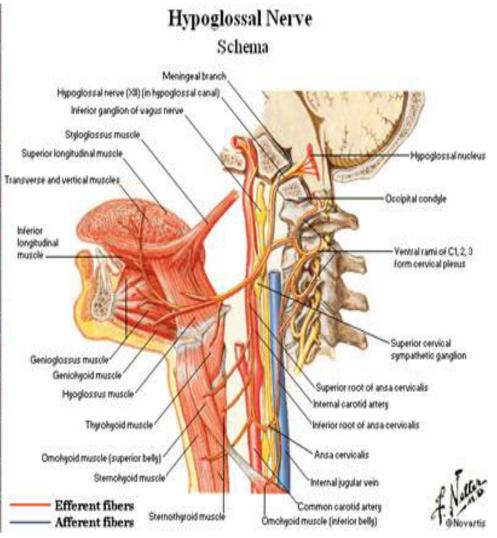
- XII cranil nerve
- entirely motor, somatic efferent column
- Innervates all muscles of tongue except palatoglossus
- Represents fusion of four pre –cervical nerves (ventral roots) i.e. spinal in behaviour,but cranial in out look
- In series with 3<sup>rd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, ventral roots of spinal nerves



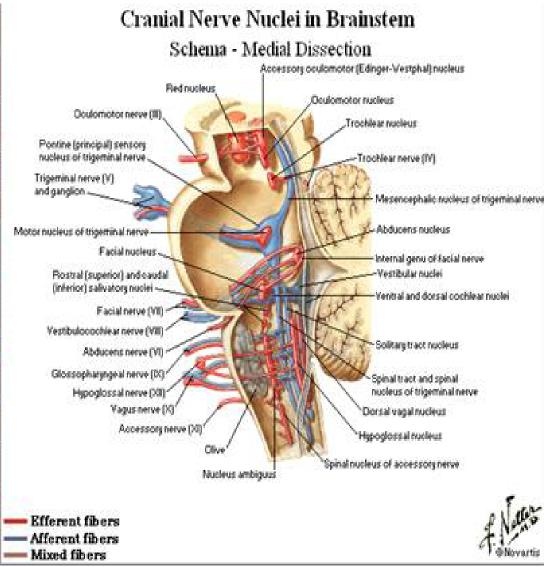
#### **DEEP ORIGIN**

elogated nucleus 2cm long

- Upper end situated in hypoglossal triangle ( 4<sup>th</sup> ventricle)
- CENTRAL CONNECTIONS:
  - -motor & pre-motor cortex(cortico-nuclear)
- -cerebellum via nu.intercalatus

#### S/F ORIGIN

10-15 rootlets emerge through anterolateral sulcus medulla oblongata

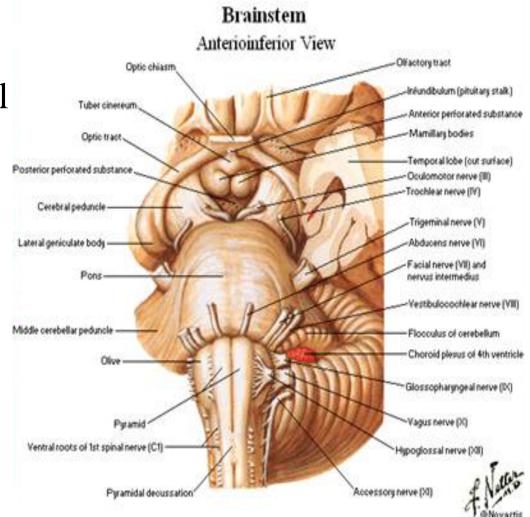


### Hypoglossal nerve

- Course & relations
- Intracranial- rootlets pass behind 4<sup>th</sup> part of vertebral art

