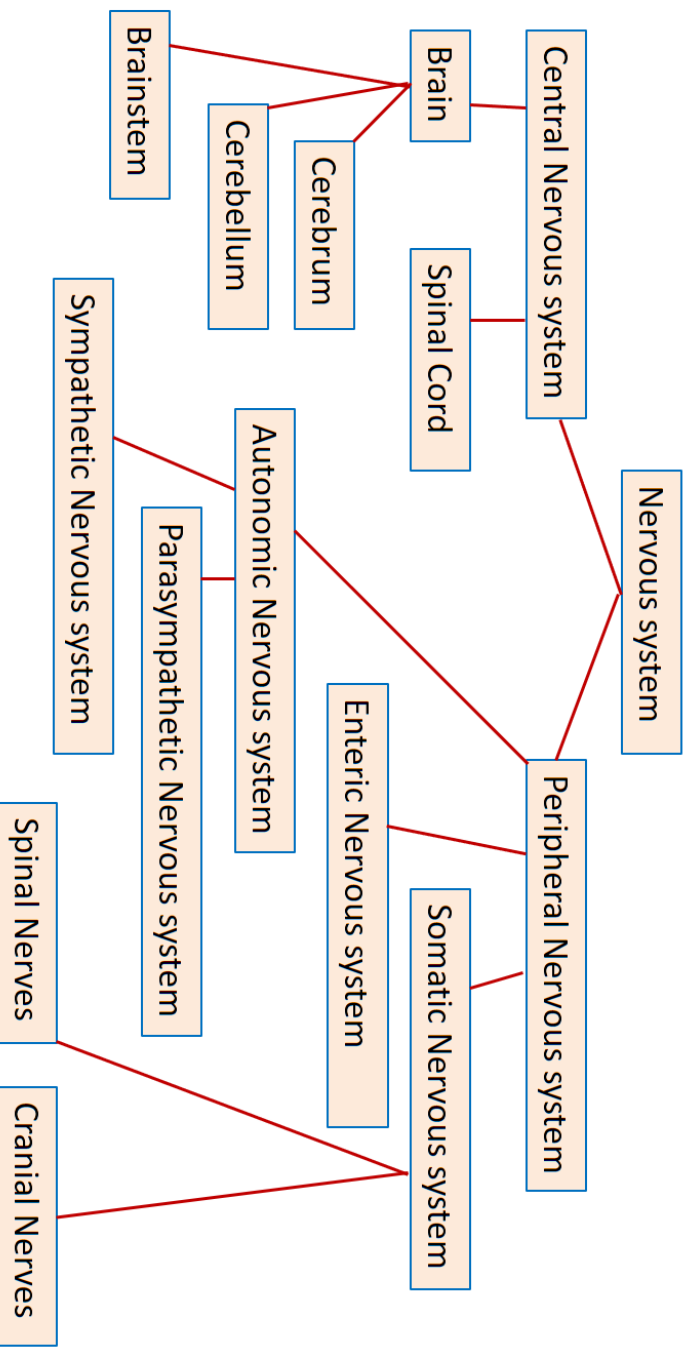


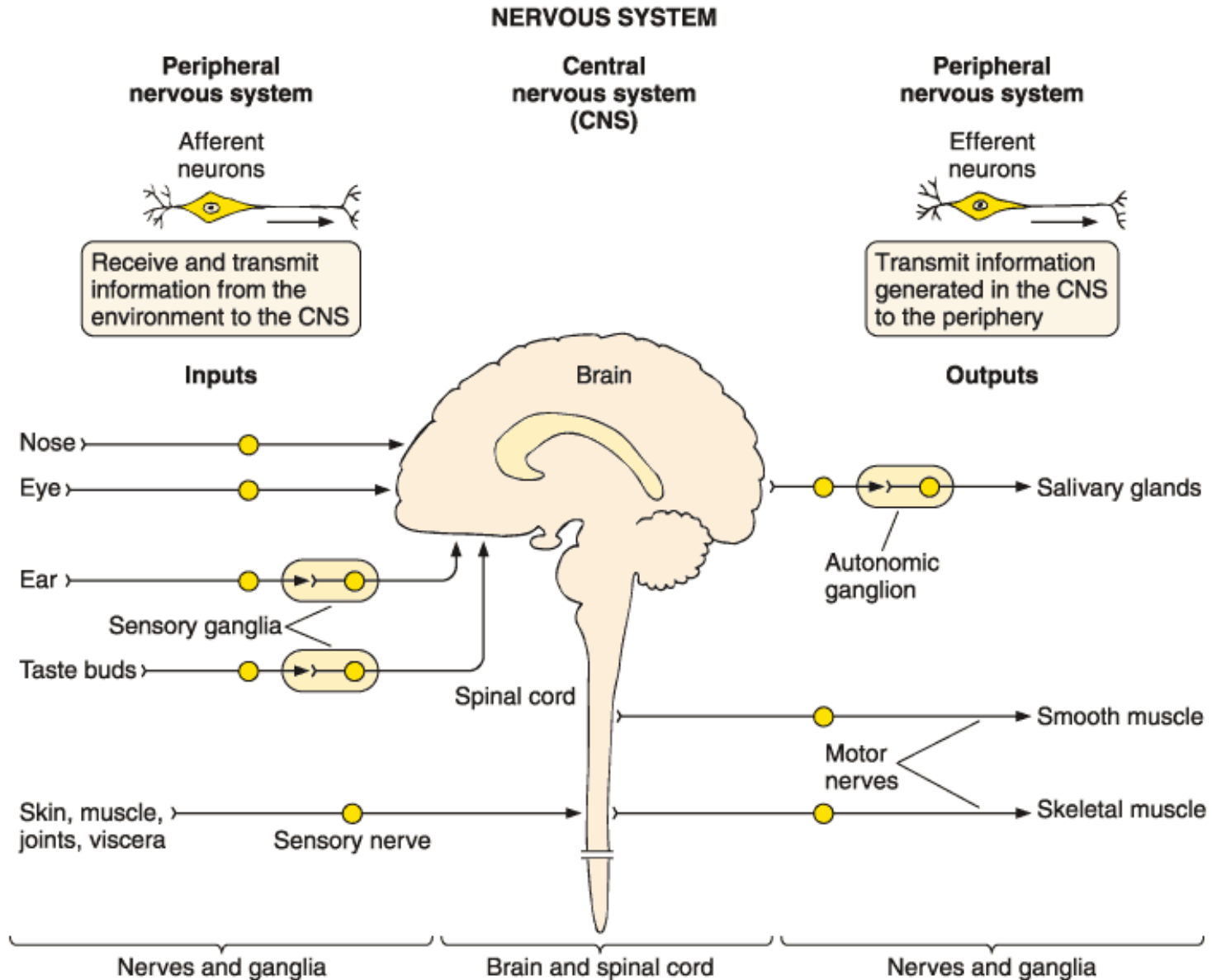


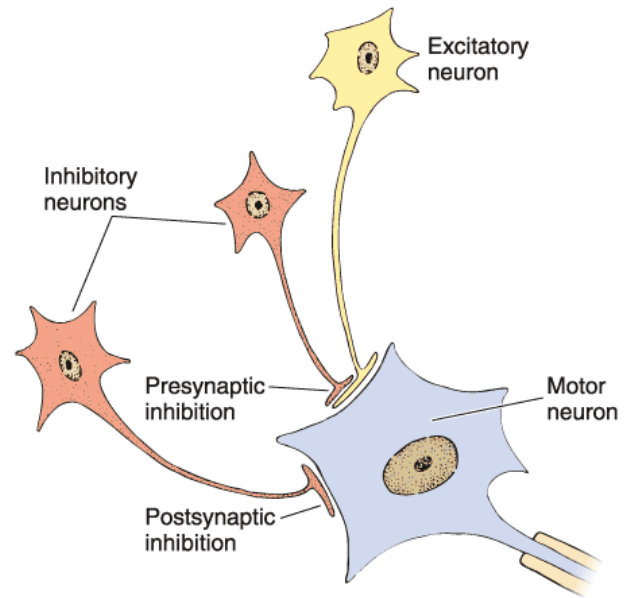
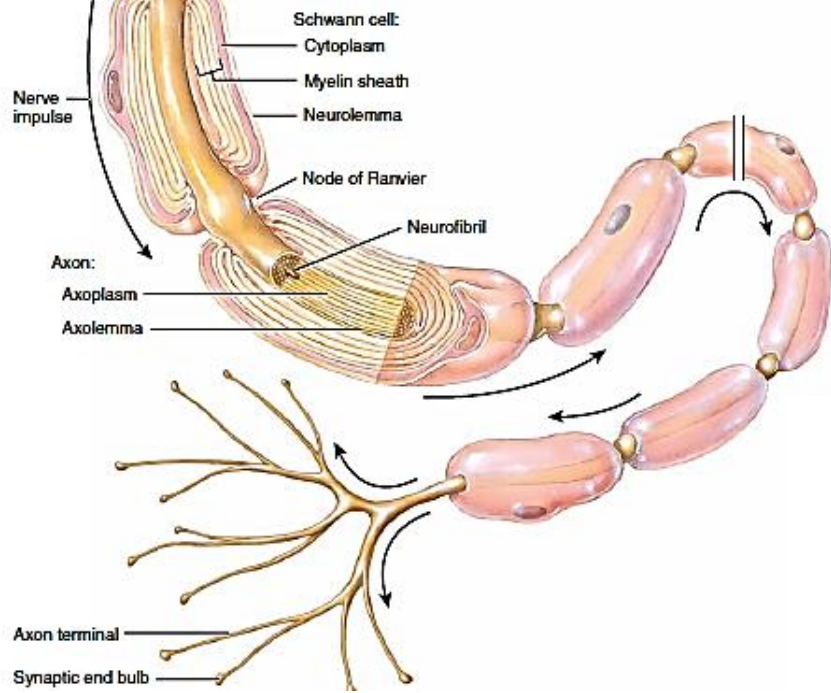
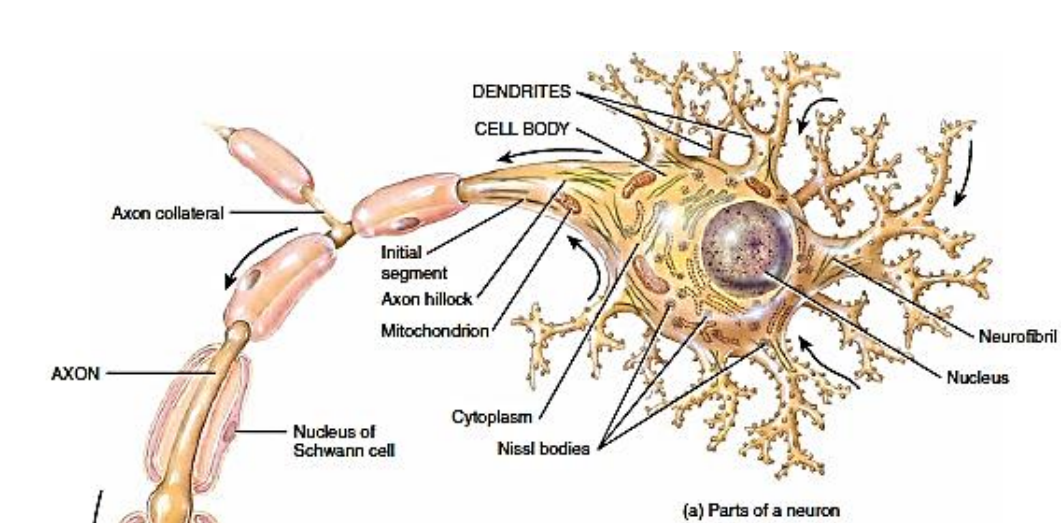
Neuroanatomy

