

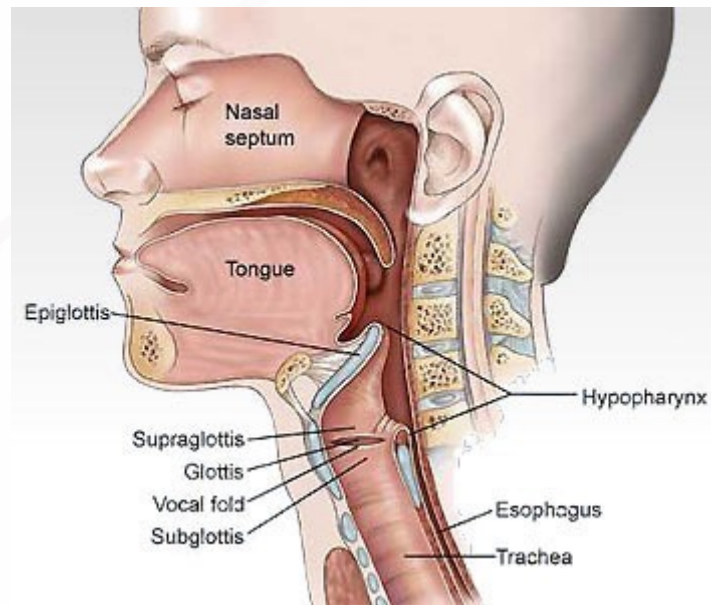
## Vocal Health Training Tool

### Anatomy of speech:

The diaphragm contracts allowing the lungs to fill with air. When the diaphragm relaxes exhalation begins. The expired air travels through the trachea and larynx (voice box). The air passes through the vocal folds which is how we create speech.

When the vocal folds are pulled long and thin the vibrations are faster which create a high frequency sound. When the vocal folds are wider and relaxed (dropped) the vibrations are slower and the sound becomes deeper.

Articulation is then created by the tongue, lips, teeth, alveolar ridge, soft palate, hard palate and uvular.



### Assessments:

#### Postural assessment

- If a vocalist's throat is not clear and aligned well, the air passing through will not be strong enough to create the sounds they intend to make. This is why posture is so important for a vocalist; everything from their ankles to their jaws need to be aligned correctly whilst they are singing for the optimal sound production.

#### Breathing assessment

- If the stomach muscles are tight, they can be restricting diaphragm movement of 3 phase breathing. If the diaphragm is not engaging well during breathing then the breath in will be limited. Less effective breath means less air intake and therefore less expiration and poor sound production.

#### TMJ tightness or deviation

- The jaw alignment effects articulation.
- Tongue root tension impacts articulation.

#### Transverse abdominal strength

- If T.A. muscles are weak then the lower back is not being support in an optimal posture.

### Treatment for the vocalist:

- Any of the postural issues that were picked up in an assessment should be addressed during treatment.
- Vocalists need to address their thoracic paraspinal muscles, abdominals, diaphragm, intercostal muscles, pectorals, cervical paraspinal muscles, SCM and TMJ.

### Supplementation specific for vocalists:

Hydration is extremely important: 2-3 L water every day is the minimum. If the vocal folds become dehydrated they injure very easily.

Magnesium – for repetitive use of muscles

Zinc – lubricating throat, muscle lining, stress, healing

Bicarbonate soda – alkaline the muscles and aid in healing

Chamomile tea – often used for relaxing the vocal folds and helping to sleep

CQ10 – shortness of breath when singing

### **Take home activities for vocalists:**

Breathing: diaphragmatic, 3 phase and Buteyko

TMJ: active release of masseter muscles, tongue to roof of mouth to avoid clenching, splint for sleeping if the person grinds their teeth

Sleeping: side sleeping is best

Stretching and exercises: Chest stretches, rowing, latissimus dorsi pull downs, thoracic opening with a roller, longus colli exercises, trapezius stretches

### Transverse abdominal exercises:

- 1) Lie in supine with both knees bent and feet on the floor, arms in anatomical position
- 2) Breath in and think of filling up the belly like a balloon (diaphragm breath)
- 3) Breath out and think of the belly button drawing to the spine with a slight posterior pelvic tilt (you should feel a slight tightness across your pelvis, this is your transverse abdominals engaging)
- 4) Breath in with a diaphragm engaging and this time think of your lower rib cage expanding laterally
- 5) Breathing out, engage the transverse abdominals and lower one leg to hover just above the floor



- 6) Breath in with diaphragm engagement and return the leg to constructive rest position
- 7) Repeat with alternating legs
- 8) To increase the difficulty take both legs to table top position as your starting position, continue alternating leg lowers. Eventually you can lower both legs together

**Stress:**

When at a professional level vocalists will often experience times of high stress levels i.e. during rehearsal and performance seasons, where they are working into late hours of the night. This changes the sleep cycle and healing period.

We then have to consider adrenaline, cortisol, stress, lack of sleep and how this may be impacting the vocalists body, mental state and in particular the throat and voice.

**Vocalists injuries:**

Vocal nodules or polyps: benign growths from abuse of the vocal folds. It can be treated through medical, surgical or behavioural techniques. Stress reduction, altering pitch, volume and breath can all help.

Tongue root tension: Caused by tight pterygoid muscles your Occupational Therapist can treat these muscles to improve tension.

Orthodontic work: Tooth infections and wisdom teeth removal can later jaw symmetry and reduce vocal performance

Jaw concerns: Deviating jaw, over bite or under bite and jaw reconstruction can later jaw symmetry and reduce vocal performance.

**Vocalists rehab / commonly used techniques for vocalists:**

Steaming: direct hydration of the vocal folds

Straw phonation: It helps to reduce nasality, uses the vocal muscles in a gentle way

Humming: helps with sinus, throat and ear problems

Silent days: To rest the vocal folds