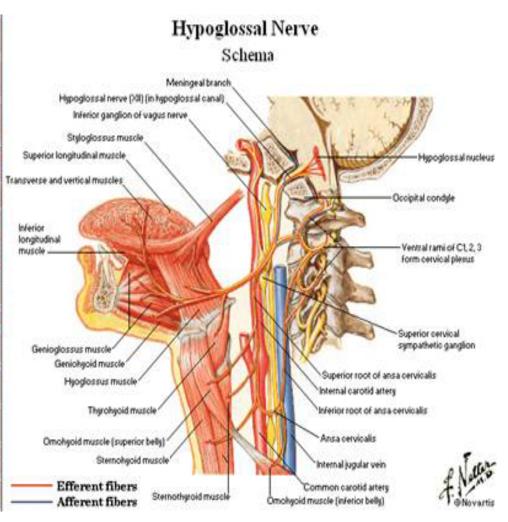
assemble in two bundles

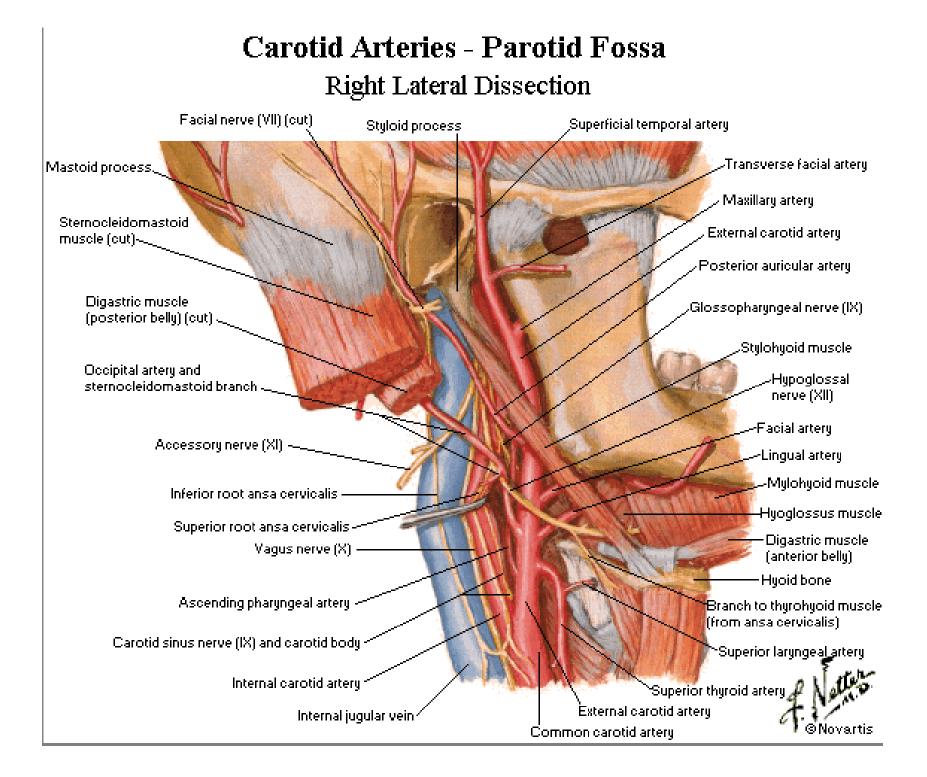
Each pierces the duramater & unite in the lower part of hypoglossal canal -a single trunk



# Hypoglossal nerve

**Extracranial**- at exit deeply placed than IJV, ICA,9<sup>th</sup> .10<sup>th</sup>.11<sup>th</sup> nerve passes laterally around the inferior ganglion of vagus vertically placed between IJV & ICA infront of vagus Deep to post. Belly of digastric & stylohyoid muscles, at level of angle of mandible appears in the carotid triangle