Dr. Ali Mohsin

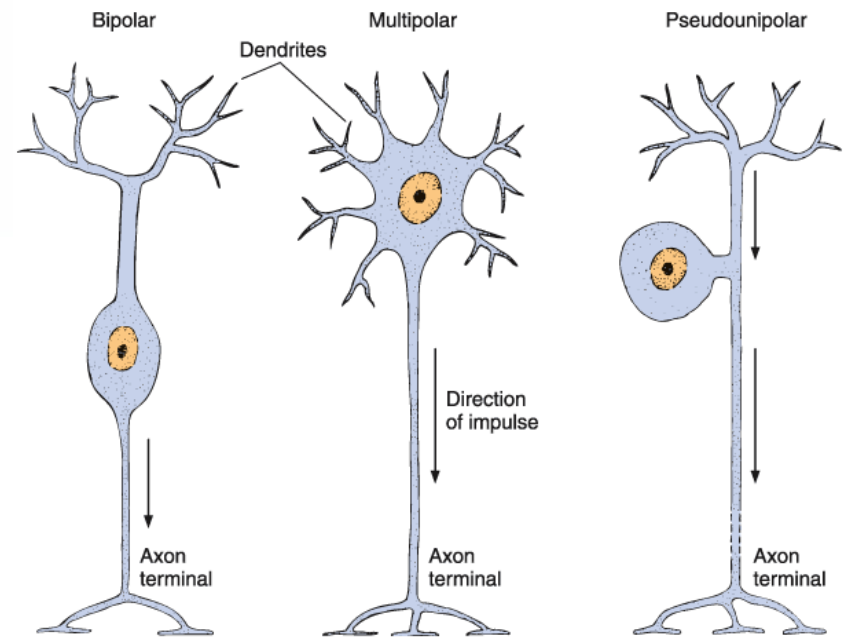


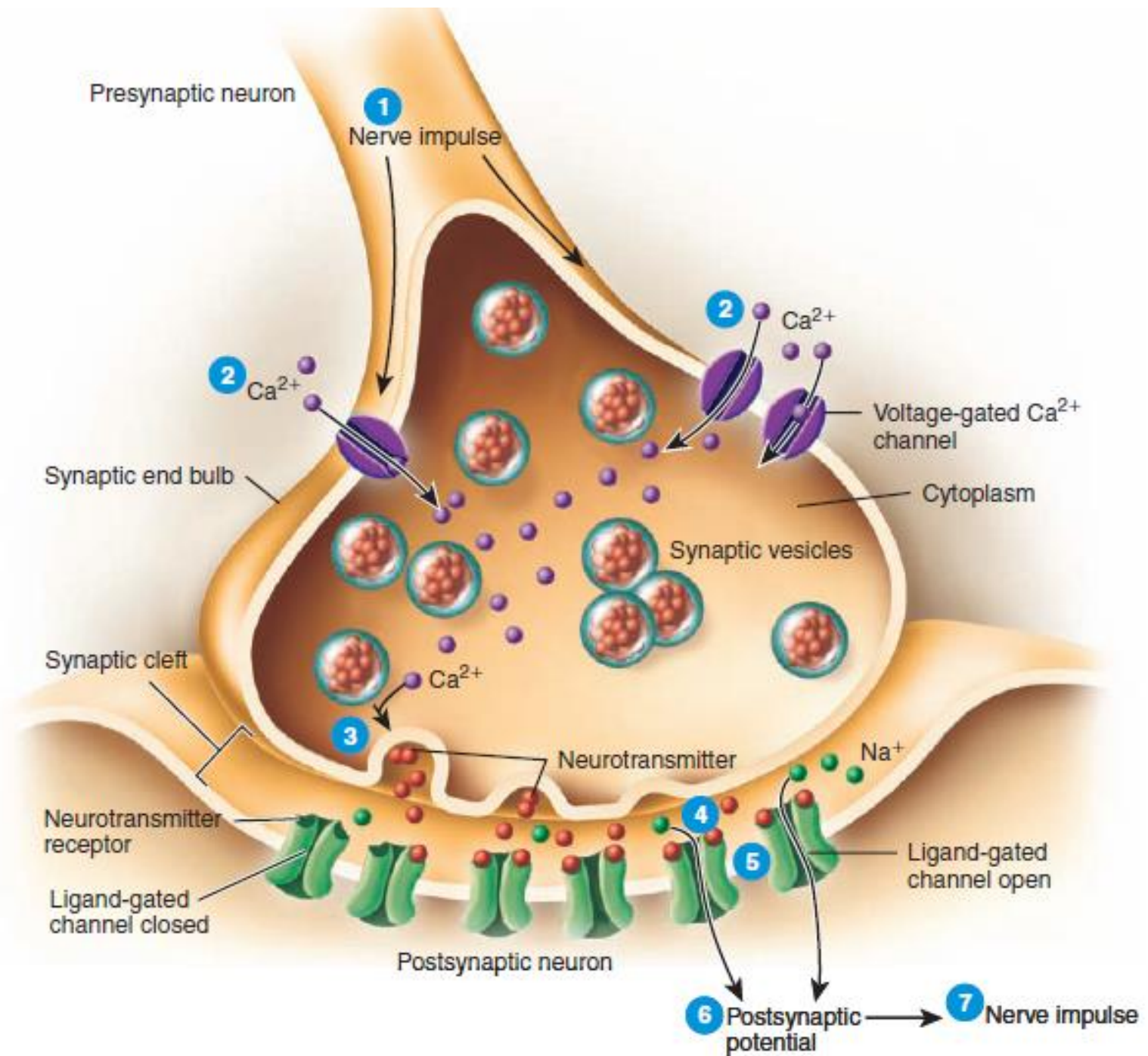
Nervous System Integration



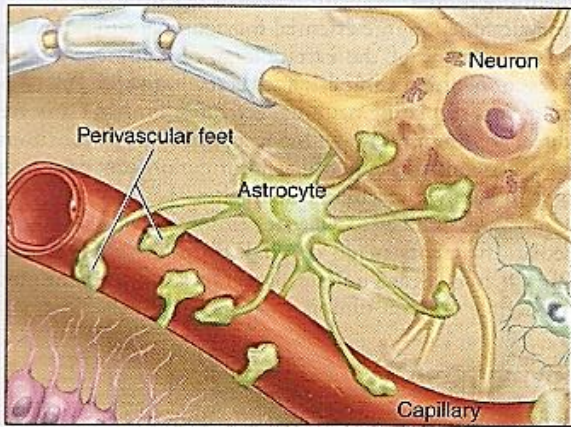


Main types of neurons

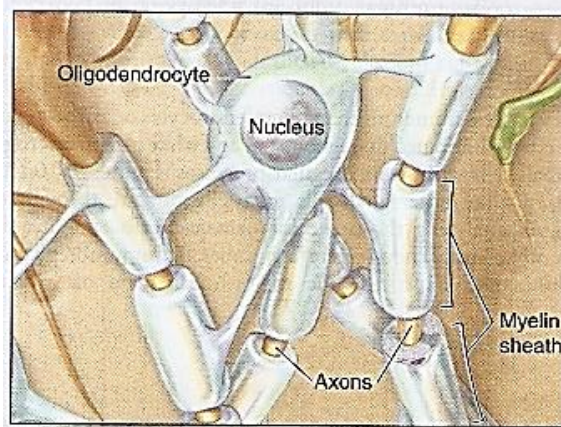




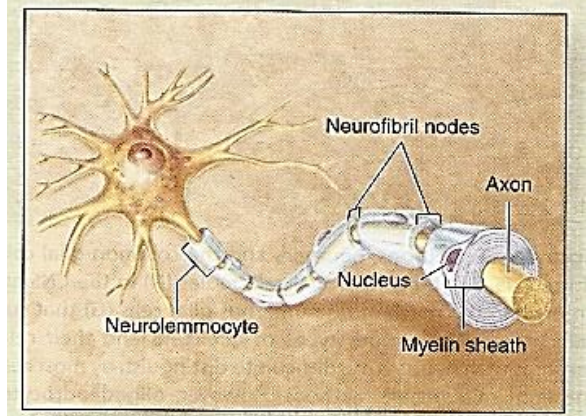
Glial Cells



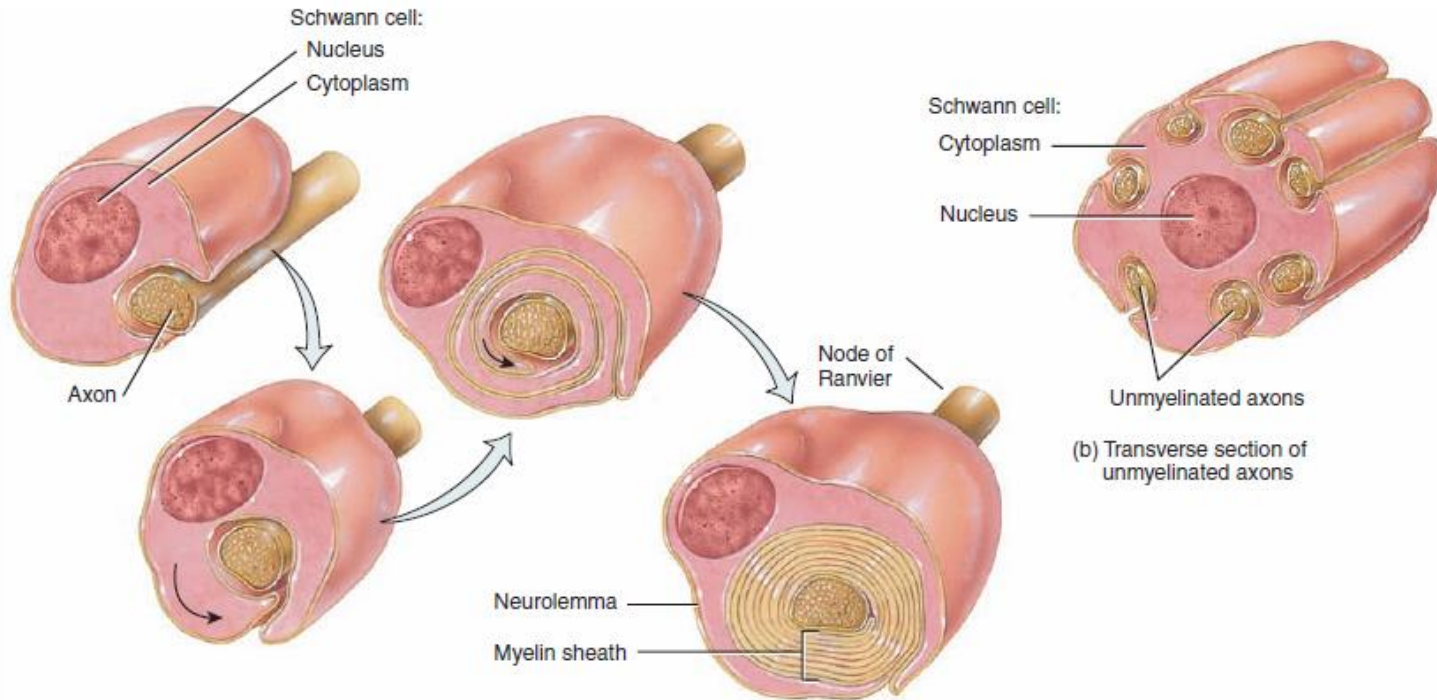
b Astrocyte



a Oligodendrocyte



