Chest Voice, Head Voice, Mixed Voice

Lea Baker – Region 25 Summer School, 2024

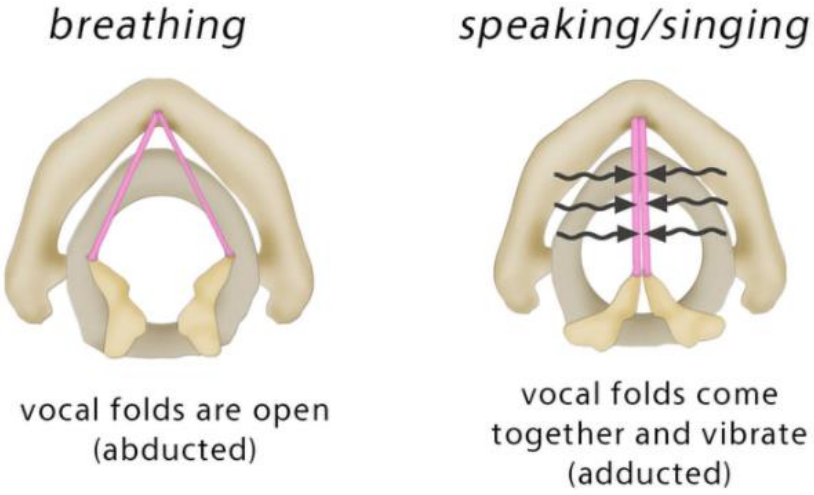
Today we're looking at vocal registers, the so called ' Chest Voice', 'Head Voice' and 'Mixed' Voice. What do these terms mean? Do we actually have 3 different voices we use? It's really helpful to know exactly how your amazing instrument works right?

We are seeking consistently free, and flexible voice.

One that moves effortlessly from lows to highs and different various volume levels, very soft to very loud, with a sense of ease and comfort for both the singer and the listener.

Using our voice should never be uncomfortable. Singing is made up of 3 main elements. Air, the tiny muscles and ligaments that vibrate to produce sound and then finally the resonance that allow for all the variety of sound qualities and vowels we make.

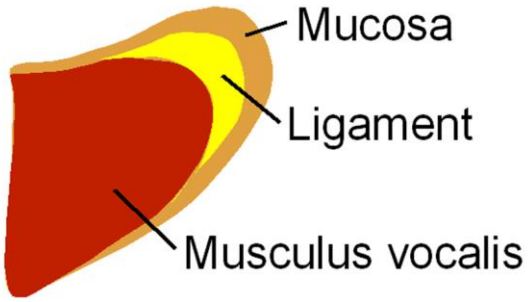
Singing should be holistic, natural, earthed, emotionally connected and intensely moving.



Our larynx contains our vocal cords. We'll call the vocal cords vocal "folds", since it's their correct name. The larynx sits on top of our wind pipe, or trachea. The diagrams you see above are looking downwards at the vocal folds. They open and close towards the back and are attached at the front. You can feel your larynx in your throat – it's the little bump we call the Adams Apple.

The vocal folds are contained within it and are open when we breath, so air can pass freely down into the lungs via the windpipe. The vocal folds close completely when we swallow, hold our breath, dive into water. Their primary purpose is to protect the lungs from foreign objects.

Their secondary purpose is to make sound. All sound in nature is caused by vibration. What causes our vocal folds to vibrate is a steady small stream of air from our lungs passing between them. Our vocal folds are very good at vibrating. It doesn't take much air at all. It's more about the steady consistent flow of air than how much.



The vocal folds

Let's look at the vocal folds more closely. This diagram show one of them from the side.

The folds have layers. They contain a muscle – the vocalis muscle, a ligament around that and finally the mucosa on the surface, the covering, which is where most of the vibration occurs.

They can vibrate with just the covering (when they are stretched and thin) or the whole body of the vocal folds including the vocalis muscle when they are short and thick. They open and close from the bottom to the top. They vibrate hundreds of times a second. Amazing!