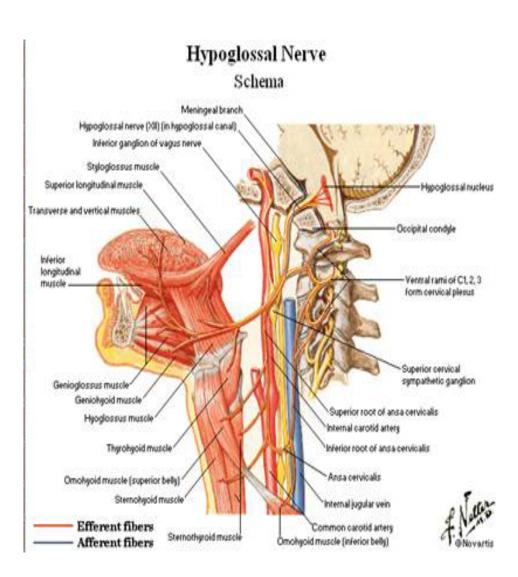




#### Extracranial-In carotid

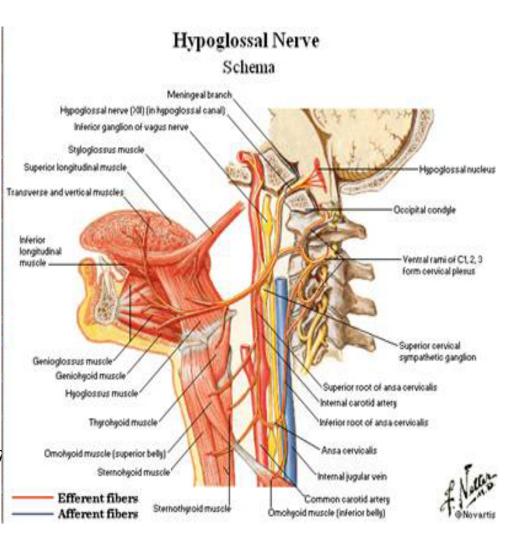
triangle ,crosses s/f to ICA, ECA,loop of 1<sup>st</sup> part of lingual arteries (superficial part)

 Passes forward & upward above gr. Cornu of hyoid,appears in digastric triangle



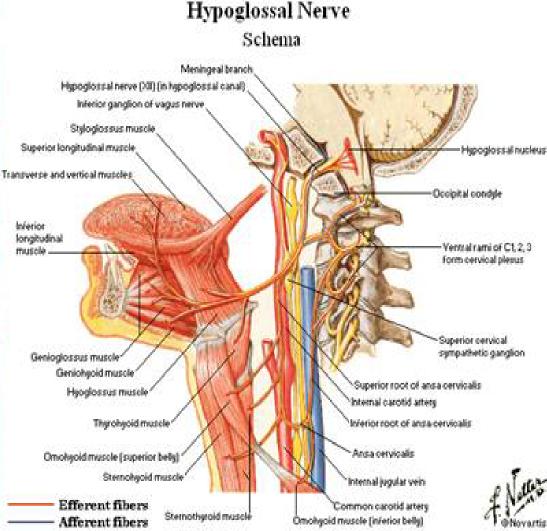
#### HYPOGLOSSAL NERVE

• Rests on hyoglossus, deep to hyoglossus related 2<sup>nd</sup> part of lingual art., on hyo glossus successively above deep part of s/m gland & its duct, s/m ganglion & lingual nerv



• finally passes deep to mylohyoid ,pierces genioglossus & reaches the substance of tongue

**BRANCHES** Communications--sup. Cervical ganglio -inf. Ganglion of vague -loop of C1 & C2 -pharyngeal plexus -lingual nerve Distribution--meningeal -descending (superior ramus of ansa cervicalis - nerve to thyrohyoid -muscular



#### HYPOGLOSSAL NERVE

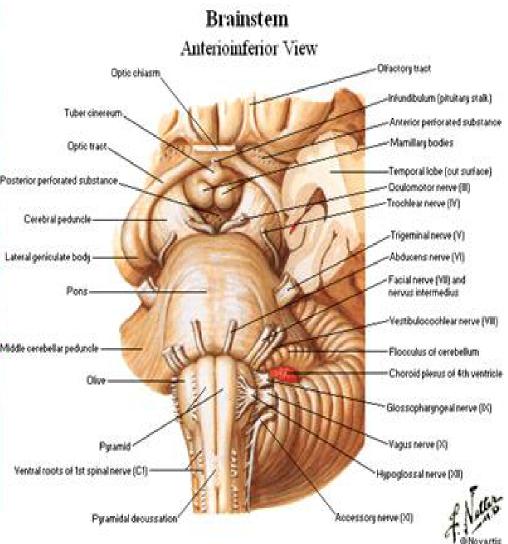
Applied anatomy Unilateral injury-tip tilts towards paralysed side Atrophy Larynx deviated to sound side **Attention** 