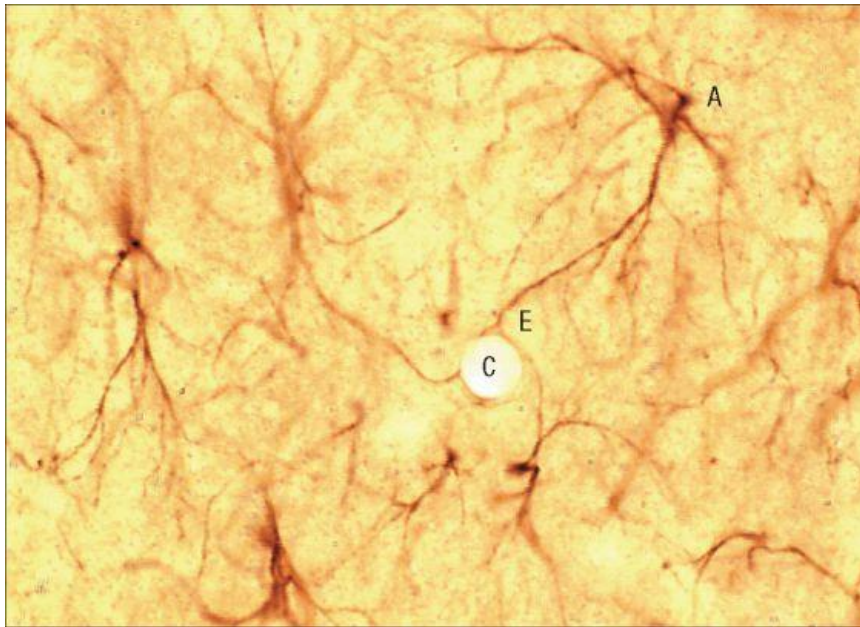
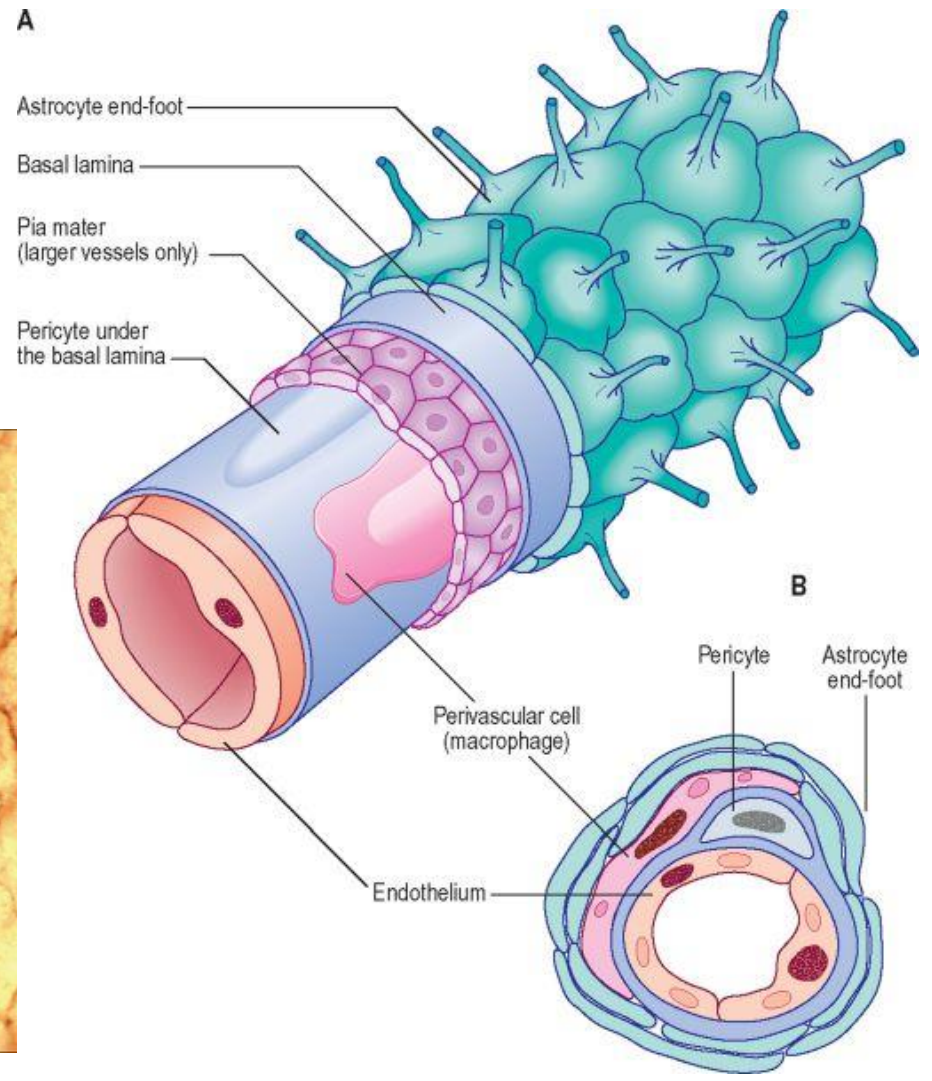
e Neurolemmocytes



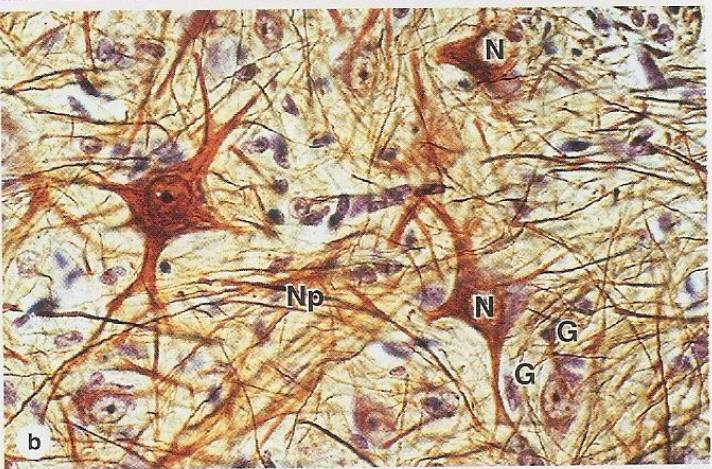
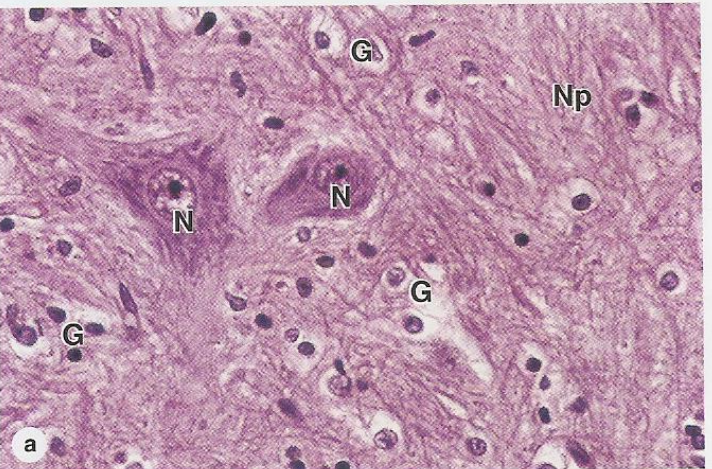
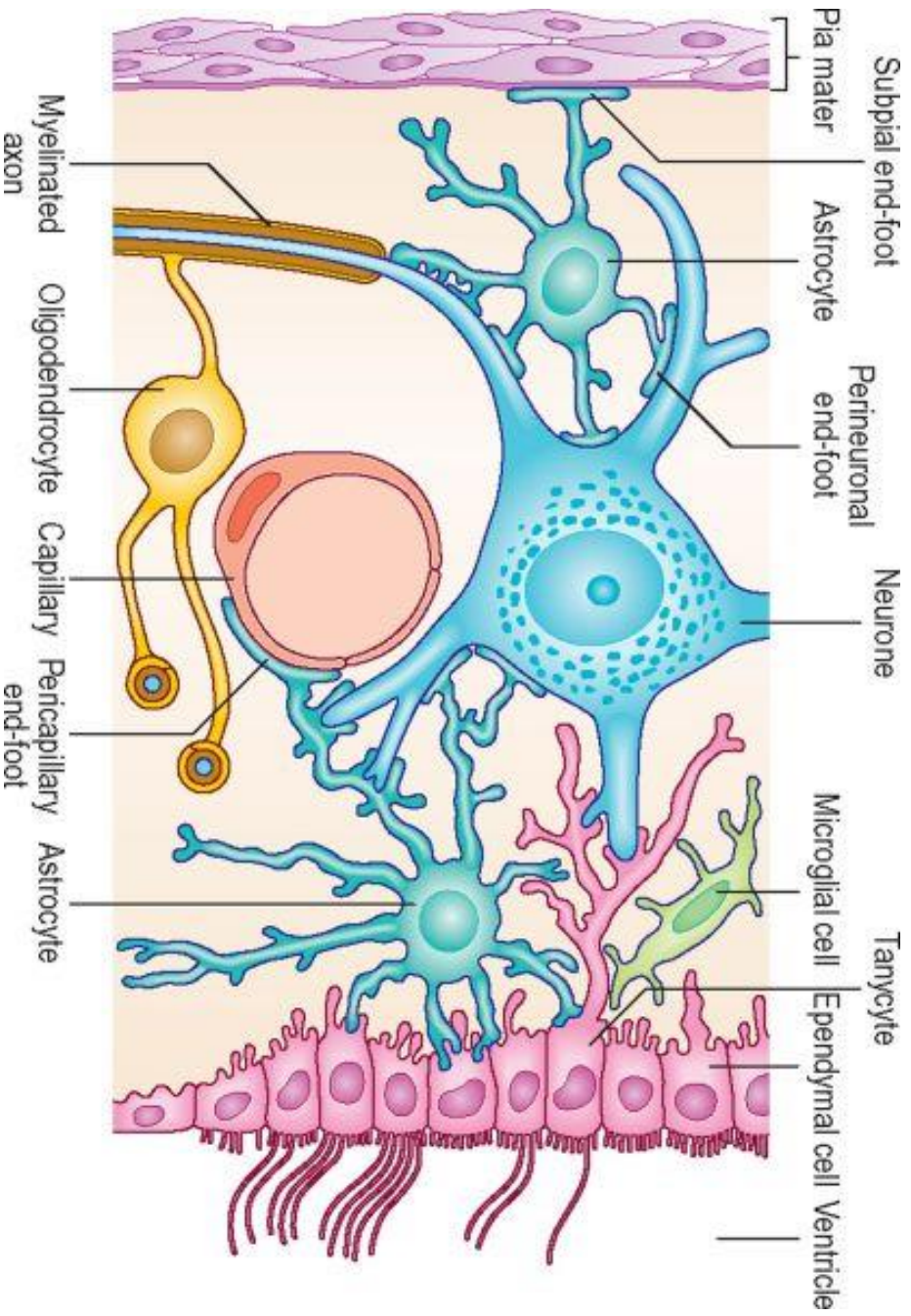
(a) Transverse sections of stages in the formation of a myelin sheath

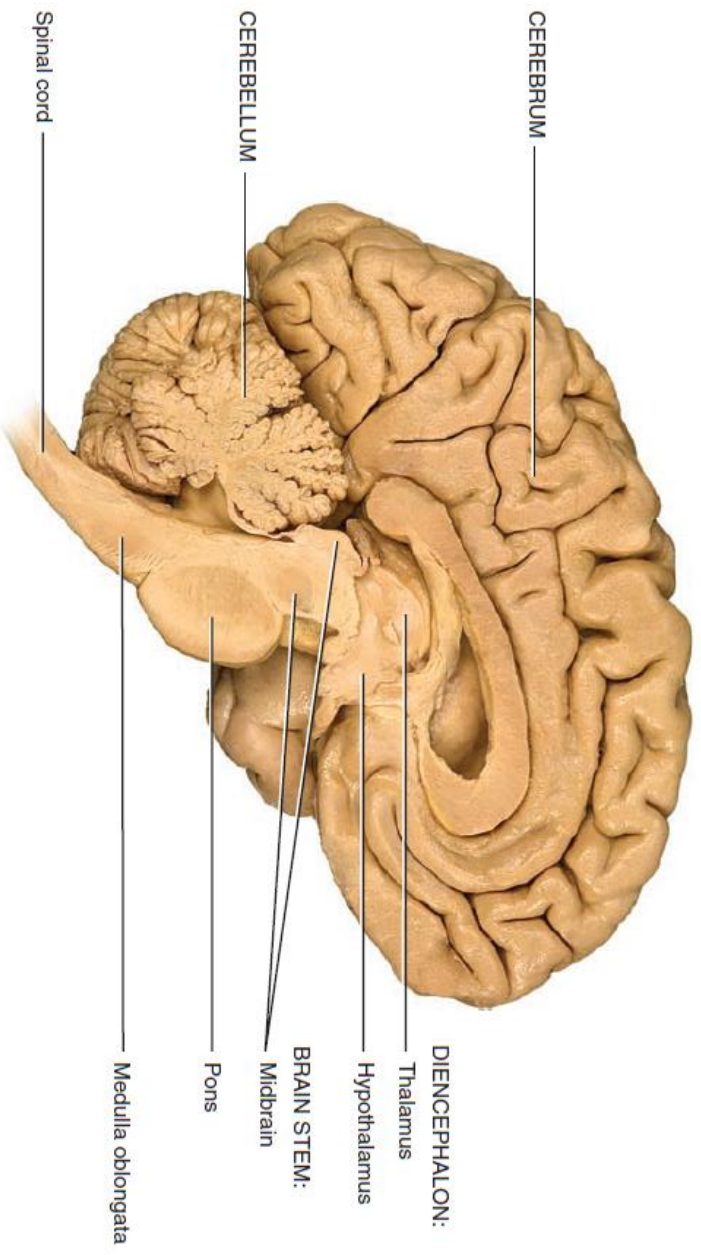
(b) Transverse section of unmyelinated axons