The faster they vibrate, the higher the pitch we hear and the thinner and stretchier they need to be.

Place a hand on your sternum. Humm on a comfortably low note. Say "Holy Moly" – feel the vibrations in the sternum area? Place a hand on the back of your neck and do a hum from high to low. Notice when the pitch is lower more vibrations are felt here?

We speak mostly in this chest register.

With hand on sternum, now make a hooty ghost like sound "oooo!". Do you feel any vibrations in your chest? Most likely not.

Our "head" register is called this because it describes where we feel or sense the sound in our body.

Neither of these registers are produced in the chest or head but they describe where we generally sense or feel the sound.

All sound is from vibration

Think about this for a minute. Every sound you hear in nature is because something is vibrating.

The faster the vibrations, the higher the pitch we hear.

The slow the vibrations, the lower the pitch we hear.

For example, if something is vibrating at 440 times a second (also called hertz) we hear A4 (A above middle C)

If it's vibrating at 220 times a second, we hear A3 (A below middle C).

Take a rubber band. Stretch the band between your thumb and a finger on one hand, then pluck one of the bands. Notice the pitch you hear. Then reduce the tension, You'll get a different pitch. Normally the pitch from a stretched rubber band is higher than from more lax ones.

WHY? This is because the bands can vibrate faster when they are stretched and thinner. The faster something vibrates, the higher we hear the resulting sound wave.

The slower something vibrates, the lower we hear the resulting sound wave.

GUITAR STRINGS do the same thing as do many other musical instruments.

When the vocal folds are shorter and thicker more of the vocalis muscle is involved in the vibration. The quality of sound is more substance, a denser sound, and generally louder - our so called "Chest register" sound. Some call it the 'heavy mechanism', since it can sound and feel weighty.

How our vocal folds shorten and lengthen

Our vocal folds must change their length and thickness in order to vibrate efficiently depending on what pitch we're wanting to sing.

Higher pitches need thinner and longer vocal folds and lower pitches need shorter and thicker vocal folds.

We have tiny little muscles in the larynx responsible for shortening and lengthening the vocal folds.

Different sets of tiny muscles are involved.

The Thyroarytenoid (or TA) muscles and the Vocalis muscle is responsible for shortening and thickening the vocal folds.

The Cricothyroid or CT muscles are responsible for stretching the thinning the vocal folds. They do this by tilting the larynx forward. Because it's anchored at the back, the tilt forward gives the chords a little stretch and thins them out, allowing them to vibrate faster, and therefor to produce higher pitches.

The CT Muscle

Our head voice (register) also called falsetto, is a way to describe the sound or vocal quality we hear & feel when the CT muscles tilts the larynx forward, lengthening and thinning the vocal folds, allowing them to vibrate faster. The quality or timbre of our sound changes as less of the folds are involved in the vibration, mainly just the covering, the higher we go.

Some call this the 'lighter' mechanism or 'thin fold' sound.

Find your head register: "oo" like a ghost.

The quality is lighter & hootier sound, but it still should be clear, not breathy, & not thin or weak. It's very useful for all voice users to easily and comfortably use their head voice / falsetto. It is vital for higher notes to be sung easily. Don't shy away from it! Embrace it. But if you never use it, it will be a bit rusty. We should have a full range of color and texture in our head voice.

QUESTION: How much head voice do you use in everyday speech? This will impact how easy it is to use head voice in your singing.

Commonly accepted vocal registers

Voice teachers are starting to use different terms to define the vocal registers. M1 (model 1) is used for Chest Register and M2 for Head Register.

M3 – Whistle Tone

M2 – Head / Falsetto

M1 – Chest

M0 - Fry

HEAD REGISTER (M2)

- Thin fold
- CT dominant
- Lighter mechanism - Hootier, headier, flutier
- Less Vocal Fold closure

CHEST REGISTER (M1)

- Thick fold
- TA dominant
- Heavy mechanism
- Firmer Vocal Fold closure

To recap - we know that "Chest Voice" "Head Voice" are metaphors and refer the physical sensations we feel from our voice.