tip of forceps applied to the concave side

# AND

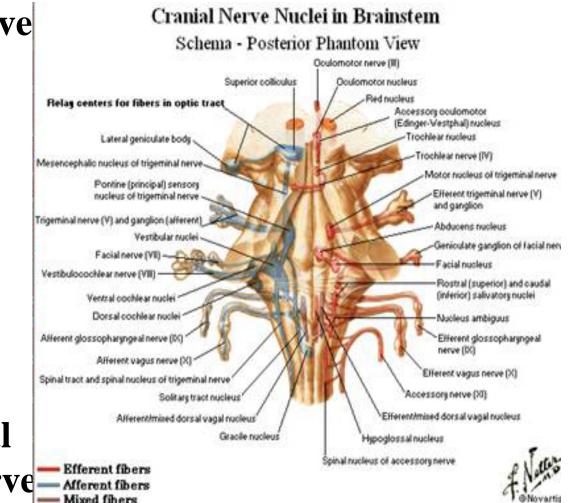
- X cranial nerve
- Emerge from medulla oblongata
- Extensive distribution (vagus or wandering nerve)
- Cranial part of parasympathetic system
- Each nerve
- -cervical-two ganglia superior or jugular(close to jugular foramen ,gsa) inferior or nodose(gva & sva) ganglion
- -thoracic
- -abdominal

## VAGUS NERVE



- NUCLEAR ORIGIN & THEIR FUNCTIONAL COMPONENTS
- a) nucleus ambiguus-sve
- b) dorsal nucleus of vagus-gva & gve
- c) nucleus of trctus solitarius-sva
- d) nucleus of the spinal tract of trigeminal nerve gsa

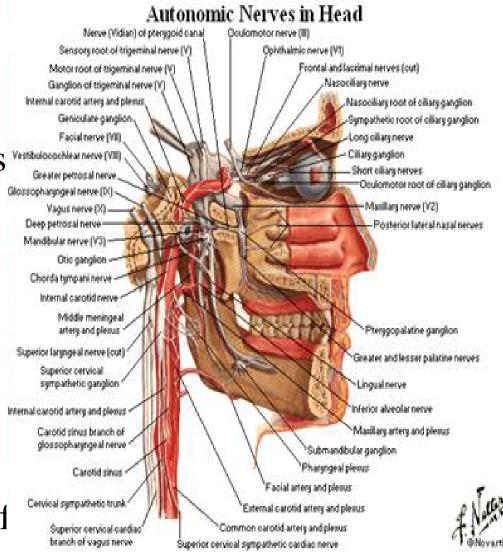
### Vagus nerve



- A-H& D
- Emerge through posterolateral sulcus of m. oblongata
- Pass laterally to intermediate compartment of jugular foramen ,rootlets unit to form a trunk (VI)
- Runs vertically between IJV laterally &ICA,CCA medially
- At root of neck
  Rt.-betweenIJV & 1<sup>st</sup> part of subclavian art.

