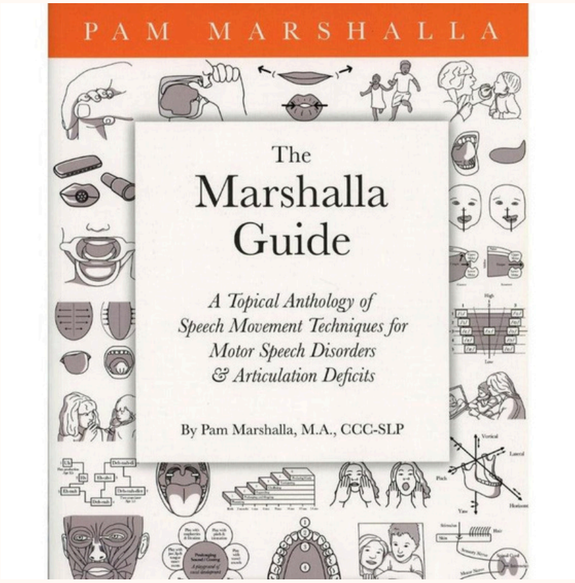
Breathing
&
Breath Support

Presented by Kaitlyn Shrum, M.A., CCC-SLP, QOM, certBBM



Pam founded the Oral Motor Institute in 2007. She was a strong advocate of correct oral placement and how to achieve it which explains why her techniques were so successful.

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Kaitlyn Shrum MA, CCC-SLP, QOM, CMT, certBBM graduated from the University of Central Florida with a Master's degree in communication sciences and disorders. She holds a Certificate of Clinical Competence from the American Speech-Language and Hearing Association and is a Qualified Orofacial Myologist through NeoHealth Services and Certified Myofunctional Therapist through the Myo Method. Kaitlyn is also certified in teaching Buteyko Breathing Method. She has completed continuing education focusing on dysphagia, oromyofunctional disorders, Buteyko breathing, sensory-motor based feeding, the SOFFI method, Beckman Oral Motor Protocol, and the Kaufman approach to treat childhood apraxia of speech. Kaitlyn received additional breathwork training through James Nestor's Breath Retreat in Costa Rica. Kaitlyn owns a private practice specializing in myofunctional therapy in Neptune Beach, Florida and the Seacoast region of New Hampshire.Additionally, she provides mentor services to other speech language pathologists, registered dental hygienists, and occupational therapists privately, as well as through the Myo Method course. Kaitlyn is a boardmember of the Oral Motor Institute and the author of "Frankie Goes to Camp" which teaches nasal breathing and beginning breathwork exercises for children.

Disclosures

Financial Disclosure

Kaitlyn Shrum is the owner of Southern Speech and Myo and Breathe Strong. She receives financial compensation from sales of her book Frankie Goes to Camp, mentoring services, and her course Just Breathe: Breathwork for Myofunctional Therapy. She also receives compensation for professional services provided to Northern Speech Services, The Myo Membership, and Sonu Health.

Non-Financial Disclosure

Kaitlyn Shrum serves as a board member for Orofacial Myology International (OMI) and the North Florida Airway Health Association.

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Citation

Shrum, K. (2026)

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Learning Outcomes

1. Label the anatomy of respiration
2. Describe the components of breath support for speech production
3. Describe functional versus dysfunctional breathing patterns

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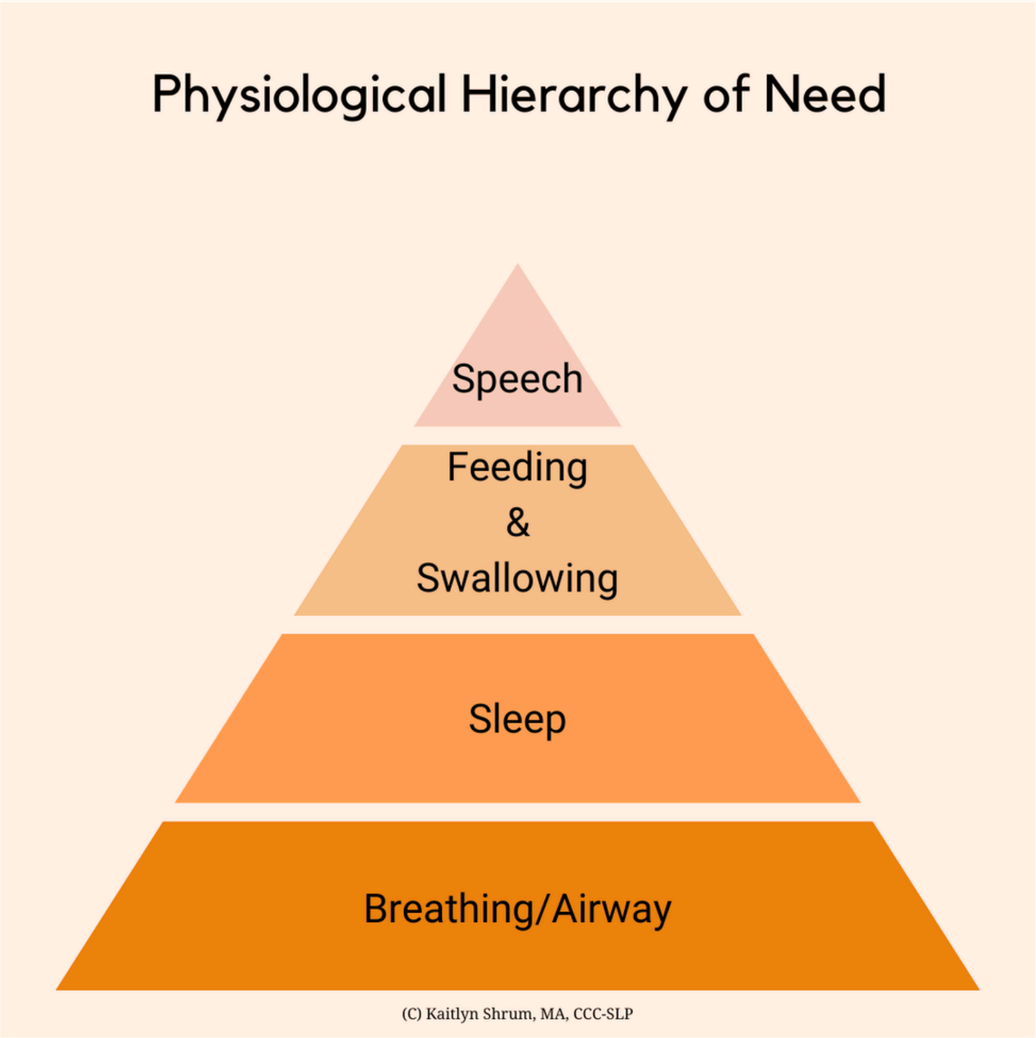


"The most fundamental speech movements are those of inhalation and exhalation"
-Pam Marshalla

The Role of Breath in Speech

- Vocal Production
- Articulation
- Resonance
- Postural support

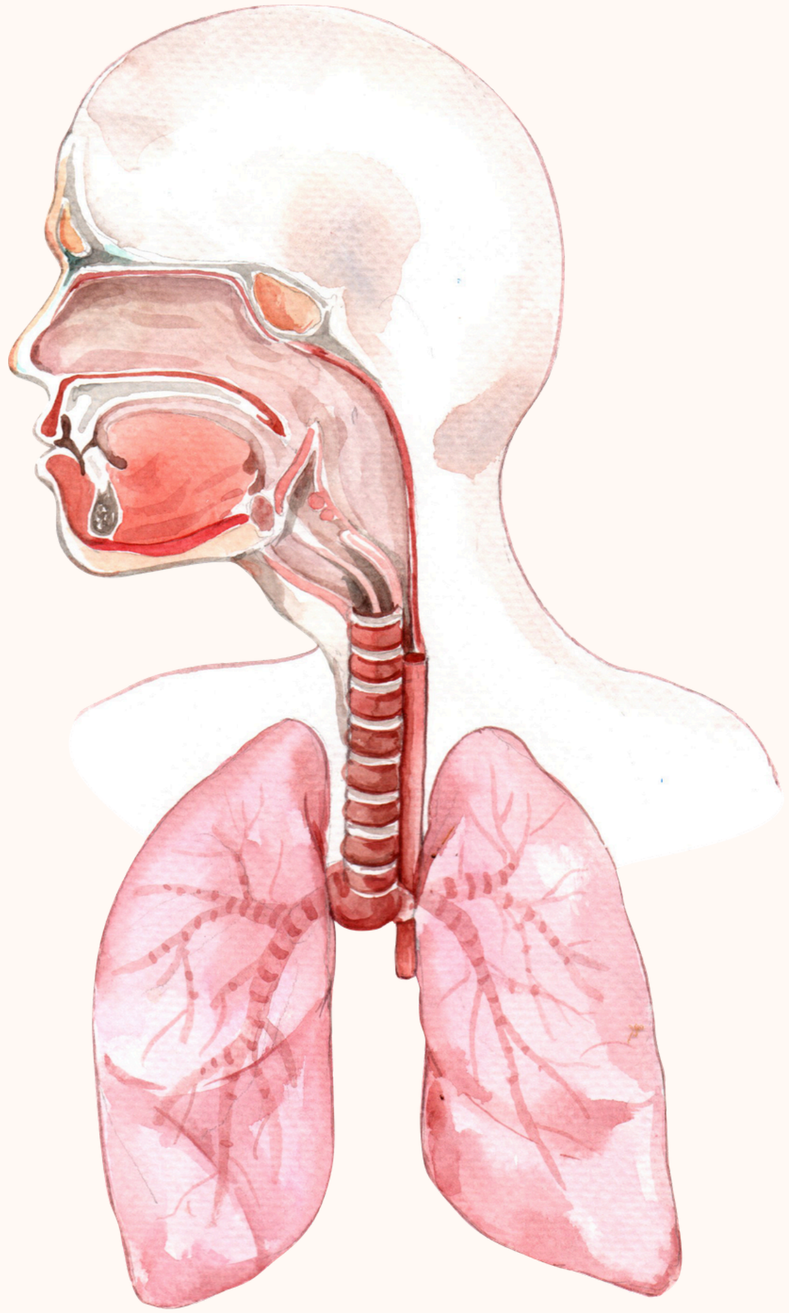
"The very foundation of all speech sound production is the sustained control of exhaled air, and this is known as breath support."