We have ONE voice that we've described in different ways to describe the quality of the sound we hear.

'Chest register' describes a more robust sound & is where we speak most of the time. Head voice or falsetto is the lighter, hootier sound we hear in higher notes.

The stretchy (CT) and thickening (TA) muscles are always both in use, and in a constant, rapidly-changing dance with one another.

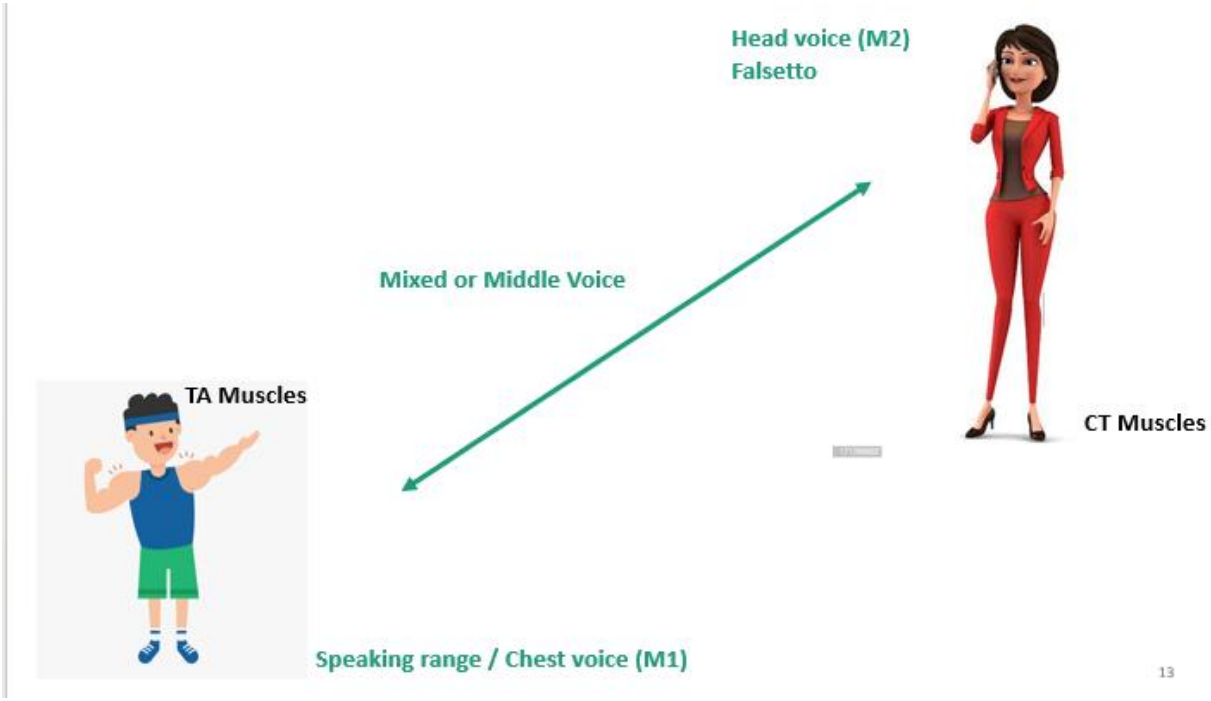
It's co-ordinating these two different muscle groups that allows us to transition seamlessly between registers. When they are not very well co-ordinated we notice a weak spot in the transition points, often called a 'break'. But nothing is broken! Instead let's call it a bridge or transition.

MIXED VOICE is the blending of the two registers or the journey we take in transitioning between M1 and M2.

WE LIVE IN THE MIXED VOICE nearly ALL THE TIME! Remember, we have ONE voice.

Our mixed voice can have more HEAD in the mix or more CHEST in the mix. But it's always mixed. We can make choices, light up the approach and get more head, think bright and forward and add more chest.

