

“CLINICAL SIGNIFICANCE OF CRANIAL NERVES”***Dr. Shilpa Gupta**Associate Professor, Department of Kriya Sharir, Saraswati Ayurvedic Hospital And Medical College,
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ABSTRACT

There are twelve pairs of cranial nerves in the body having major importance in clinical practice. Among those nerves some are motor and some are sensory and some are both. It is most important and necessary in every neurological patient to examine these affected nerves to find out lesion and helps to diagnose and plan the treatment in various neurological disorders. In the present article, the clinical importance of twelve pairs of cranial nerves, their location, examination, function and applied aspect of each cranial nerve has been explained.

KEYWORDS: Cranial nerves, Motor function, Sensory, Brain, Motor and Sensory pathway.**INTRODUCTION**

Cranial-of or relating to the cranium which encloses the brain; Nerves-Any bundle of nerve fibres running to various organs and tissues of the body.

Cranial nerves are the nerves that emerge directly from the brain of which there are conventionally considered twelve pairs.

Cranial nerves relay information between the brain and parts of the body, primarily to and from regions of the head and neck, including the special senses of vision, taste, smell, and hearing. The systemic examination of cranial nerves is an important part of examination of every neurological patient. Twelve pairs of cranial nerves originate from the brainstem and all pass through the foramina of the skull. Some cranial nerves contain only sensory fibres and thus are called sensory and motor fibres and are referred to as mixed nerves. The twelve pairs of cranial nerves supply to muscles of eyeball, face, palate, pharynx, larynx, tongue and two large muscles of neck. Besides these are afferent loops to special senses like Smell, Taste, Sight, Hearing and Touch.

MATERIALS AND METHODOLOGY

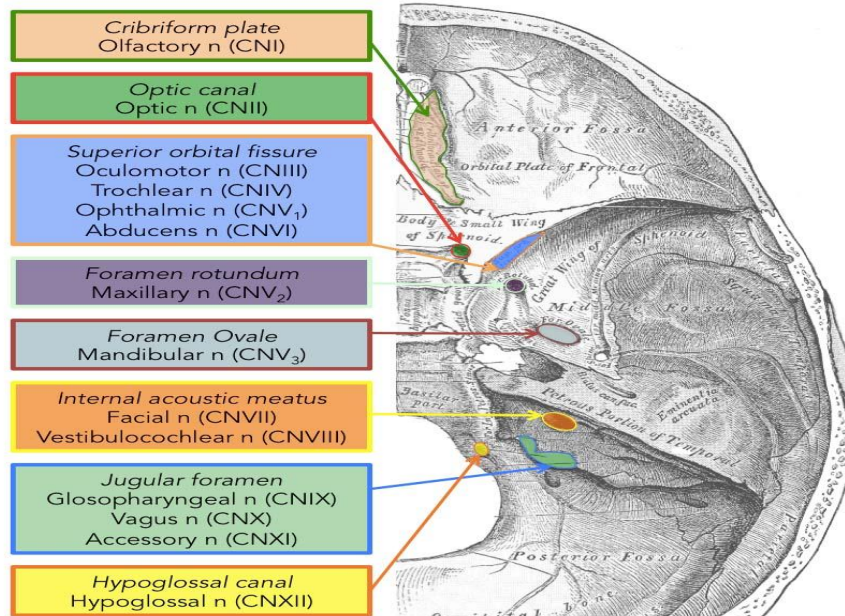
The author has gone thoroughly through the information given in various texts regarding the subject. The Information from various Seminars and Conferences is collected. Accordingly there is analysis and interpretation of the facts.

DISCUSSION**What are Cranial Nerves?**

- ❖ Cranial nerves are the nerves that emerge directly from the brain of which there are conventionally considered twelve pairs.

Function

- ❖ Cranial nerves relay information between the brain and parts of the body, primarily to and from regions of the head and neck, including the special senses of vision, taste, smell, and hearing.



