BOAZ

Voice Studio

Vocal Anatomy 101 Handouts

Why study vocal anatomy?

"Because singing is movement, singers need and deserve training that creates an accurate body map, a fine-tuned kinesthetic sense, and the conscious use of inclusive awareness"

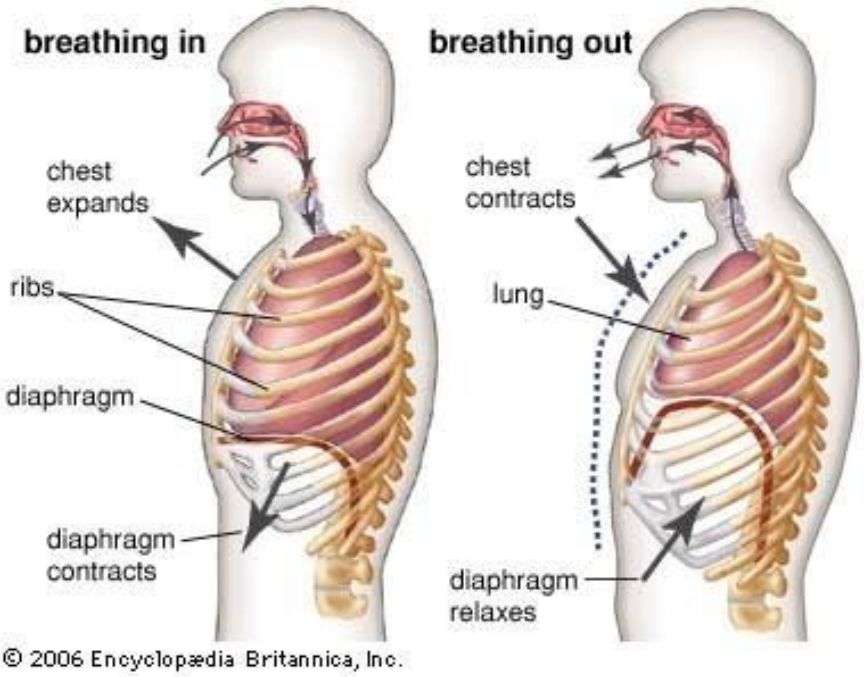
-MaryJean Allen, from "What Every Singer Needs to Know About the Body" (Plural Publishing)

Our vocal instruments are made up of 4 main elements:

1. **Power Source (Breath/Airflow)**
   This is what makes the parts of the instrument move.
2. **Vibration Source (Vocal Folds)**
   As air passes through our vocal folds, they vibrate, creating sound waves! This is where we control pitch.
3. **Resonator Tube (Vocal Tract - throat, mouth, nose)**
   The shape of our vocal tract affects the quality of sound we make (bright, dark, pointy, muted, round, warm, brassy, nasal, etc.)
4. **Articulators (tongue/lips)**
   These form the sounds to distinguish words. (Vowels and consonants!)

POWER SOURCE: BREATH

- The primary muscle of breathing is the diaphragm, which is attached to the bottom of our rib cage. It is an involuntary muscle, and works all the time, without us even thinking about it! It engages and descends every time we inhale. It relaxes and ascends when we exhale.
- In addition to the diaphragm, upon inhalation, we use our external intercostal muscles to open the ribcage and increase volume in the thoracic cavity.
- The sternocleidomastoid and scalene muscles are secondary muscles of inhalation, but should probably be used sparingly while singing (avoid stress breath and neck tension!)
- The primary muscles of exhalation include the transverse abdominis (abs), the internal and external obliques(abs), the rectus abdominis (abs), the pelvic floor, and the internal intercostal muscles (ribs).
- Breathing for singing is much like breathing for everyday life. The more efficient and easy it can be, the better for our singing!