Blood Brain Barrier

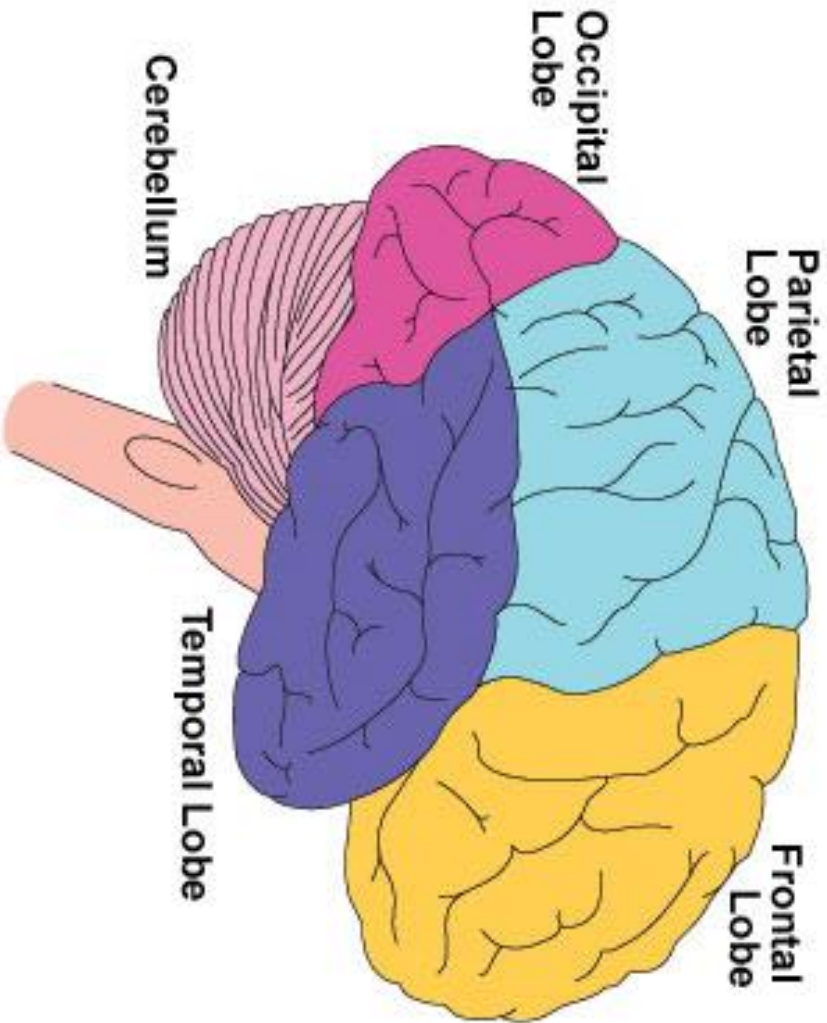


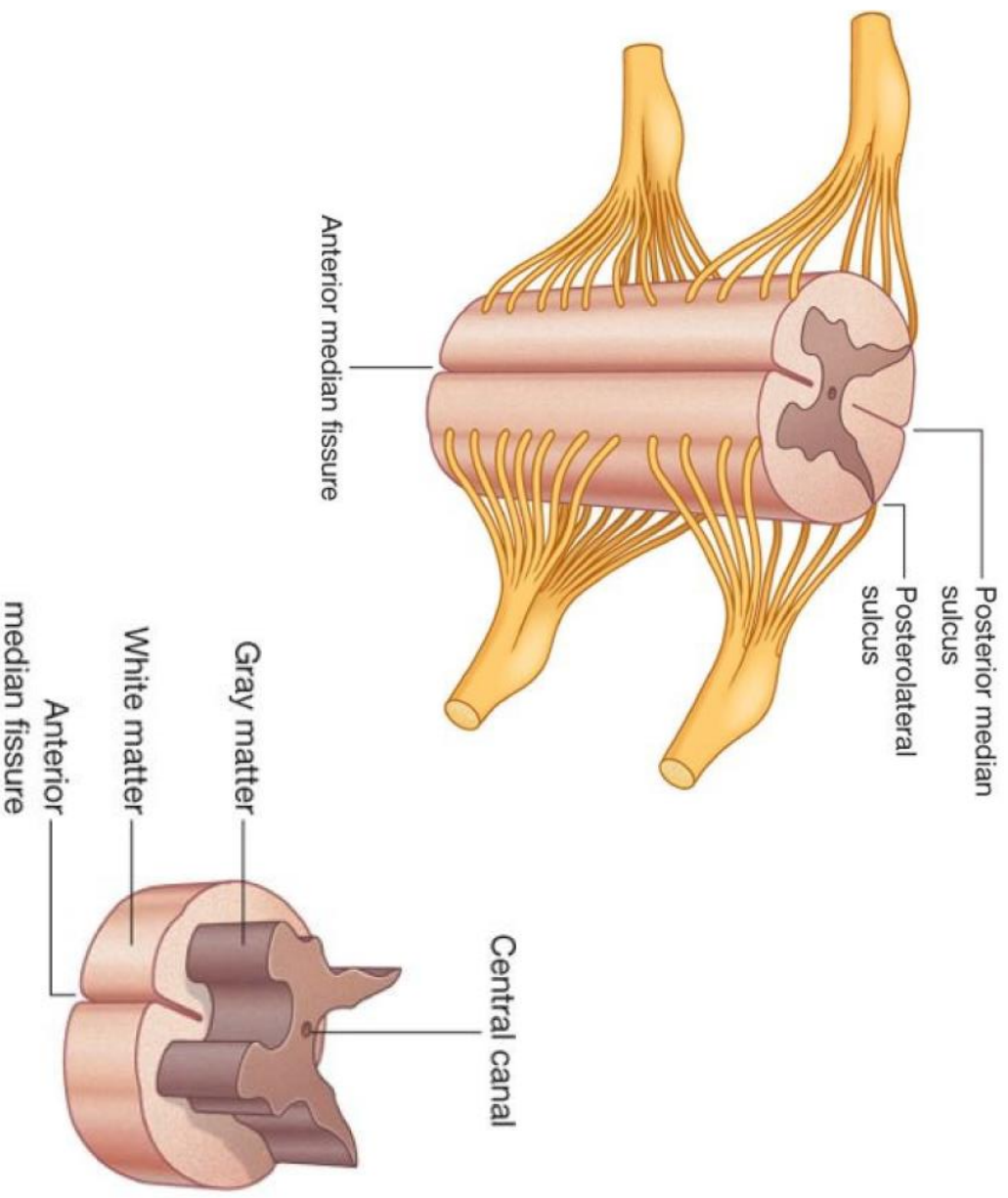
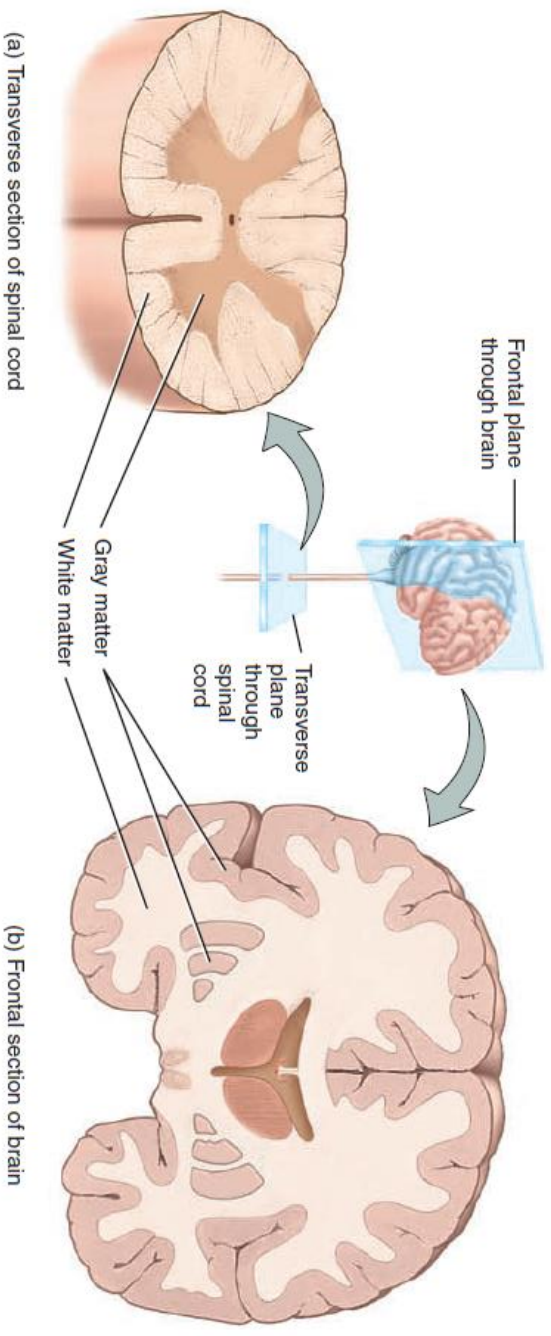
The Nervous Tissue