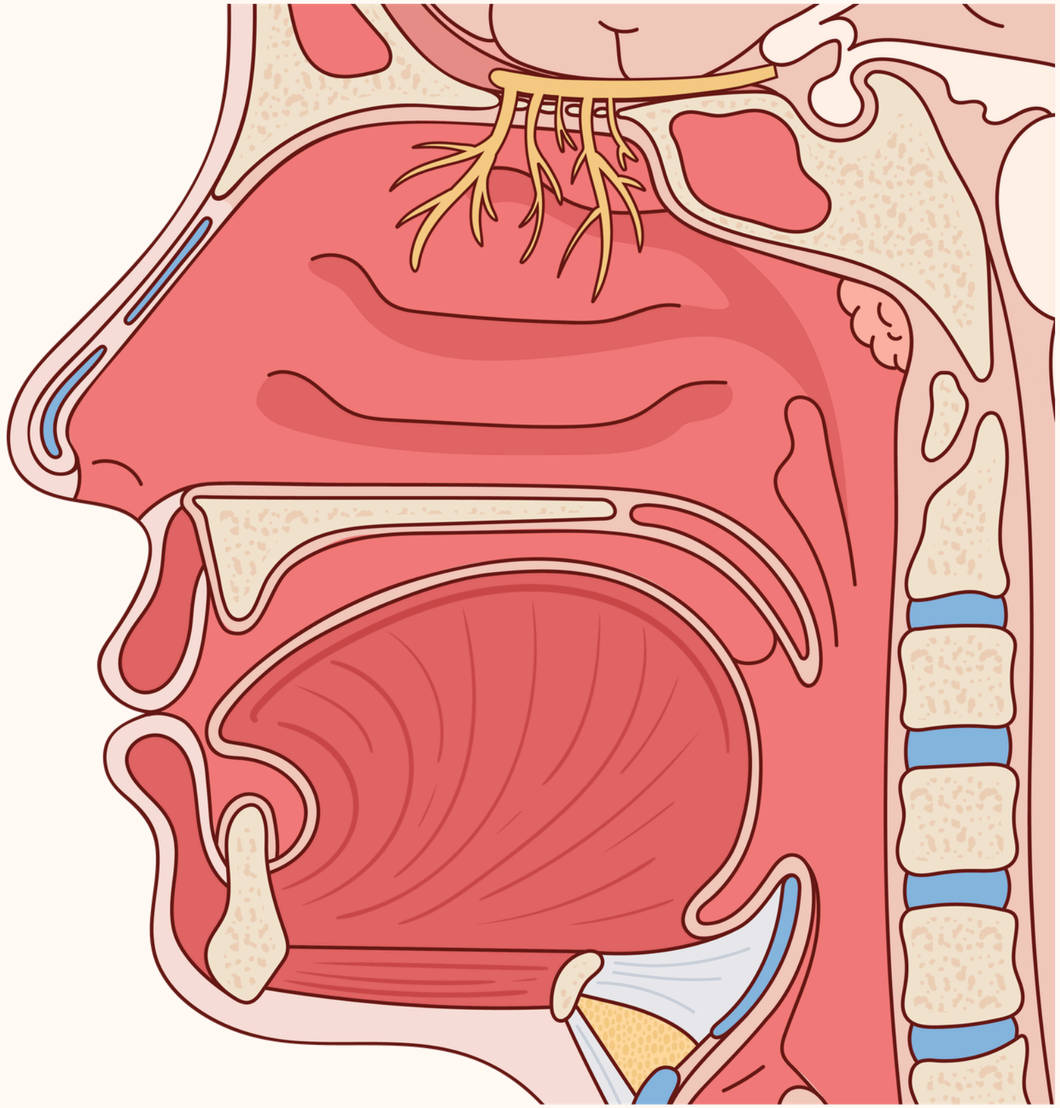
-Pam Marshalla

Anatomy of Respiration

Upper Airway
Nasal Cavity
Pharynx

Lower Airway
Trachea
Lungs

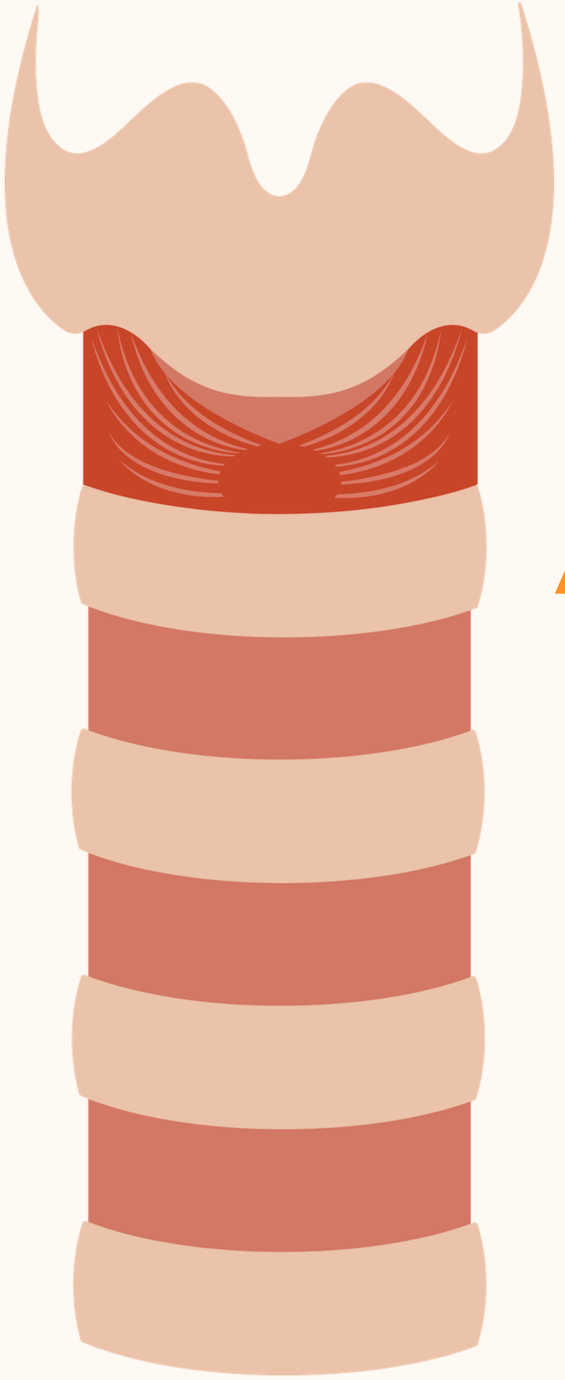




Anatomy of Respiration

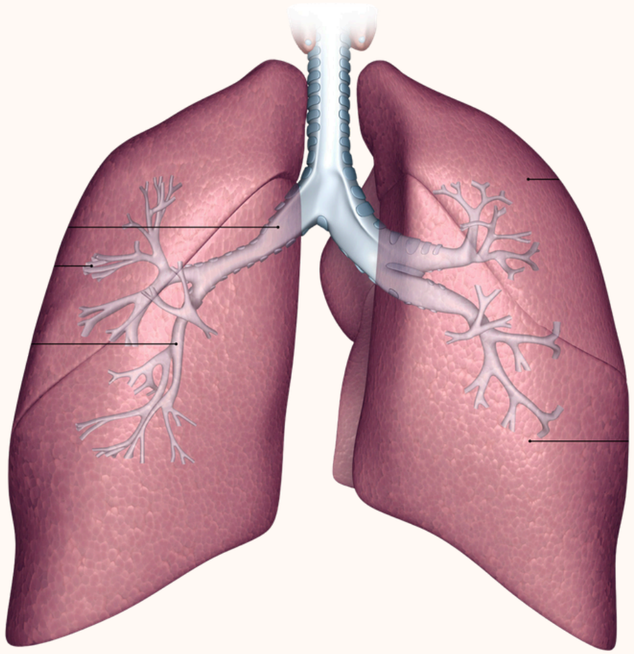
Upper Airway

- Nares
- Turbinates
- Sinuses
- Eustachian tube



Anatomy of Respiration

Lower airway
Trachea



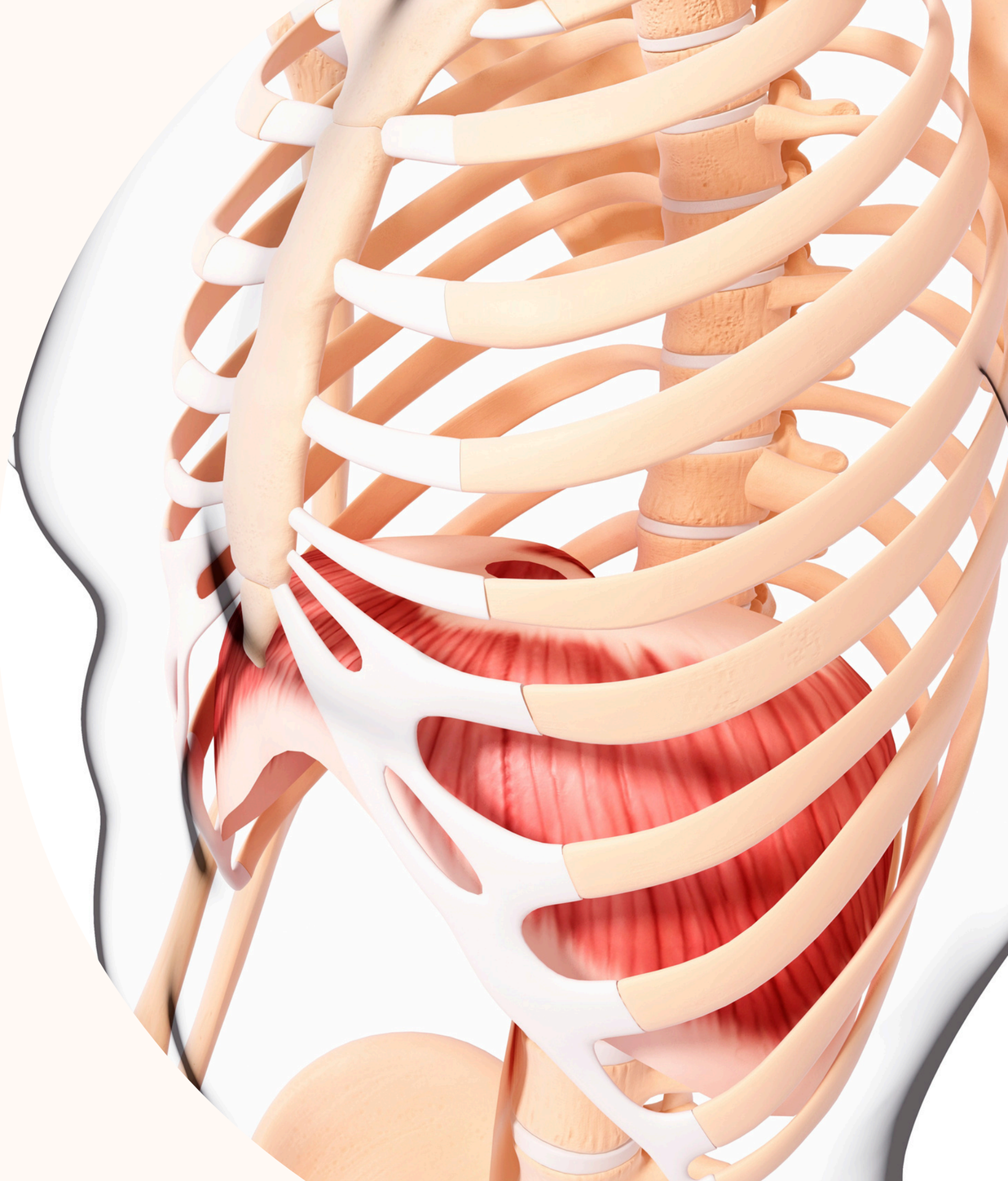
Anatomy of Respiration

Lower Airway

Lungs

Anatomy of Respiration
Lower Airway

- Diaphragm
- Pelvic Floor



Anatomy of Respiration

Inhalation:

Diaphragm and Intercostal Muscles:

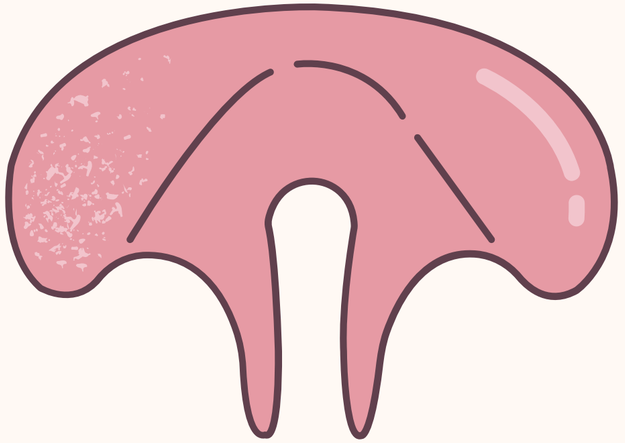
- The diaphragm contracts and moves downward.
- Intercostal muscles contract, lifting the rib cage upward and outward.
- Volume and Pressure Changes:
  - Volume Increase: The thoracic cavity expands, increasing lung volume.
