

# Muscles of Swallowing

## A Comprehensive Summary

Stage	Physiologic Event	Muscles Involved
Oral Preparatory	Jaw opening	Lateral pterygoids (V) Anterior belly of digastricus (V) Platysma (VII)
	Anterior lip closure	Orbicularis oris (VII)
	Tongue-soft palate seal	Styloglossus (XII) Palatoglossus (X)
	Jaw movements (rotary, lateral, elevation)	Masseter (V) Temporalis (V) Medial pterygoids (V) Lateral pterygoids (V)
	Tongue movements (lateral, elevation, depression)	Extrinsic lingual muscles (XII) Intrinsic lingual muscles (XII) Buccinator (presses bolus laterally)
Oral	*Taste	CN VII - Anterior 2/3 of tongue CN IX - Posterior 1/3 of tongue
	*General sensation on tongue (temperature, size, texture, etc.)	CN V - Anterior 2/3 of tongue CN IX - Posterior 1/3 of tongue
	Midline tongue depression (to keep food in mouth) or tongue cupping	Genioglossus (XII) Vertical (XII)
	Dropping of posterior tongue	Hyoglossus (XII)
	Tongue tip elevation	Superior longitudinal (XII)
	Tongue flattening to squeeze bolus against palate	Transverse (XII)
	*Triggering of pharyngeal swallow (sensation to the oropharynx)	CN IX - Oropharynx / tonsils
Pharyngeal	*Sensation to subglottic region (cough reflex)	CN X – Recurrent laryngeal nerve
	*Sensation to hypopharynx and larynx (cough reflex)	CN X – Superior laryngeal nerve
	*Taste sensation to epiglottis	CN X – Superior laryngeal nerve
	Velar elevation (velopharyngeal closure)	Levator veli palatini (X) *Musculus uvulae (tightens seal)
	Laryngeal closure (i.e., vocal fold adduction)	Lateral cricoarytenoid (X) Transverse arytenoid (X) Oblique arytenoid (X)
	Epiglottic movement	*Aryepiglottic muscle (supplementary; epiglottic movement results from hyolaryngeal movement and pharyngeal constriction)
	Laryngeal elevation	Stylopharyngeus (IX) Stylohyoid (VII)

		Anterior and posterior belly of digastricus (V, VII)
	Anterior hyoid excursion	Hyoglossus (XII) Thyrohyoid (C1) Mylohyoid (V) Geniohyoid (C1) Stylohyoid (VII)
	UES opening (relaxation)	Cricopharyngeus (X)
	Base of tongue retraction	Hyoglossus (XII) Styloglossus (XII)
	Pharyngeal contraction	Superior constrictor (X) Middle constrictor (X) Inferior constrictor (X)
	Descent of larynx	Sternohyoid (C1-C3/4) Omohyoid (C1-C3/4) Sternothyroid (C1-C3/4) Thyrohyoid (C1)
Esophageal	Peristaltic wave	<p>The esophagus is a muscular tube made up of an external layer of longitudinal fibers and an internal layer of circular fibers.</p> <p>The circular muscle layer provides the sequential peristaltic contraction that propels food toward the stomach.</p>