

Cranial Nerve Functions

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Cranial Nerves

- CN 1 Olfactory Nerve
- CN 2 Optic Nerve
- CN 3 Oculomotor Nerve
- CN 4 Trochlear Nerve
- CN 5 Trigeminal Nerve
- CN 6 Abducens Nerve
- CN 7 Facial Nerve
- CN 8 Auditory Nerve
- CN 9 Hypoglossal Nerve
- CN 10 Vagus Nerve
- CN 11 Accessory Nerve
- CN 12 Hypoglossal Nerve

Cranial Nerve 1 (Olfactory Nerve)

- Sense of smell

Cranial Nerve 2 (Optic Nerve)

- Vision

Cranial Nerve 3 (Oculomotor N)

- Innervation of eye muscles
 - Superior rectus: moves eye upward
 - Inferior rectus: moves eye downward
 - Medial rectus: adducts eye (towards nose)
 - Inferior oblique: moves eye medially and upward
 - Levator palpebrae: elevates upper eyelid
 - Constrictor pupillae: constricts pupil
 - Ciliary muscles: control curvature of eye lens

Cranial Nerve 4 (Trochlear N)

- Innervates the superior oblique muscle of the eye
 - Moves eye inward, down and laterally

Cranial Nerve 5 (Trigeminal N)

- Motor innervation of the
 - Muscles of mastication (chewing)
 - Tensor tympani muscle (adjusts tension on ear drum to adjust for loud noises)
 - Tensor veli palatini muscle (palate elevation)
 - Mylohyoid muscle (moves hyoid bone)
 - Anterior belly of digastric muscle

Cranial Nerve 5

- Sensory innervation to
 - Face
 - Scalp to vertex of head
 - Conjunctiva of eye (covering of eye)
 - Nasal sinus mucosal lining
 - Lining of oral cavity
 - Tongue
 - Teeth
 - External aspect of tympanic membrane
 - Meninges of the anterior and middle cranial fossa

Cranial Nerve 6 (Abducens N)

- Innervates the lateral rectus muscle of the eye
 - Moves eye laterally (abducts eye towards the ear)

Cranial Nerve 7 (Facial nerve)

- Motor innervation to
 - Stapedius muscle (adjusts stapedius bone in response to loud sounds)
 - Posterior belly of digastric muscle
 - Muscles of facial expression (buccinator, platysma, occipital muscles)

CN 7

- Innervation of
 - Lacrimal gland (tearing of the eye)
 - Sublingual glands (salivation)
 - Submandibular gland (salivation)
 - Mucous membranes of nose
- Innervation for sensation from
 - Skin behind ear
 - Wall of ear canal
 - External tympanic membrane
- Innervation of taste from 2/3 of the tongue, hard and soft palate.

Cranial Nerve 8 (Vestibulocochlear N)

- Hearing (innervates the cochlea)
- Balance (innervates the semicircular canals)

Cranial Nerve 9 (Glossopharyngeal N)

- Innervates the parotid gland (salivation)
- Sensation from the carotid artery to control blood pressure and fluid balance (carotid body and carotid sinus innervation)
- Sensation from the
 - Posterior 1/3 of the tongue
 - Skin of the external ear
- Inner surface of tympanic membrane (ear drum)
- Taste from the posterior 1/3 of the tongue

Cranial Nerve 10 (Vagus Nerve)

- Motor innervation to the muscles of the
 - throat (striated m.)
 - tongue (striated m.)
 - larynx (striated m.)
 - tensor veli palatini (striated m.)
 - abdominal organs (smooth m.)

CN 10

- Sensation from the
 - Throat
 - Trachea (wind pipe)
 - Esophagus
 - Abdominal organs
 - Chemical receptors near aorta
 - Skin
 - Back of the ear
 - External ear canal
 - External surface tympanic membrane (ear drum)

Cranial Nerve 11 (Accessory N)

- Motor supply to sternocleidomastoid m. and trapezius m. (turn head and shrug shoulders)

Cranial Nerve 12 (Hypoglossal N)

- Motor innervation of the tongue muscles