Function of the Laryngeal Muscles

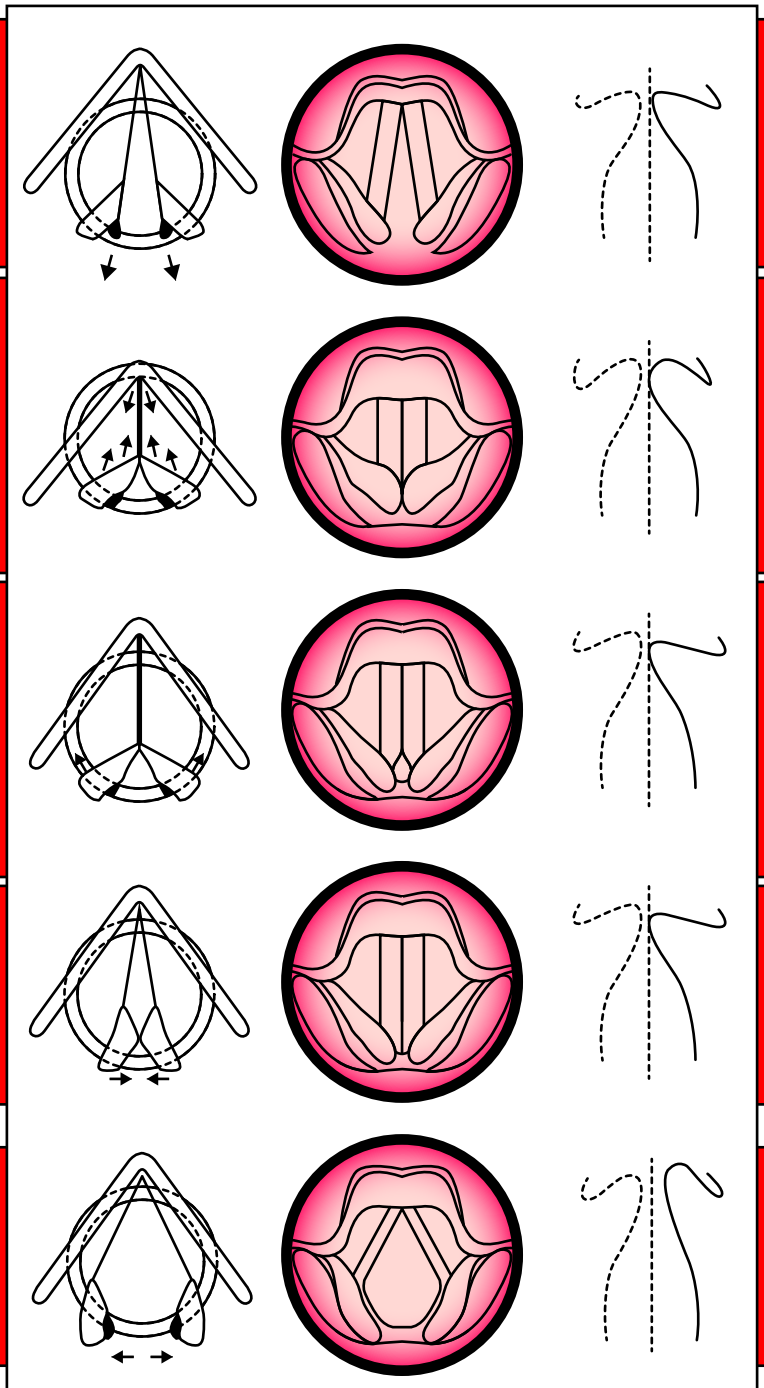
Cricothyroid (CT) muscles (paired): Laryngeal tensor, composed of two separate muscle bellies, the vertical pars recta, and the pars obliqua ; both affect motion at the cricothyroid joint. During contraction as a result of raised pitch (F_0) the cricothyroid space is narrowed anteriorly, (at the front) while the arytenoid cartilages move posteriorly, resulting in vocal fold lengthening, thinning, and adduction.

Thyroarytenoid (TA) muscles (paired): The TA/vocalis muscles adjust tension in the vocal folds in order to vary tone quality and pitch. Attached to both the thyroid and arytenoid cartilages, these muscles draw the vocal folds together by tightening the vocal ligament, reducing glottal space and shortening, thickening, and relaxing the vocal folds. The deep inner slow-twitch fibers of the TA comprise the **vocalis muscle**. TA muscle activity is dominant in the male speaking voice and 'chest voice' sounds in singing.

Lateral Cricoarytenoid (LCA) muscles (paired): Attached to the cricoid and the arytenoid cartilages, the LCA muscles adduct and elongate the vocal folds at the posterior (back) end of the larynx by rotating the arytenoid cartilages. As longitudinal tension on the vocal folds increases, the glottis tends to develop a gap in the middle. To counteract this tendency, the LCA muscles are contracted, pulling forward on the arytenoid cartilages and closing the glottis where the gap occurs. This process is known as **medial compression**.

Interarytenoid (IA): Made of two different muscle fibers; the oblique (paired) and the transverse (unpaired). The oblique IA (paired) form an X in the back of the larynx. The **transverse IA** (unpaired) runs horizontally underneath the oblique X shaped fibers. Contraction of the IA adducts the arytenoid cartilages and closes the posterior gap of the glottis.

Posterior cricoarytenoid (PCA) muscles (paired) abduct (separate) and elongate the folds. When we breathe, the PCA muscles draw the arytenoid cartilages apart, separating the vocal folds and creating a larger glottal space for air.



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