Classification of Cranial Nerves

Purely Sensory

- Olfactory
- Optic
- Vestibulocochlear

Purely Motor

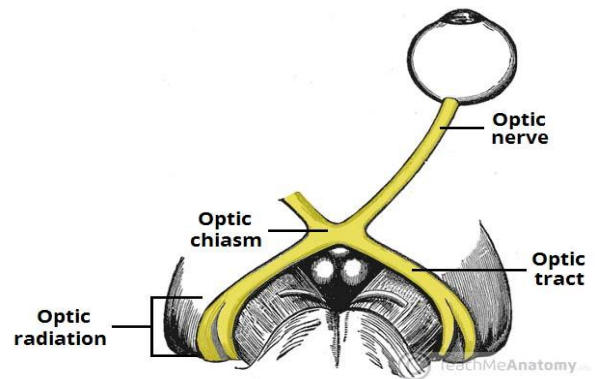
- Oculomotor
- Trochlear
- Abducens
- Accessory
- Hypoglossal

Mixed

- Trigeminal
- Facial
- Glossopharyngeal
- Vagus

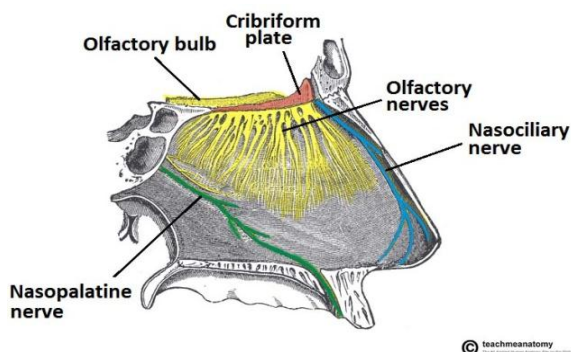
Cranial Nerve II – The Optic Nerve

- **Origin-** Optic Chiasm
- **Component-** Sensory
- **Function-** Helps in Vision.



Cranial Nerve I – The Olfactory Nerve

- **Origin-** Olfactory Bulb
- **Component-** Sensory Nerve
- **Function-** Performs the Function of Smell.

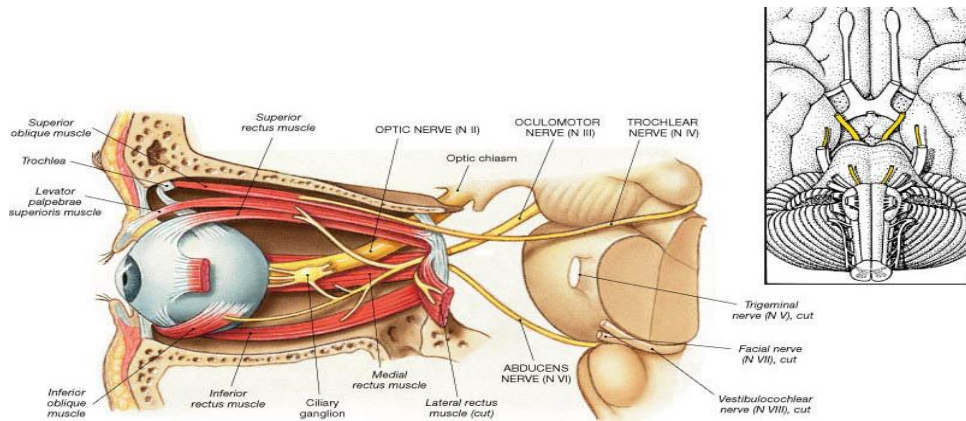


Cranial Nerve III – The Oculomotor

- **Origin-** Anterior surface of the midbrain.
- **Component-** Motor

Function-

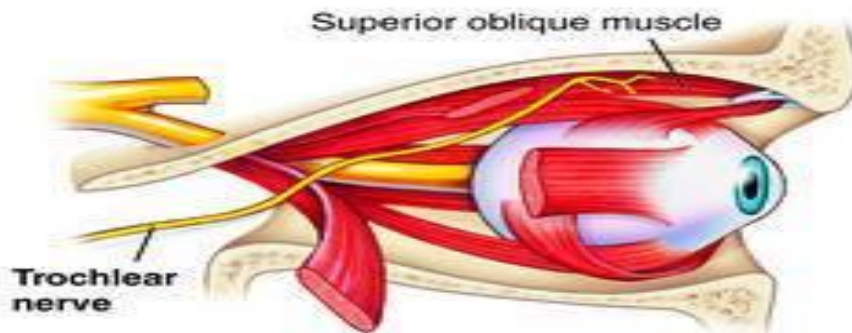
- ❖ Raises upper eye lid.
- ❖ Constricts pupil.
- ❖ Accommodates the eye.
- ❖ Turns eyeball upward, downward and medially.



Cranial Nerve IV – The Trochlear

- **Origin-** Posterior surface of the midbrain.
- **Component-** Motor

Function- Assisting in turning eyeball upward and laterally.



