

•Cranial Nerves

- I. Olfactory n.
- II. Optic n.
- III. Oculomotor n.
- IV. Trochlear n.
- V. Trigeminal n.
- VI. Abducent n.
- VII. Facial n.
- VIII. Vestibulo cochlear n.
- IX. Glosso pharyngeal n.
- X. vagus n.
- XI. Accessory n.
- XII. Hypo glossal n.

Introduction

There are 12 pairs of cranial nerves, which leave the brain and pass through foramina and fissures in the skull. All the nerves are distributed in the head and neck except for the tenth cranial nerve, which also supplies structures in the thorax and abdomen. The cranial nerves are as follows

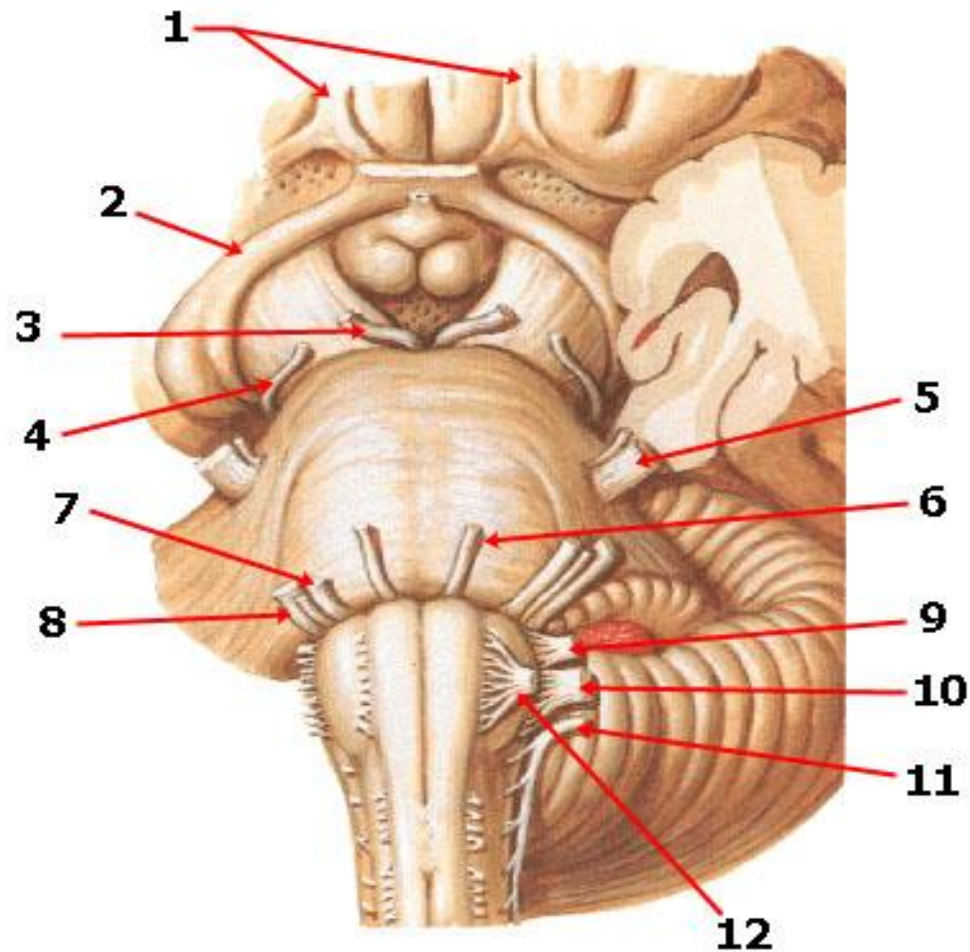
<i>I</i>	<i>Olfactory</i>	<i>V</i>	<i>Trigeminal</i>	<i>IX</i>	<i>Glossopharyngeal</i>
<i>II</i>	<i>Optic</i>	<i>VI</i>	<i>Abducent</i>	<u><i>X</i></u>	<u><i>Vagus</i></u>
<i>III</i>	<i>Oculomotor</i>	<i>VII</i>	<i>Facial</i>	<i>XI</i>	<i>Accessory</i>
<i>IV</i>	<i>Trochlear</i>	<i>VIII</i>	<i>Vestibulocochlear</i>	<i>XII</i>	<i>Hypoglossal</i>

Cranial nerves

1 *Olfactory*
2 *Optic*
3 *Oculomotor*
4 *Trochlear*

5 *Trigeminal*
6 *Abducent*
7 *Facial*
8 *Vestibulocochlear*

9 *Glossopharyngeal*
10 *Vagus*
11 *Accessory*
12 *Hypoglossal*



- The **olfactory**, **optic** and **vestibulocochlear** are entirely sensory in function.
 - The **oculomotor**, **trochlear**, **abducent**, **accessory** and **hypoglossal** nerves are entirely motor in function.
 - The **trigeminal**, **facial**, **glossopharyngeal** and **vagus** nerves are both motor and sensory nerves.
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The cranial nerves have central motor and or sensory nuclei within the brain and peripheral nerve fibers that emerge from the brain and exit from the skull to reach their effector or sensory organs.

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The cranial nerves Can be calcified into

Afferents (sensory):

Somatic (General (and special afferent)

Visceral (general and special afferent)

Efferent's

Somatic

Visceral

The letter symbols commonly used to indicate the functional components of each cranial nerve are as follows:

component	function	Letter symbols
Afferent nerve fibers:		
General somatic afferent	General sensations	GSA
Special somatic afferent	Hearing, balance, vision	SSA
General visceral afferent	Viscera	GVA
Special visceral afferent	Smell, taste	SVA
Efferent nerve fibers:		
General somatic efferent	Somatic striated muscles	GSE
General visceral efferent	Glands and smooth muscles (parasympathetic innervation)	GVE
Special visceral efferent	branchial arch striated muscles	SVE

The different components of 3rd ,4th ,5th and 6th cranial nerves, their functions and the opening in the skull through which they leave the cranial cavity are as follows:

Name	Components	Function	Opening in skull
<u>Oculomotor</u>	Motor (GSE) (GVE)	Raises upper eyelid, turns eyeball upward, downward and medially. Constrict pupil, accommodates eye	superior orbital fissure
<u>Trochlear</u>	Motor (GSE)	Assist in turning eyeball downward and laterally	superior orbital fissure
<u>Abducent</u>	Motor (GSE)	Lateral rectus muscle turns eyeball laterally	superior orbital fissure
<u>Trigeminal</u>			
Ophthalmic division	Sensory (GSA)	Cornea, skin of forehead, scalp, eyelid and nose. also mucus membrane of paranasal sinuses and nasal cavity	superior orbital fissure
Maxillary division	Sensory (GSA)	Skin of face over maxilla, teeth of upper jaw, mucus membrane of nose, maxillary sinus and palate.	foramen rotundum
Mandibular division	Motor (SVE) Sensory (GSA)	Muscles of mastication, mylohyoid, anterior belly of digastric, tensor veli palatini, and tensor tympani Skin of cheek, skin over mandible and side of head, teeth of lower jaw and temporomandibular joint, mucus membrane of mouth and anterior part of tongue	foramen ovale

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