The passage between these two when moving from one to the other, is traditionally called, the "Passagio". The passage between the two mechanisms. This is where many of us have challenges. Particularly where its 50% head / chest. Right in the middle.



Our speaking voice and our singing voice use the same instrument.

Typically singing involves a broader range of frequency than speaking. We sing higher and lower than we would normally for every day speaking.

If we spend most of our time speaking mainly in our M1 (chest register), then those muscles will be most developed.

Same of M2.

The number 1 way to develop a optimal easy mixed voice is to use freely produced speech sounds that go into and out of each register, using the mix.

How to move seamlessly between registers.

- Good alignment.
- Soften / release unhelpful tension anywhere in the body.
- Optimal and stable abdominal support.
- Tension free larynx with optimal air flow.
- Jaw and tongue released (they don't 'manage' the sound).
- Free use of resonance.

So let's go back to talking about how toddlers do it. As I mentioned, we can learn a lot from them!

Babies and toddlers use optimal and instinctive abdominal support when they vocalize.

They're also excellent examples of the things we need as singers: No unhelpful tension in the body, a relaxed jaw, they're loose and flexible.

Let's have a look at some ways we can develop ease of transition between registers.

"Providing flexible, optimal levels of breath flow to the vocal folds, so they can produce healthy and vibrant vocal sounds"

Joan Melton – 'One Voice' Waveland Press Inc

In order to navigating well between the registers, we need to have good abdominal support. Support is the thing that provides optimal breath flow to the vocal folds. Notice the word 'optimal'. Our air is the fuel for our voice.

We don't need a lot of air! Just the right amount for the vocal folds to vibrate. A petrol car with too much fuel going into the engine will stop working. Not enough fuel, it will stop working. It needs just the right amount.

Some voice teaching philosophies avoid mentioning support. But it's so important to have just the right amount of air moving through the vocal folds for optimal vibration. It's about managing your air.

Not enough air flow

- Vocal folds won't vibrate optimally.
- May squeeze together to get the vibration happening.

Too much air flow

- Vocal folds act as a valve to hold back the air.
- Squeeze together to hold back the air.

Back to seamlessly transiting registers and living in the 'mix'!

- Do you have a "break"? Nothing is 'broken'!
- "Explore"
- Start with sounds
- How's your speech?
- Unnecessary tension? – release that
- Move your body! Use gestures
- Feel for ease and efficiency.

Think of your vocal workouts not as hard work or "exercise" but instead, as "explorations". This helps keep it fun and reduces potential unnecessary tension creeping into our body.

What's your speaking voice like?? Use lots of inflections / funny voices

We rarely speak all our registers, so starting here is a great way to start and can feel more natural and instinctive, and that's what we want. You can cover a lot of ground, through those registers.

ACTIVITY: "Falling No's". "Noooooooooo!" like you are the voice over for an animated character who is falling off a cliff.

Ferrari in a School Zone. Pretend you are a very powerful car, like a Ferrari driving through a school zone. You must not run over a child!

How are you using your voice when you aren't singing? To keep your voice in great shape for singing, use healthy, energized and expressive speech.

Bu the way you use your speaking voice. STANDING is best.

Practice slides with smaller vowels, like 'ee' and 'oo'. "Woozy woozy wooy!"

Rolled 'R' exercises.

To move freely between registers. Start with your speaking voice? If you don't use a really flexible free speaking voice that has lots of highs and lows in it, then singing with that range and ease will not be easy. An interesting speaker will be using their mixed voice a LOT.

Release any unhelpful tension in your jaw, shoulders, neck and throat. I like to start with the just sound, no actual 'singing'. So let's do some of that. "My My My My My!" "Oh know!!".

Humming like something is yummy on the stove cooking. HUM from head voice slowly into chest voice. Start C5 go to around G3.

NG slides from high to low – it's always easier to add a little weight into the sound as we come down than try take the weight off as we go up. Kim Vaugn said that I'll never forget it.

Check for tension. Moving muscles cannot be tense. So MOVE!