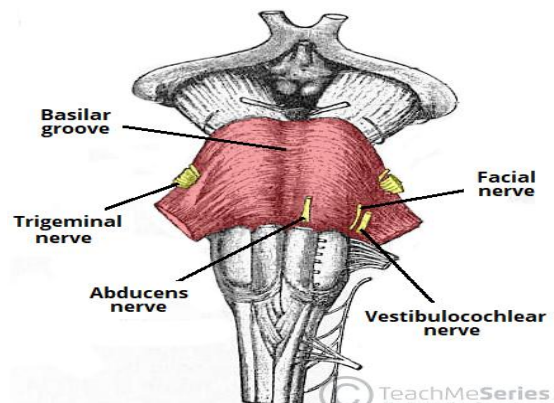
Cranial Nerve V – The Trigeminal

- **Origin-** Anterior aspect of Pons
- **Component-** Mixed
- **Function-** It is divided into three branches-
 - a) **Ophthalmic Branch (Sensory)**- Sensations from cornea, skin of forehead, upper eyelid, eyebrows and nose, scalp.
 - b) **Maxillary Nerve (Sensory)**- Sensations from lower eyelid, upper lips and gums, palate.
 - c) **Mandibular Branch (Mixed)**- i) Sensory- Skin of cheek, teeth of lower jaw. ii) Motor- Mastication help.

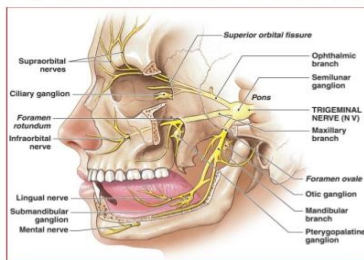
Cranial Nerve VI – The Abducens

- **Origin-** Pons
- **Component-** Motor.

Function- Lateral rectus muscle turns eyeball laterally.



TRIGEMINAL NERVE

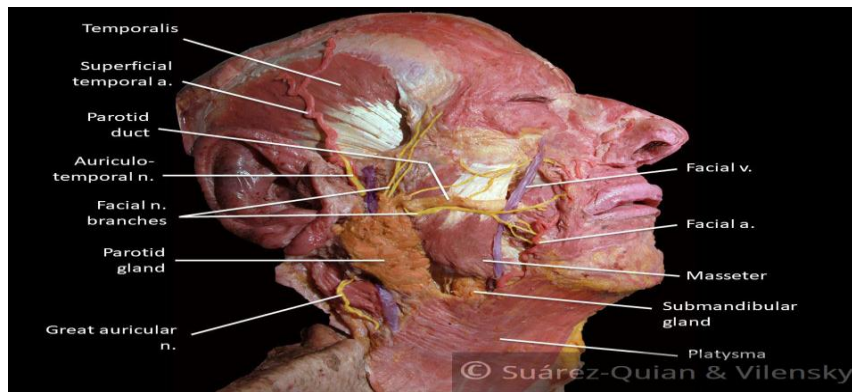


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Cranial Nerve VII – The Facial

- **Origin-** Pons
- **Component-** Mixed
- Function**

- i) Sensory- Tastes in anterior 2/3 of tongue.
- ii) Motor- Facial expressions and lachrymal and salivary glands.



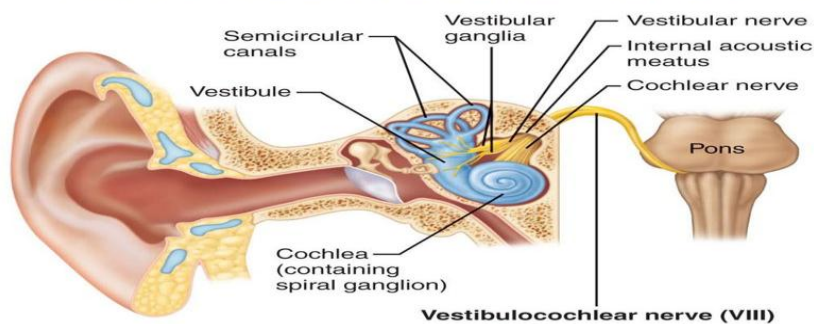
Cranial Nerve VIII – The Vestibulocochlear

- **Origin-** Groove between pons and medulla oblongata.
- **Component-** Sensory

Function

- i) Cochlear Branch- Hearing.
- ii) Vestibular Branch- Sense of balance.