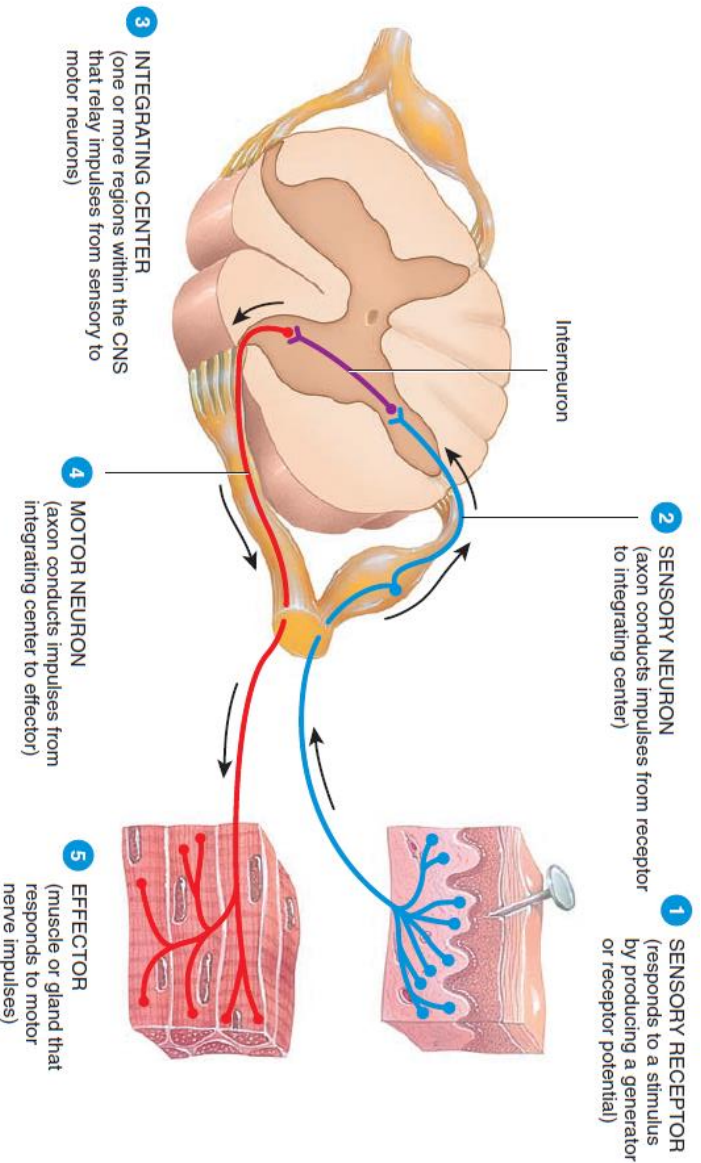
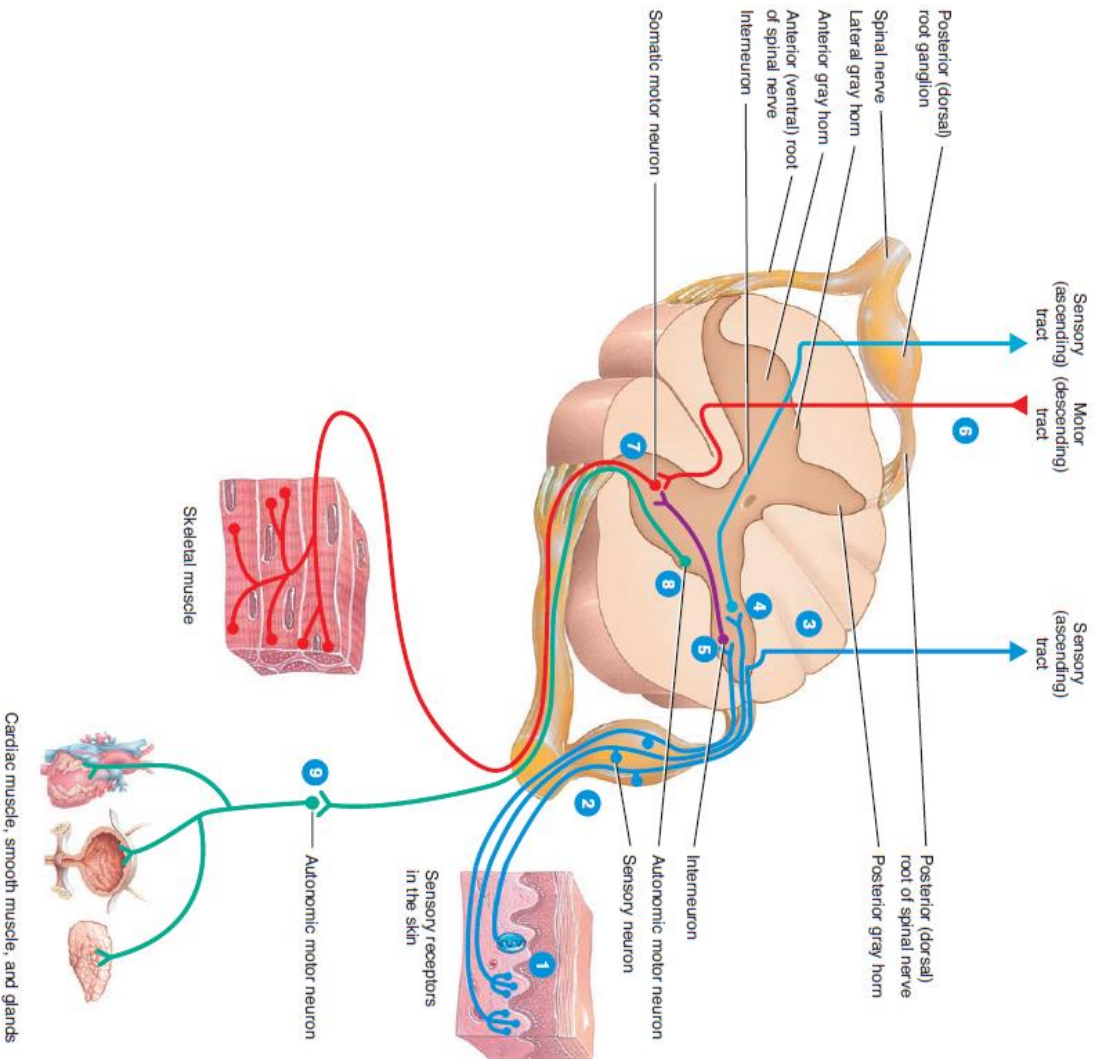


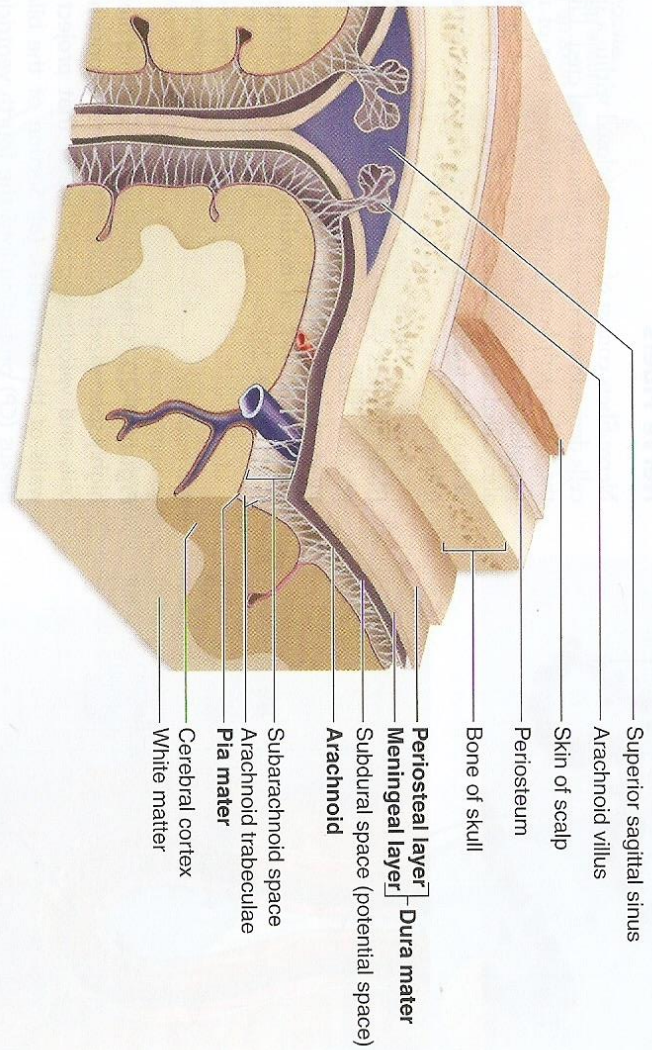
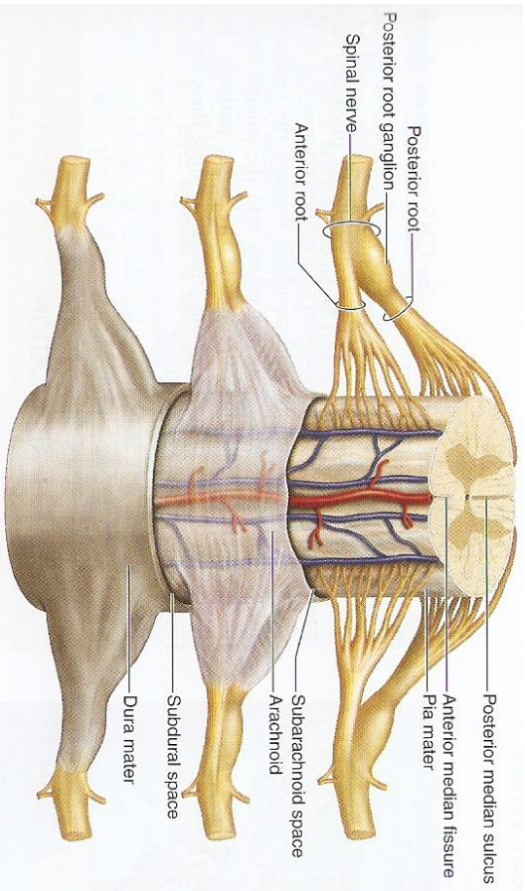
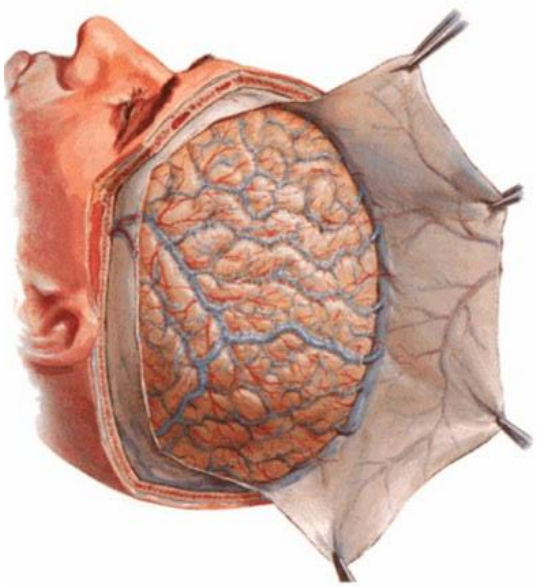
(b) Sagittal section, medial view

