

Neuroanatomy of Swallowing: Cranial Nerves

A Comprehensive Summary

Cranial Nerve	Nuclei Location	Type	General Functions
V Trigeminal	Pons	Mixed	Mastication Face sensation
VII Facial	Pons	Mixed	Facial movement Taste
IX Glossopharyngeal	Medulla	Mixed	Pharyngeal swallow onset Taste
X Vagus	Medulla	Mixed	Voicing Pharyngeal swallow
XI Spinal Accessory	Medulla	Motor	Neck movement Shoulder movement
XII Hypoglossal	Medulla	Motor	Tongue movement

Cranial Nerve	Motor Innervation (efferent)	Sensory Innervation (afferent)
V Trigeminal 3 branches: <ul style="list-style-type: none"> - V1 Ophthalmic - V2 Maxillary - V3 Mandibular 	V3 <ul style="list-style-type: none"> - Tensor veli palatini - Tensor tympani - <u>Suprahyoids</u>: mylohyoid, anterior belly of digastricus - <u>Muscles of mastication</u>: medial and lateral pterygoids, temporalis, masseter 	<u>General</u> sensations to the: V1 <ul style="list-style-type: none"> - Scalp - Forehead - Eyes - Nose V2 <ul style="list-style-type: none"> - Cheek - Upper lip - Upper teeth/gums - Palate V3 <ul style="list-style-type: none"> - Ear - Lower lip - Tongue - Lower teeth/gums - Jaw
VII Facial 5 branches: <ul style="list-style-type: none"> - Temporal: eyebrow, forehead - Zygomatic: eyelid - Buccal: cheek, lip - Mandibular: chin 	<ul style="list-style-type: none"> - Muscles of facial expression - Posterior belly of digastricus - Stylohyoid - Stapedius - Mucosa of oral cavity and nose - Lacrimal, submandibular, and sublingual glands 	<ul style="list-style-type: none"> - Taste sensation to anterior 2/3 of the tongue - External ear

- Cervical: platysma		
IX Glossopharyngeal	<ul style="list-style-type: none"> - Stylopharyngeus - Parotid gland 	<ul style="list-style-type: none"> - Oropharynx (tonsils) - Sensation (both general and taste) to posterior 1/3 of the tongue
X Vagus 3 branches: <ul style="list-style-type: none"> - Pharyngeal branch - Recurrent laryngeal branch (RLN) - Superior laryngeal branch (SLN) 	<ul style="list-style-type: none"> - Pharyngeal constrictors - Palatal muscles (except tensor veli palatini) - Palatoglossus - Long pharyngeal muscles (except stylopharyngeus) - Intrinsic laryngeal muscles - Esophagus - Glands of pharynx, larynx, trachea, and esophagus <p>Note: Pharyngeal branch:</p> <ul style="list-style-type: none"> - Palatoglossus, long pharyngeal muscles, pharyngeal constrictors, soft palate muscles <p>RLN</p> <ul style="list-style-type: none"> - Intrinsic laryngeal muscles <u>except</u> cricothyroid <p>SLN</p> <ul style="list-style-type: none"> - External branch: Cricothyroid 	<ul style="list-style-type: none"> - Sensation to the pharynx and larynx - Taste sensation to epiglottis <p>Note: RLN</p> <ul style="list-style-type: none"> - Sensation to subglottic region <p>SLN</p> <ul style="list-style-type: none"> - Internal branch: Sensation to hypopharynx and larynx
XI Spinal Accessory	<ul style="list-style-type: none"> - Trapezius - Sternocleidomastoid (SCM) 	N/A
XII Hypoglossal	<ul style="list-style-type: none"> - Intrinsic lingual muscles - Extrinsic lingual muscles (except palatoglossus) 	N/A
Upper Cervical Spinal Nerves	C1 <ul style="list-style-type: none"> - Geniohyoid - Thyrohyoid (infrahyoid) <p>Ansa cervicalis (C1-C3/4):</p> <ul style="list-style-type: none"> - Infrahyoids 	N/A