  - Pressure Decrease: Intrapulmonary pressure (pressure inside the lungs) decreases below atmospheric pressure.
- Airflow:
  - Air flows into the lungs from the outside environment to equalize pressure.

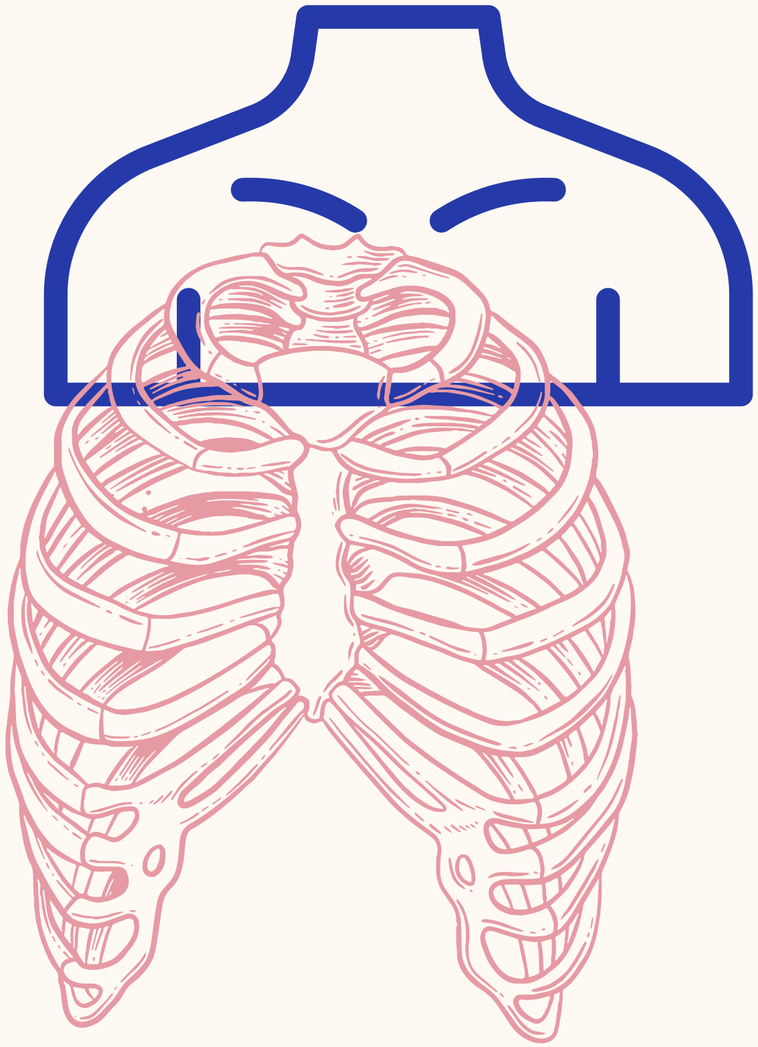
Anatomy of Respiration

- Expiration/exhalation: The "passive" part of breathing
- Diaphragm relaxes and moves upward
- Chest cavity and lungs reduce in size, forcing carbon dioxide rich air up and out (through the nose!)

Breathing Patterns

- Clavicular
- Thoracic/costal
- Diaphragmatic





Sapienza & Hoffman, 2021, p. 21

Breath Support

“Breathing for speech is different than breathing at rest.”
Pam Marshalla

Breath Group:
Spoken language is broken into groups that correspond with phrases and sentences.

Breath Support:
Exhalation must be sustained throughout the duration of each breath group.