There are many sounds that help move through our registers and our vocal ranges from to high and loud to soft, easily and comfortably. Here are some more explorations:

- 5 note slides, descending from about your transition spot
- NG slides
- Humming slides
- N, M, NG sounds
- "oo" "ee" vowels
- Messa Di Voce (K Vaughn)

Resonance choice matter!

How easy and fluid it will be to maintain a clear easy mixed voice when ascending or descending will also depend on how you shape your resonator (your throat, mouth and lips).

Certain vocal tract positions lead to efficiency.

Experiment with not spreading your lips as you ascend through your mix from low to high. Keep basically the same mouth shape (inside and out) through your mix. When you feel your voice "turning" (into the next register) open slightly in the front.

RESOURCES

Johnson, Sam. Open Your Mouth. Learn How To Learn How To Sing. Amazon.

Bozeman, K. 2017. Kinesthetic Voice Pedagogy – Motivating Acoustic Efficiency. Inside View Press.

Bozeman, Kenneth W. Practical Vocal Acoustics. Pendragon Press, Hilsdale, NY, 2013.

Vocalcraft UK – James Platt

Nikki Blackmer – Vocal Warm Ups

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

Chapman J (2012). Singing and Teaching Singing. A holistic Approach to Classical Voice. Plural Publishing.

SOVT exercises – Kathleen Hansen https://youtu.be/tm6wUbvtwQc

Lustre Quartet – Mixed voice example https://youtu.be/3qS25VU0EyA?t=638

Developing Consistency Through the Mixed Voice. Maggie Alexander: https://youtu.be/TcWXkDuRoNQ

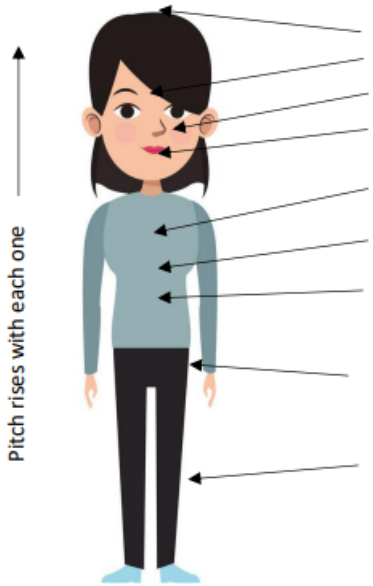
Messa Di Voce- Kim Vaughn: https://youtu.be/igO7Q9gcnMs

Mixed Register Exercises: Kathleen Hansen: https://youtu.be/xPVz8DI_oVw

Developing Consistency Through Mixed Voice Training: https://youtu.be/TcWXkDuRoNQ

Resonance Ladder – Feeling resonance in the body.

Imaging you can feel the vibrations from these sounds in various parts of your body. Start low on the "Zoo" and the pitch rises with each one. Let the sound be tension free, open and easy and *clear*. This is about movement and sound together. Explore and have fun!



KEH!	Crown of head - hand on crown of head then flick up on 'keh!'
REE!	3rd eye position. 'Ree!'. Touch forehead – fling it out
MING	Either side of notes – touch the nose 'ming ming ming!' might sound 'nasty'.
FUH	Hard palate focus 'Fuh' touch bottom lip and above top lip.
GUH!	Sternum – throw spear out. Easy, short sharp "Guh" sound
MAH	Epigastum 'mah' open outways like your welcoming someone.
SHAW	'Shaw' use 'zh' sound as in "pleasure". Hands on front of waist and they open like you're welcoming someone.
WOAH	Hands on hips and you slowly swivel them saying "Woah!" Imagine the sound is coming from your pelvis.
ZOO	Hands on knees and you swivel them saying "zoo". Imaging the sound is coming from your knees and thighs.

Adapted from Kristin Linklater- The Resonance Ladder.

Lea Baker – Voice Teacher

https://www.raiseyourvoice.net.au/

https://bettersinging.thinkific.com/