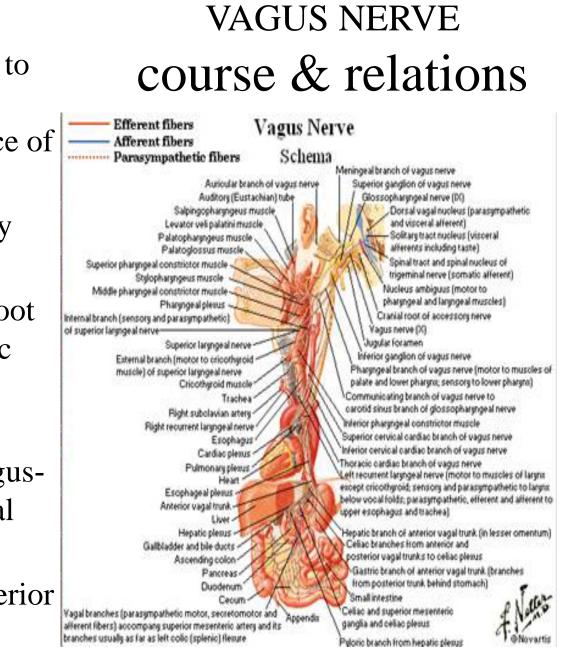
Lt.betwwenCCA &1st part of

# VAGUS NERVE course & relations



#### Thorax

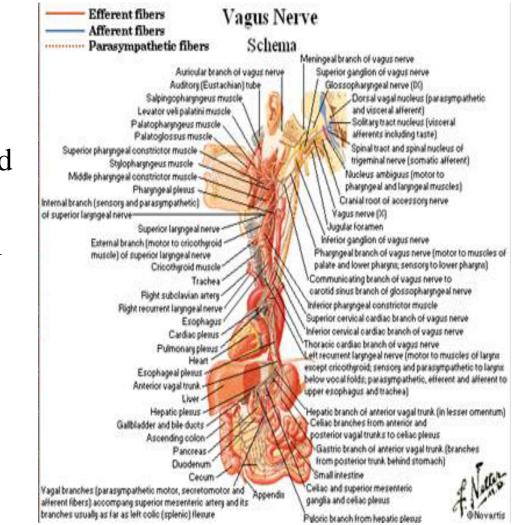
- Right vagus-posteromedial to rt. Brachiocephalic v. & SVC,accompanies rt. Surface of trachea
- Above lung root & pleura by arch of azygos v.
- Below passes behind lung root & joins with the sympathetic fibres (T2-T5)-rt. Posterior pulmonary plexus
- Then surround the oesophagusposterior part of oesophageal plexus
- Finally enter abdomen-posterior vagal trunk



#### • Left vagus

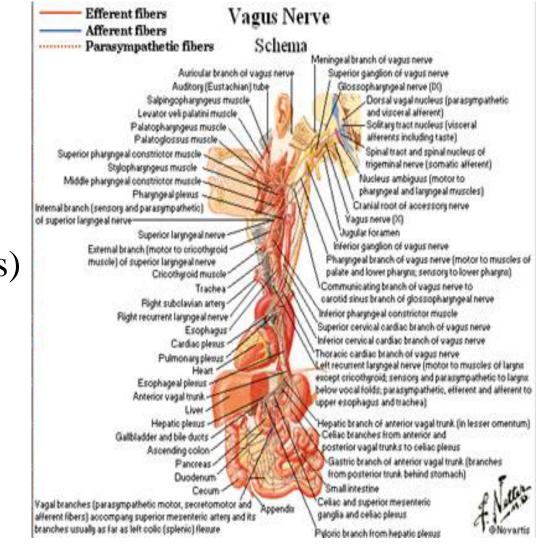
- Passes between lt.cca & lt.subclavian art.,under cover of lt. brachiocephalic v.
- Above aortic arch crossed superficially by lt. phrenic n.
- Descends crosses ant. & lt . Surface of arch of aorta (crossed by lt. superior intercostal v. )
- Passes behind lung root to form lt. posterior pulmonary plexus
- below form ant. Part of oesophageal plexus
- Enters abdomen-anterior vagal trunk

#### VAGUS NERVE course & relations



- Ant. &post. Vagal trunk is formed by both vagus nerves
- Ant.vagal trunk hepatic>lessor omentum>porta hepatis>asc. & descen.
- gastric>stomach
- Post.vagal trunk(rt. Vagus)
- -gastric
- coeliac