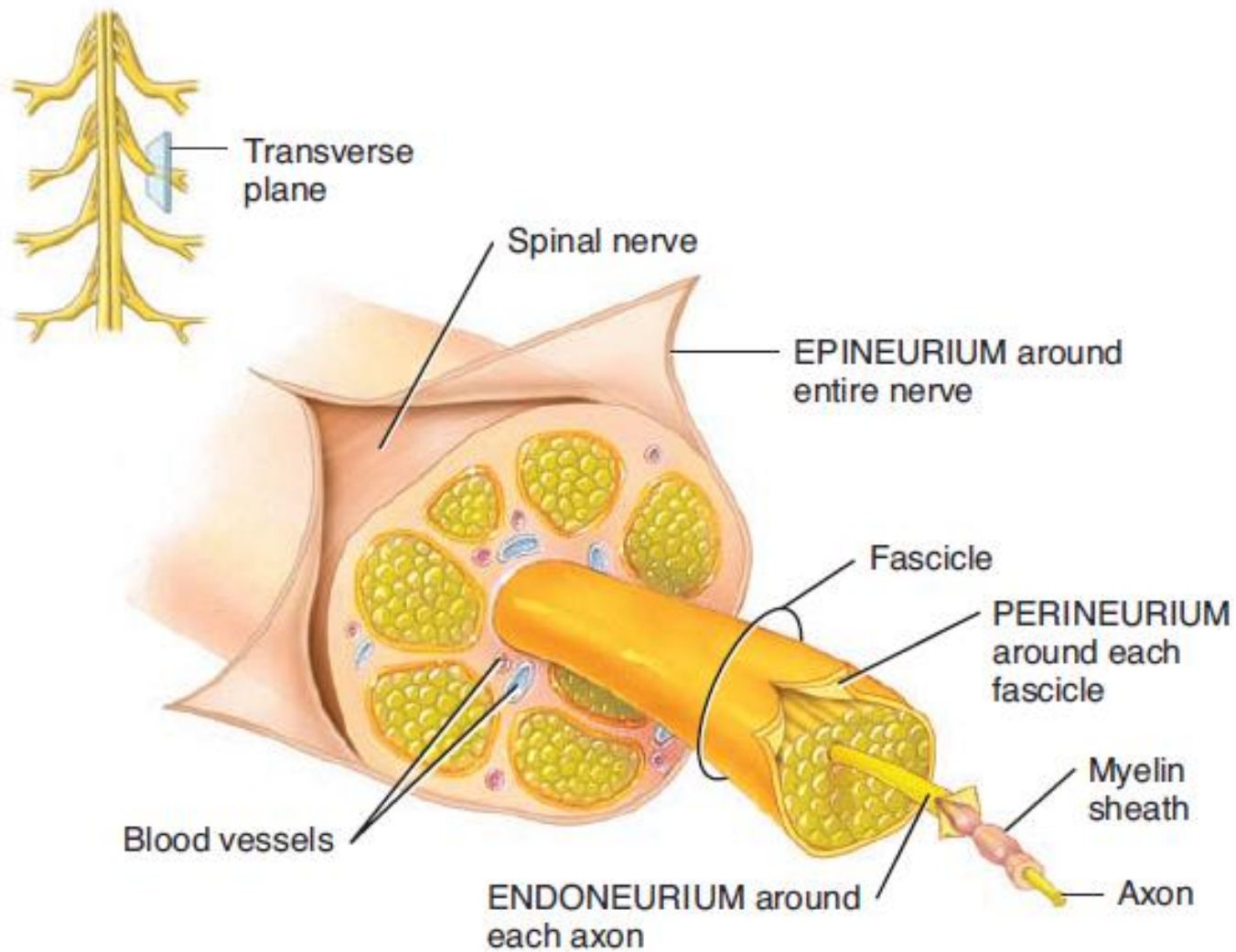




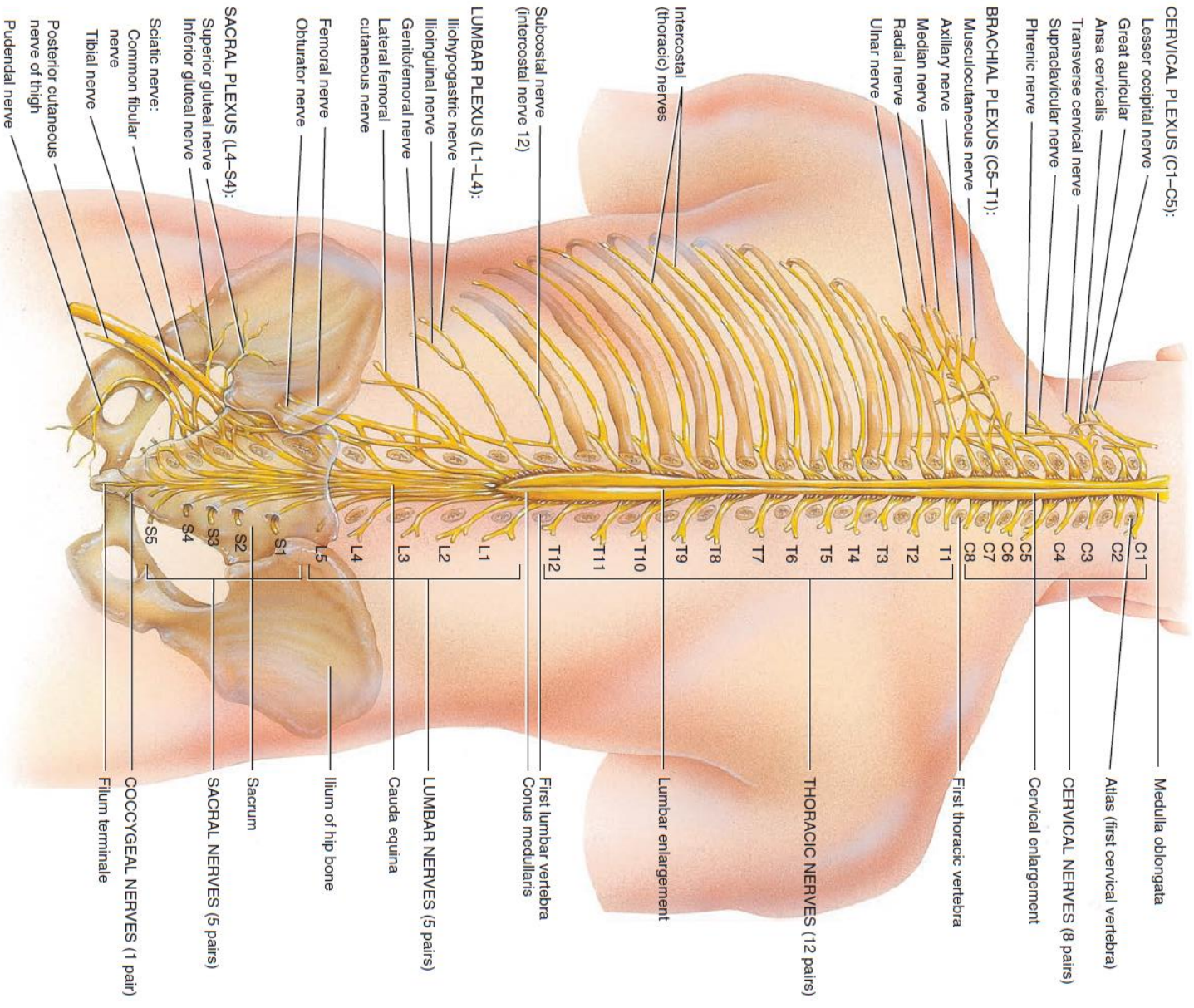
Spinal Cord & Reflexes

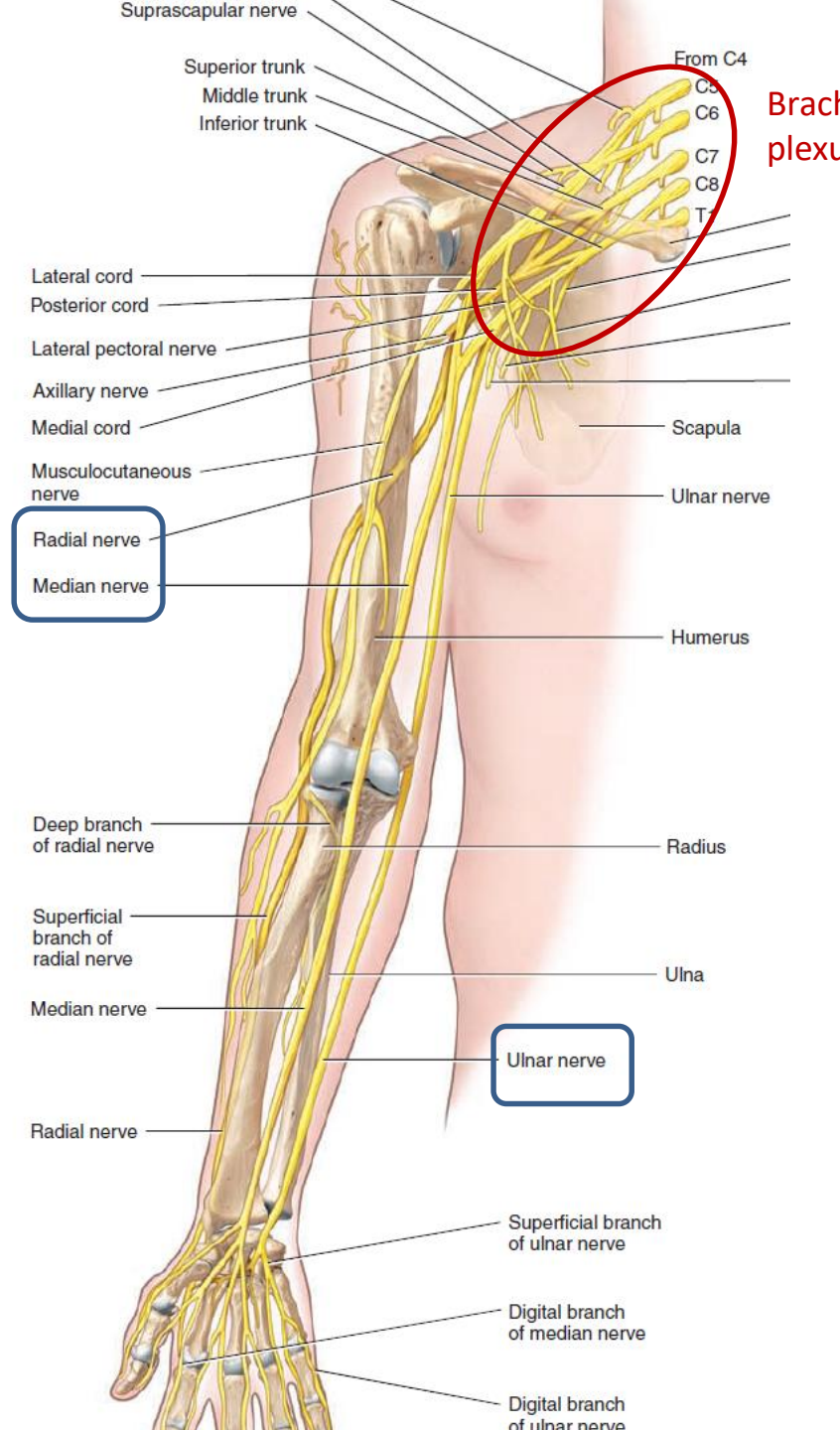
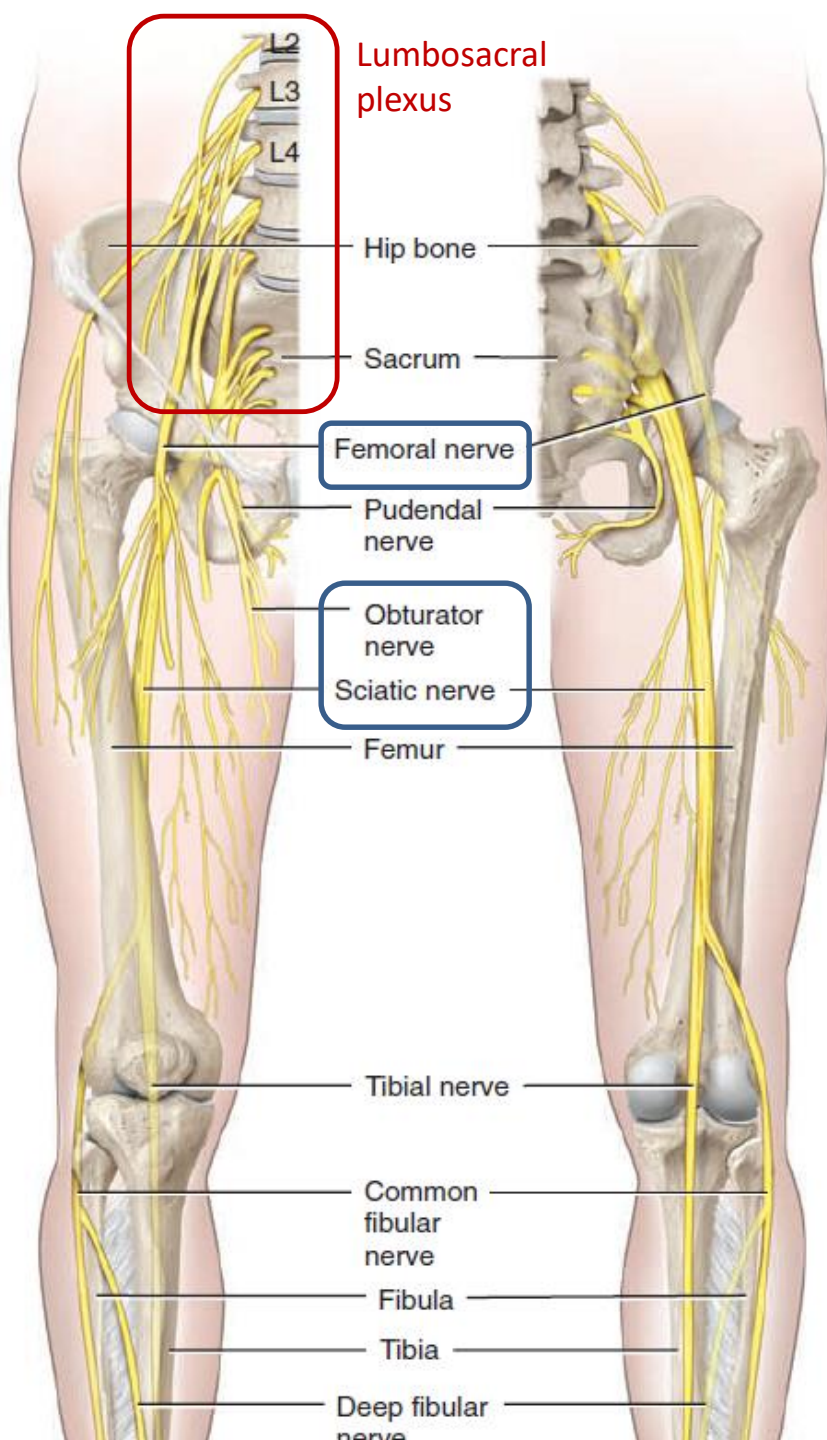