Breath Support

Quiet breathing=relaxed and rhythmic

Breathing for speech=rapid inhalation, followed by prolonged exhalation

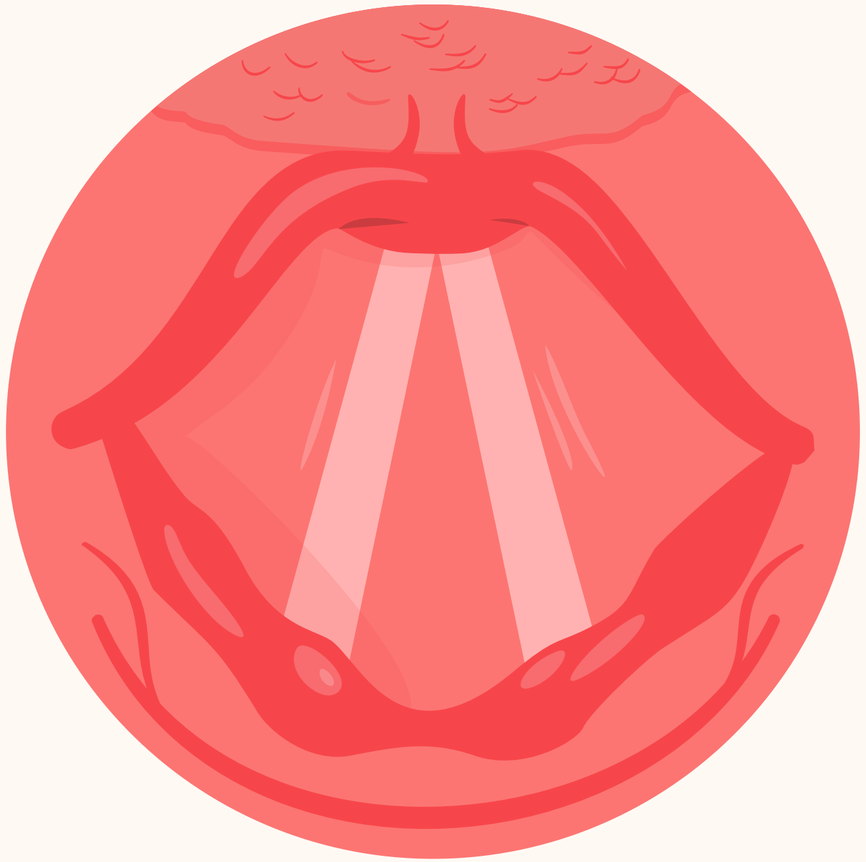
Breath Support

Control:exercising authority over the breath

Force:the physical influence the breath has upon the vocal folds, velum, and articulators

Duration:the period of time during which the exhaled breath lasts during speech

Quantity:the amount of air being exhaled



Breath Support

"Speech breathing like any other motor skill, can be conceptualized as progressing through periods of emergence, refinement, and adaptation"-Boliek et al. (2009)

Dysfunctional Breathing

"The term dysfunctional breathing is now an umbrella term that includes abnormal breathing patterns, behaviors, and symptoms as well as hyperventilation disorders."

-Courtney (2016)

Dysfunctional Patterns

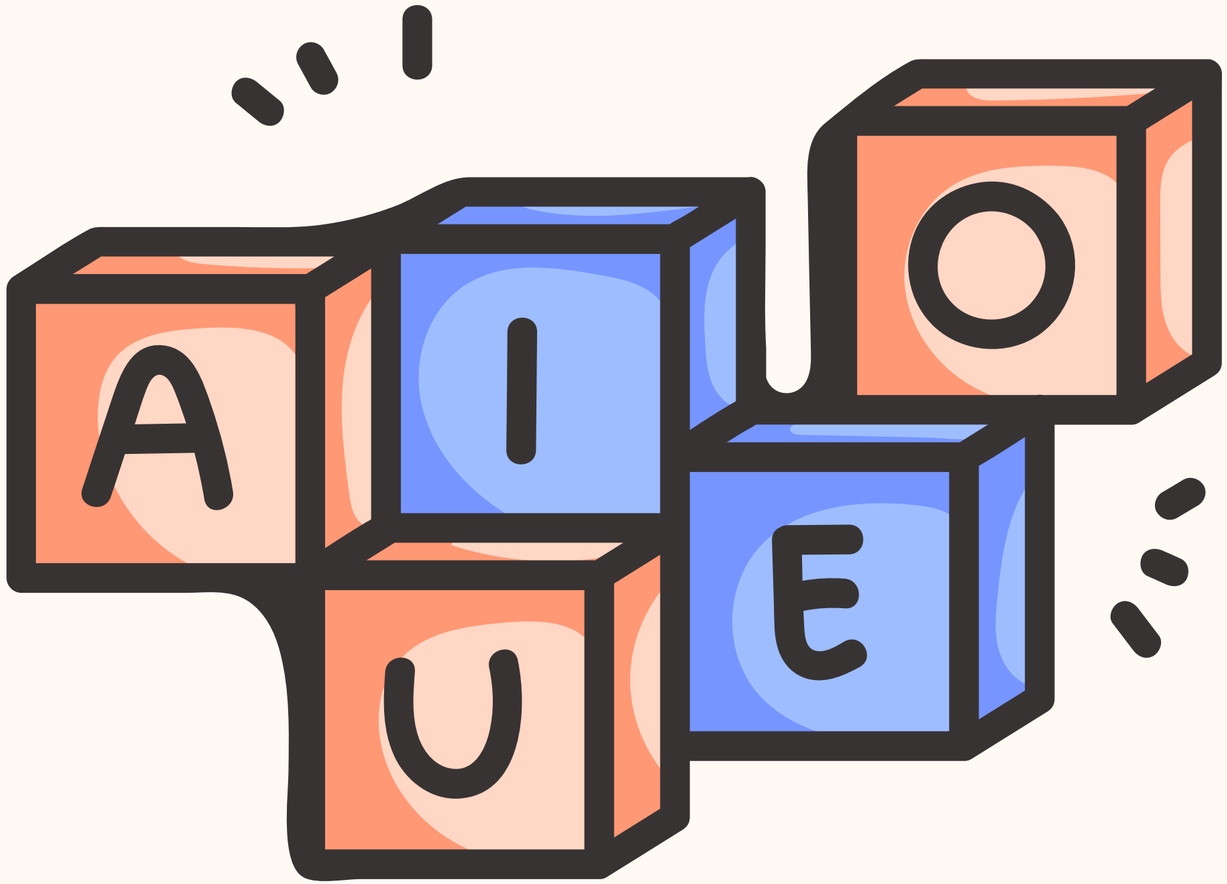
- Hyperventilation
- Mouth Breathing
- Dysfunctional patterns (can impact speech!)

Vidotto, et al. 2019

Dysfunctional Breathing

- **Nasal Breathing:**
- Filters, warms, and humidifies air
- Produces nitric oxide (vasodilation, antimicrobial)
- Supports proper tongue posture and airway stability
- **Mouth Breathing:**
- Increases airway collapse risk
- Alters craniofacial growth
- Increases fatigue and sympathetic tone

Torre, C., & Guilleminault, C. (2018).



Dysfunction

Speech dysfunction and breath support

Vowels & Diphthongs

- Voice
- Projecting the voice
- Intonation
- Final Consonants
- Multi-syllabic words

Dysfunction

Speech dysfunction and breath support

- Multi-word phrases or sentences
- Breath holding
- Slow rate
- Fast rate
- Lack of frication
- Lack of plosiveness
- Inhaled phonemes

Dysfunction

Oral & Nasal Resonance

Three Main functions:

- Increase loudness
- Alter vocal tone
- Produce separate oral & nasal phonemes

Huber, J. 2008

Assessment

"The diagnosis of a client's expressive speech should always include an analysis of breath support."-Pam Marshalla

Observe your client from the moment they walk through the door

Think: Posture-overall body posture, lingual rest posture, labial rest posture

In office tests: Hi-Lo test, Breath Support Assessment Checklist, , Manometer, Maximum Phonation Time, MIP, MEP

Questionnaires: SEBQ, Nijmegan Questionnaire,

Assessment

Breath Support Assessment Checklist Includes:

- Overall pattern
- Breath groups
- Multi-syllabic words
- Prosodic factors
- Phrases
- Connect speech
- Individual syllables
- Vowels
- Diphthongs
- Nasals
- Glides
- Fricatives
- Clusters
- Phoneme Transitions
- Babbling syllable sequences

Assessment

Manometer

TaskTypical cmH_2O Pressure

Quiet speech~3–5 cmH_2O

Conversational speech~5–7 cmH_2O

Loud speech / singing~10+ cmH_2O

Phoneme production (e.g., /p/, /s/)~6–10 cmH_2O

Coughing~60+ cmH_2O

Assessment

Maximum Inspiratory Pressure (MIP)
Maximum Expiratory Pressure (MEP)

Normal values vary by age, sex, and body size

Assessment

Average phonation times:

- Take a deep breath and say “ah” for as long as possible, at a comfortable pitch and loudness
- Use a stopwatch to time phonation
- Repeat 3 times
- Record the longest time
- Adult males: 20-25 seconds
- Adult females: 15-20 seconds
- Pediatrics: 10-15 seconds

Assessment

Hi-Lo Test

- Have the client sit comfortably or lie supine.
- Place one hand on the individual's upper chest (sternum area).
- Place the other hand on the upper abdomen, just below the ribcage.
- Instruct the individual to breathe normally.
- Observe the movement of both hands during inhalation and exhalation.
- Assessment Criteria:
- Diaphragmatic (Abdominal) Breathing: The hand on the abdomen rises more than the hand on the chest during inhalation, indicating effective diaphragmatic breathing.
- Thoracic (Chest) Breathing: The hand on the chest rises more than the hand on the abdomen, suggesting upper chest breathing dominance.
- Paradoxical Breathing: The abdomen moves inward during inhalation instead of outward, indicating a dysfunctional breathing pattern.

