



Brain

- I. Olfactory nerve : sensory.
- II. Optic nerve : sensory.

Mid brain

- III. Oculomotor nerve : motor + para.
- IV. Trochlear nerve : motor.

Pons

- V. Trigeminal nerve : motor + general sensati.
- VI. Abducens nerve : motor.
- VII. Facial nerve : motor + para + taste sensati.
- VIII. Vestibulocochlear nerve : sensory.

medulla oblongata

- IX. Glossopharyngeal nerve : motor, para, taste sensati.
- X. Vagus nerve : motor, para, taste sensati.
- XI. Accessory nerve : motor.
- XII. Hypoglossal nerve : motor.

128 >> pure sensory
 1975 >> motor
 1973 >> parasympathetic
 197 >> test sensation
 4 in medulla (4 اخر)
 4 in pons
 2 in midbrain
 2 in brain (2 اول)

Cranial Nerve Nuclei

Medulla Oblongata

Motor Nuclei of the Medulla Oblongata

1. Nucleus Ambiguus (S.V.E – Pharyngeal Arch Muscles)

- Upper part:
→ Glossopharyngeal nerve → Stylopharyngeus muscle
- Middle part:
→ Vagus nerve
- Lower part:
→ Cranial part of accessory nerve

Functions:

- Vagus nerve + cranial part of accessory nerve form the pharyngeal plexus
- Supply:
 - All muscles of the pharynx except stylopharyngeus
 - All muscles of the larynx
 - All muscles of the palate except tensor palati (supplied by mandibular nerve)

2. Hypoglossal Nucleus (G.S.E)

- Supplies all muscles of the tongue
- Exception: Palatoglossus muscle
- Supplied by the pharyngeal plexus

Parasympathetic Nuclei of the Medulla Oblongata (G.V.E)

1. Inferior Salivary Nucleus

- → Glossopharyngeal nerve
- → Relay in otic ganglion
- → Supplies parotid gland

2. Dorsal Nucleus of Vagus

- Parasympathetic supply to:
 - Smooth muscles and glands of the digestive tract
 - Respiratory tract
 - Cardiac muscle

Sensory Nuclei of the Medulla Oblongata

Pons

Nuclei of the Trigeminal Nerve (V)

Trigeminal nerve has one motor and three sensory nuclei:

1. Motor Nucleus (S.V.E)

- Supplies muscles derived from the **1st** pharyngeal arch

2. Main Sensory Nucleus (G.S.A)

- Receives:
 - Touch sensation from face and scalp

3. Spinal Tract (Nucleus) of Trigeminal Nerve (G.S.A)

- Located in lower pons
- Descends through the entire medulla oblongata
- Continuous with substantia gelatinosa (SGR) in spinal cord
- Receives:
 - Pain
 - Temperature from face and scalp

4. Mesencephalic Nucleus (G.S.A)

- Extends into the midbrain
- Receives:
 - Proprioceptive sensations from:
 - Face
 - Scalp
 - Muscles of mastication

Abducent Nucleus (G.S.E)

- Motor nucleus for lateral rectus muscle
 - Rule: LR6 (SO4) 3

Facial Nerve Nuclei

1. Motor Nucleus (S.V.E)

- Supplies muscles from **2nd** pharyngeal arch
- Motor fibers loop around abducent nucleus forming the facial colliculus

Corticobulbar innervation:

- Upper part → bilateral innervation
- Lower part → contralateral innervation

2. Parasympathetic Nuclei (G.V.E)

a. Superior Salivary Nucleus (SSS)

- Submandibular ganglion
- Submandibular & sublingual glands

Midbrain

1. Oculomotor Nerve Nuclei

a. Motor Nucleus (G.S.E)

- Supplies all extraocular muscles except:
 - Lateral rectus (VI)
 - Superior oblique (IV)

b. Edinger–Westphal Nucleus (G.V.E)

- Parasympathetic fibers
 - → Ciliary ganglion
 - → Ciliary muscle & constrictor pupillae

2. Trochlear Nerve Motor Nucleus (G.S.E)

Supplies superior oblique muscle

- Rule: LR6 (SO4) 3

3. Mesencephalic Nucleus of Trigeminal Nerve

Receives proprioceptive sensation from:

- Muscles of mastication

1. Solitary Nucleus (S.V.A – Taste Sensation)

Receives taste sensation from:

a. Anterior 2/3 of tongue

- Via facial nerve (chorda tympani)
- Oral surface of soft palate via greater petrosal nerve

b. Posterior 1/3 of tongue

- Via glossopharyngeal nerve

c. Root of tongue

- Via vagus nerve (internal laryngeal nerve)

2. Spinal Nucleus of Trigeminal Nerve (G.S.A)

- Receives:
- Pain
- Temperature
- From:
- Face
- Scalp

3. Inferior Vestibular Nuclei (S.S.A)

- Receive impulses from:
- Vestibular organs of the inner ear

b. Special Lacrimatory Nucleus (SSL)

- Sphenopalatine ganglion
- Lacrimal, nasal, palatine, and pharyngeal glands

3. Solitary Nucleus (S.V.A)

- Receives taste from anterior 2/3 of the tongue

— Vestibulocochlear Nerve Nuclei (VIII)

A. Vestibular Nuclei (S.S.A)

- Superior, medial, and lateral nuclei
- Receive equilibrium impulses from inner ear via vestibular nerve
- Fibers pass through inferior cerebellar peduncle (ICP) to cerebellum (same side)

B. Cochlear Nuclei (S.S.A)

- Dorsal and ventral cochlear nuclei
- Receive hearing impulses from cochlea via cochlear nerve
- Fibers cross as auditory decussation (trapezoid body)
- Ascend as lateral lemniscus

Termination:

- Majority → Inferior colliculus (midbrain)
- Remainder → Medial geniculate body (thalamus)

→ Auditory cortex (superior temporal gyrus)

لا تَمُتْ قَبْلَ أَنْ تَكُونَ نَدًا، قَبْلَ أَنْ تَرَى نَفْسَكَ نَدًا، تَرِيدُ الشَّيْءَ وَتَفْعَلُهُ، جَلَدًا مُؤْمِنًا قَوِيًّا، صَدَقْتَنِي
لَا يُخَذَلُ مُؤْمِنٌ سَعَى.

وَمَنْ كَانَ حَلْمُهُ عَظِيمًا بَلَغَ شَيْئًا مِنَ الْعِظَمَةِ، وَلَوْ لَمْ يَبْلُغْهُ.

دِينٌ يُجَازَى فِيهِ الْمُؤْمِنُ عَلَى النِّيَّةِ، رَبَّنَا هُوَ رَبُّ الْخَيْرِ، تَمُوتُ دُونَ أَنْ تَصِلَ: فَتُجَازَى كَأَنَّكَ وَصَلْتَ،
وَالْتَوْبَةُ فِيهِ تَجِبُ مَا قَبْلَهَا، وَالتَّائِبُ مِنَ الذَّنْبِ كَمَنْ لَا ذَنْبَ لَهُ، دِينٌ لَا يَأْسُ فِيهِ. قُمْ بِالسَّعْيِ وَرَبِّ

الْخَيْرِ مَعَكَ



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لَا حَوْلَ وَلَا قُوَّةَ إِلَّا بِاللَّهِ

"من كنوز الجنة"

