

	name	type	arise from	opening	description	function	Abnormality	Examination
I	olfactory	sensory	cerebral cortex	cribriform plate of ethmoid	Shortest, bipolar cells	Sense of smell	* Hypo/ansmia * Parosmia * olfact. hallucinations	* nasal clearance * scratch & sniff test cards (UPSIT)
II	optic	sensory	cerebral cortex	optic canal	Like white matter, no degeneration	* sensory: retina * afferent part of pupillary reflex		Vision examination: * inspection * palpation * pupils * visual field * eye movements * visual acuity (snellen) * ophthalmoscopy * color vision (ishihara) * macular fxn (amsler grid)
III	oculomotor	motor + parasymp.	midbrain	sup. orbital fissure		* motor of eyelid: levator palpebrae superioris * 4 extraocular muscles (inf. oblique, sup., med, inf. recti) * pupil constriction	CN III palsy: unilat. ptosis, large pupil, eye looking inferolaterally	
IV	trochlear	motor	midbrain	sup. orbital fissure	Thinnest, decussation, trauma affects it most	Motor: sup. oblique (SO4)		
V	trigeminal	mixed	pons	Branches: v1: sup. orbital fis. v2: foramen rotundum v3: foramen ovale	Largest Branches: V1: ophthalmic V2: maxillary V3: mandibular	* sensory: face, mouth, part of dura * motor: jaw	* Unilat. Sensory loss (tumor, fracture) * v1 & corneal reflex loss (lesion in cavernous sinus) * v1 distribution of herpes zoster * brisk jaw jerk (bilat. UMN lesion above pons)	* sensory (cotton) * motor * corneal reflex * jaw jerk (hammer)
VI	abducens	motor	pons	sup. orbital fissure		motor: lat. rectus (LR6)		
VII	facial	mixed + parasymp.	pons	int. acoustic meatus	Branches: * Temporal * Zygomatic * Buccal * Mandibular * Cervical	* motor: facial expression * Sensory: ant. 2/3 tongue * parasymp.: salivary & lacrimal glands * Closure of orbicularis oculi	* unilat. LMN lesion (Bell's palsy) * Ramsay hunt syndrome (herpes infxn of geniculate ganglion) * unilat. UMN lesion	
VIII	vestibulocochlear	sensory	pons	int. acoustic meatus	Parts: cochlear, vestibular	cochlear branch: hearing	* conductive (BC>AC) * sensorineural (AC>BC)	* whispered voice * Weber & Rinne

IX	glossopharyngeal	mixed + parasymp.	medulla	jugular		sensory of pharynx, tonsils, taste of post. 1/3 tongue	<ul style="list-style-type: none"> * unilat X damage (uvula deviation) * bilat. X damage (pseudo/bulbar palsies, nasal regurg.) * recurrent laryngeal damage (dysphonia & bovine cough) 	<ul style="list-style-type: none"> * speech assessment * uvula assessment (Aaah) * puff out * cough assessment * gag reflex
X	vagus	mixed + parasymp.	medulla	jugular	longest	motor: upper pharyngeal & laryngeal Ms		
XI	accessory	mixed	medulla	jugular	Parts: Cranial Spinal (C1-5)	Spinal part: motor to upper trapezius & SCM Ms)	<ul style="list-style-type: none"> * upper trapezius fibers wasting → upper border away from spine and lower border towards it * dystrophia myotonica (SCM wasting, head drop → myasthenia, motor neuron disease, myopathies) 	<ul style="list-style-type: none"> * SCM: wasting, hypertrophy, bulk * trapezius: wasting, asymmetry * turning neck & shrugging shoulders against resistance
XII	hypoglossal	motor	medulla	jugular		motor: tongue muscles	<ul style="list-style-type: none"> * unilat. LMN lesion → ipsilat. tongue wasting and deviation * bilat. LMN lesion → global wasting, twitching (fasciculation) * bilat. UMN lesion → spastic tongue * LMN lesion at medulla or outside brainstem → bulbar palsy (IX,X,XI,XII impairment) * UMN lesion at corticobulbar tract in mid-pons (IX,X,XI,XII) → pseudobulbar palsy 	<ul style="list-style-type: none"> * inspect tongue * protrude (look for deviation, movement) * move tongue side to side * press tongue against cheek * hypokinesia (lah lah lah, rapid movement) * water swallow test

Extraocular muscles	Action (on eye)	Nerve
sup. rectus	elevation & adduction (superiomediaally)	III
inf. rectus	depression & adduction (inferomediaally)	III
med. rectus	adduction (rotates eyeball medially)	III
lat. rectus	abduction (rotates eyeball laterally)	VI
sup. oblique	depression, abduction, intorsion (inferolaterally, look at your shoulder)	IV
inf. oblique	elevation, abduction, extorsion (superiolaterally)	III