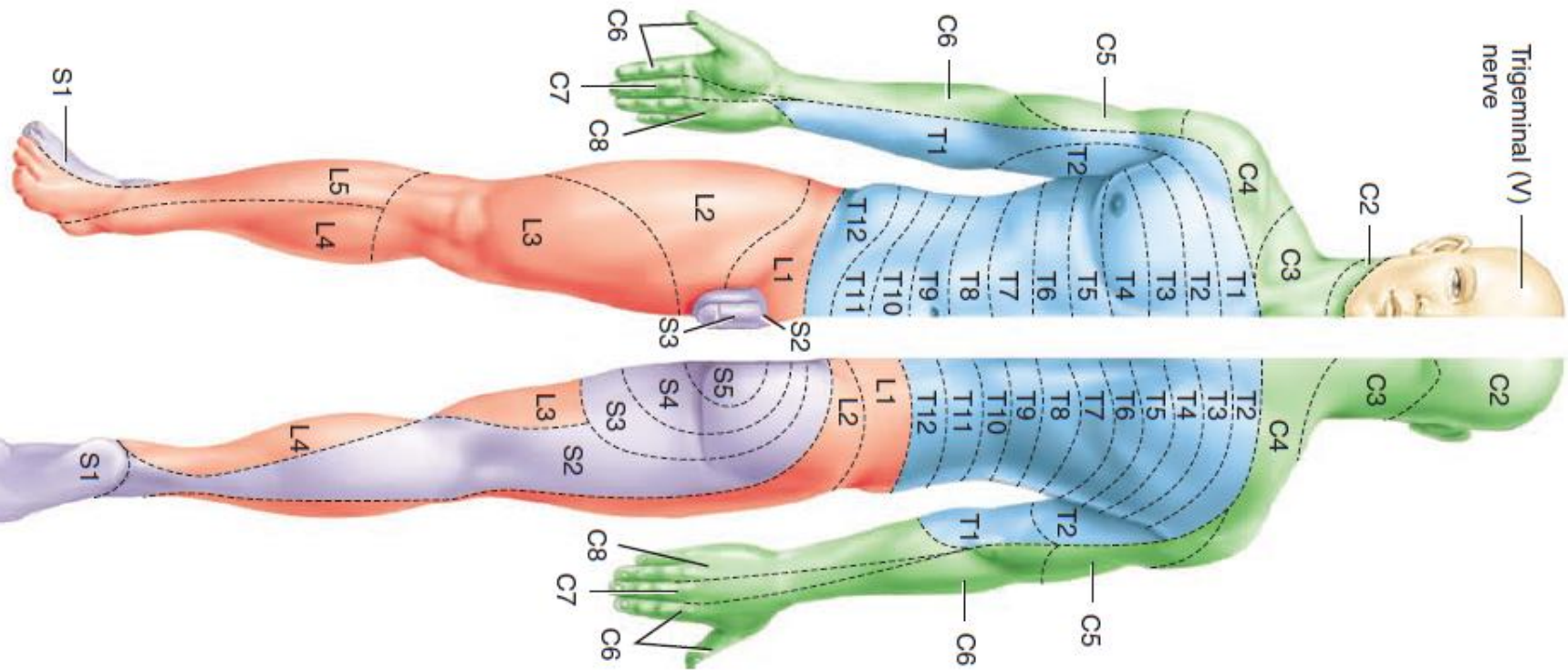


Spinal Nerves





Dermatomes



Trochlear—CN IV
 Motor: superior oblique muscle of eye

Abducent—CN VI
 Motor: lateral rectus muscle of eye

Oculomotor—CN III
 Motor: ciliary muscles, sphincter of pupil, all extrinsic muscles of eye except those listed for CN IV and VI

Optic—CN II
 Sensory: vision

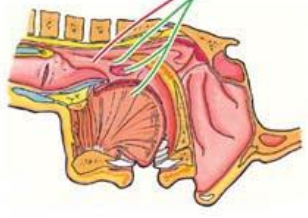
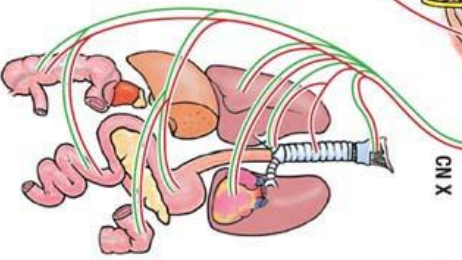
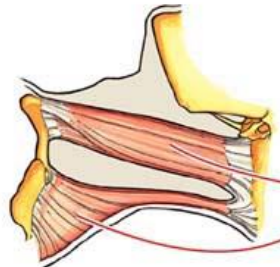
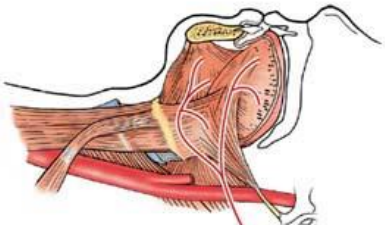
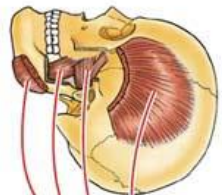
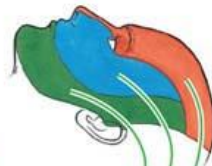
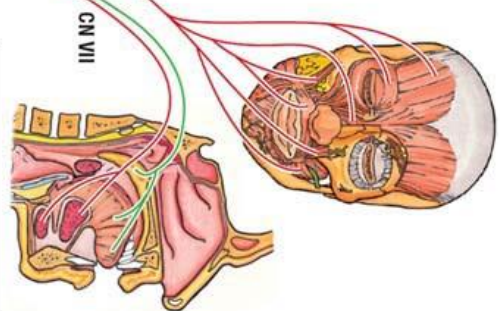
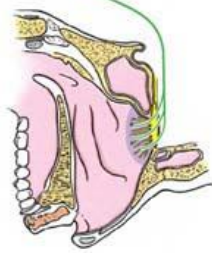
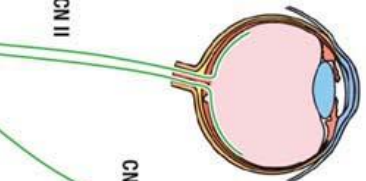
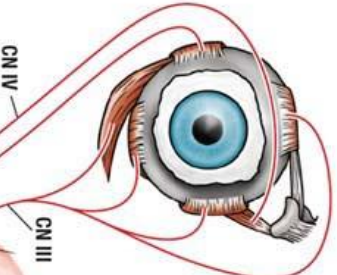
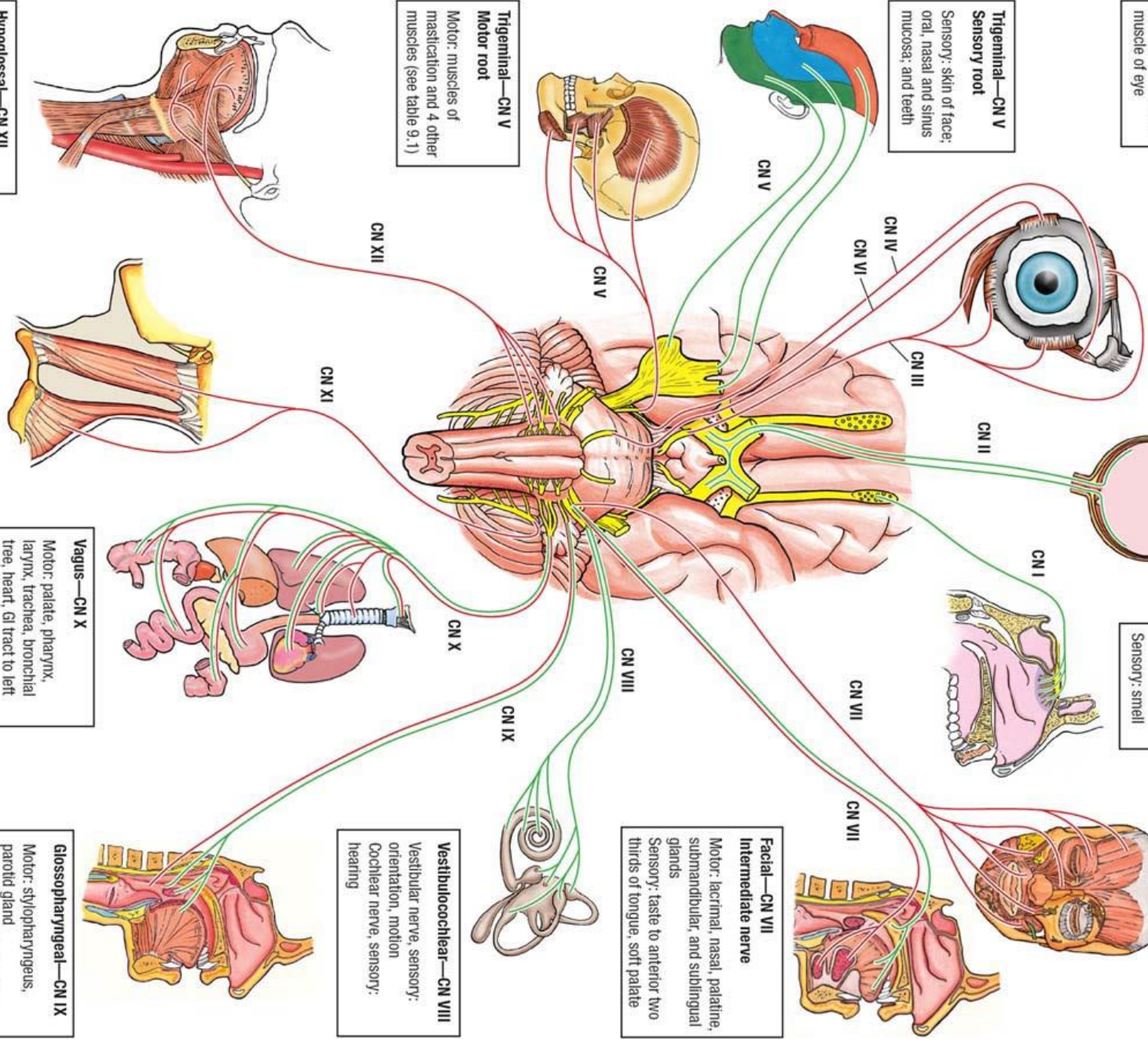
Olfactory—CN I
 Sensory: smell

Facial—CN VII
Primary root
 Motor: muscles of facial expression and 3 other muscles (see table 9.1)

Trigeminal—CN V
Sensory root
 Sensory: skin of face; oral, nasal and sinus mucosa; and teeth

Trigeminal—CN V
Motor root
 Motor: muscles of mastication and 4 other muscles (see table 9.1)

Hypoglossal—CN XII
 Motor: all intrinsic and extrinsic muscles of tongue (excluding palatoglossus—a palatine muscle)



Cranial nerve fibers
 Efferent (motor) — Red line
 Afferent (sensory) — Green line