Assessment

Respiration rate:
Respiration rate (1-minute) at rest
Average Respiration Rates in Children (at rest)
Newborn: 30-60 breaths per minute
Infant (1 to 12 months): 26-60 breaths per minute
1-10 years of age: 14-50 breaths per minute
11-18 years of age: 12-22 breaths per minute
Adult: 10-20
Try to observe the client's breathing rate while they are unaware, for example while having them complete questionnaires

Assessment

Nijmegan Questionnaire

Nijmegen Questionnaire

	Never – 0	Rarely - 1	Sometimes - 2	Often - 3	Very often - 4	Total
Chest pain						
Feeling tense						
Blurred vision						
Dizzy spells						
Feeling confused						
Faster/deeper breathing						
Short of breath						
Tight feelings in the chest						
Bloated feeling in the stomach						
Tingling fingers						
Unable to breathe deeply						
Stiff fingers or arms						
Tight feelings around the mouth						
Cold hands or feet						
Palpitations						
Feelings of anxiety						
TOTAL SCORE						

A score of over 23 out of 64 suggests a positive diagnosis of hyperventilation syndrome

Assessment

The Self Evaluation of Breathing Questionnaire

Scoring: (0) never/not true at all; (1) occasionally/a bit true; (2) frequently-mostly true; and, (3) very frequently/very true

	0	1	2	3
1. I get easily breathless out of proportion to my fitness	☐	☐	☐	☐
2. I notice myself breathing shallowly	☐	☐	☐	☐
3. I get short of breath reading and talking	☐	☐	☐	☐
4. I notice myself sighing	☐	☐	☐	☐
5. I noticing myself yawning	☐	☐	☐	☐
6. I feel I cannot get a deep or satisfying breath	☐	☐	☐	☐
7. I notice that I am breathing irregularly	☐	☐	☐	☐
8. My breathing feels stuck or restricted	☐	☐	☐	☐
9. My ribcage feels tight and cannot expand	☐	☐	☐	☐
10. I notice myself breathing quickly	☐	☐	☐	☐
11. I get breathless when I'm anxious	☐	☐	☐	☐
12. I find myself holding my breath	☐	☐	☐	☐
13. I feel breathless in association with other physical symptoms	☐	☐	☐	☐
14. I have trouble coordinating my breathing when I am speaking	☐	☐	☐	☐
15. I can't catch my breath	☐	☐	☐	☐
16. I feel that the air is stuffy, as if not enough air in the room	☐	☐	☐	☐
17. I get breathless even when I am resting	☐	☐	☐	☐
18. My breath feels like it does not go in all the way	☐	☐	☐	☐
19. My breath feels like it does not go out all the way	☐	☐	☐	☐
20. My breathing is heavy	☐	☐	☐	☐
21. I feel that I am breathing more	☐	☐	☐	☐
22. My breathing requires work	☐	☐	☐	☐
23. My breathing requires effort	☐	☐	☐	☐
24. I find myself breathing through my mouth during the day	☐	☐	☐	☐
25. I breathe through my mouth at night while I sleep	☐	☐	☐	☐
Total				
A score greater than 11 may indicate problems with your breathing.				

Self Evaluation of Breathing Questionnaire

Assessment

Comprehensive evaluation includes assessment of:

Body posture
Oral rest posture
Facial shape
Lips
Dentition
Tongue
Hard palate
Tonsils
Soft Palate

Assessment

Posture is clinically relevant as it may indicate low tongue posture and chronic mouth breathing

- Head (tilt; forward)
- Shoulders
- Pelvis (lateral; anterior; posterior)
- Body (canting)

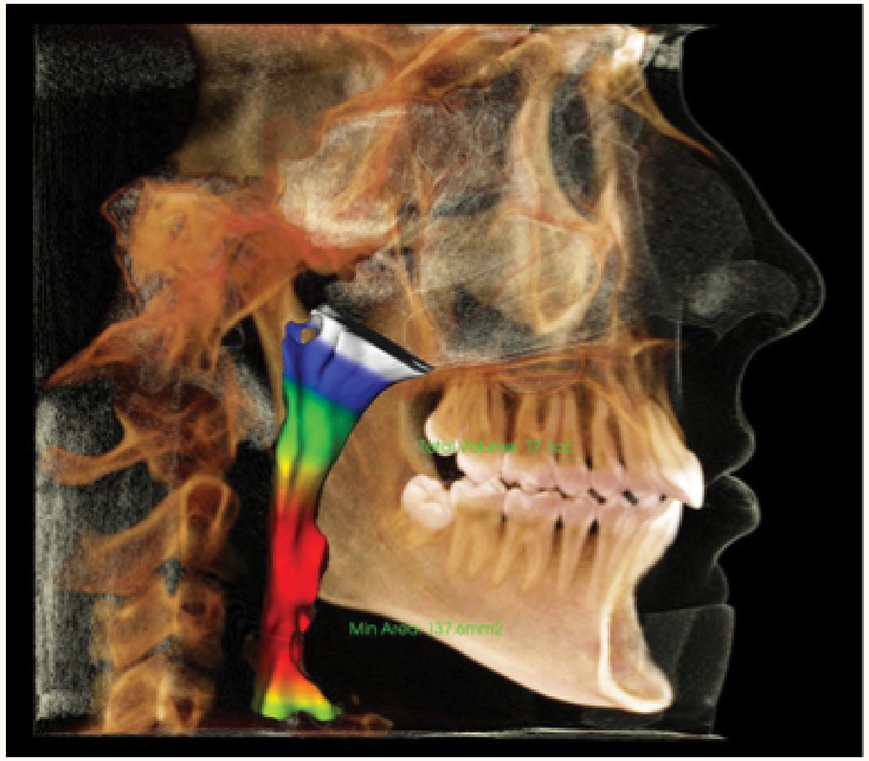
Assess in:

- Seated
- Standing (forward, back, and lateral views)
- Walking

Quick test: view the client laterally. Ears should be directly over the shoulders

A postural analysis grid is a helpful clinical tool

Assessment



Any indication of structural or physiological obstruction and you must refer out

Disordered breathing is usually a symptom of something greater

Treating disordered breathing is a team approach

Referrals may include, but are not limited to:

- ENT
- Pulmonologist
- Allergist
- Orthodontist
- Dentist
- PCP
- Sleep specialist
- Respiratory therapist
- Bodyworker
- Certified breath work instructor
- Gastroenterologist

Treatment

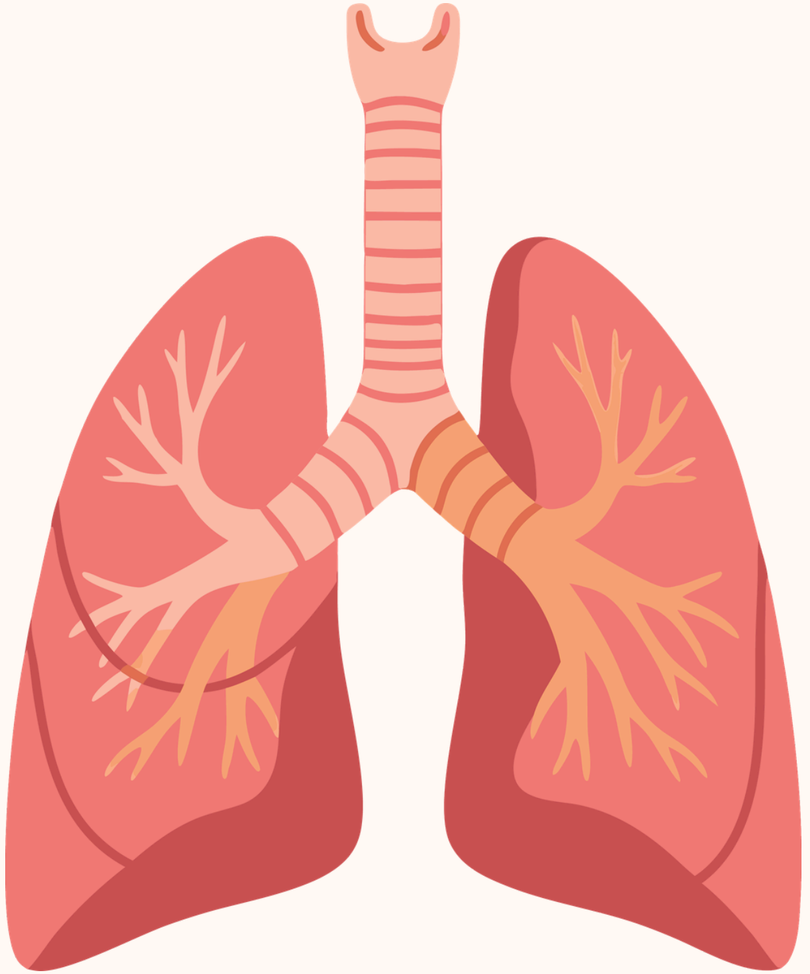
Goals:

Functional nasal breathing

Diaphragmatic breathing

Reduce respiratory rate

Normalize breathing volume



Chaitow, et al. 2013

Treatment

Treatment should be catered to the individual client

Not every breathing exercise is suitable for every client

Tread carefully- when in doubt get cleared by the client's PCP or medical team

Types of clients:

