanced with progesterone
- Sleep on your left side at night
- Sing on the emotional side of your voice.

## What if there's a problem?

Nodules and polyps cause similar symptoms. These include:

- Hoarseness
- Breathiness
- A "rough" voice
- A "scratchy" voice
- A harsh-sounding voice
- Shooting pain from ear to ear
- Feeling like you have a "lump in your throat"
- Neck pain
- Less ability to change your pitch
- Voice and body tiredness.

Most of the time, vocal abuse or misuse causes nodules. Long-term vocal abuse can cause polyps, too. But polyps may happen after just one instance of vocal abuse, like yelling at a concert. Smoking cigarettes for a long time, thyroid problems, and reflux may also cause polyps.

Vocal abuse can happen in many ways, including from:

- Allergies
- Smoking
- Tense muscles
- Singing
- Coaching (sports)
- Cheerleading
- Talking loudly
- Drinking caffeine and alcohol, which dries out the throat and vocal folds.

Whether reciting the alphabet or belting out opera, human sound-making requires a lot of action from a very small set of muscles and tissue in the mouth, throat, and diaphragm. Arguably most important are the humble vocal cords, small but hearty folds of tissue and muscle at the back of the throat that translate air from the lungs into humming, yelling, speaking and more by vibrating as you breathe. Here are 15 facts about the vocal cords that are worth talking about.

### **1. YOUR VOICE IS BASICALLY A REEDED INSTRUMENT.**

Speaking and singing depend on the larynx (voice-box) in your neck. In order to produce sound, adductor muscles provide resistance to the air you exhale. Air then bursts through the closed vocal cords. As the air rushes through the vocal cords, the pressure between the cords drops, sucking them back together.

### **2. YOUR VOCAL CORDS ARE ACTUALLY FOLDS.**

The stretchy fibrous tissue inside the larynx which we call "cords," which vibrate as you breathe air out over them, are more accurately "folds" of skin, rather than cords.

### **3. THEY VIBRATE MULTIPLE TIMES PER SECOND.**

This vibration of your vocal cords being “blown” apart and then “sucked” back together repeats hundreds (the average male hits about 110) and even thousands of times per second, producing voice.

### **4. THEY MAY MAKE SOUND, BUT YOUR MOUTH MAKES SPEECH.**

Speech or song may begin in its basest form in the vocal cords, but it’s shaped by muscular changes in the mouth and jaw, particularly the lips and tongue (although some languages have sounds that bypass the vocal cords entirely—for instance, certain African languages have a “click” sound made exclusively by the tongue).

### **5. ONE OF THE MOST BASIC SOUNDS OF YOUR VOCAL CORDS IS “ZZZZ.”**

The sound that the vibration of vocal cords produces is called a “voiced sound” and is usually a kind of hum. The easiest way to experience this yourself is to wrap your hand around your throat and say: ssssssssszzzzzzzzsssssssssszzzzzzzz. You should be able to feel the vibrations of the z sound and the calmness of the s.

### **6. YOUR VOCAL CORDS ARE THE MOST UNIQUE “MUSICAL” INSTRUMENT.**

According to Ingo Titze, director of the National Center for Voice and Speech at the University of Utah, it would be nearly impossible to create an instrument that could elongate and vibrate exactly the way human vocal cords do.

### **7. THEY LOOK LIKE A NIGHTMARE OUT OF A HORROR FLICK.**

If you didn’t know what you were seeing in this laparoscopic video of the opening and closing of these mucous-laden vocal cords, you might be tempted to gather your children and flee from the alien invasion.

### **8. UNLIKE OTHER MUSCLES, VOCAL CORDS WORK BEST WHEN THEY'RE TIGHT.**

When you are silent, your vocal cords lay relaxed and apart from each other, so air passes freely through them. The tighter the vocal cords, the less air can pass through them, so the higher pitched the sounds you make.

### **9. ARE THE VOCAL CORDS OF SINGERS DIFFERENT FROM REGULAR VOCAL CORDS?**

Opera singers and pop stars work hard to develop their singing power the way athletes train for their sport. So while Adele’s vocal cords were probably not much different from yours at birth, she’s trained them, her diaphragm, and her lungs to produce the power that comes with her songs.

### **10. WHISPERING IS TALKING WITHOUT USING YOUR VOCAL CORDS.**

Those who sing or speak for a living recommend that you keep whispering to a minimum as it constricts the vocal cords, without letting them vibrate much, thus potentially fatiguing them, and can dry them out as well. (In whispering, sound is created by turbulent airflow, not vocal cord vibration.)

### **11. HERE'S WHY BOYS' VOICES CRACK AT PUBERTY.**

Boys' vocal cords are the same length as girls' until they are teenagers around 13, at which point they grow longer, making a boy's voice "break" and get deeper.

### **12. YOUR VOCAL CORDS MAY SAVE YOUR LIFE.**

They help protect your airway by preventing food, drink, and even your saliva from entering your windpipe (trachea) and causing you to choke.

### **13. LOSING YOUR VOICE IS USUALLY CAUSED BY SWOLLEN VOCAL CORDS.**

Laryngitis, the most famous cause of a "hoarse" voice, is caused by inflammation or infection of the vocal cords. Swollen vocal cords vibrate differently than usual, changing the sound of your voice. You can lose your voice if the inflammation is so severe that you can't make a sound.

### **14. YOU CAN SUFFER VOCAL CORD PARALYSIS.**

Some relatively normal symptoms such as hoarseness, noisy breathing, frequent coughing during swallowing, or the need to take frequent breaths while speaking can actually be symptoms of vocal cord paralysis, a condition that usually only affects one vocal cord. This can become more aggravated and result in difficulty swallowing or breathing, and can be the result of a variety of conditions, from surgery, to stroke, and even a side effect of some medications.

### **15. THE WIDEST VOCAL RANGE OF ANY HUMAN IS 10 OCTAVES.**

On August 1, 2008, Tim Storms of Missouri set a Guinness World Record by demonstrating the widest vocal range of any human, 10 octaves, ranging from G/G#-5 to G/G#5. In comparison, famed pop star Mariah Carey, renowned for her range, reportedly can only sing in five octaves. Mr. Storms also holds the record for the lowest vocal note.

