Self-Help Video #6 Part 2

Pelvic Exercises for Throat Tension

<https://youtu.be/FV01C4bYPTA>

(begin at 1:00 minute to bypass Medical Disclaimer)

The iliopsoas muscle group has two parts: the psoas major muscle that starts at the lumbar spine, and the iliacus that starts from the inside of the pelvis. These muscles join in the pelvis and reach to the upper thigh bone, providing support to legs for physical movements. These exercises impact the digestive system because of the passage of the gut through the diaphragm, which has many functions in addition to breathing. It increases abdominal pressure to help the body get rid of vomit, urine, and feces. It places pressure on the esophagus to prevent acid reflux.

There are three large openings in the diaphragm. The esophageal opening permits the esophagus and the vagus nerve to control the digestive system. The aorta, the body’s main blood transport from the heart, as well as the thoracic duct, the main vessel of the lymphatic system, pass through the aortic opening. And the caval opening allows blood to be transported back to the heart via the inferior vena cava.

Pelvic exercises: begin from a standing position with knees slightly bent. In all the movements, keep other body parts in a relaxed state. On all the steps, as you “push” (tense), inhale for 4-count. Then relax and sigh as you return to starting position on 8-count exhale. Perform 5 cycles of each step.

First: Push your pelvic backwards in a tilt position.

Second: Push pelvic forward.

Third: Push pelvic to right side.

Fourth: Push pelvic to left side.

Now we will perform a pelvic circle, combining all 4 movements. Continue the 4-8 breath pattern, with sigh on exhale, but not contingent upon the speed of your circular movements.

Begin the pelvic circle by pushing pelvic backwards for tilt. Then push pelvic to right side. Then push pelvic to forward tilt. Then push pelvic to left side. Do for five cycles.

<https://www.youtube.com/watch?v=Udn646vHSgg>

<https://www.christinemathesonnd.com/blog/pelvic-health-jaw-tension-connection>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5360994/>

Electrocorticography (ECoG) shows that when we speak, we use 100 muscles, continuously moving lips, jaw, tongue, throat, and voice box to shape breath into sounds of words and sentences. The brain activity is like a carefully tuned orchestra requiring the concerted activity of many different neurons.

<https://www.cell.com/neuron/pdfExtended/S0896-6273(18)30339-8>

The larynx, hyoid bone, and lower jawbone move apart in infant development, while pulled into a vertical position from the cranium. This positional relationship was formed because humans stand upright on two legs, breathe through the diaphragm, and masticate using the lower jaw. The lower jaw exerts a pull on the larynx through the hyoid bone and moves freely up and down as well as regulates exhalations. The ultimate example of this interaction is the singing voice.

<https://www.med.or.jp/english/journal/pdf/2011_04/241_247.pdf>

The larynx is just below the soft palate after birth, but descends when the infant holds up his neck, is weaned and begins to eat food, and walks on two legs. Physical maturity causes the lower jawbone, hyoid bone, and larynx to separate from each other. By the age of ten, the larynx reaches the same stability as an adult. The songs that a young child sings is monotonous with a limited range, but this range expands once the child reaches the third or fourth grade of elementary school.

<https://www.jenevorawilliams.com/wp-content/uploads/2012/10/What-a-childs-voice-can-and-cant-do.pdf>

There are many speech issues due to growth problems or damage occurring to the mature human when a person is unable to keep his neck steady, keep his own trunk upright for some reason, or swallow without chewing and depend on only tube feeding. Also, as a person ages and it is more difficult to remain upright, the larynx can drop as low as one vertebral body of the spine, which makes it difficult to swallow and speak. Speech therapy treats these various developmental, medical, and aging issues. Speech problems can arise from emotional traumas, creating extreme tension in all the larynx support muscles.

The ECoG research reveals that muscular interactions are necessary for speech, which suggests other approaches may be more effective than speech training which is focused solely on “sounds.” Our mouth forms the sounds differently in words which have a sameness of phoneme in order to prepare for the different vowels that follow. For example, the jaw opens more to say the word "tap" than to say the word "has" -- despite having the same vowel sound (/ae/). The mouth has to get ready to close to make the /z/ sound in "has." This physical distinction is more important to the brain than the theoretical sameness of the phoneme. Thus, “speech therapy” may not greatly improve some speech difficulties. We need to address vocal tract movements and not just linguistic features like phonemes when studying speech production.