- Unwell
- Older or geriatric
- Sleep apnea
- Anxiety/Depression
- High blood pressure
- Pediatrics (children and teens)
- Unwell children/teens
- Adults in good health
- Pregnant

Treatment

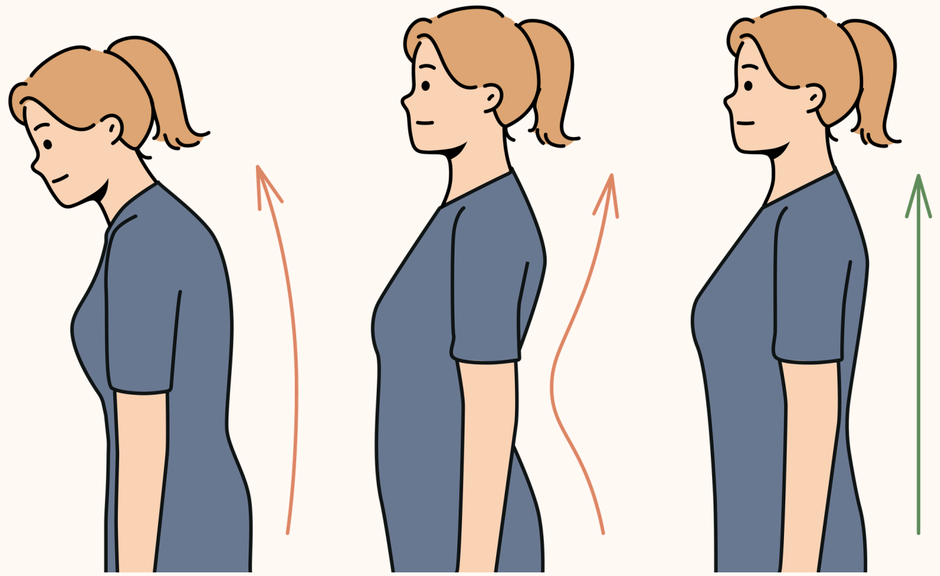
Postural Guidelines

- Proper positioning and posture are foundational for effective speech production.
- They influence breath support, vocal quality, and articulation.
- Poor posture can lead to inefficient speech patterns and increased effort.

Treatment

Postural Guidelines

- **Alignment:** Head, neck, and spine should be aligned to facilitate optimal airflow and vocal cord function.
- **Stability:** A stable base (e.g., feet flat on the floor) supports better control of speech muscles.
- **Relaxation:** Tension in the body can negatively impact speech clarity and fluency.



Treatment

Nasal Hygiene

- Blowing the nose (effectively)
- Nasal rinse
- Saline spray
- Nasal stick
- Nasal dialator
- Decongesting exercises
- Sonu Band

Treatment

Nasal Hygiene

Buteyko Exercise 1: Decongest the Nose

1.Take a normal breath in and out through the nose
2.Pinch your nose and hold your breath
3. Hold your breath for as long as you can, gently nodding your head-until you feel a strong urge to breathe/strong air hunger

4. Release your nose and breathe in through it as calmly as possible

5. Repeat 6 times with a 30-60 second rest between each
Appropriate for children, teenagers, adults in relatively good health

Treatment Pre-speech

Goal:

Awareness and control of breathing

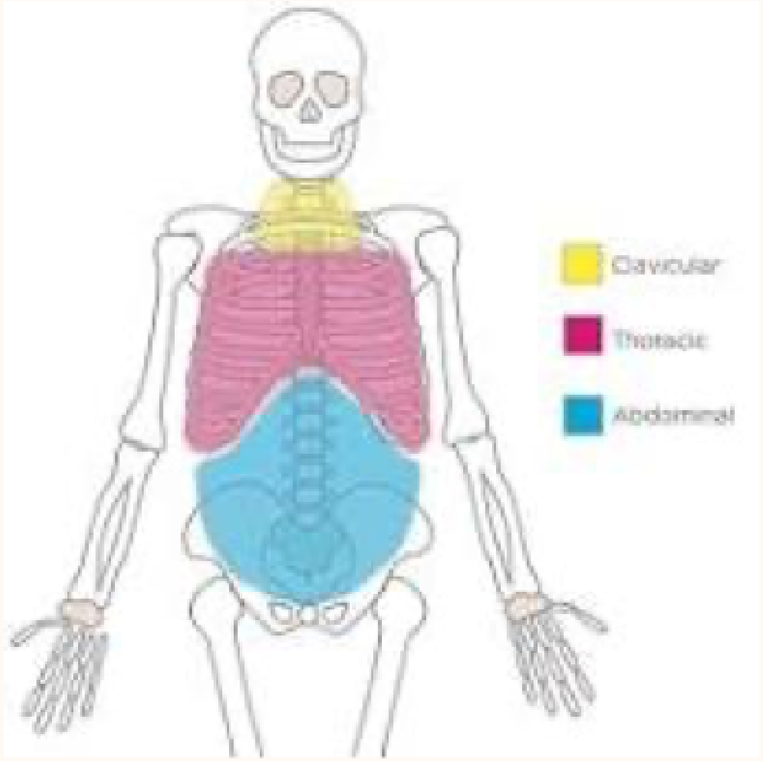
- Blow toys
- Feathers
- Kazoos
- Mirros
- Nasal flutes
- Spirometers
- Straws
- Manometers
- Balloons

Treatment
Pre-speech

Diaphragmatic breathing

- Place one hand on the chest and the other on the belly/diaphragm (a book/object can also be used in place of a hand)
- Inhale through the nose, expanding the belly without moving the chest
- Slowly exhale through the nose
- Repeat for 5-10 minutes

Treatment Pre-speech



Zone 1: Diaphragm/belly

Relaxed breathing

Zone 2: Ribs/thorax

Slightly more intense activity

Zone 3: Chest

Most intense

Running

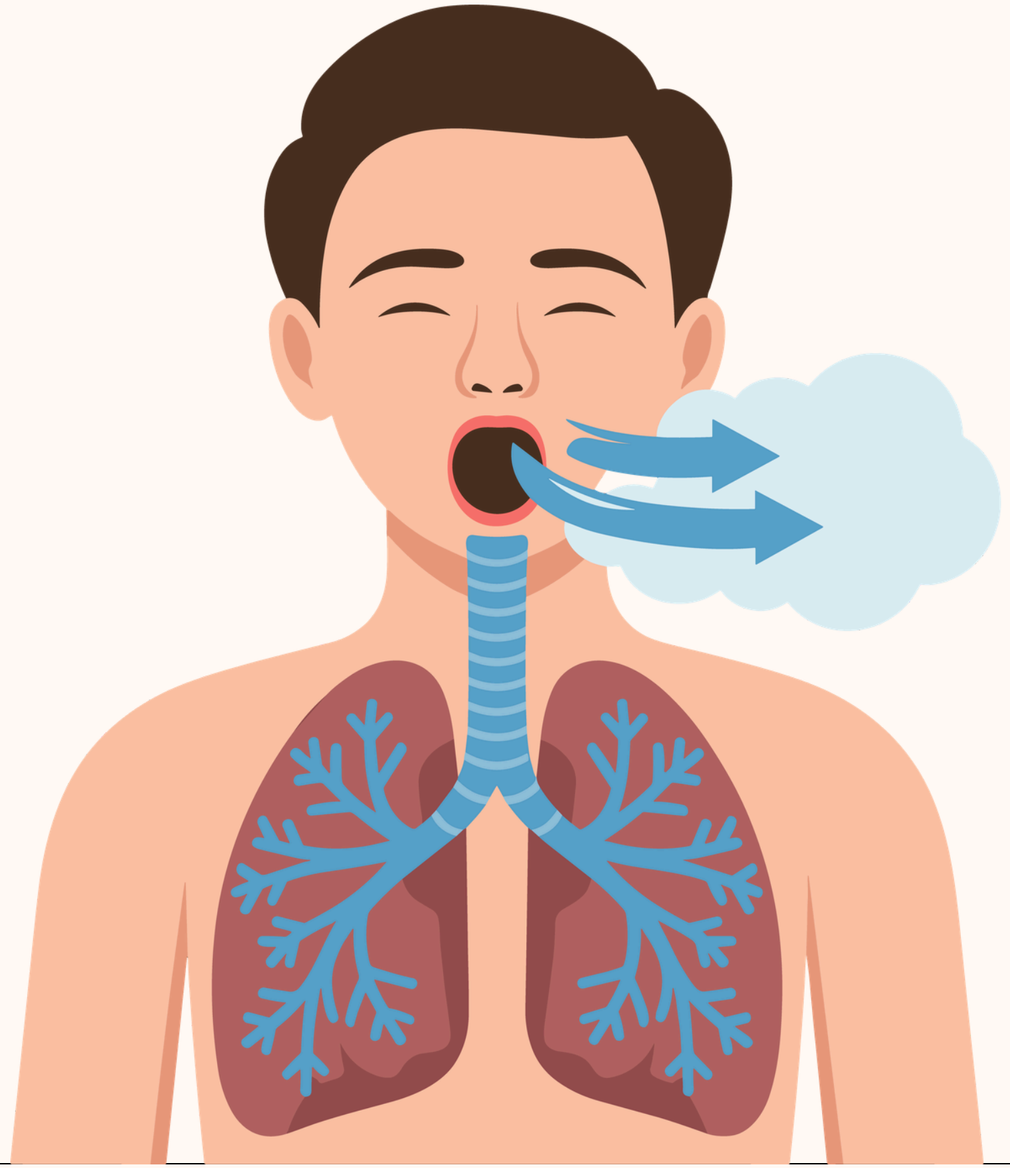
Playing

Treatment
Speech Work

Activities that manipulate respiratory control during speech production.