#### VAGUS NERVE course & relations

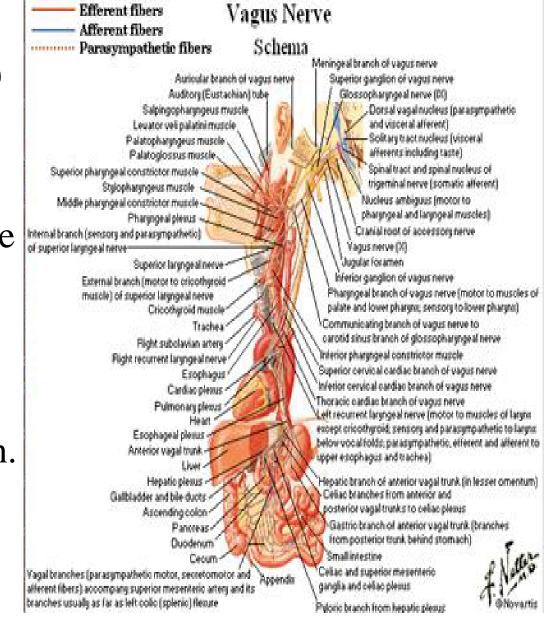


• Branches (In neck)

a)From superior cervical ganglion-meningeal - auriclar(alderman's ner) b)From inferior ganglion -pharyngeal -superior laryngeal nerve -br. To carotid body c)From trunk -cardiac

-rt. Recurrent laryngeal n.

### VAGUS NERVE



- Branches (In thorax)
- -1)lt. recurrent laryngeal n.
- -2)pulmonary
- -3)cardiac
- -4)oesophageal **Branches** (in abdomen) 1)Gastric

2)Hepatic

3)Coeliac

Efferent fibers Vagus Nerve Afferent fibers Schema Parasympathetic fibers Auricular branch of vague nerve Auditory (Eustachian) tube Salpingopharungeus muscle Levator veli palatini muscle Palatopharyngeus muscle Palatoglossus muscle Superior pharmogeal constrictor muscle Stelopharengeus muscle Middle pharengeal constrictor muscle Pharmonal pleases internal branch (sensory and parasempathetic) Yaqus nerve DR. of superior largingeal nerve-**Jugular** forameni Superior largngeal nerve External branch (motor to cricotheroid muscle) of superior largngeal nerve Cricotheroid muscle: Trachea Fight subplayian artery -Flight recurrent language linerve Esophagus Cardiac pleases -Pulmonary please Heart Escohageal pleases -Anterior vagal trunk Liver Hebatic pleaus -Gallbladder and bile ducts. Ascending colon-Panceeas -Duodenum Small intestine Cecur Yagal branches (parasympathetic motor, secretomotor and Appendix ganglia and celiac pleaus afferent fibers) accompany superior mesenteric artery and its branches usually as far as left colic (splenic) flexure

VAGUS NERVE

Meningeal branch of vagus nerve Superior ganglion of vague nerve Glossopharyngeal nerve (DQ) Dorsal vagal nucleus (parapumpathetic and visceral afferent) Solitare tract nucleus (visceral) alferents including taste) Spinal tract and spinal nucleus of trigeminal nerve (somatic alferent) Nucleus ambiguus (motor to pharyngeal and laryngeal muscles) Cranial root of accessory nerve-Inferior ganglion of vagus nerve Phargingeal branch of vagus nerve (motor to muscles of palate and lower phargra; sensory to lower phargra) Communicating branch of vagus nerve to carotid sinus branch of glossopharyngeal nerve Interior pharmoeal constrictor muscle Superior cervical cardiac branch of vagus nerve Inferior cervical cardiac branch of vacus nerve-Thoracic cardiac branch of vagus nerve Left recurrent lanungeal nerve (motor to muscles of laryna except cricothyroid; sensory and paragympathetic to larger. below vocal folds; parasympathetic, efferent and alterent to upper excohagus and trachea) Hepatic branch of anterior wagal trunk (in lesser omentum) Celiac branches from anterior and posterior yagal trunks to cellac pleaus. Giastric branch of anterior vagal trunk (branches from posterior trunk behind stomach) Cellac and superior mesenterio



Peloric branch from hepatic please

### APPLIED ANATOMY

a) Auricular br. Of vagus irritated by –wax -cold water

Leads to

coughing/vomiting even ppt. the cardiac arrest by reflex action Low grade stimulation increased appetite b)Recurrent laryngeal n. injured-thyroidectomy -tumour - aortic aneurysm Leads to laryngeal problem c)Selective vagotomy -t/t of peptic ulcer(n. of latarjet of both ant. Post. trunks sectioned Vagal