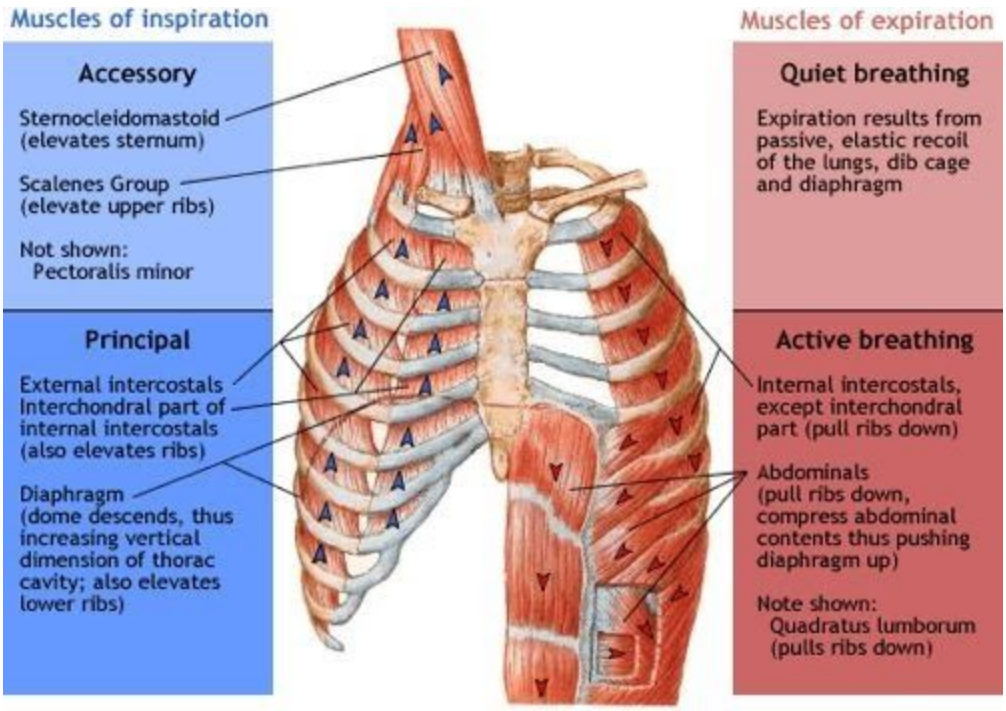


Image from www.physio-pedia.com

"When you have an adequate and accurate breathing map, you will have the tools to ensure that your method of breathing is effective and expressive."

-Melissa Malde,
from "What Every Singer Needs to Know About the Body" (Plural Publishing)

VIBRATION SOURCE: VOCAL FOLDS

- Our vocal folds (also called vocal cords) are found inside the larynx (voice box) in our neck, just above our trachea (windpipe).
- The larynx is a flexible structure of muscle, ligament, cartilage, and one bone.
- Our vocal folds are between the size of a dime and a quarter, and are made up of ligament, muscle, and mucosal layers.
- Our vocal folds vibrate many times per secondduring phonation, according to which pitch we make. E.g. the pitch A440 = 440 oscillations per second of the vocal folds. Too fast for the eye to see!
- Length & tension is controlled (mostly) by the thyroarytenoid (TA) muscles in the vocal folds themselves and the cricothyroid (CT) muscles that connect the thyroid cartilage to the cricoid cartilage.