- Quick inhalation
- Mouth inhalation
- Avoid inhaling too much
- Tension-free inhalation
- Silent inhalation
- Inhale at syntactic markers
- Inhale before “running out of air”
- Inhale before register changes

Fisher (1966)



Treatment Speech Work

Expiratory Control

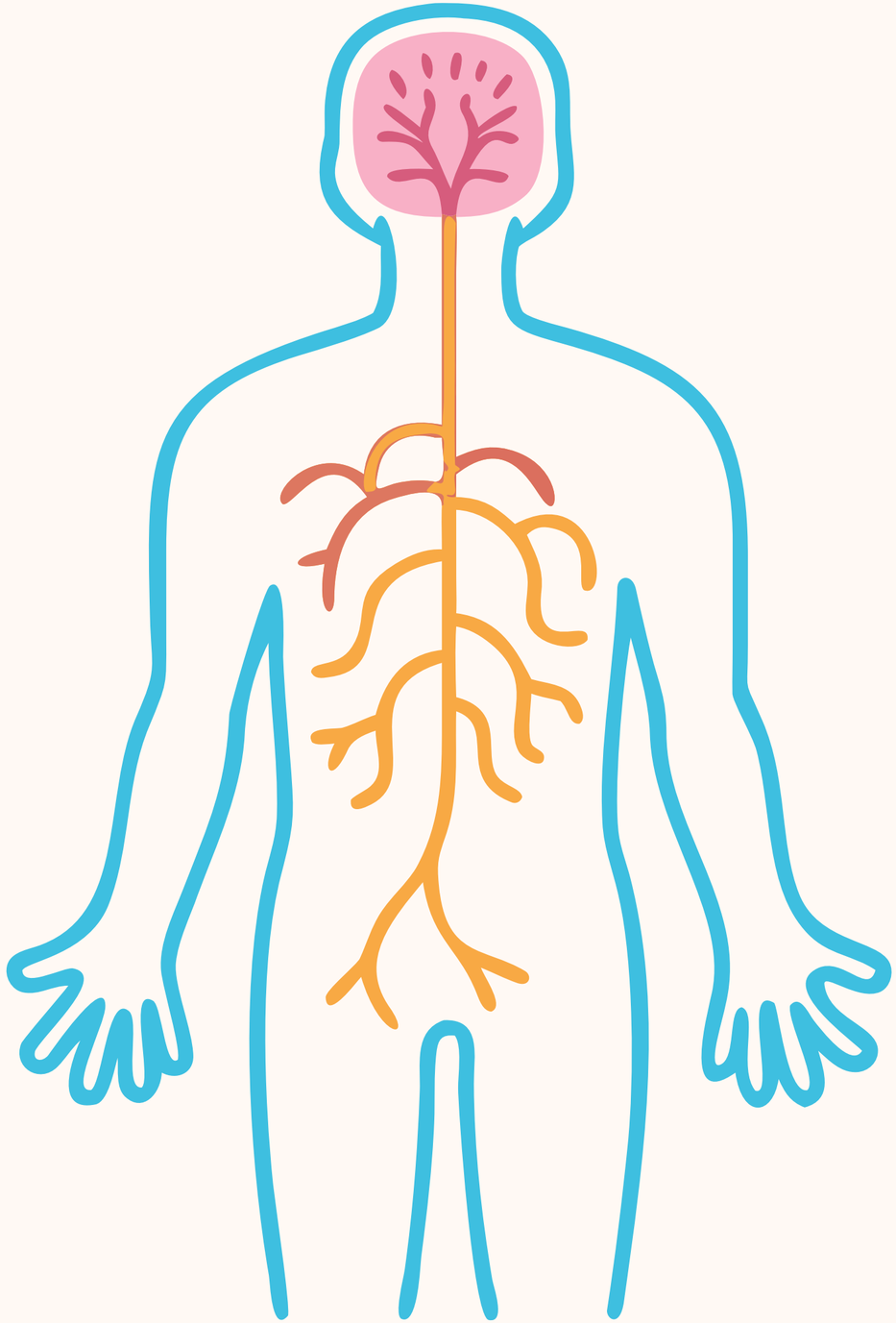
- Exhale economically
- Resist an “out-rush” of breath
- Suspend and resume expiration without wasting breath
- Regulate loudness
- Prevent fading of vocal intensity

Fisher (1966)

Treatment Beyond Speech

Breathing directly influences:

- Nervous system regulation (autonomic balance)
- Sleep quality and airway stability
- Orofacial growth and posture
- Feeding and swallowing coordination
- Attention, learning, and behavior



Treatment Beyond Speech

Breathing & the Nervous System

- **Breathing is the only autonomic function we can directly control**
- **Fast, shallow breathing → sympathetic dominance**
- **Slow, controlled breathing → parasympathetic activation**

Treatment Beyond Speech

Sleep-Disordered Breathing SLPs frequently see patients with:

Mouth breathing

Snoring

Daytime fatigue

Poor attention and executive function

Breathing patterns during the day influence:

Upper airway tone at night

Arousal threshold

Airway collapsibility

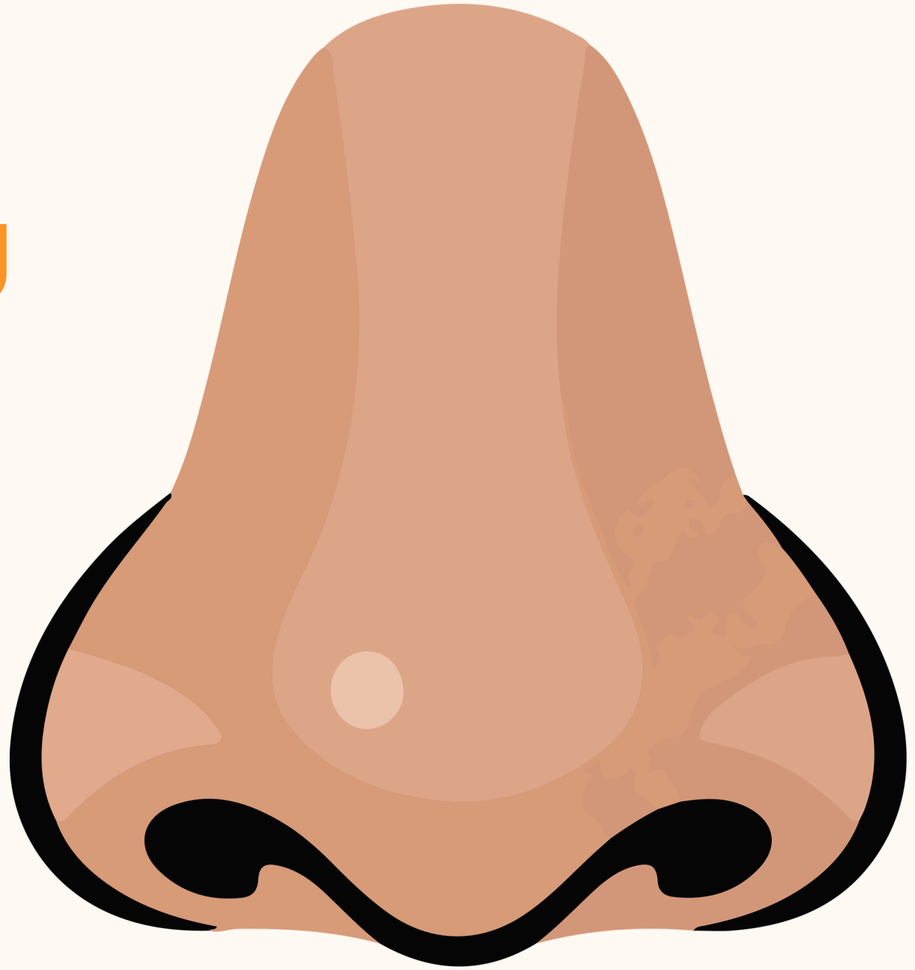
Treatment Beyond Speech

Breathing, Feeding, & Swallowing
Breathing retraining improves stability of the entire aerodigestive system.

