

Table 11-1
Cranial Nerves

CN #	Name	Motor/Sensory	Function
I	Olfactory	Sensory	Smell
II	Optic	Sensory	Sight
III	Oculomotor	Motor	Movement of eye (MR, SR, IR, and IO), pupil constriction, accommodation, and upper lid elevation
IV	Trochlear	Motor	Superior oblique muscle
V	Trigeminal	Mixed	Sensation of touch in face, nose, forehead, temple, tongue, and eye. Innervation for chewing.
VI	Abducens	Motor	Lateral rectus muscle
VII	Facial	Mixed	Reflex tearing, facial expression, some taste, and blinking
VIII	Vestibulocochlear (acoustic nerve)	Sensory	Hearing and equilibrium
IX	Glossopharyngeal	Mixed	Taste and swallowing
X	Vagus	Mixed	Taste, heart rate, breathing, digestion, and voice
XI	Spinal Accessory	Motor	Innervation of neck and shoulder muscles, provides posture and rotation of head
XII	Hypoglossal	Motor	Tongue movement

The oculomotor nerve (CN III) originates from the ventral midbrain and passes through the superior orbital fissure on its way to the eye. CN III innervates three of the four rectus muscles (superior, inferior, and medial) and the inferior oblique muscle. Other muscles innervated by CN III are the levator palpebrae superioris (upper eyelid elevation), iris sphincter (pupil constriction), and ciliary muscle (accommodation). (Damage to CN III can cause double vision as the eyes drift outward. Loss of accommodation and ptosis can also occur with CN III damage.)

The trochlear nerve (CN IV) originates from the dorsal midbrain and enters the orbit (along with CN III) through the superior orbital fissure. This nerve is responsible for the superior oblique muscle. This innervation can be easily remembered by noting that the superior oblique muscle runs through the trochlea. (Damage to CN IV can cause double vision and loss of ability to rotate the eye down and in.)

The trigeminal nerve (CN V) originates from the pons (a mass of nerve cells on the surface of the brainstem) to the face. CN V has three divisions: ophthalmic, maxillary, and mandibular. The ophthalmic division is responsible for sensation from the scalp, nose, nasal cavity, cornea, upper eyelid, and lacrimal gland. The maxillary division carries impulses from the nasal cavity, mouth, upper lip, and lower eyelid. The mandibular division is distributed to the tongue (excluding taste buds), lower teeth, and skin of the temples and chin; it also innervates muscles for chewing. (Damage to CN V can cause intense pain or a loss of sensation in the aforementioned areas, as well as difficulty chewing.)