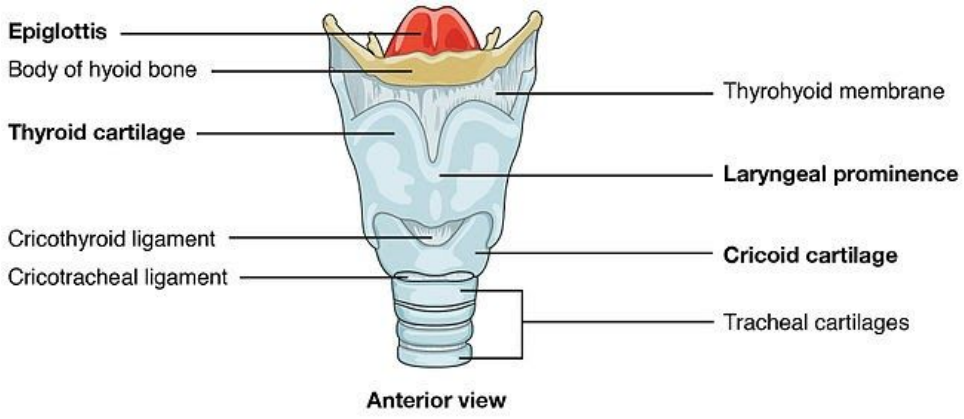


Image from https://commons.wikimedia.org

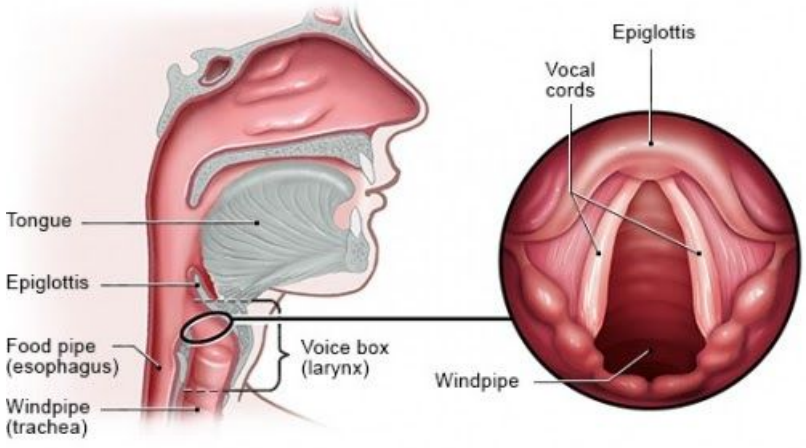


Image from https://nursing.unboundmedicine.com

THE RESONATOR: THE VOCAL TRACT

- The airway above the vocal folds, including our throat, mouth, nose, and sinuses make up the vocal tract. That tube-like space can change shape with our movements, changing the quality of the sounds we make.
- In our pharynx (throat), we can change the shape of the space with constrictor muscles and laryngeal elevators and depressors.
- We can change mouth shapes by moving our jaw, tongue, lips, and soft palate.
- We can open access to or close off the nasopharynx (inside of the nose) with our soft palate.
- The way we shape our vocal tract contributes to our tone quality and timbre, and can also affect projection/amplification.
- There is a lot of "debauched kinesthesia" in this area of our bodies...learning to map and feel these parts can be a challenge!

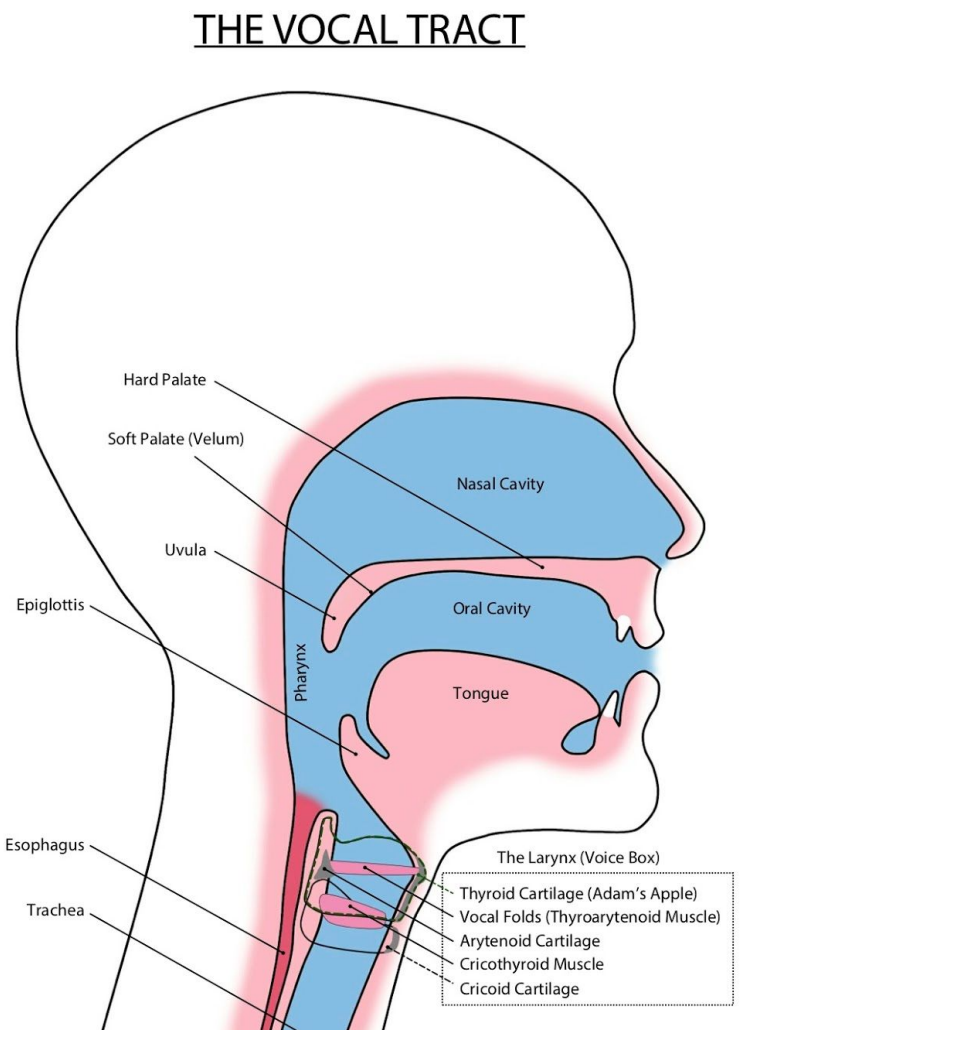
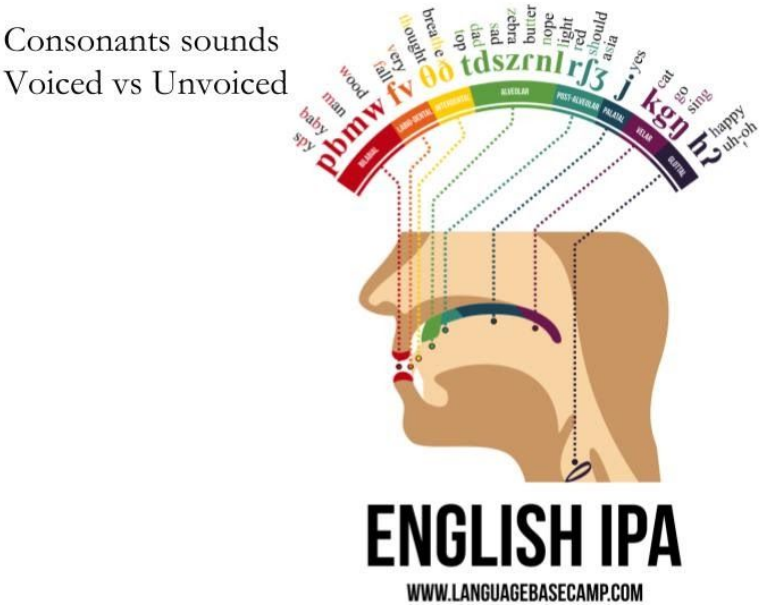