- **Swallowing requires precise coordination with respiration**
- **Dysfunctional breathing may contribute to:**
  - **Poor suck–swallow–breathe coordination**
  - **Tongue thrust**
  - **Increased aspiration risk**

Troche, et al. 2010

Treatment
Breathing Pattern Retraining



Examples:

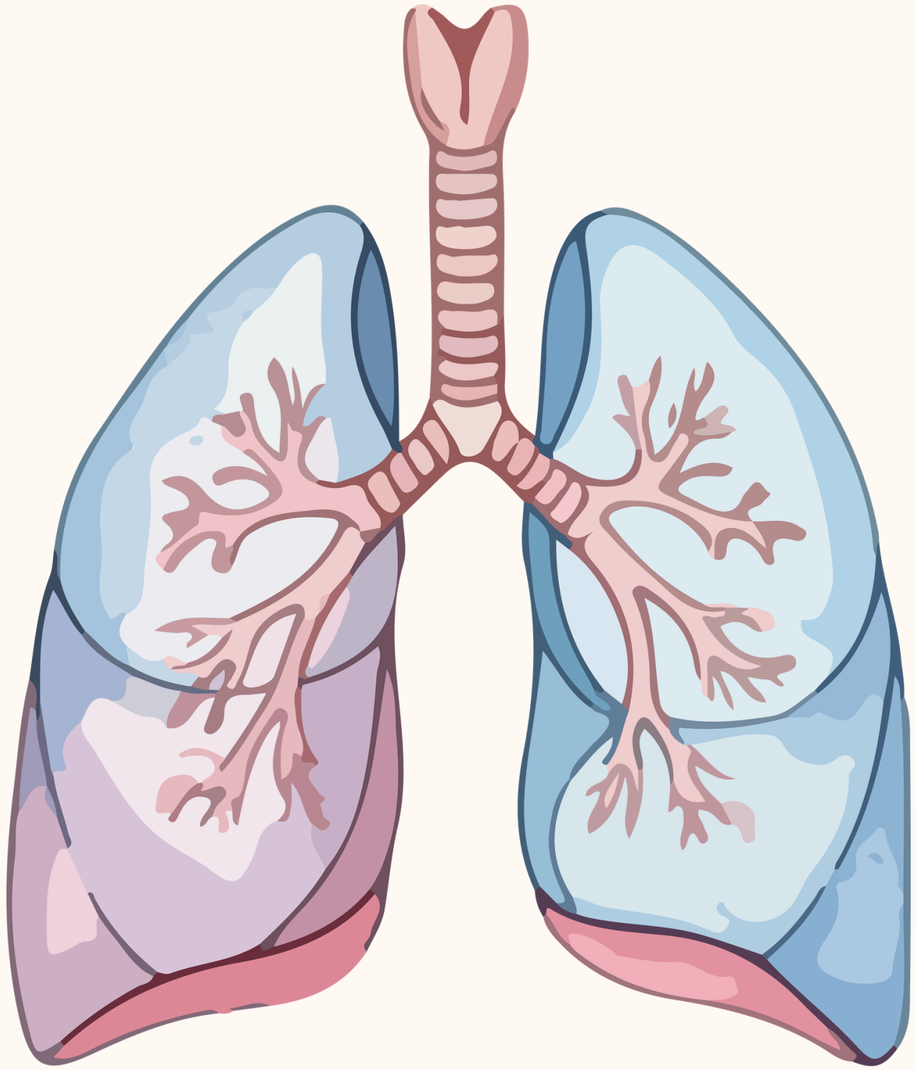
Nasal breathing practice

Diaphragmatic breathing

Slow nasal inhale / prolonged exhale

Goal:

Improve efficiency, not force



Treatment

RMST

EMST: During EMST individuals generate high positive expiratory prssure against a threshold device. This increased pressure requires coordinated activation of the expiratory pump muscles, laryngeal valving system, and oral pressure chamber.

Benefits:

- Improved airway stability
- Better speech endurance
- Improved cough and swallow safety

Kuo et al., 2017.

BreatheStrong

Treatment

Controlled exhalation with phonation

Exercise

1. Inhale nasally
2. Slowly exhale while sustaining a vowel (e.g., /ah/ or /oo/)
3. Gradually increase duration

Targets

- Breath control
- Respiratory-phonatory coordination
- Sustained phonation

Kuo et al., 2017.

Treatment

Breath Group Training

Exercise

1. Inhale through your nose
2. Say a phrase such as:
    - “I went to the store.”
3. Gradually increase to longer sentences

Targets:

- Speech phrasing
- Respiratory timing

Kuo et al., 2017.

Treatment

Breathing for Regulation

Examples:

- Resonant breathing (5–6 breaths/min)
- Extended exhale breathing
- Nasal breathing with pauses
- Physiologic sigh

Used for:

- Stuttering
- Voice tension
- Anxiety and emotional regulation

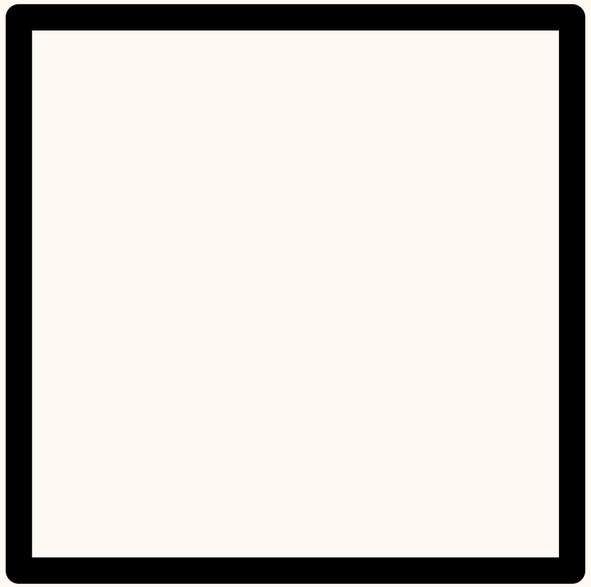
Treatment

Box Breathing

1.Breathe in through the nose for 3-4 seconds

2. Hold that breath for 3-4 seconds

3.Exhale through the nose for 3-4 seconds



4. Hold for 3-4 seconds

5. Repeat 4x

Treatment

Walking with Breatholds

Buteyko Exercise 4

1·Begin walking with mouth closed, tongue on the “spot”, teeth apart/relaxed, breathing in and out through your nose

2·Walk with normal breathing for 30-60 seconds. Then breathe in and out through your nose, pinch nose, and hold the breath for 10 steps

3·Continue walking, breathing through the nose for 30-60 seconds

4·Repeat 10 step breath hold; breathe through nose for 30-60 seconds

5·Continue walking, breathe in and out through nose and hold for 15 steps

·Follow this pattern: 10, 10, 15, 15, 20, 20, 25, 25, etc

Treatment

Buteyko Exercise 6

1.Take a normal breath in and out through your nose

2. Pinch nose and hold for 3-5 seconds

3. Breathe normally in and out through your nose for 10 seconds

4. Repeat for 10 minutes

*This is an emergency exercise to help stop symptoms of coughing, wheezing, or hyperventilation

Thank you!!!

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References

Boliek, C.A., Hixon, T.J., Watson, P.J., & Jones, P.B. (2009). Refinement of speech breathing in healthy 4-6-yearold children. *Journal of Speech, Language, and Hearing Research, 52(4)* 990-1007.

Chaitow, L., Gilbert, C., & Bradley, D. (2013). Recognizing and treating breathing disorders: A multidisciplinary approach. Churchill Livingstone Elsevier.

Connaghan, K.P., Moore, C.A., & Higashakaw, M. (2004). Respiratory kinematics during vocalizatio and onspeech respiration in children from 9 to 48 months. *Journal of Speech, Language, and Hearing Research, 47(1),* 70-84.

Fisher, H.B. (1996). *Improving voice and articulation.* New York, NY: Houghton Milton.

Huber J. E. (2008). Effects of utterance length and vocal loudness on speech breathing in older adults. Respiratory physiology & neurobiology, 164(3), 323–330. Fisher, H.B. (1996). Improving voice and articulation. New York, NY: Houghton Milton.

Kuo, Y.-C., Song, T.-T., Bernard, J. R., & Liao, Y.-H. (2017). Short-term expiratory muscle strength training attenuates sleep apnea and improves sleep quality in patients with obstructive sleep apnea. *Respiratory Physiology & Neurobiology, 244*, 1-7.

References

Marshalla, P. (2019). The Marshalla guide: A topical anthology of speech movement techniques for motor speech disorders and articulation deficits. Ashland, OR: Marshalla Speech and Language.

Okuro RT, Morcillo AM, Ribeiro MÂ, Sakano E, Conti PB, Ribeiro JD. Mouth breathing and forward head posture: effects on respiratory biomechanics and exercise capacity in children. *J Bras Pneumol. 2011* Jul-Aug;37(4):471-9. English, Portuguese. doi: 10.1590/s1806-37132011000400009. PMID: 21881737.

Sapienza, C., & Hoffman, B. (2021). Respiratory muscle strength training (1st ed.). Plural Publishing. Print ISBN: 978-1-63550-257-2; eBook ISBN: 978-1-63550-260-2

Torre C, Guilleminault C. Establishment of nasal breathing should be the ultimate goal to secure adequate craniofacial and airway development in children. *Jornal de pediatria 2018*; 94: 101-103.

Troche, M. S., Okun, M. S., Rosenbek, J. C., Musson, N., Fernandez, H. H., Rodriguez, R., Romrell, J., Pitts, T., Wheeler-Hegland, K. M., & Sapienza, C. M. (2010). Aspiration and swallowing in Parkinson disease and rehabilitation with EMST: A randomized trial. *Neurology, 75*(21), 1912-1919.

Vidotto, L. S., Carvalho, C., Harvey, A., & Jones, M. (2019). Dysfunctional breathing: what do we know?. *Jornal brasileiro de pneumologia : publicacaooficial da SociedadeBrasileira de Pneumologia e Tisilogia, 45*(1), e20170347. https://doi.org/10.1590/1806-3713/e20170347