The Vestibulocochlear Nerves - VIII



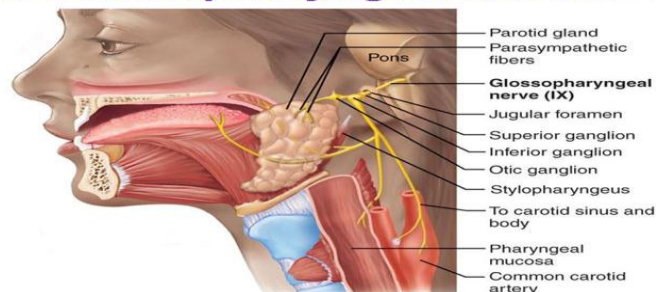
Cranial Nerve IX -The Glossopharyngeal

- **Origin-** Medulla Oblongata.
- **Component-** Mixed.

Function

- i) Sensory- Sensations from posterior 1/3 of tongue including taste.
- ii) Motor- Swallowing and salivation.

The Glossopharyngeal Nerves -IX

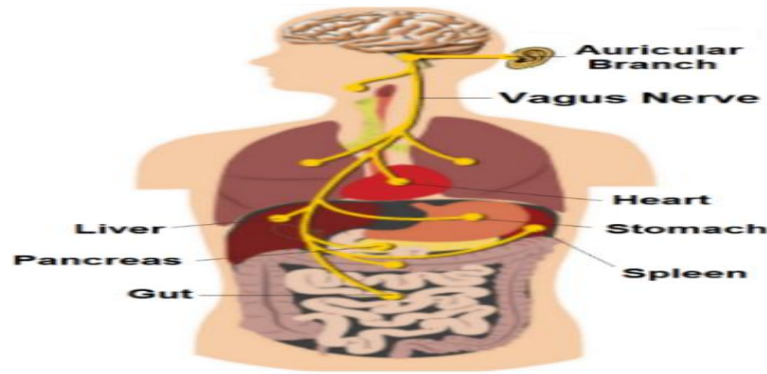


Cranial Nerve X – The Vagus

- **Origin-** Medulla Oblongata.
- **Component-** Mixed.

Function

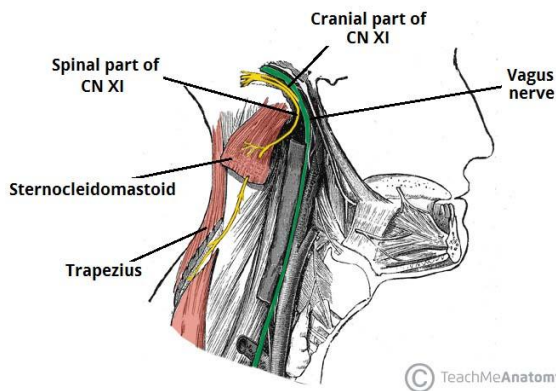
- i) Sensory- Tastes from epiglottis and pharynx, Sensations from larynx, trachea, oesophagus and extrnal acoustic meatus.
- ii) Motor- Swallowing and voice production, relaxation of airways and control of BP.



Cranial Nerve XI – The Spinal Accessory

- **Origin-** Medulla Oblongata
- **Component-** Motor

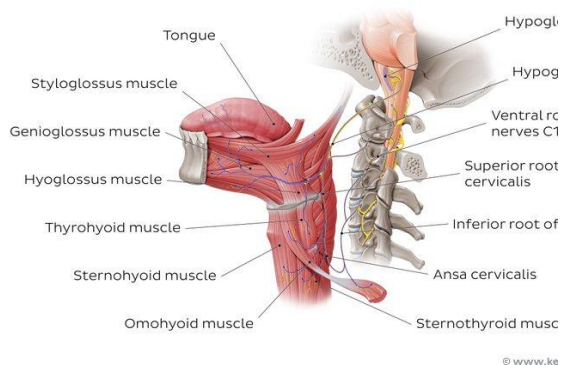
Function- Swallowing, head, neck and shoulder movements via trapezius, sternocleidomastoid and pharyngeal muscles.



Cranial Nerve XII – The Hypoglossal

- **Origin-** Medulla Oblongata.
- **Component-** Motor.

Function- Control tongue movements for speech, swallowing.



CONCLUSION

Now –a-days, majority of diseases belong to central nervous system like Stroke, Facial palsy in which we find involvement of cranial nerves. So study of cranial

nerves with regard to its clinical significance is very important.

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