

# Cranial Nerves

CN	Name	Type	Function	Results of Lesions
I	Olfactory	Sensory	Smells	Anosmia
II	Optic	Sensory	Sees	Visual field deficits (anopsia) Loss of light reflex with III Only nerve to be affected by MS
III	Oculomotor	Motor	Innervates SR, IR, MR, IO extraocular muscles: adduction (MR) most important action Raises eyelid (levator palpebrae superioris)	Diplopia, external strabismus Loss of parallel gaze  Ptosis
			Constricts pupil (sphincter pupillae) Accommodates (ciliary muscle)	Dilated pupil, loss of light reflex with II Loss of near response
IV	Trochlear	Motor	Superior oblique—depresses and abducts eyeball (makes eyeball look down and out) Intorts	Weakness looking down with adducted eye Trouble going down stairs Head tilts away from lesioned side
V	Trigeminal	Mixed	General sensation (touch, pain, temperature) of forehead/scalp/cornea	V1—loss of general sensation in skin of forehead/scalp Loss of blink reflex with VII
	Ophthalmic (V1)			
	Maxillary (V2)		General sensation of palate, nasal cavity, maxillary face, maxillary teeth	V2—loss of general sensation in skin over maxilla, maxillary teeth
	Mandibular (V3)		General sensation of anterior two-thirds of tongue, mandibular face, mandibular teeth	V3—loss of general sensation in skin over mandible, mandibular teeth, tongue, weakness in chewing
			Motor to muscles of mastication (temporalis, masseter, medial and lateral pterygoids) and anterior belly of digastric, mylohyoid, tensor tympani, tensor palati	Jaw deviation toward weak side  Trigeminal neuralgia—intractable pain in V2 or V3 territory

CN	Name	Type	Function	Results of Lesions
VI	Abducens	Motor	Lateral rectus—abducts eyeball	Diplopia, internal strabismus Loss of parallel gaze, “pseudoptosis”
VII	Facial	Mixed	To muscles of facial expression, posterior belly of digastric, stylohyoid, stapedius Salivation (submandibular, sublingual glands) Skin behind ear Taste in anterior 2/3 of tongue/palate Tears (lacrimal gland)	Corner of mouth droops, cannot close eye, cannot wrinkle forehead, loss of blink reflex, hyperacusis; Bell palsy—lesion of nerve in facial canal Pain behind ear Alteration or loss of taste (ageusia) Eye dry and red
VIII	Vestibulocochlear	Sensory	Hearing Angular acceleration (head turning) Linear acceleration (gravity)	Sensorineural hearing loss Loss of balance, nystagmus
IX	Glossopharyngeal	Mixed	Oropharynx sensation, carotid sinus/body Salivation (parotid gland) All sensation of posterior one-third of tongue Motor to one muscle—stylopharyngeus	Loss of gag reflex with X
X	Vagus	Mixed	To muscles of palate and pharynx for swallowing except tensor palati (V) and stylopharyngeus (IX) To all muscles of larynx (phonates) Sensory of larynx and laryngopharynx  Sensory of GI tract To GI tract smooth muscle and glands in foregut and midgut	Nasal speech, nasal regurgitation Dysphagia, palate droop Uvula pointing away from affected side Hoarseness/fixed vocal cord Loss of gag reflex with IX Loss of cough reflex
XI	Accessory	Motor	Head rotation to opposite side (sternocleidomastoid) Elevates and rotates scapula (trapezius)	Weakness turning chin to opposite side  Shoulder droop
XII	Hypoglossal	Motor	Tongue movement (styloglossus, hyoglossus, genioglossus, and intrinsic tongue muscles—palatoglossus is by X)	Tongue pointing toward same (affected) side on protrusion

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