Image from TheFullVoice.com

THE ARTICULATORS: THE TONGUE AND THE LIPS

- Vowel and consonant sounds are made using tongue and lip shape.
- Consonant sounds can either be voiced (on pitch) or unvoiced.



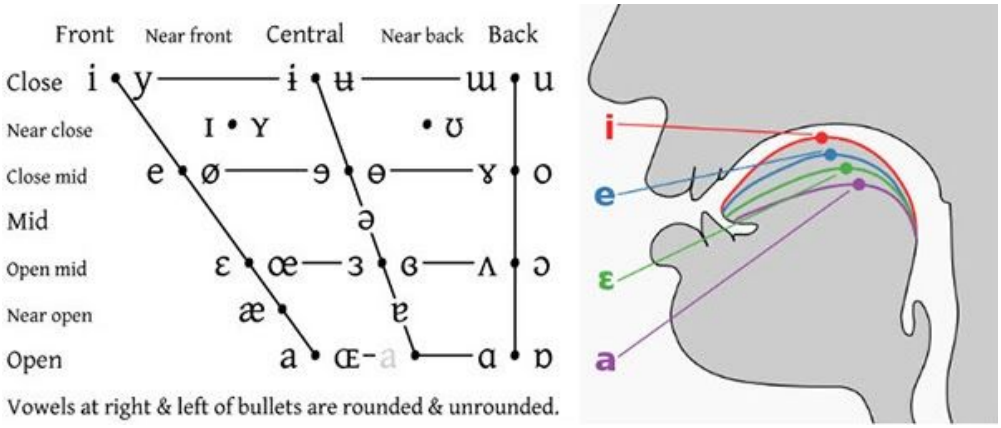


Image from https://www.languagejones.com

For more information, here are some deliciously nerdy resources:

Voice Science Works Website
https://www.voicescienceworks.org

"What Every Singer Needs to Know About the Body" by Melissa Malde, MaryJean Allen, Kurt-Alexander Zeller https://www.pluralpublishing.com

"Complete Vocal Fitness: A Singer's Guide to Physical Training, Anatomy, and Biomechanics" by Claudia Friedlander Buy it here on Amazon.com

"The Vocal Instrument 101" Online Course by Dr. Shannon Coates
https://www.shannon-coates.com

www.boazvoicestudio.com