

The **pharynx** is a muscular tube that is open posterior to the nasal cavity (**nasopharynx**) and oral cavity (**oropharynx**). These cavities employ this tube to get air into the upper respiratory tract (larynx) and dinner into the upper digestive tract. The trick is to avoid pushing food into the airway (aspiration) or air into the esophagus (burp!). The pharynx is essentially composed of skeletal muscle, the most obvious of which are the superior, middle, and inferior constrictors (page 137). The rhythmic, sequenced contractions of these muscles, in addition to several others that secure the pharynx to the base of the skull, produce the motive force, in conjunction with gravity, to move food to be swallowed into the esophagus (*deglutition*, page 137). Coordinated muscular activity in the pharynx underlies the mechanism of swallowing. The movement of air through the pharynx is a function of differential air pressures and volumes created by the muscles of respiration (page 133).

The **larynx** is first a passageway for air to and from the lungs. In conjunction with that function, it can mechanically close off the airway (with its vocal folds) to prevent aspiration of solid material. Secondly, it provides a mechanical means for producing sound with variations of pitch, tone, and volume.

The larynx has a frame of hyaline cartilage connected by ligaments. The lumen of the larynx is continuous above with the **laryngopharynx** and continuous below with the trachea. Its anterior surface is adjacent to loose fascia and skin. Its posterior neighbor is the laryngopharynx and the **cervical esophagus**. The cervical spine is posterior to the esophagus, and between them is the retropharyngeal space of variable width. Filled with blood vessels, it is a potential reservoir for hemorrhage in traumatic hyperextension of the cervical spine. Generally, the larynx is located between vertebrae C2 and C6.

Although associated with the larynx, the **hyoid bone** is not a laryngeal structure. It gives attachment to the thyrohyoid membrane (ligament) from the **thyroid cartilage**. Note that this cartilage has no posterior surface. The laryngeal prominence (*Adam's apple*) can be palpated and generally seen in postpubescent males. The **cricoid** is shaped like a signet ring, facing posteriorly, and resting on the first tracheal ring. The **arytenoid cartilages** articulate with the top of the cricoid, pivoting on it. The **vocal folds** (*cords*) are mucosa-lined ligaments stretching between thyroid and arytenoid cartilages. Vocal fold tension (changing pitch) is effected by tilting the thyroid cartilage up and down. Abduction/adduction of the arytenoid cartilages varies the opening of the **rima glottidis**. In breathing they are abducted; in coughing, they are momentarily fully adducted (closing the rima and permitting intrathoracic pressure to build), and then abducted to discharge the trapped air. During phonation, the vocal folds are generally adducted, varying somewhat with pitch and volume changes. The **vestibular folds** (false vocal cords) are fibrous and only move passively. When swollen, they can and do obstruct the airway.