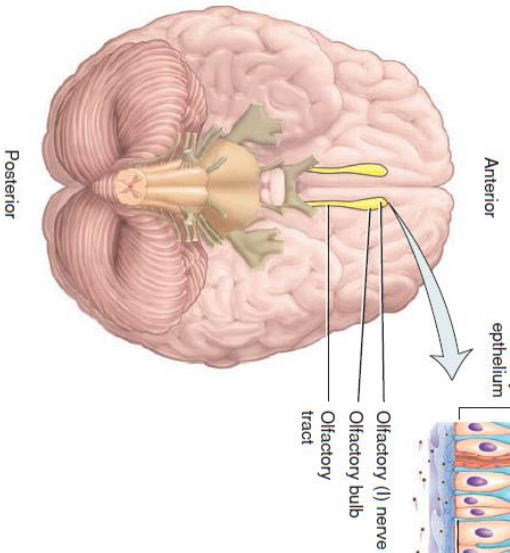
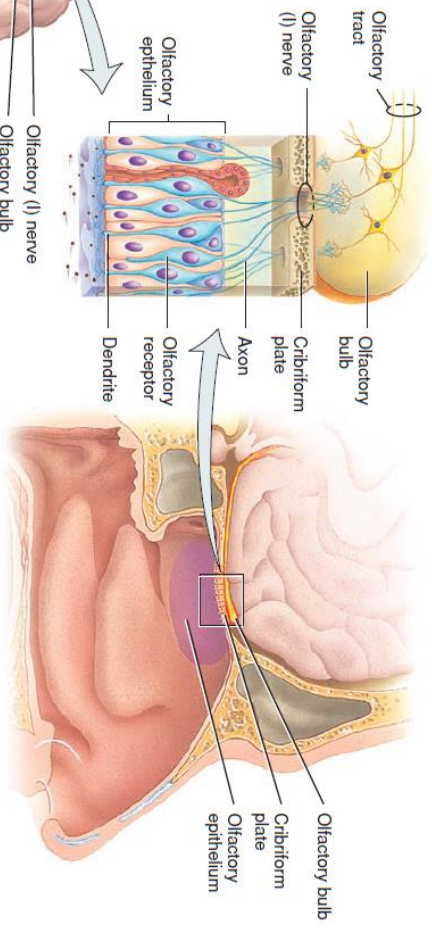
Facial—CN VII
Intermediate nerve
 Motor: lacrimal, nasal, palatine, submandibular, and sublingual glands
 Sensory: taste to anterior two thirds of tongue; soft palate

Vestibulocochlear—CN VIII
 Vestibular nerve, sensory: orientation, motion
 Cochlear nerve, sensory: hearing

Vagus—CN X
 Motor: palate, pharynx, larynx, trachea, bronchial tree, heart, GI tract to left colic flexure
 Sensory: pharynx, larynx; reflex sensory from tracheo-bronchial tree, lungs, heart, GI tract to left colic flexure

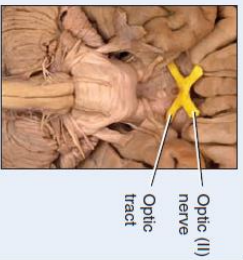
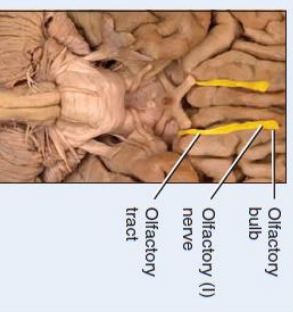
Glossopharyngeal—CN IX
 Motor: stylopharyngeus, parotid gland
 Sensory (taste): posterior third of tongue; general sensation: pharynx, tonsillar sinus, pharyngotympanic tube, middle ear cavity

Spinal accessory—CN XI
 Motor: sternocleidomastoid and trapezius



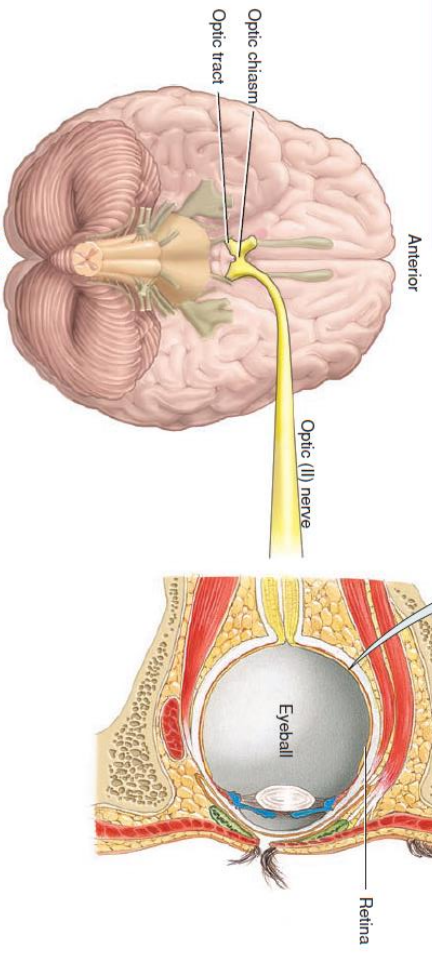
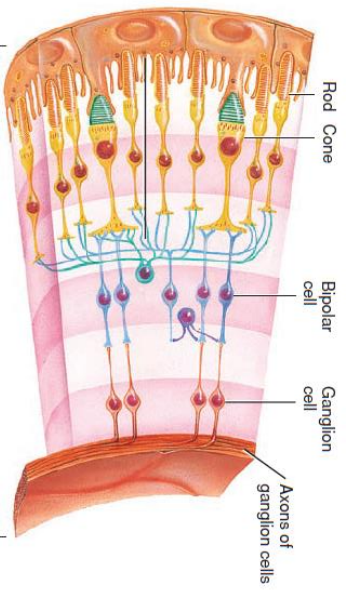
CLINICAL CONNECTION | Anosmia

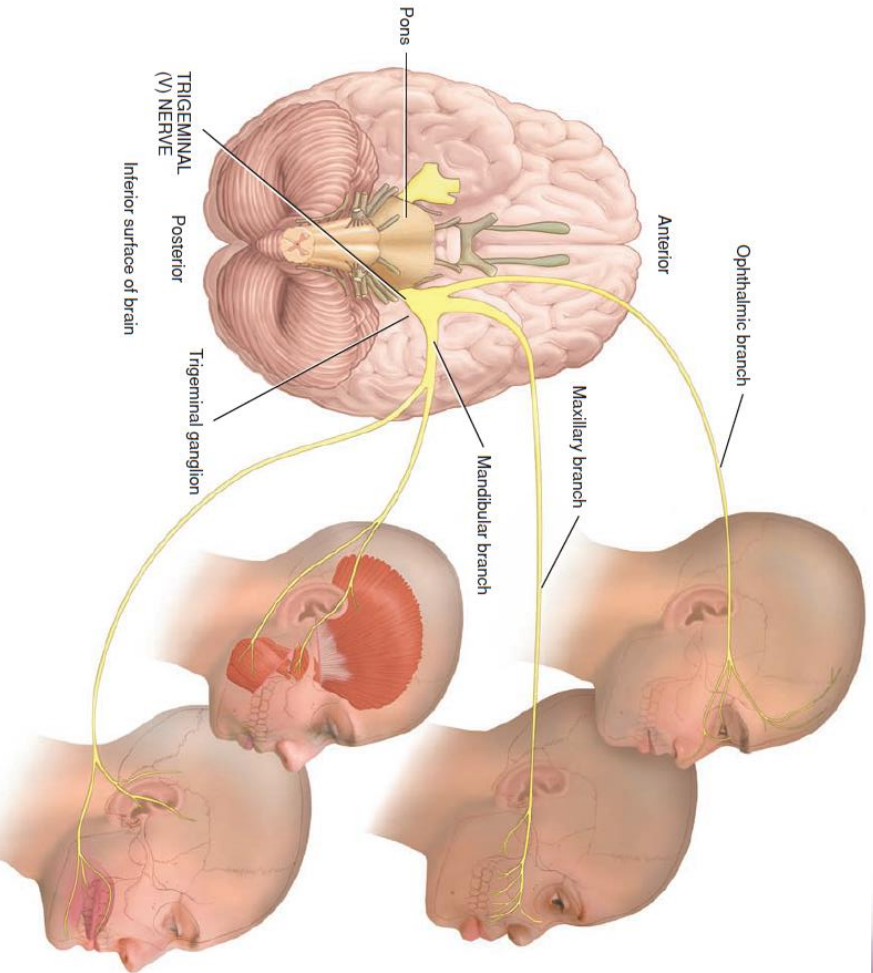
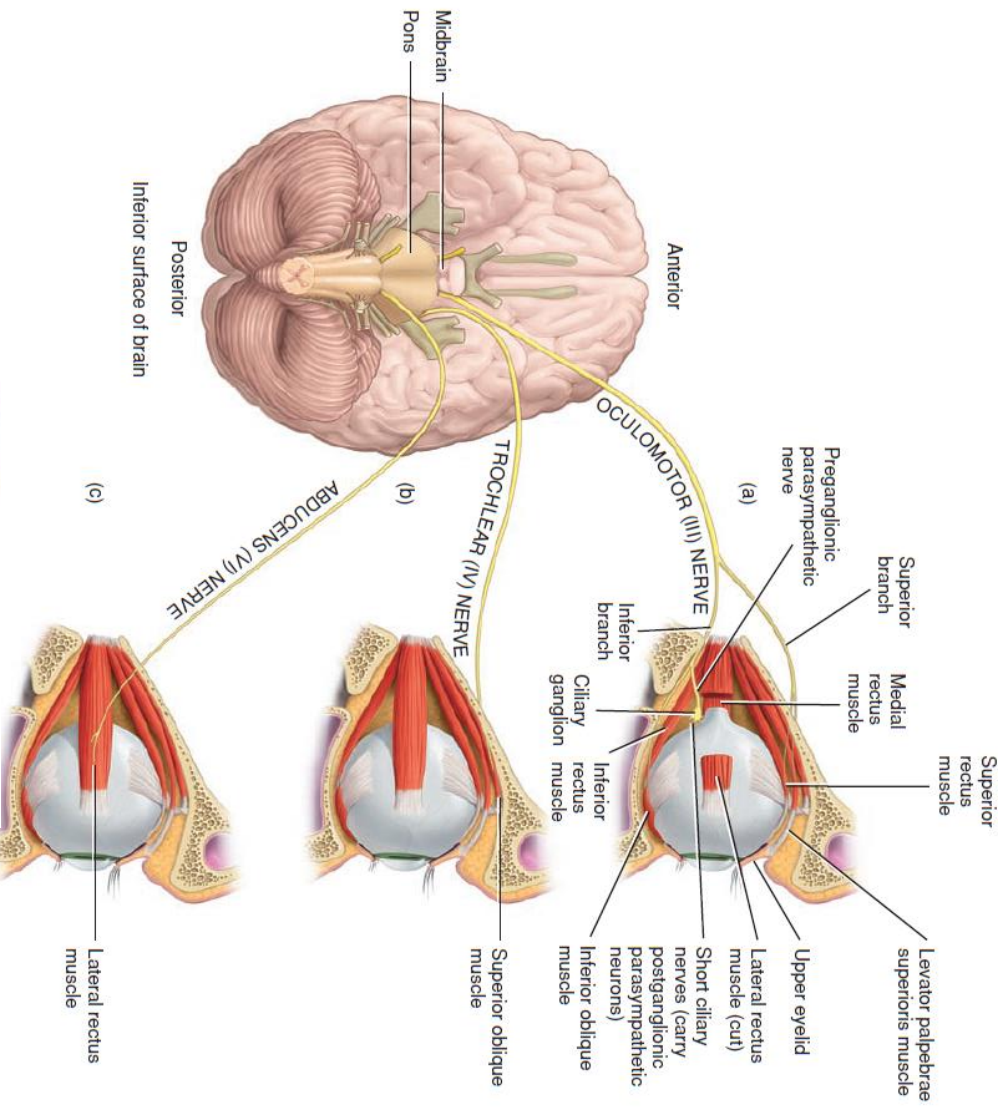
Loss of the sense of smell, called **anosmia** (an-OZ-mē-ə), may result from infections of the nasal mucosa, head injuries in which the cribriform plate of the ethmoid bone is fractured, lesions along the olfactory pathway or in the brain, meningitis, smoking, or cocaine use.

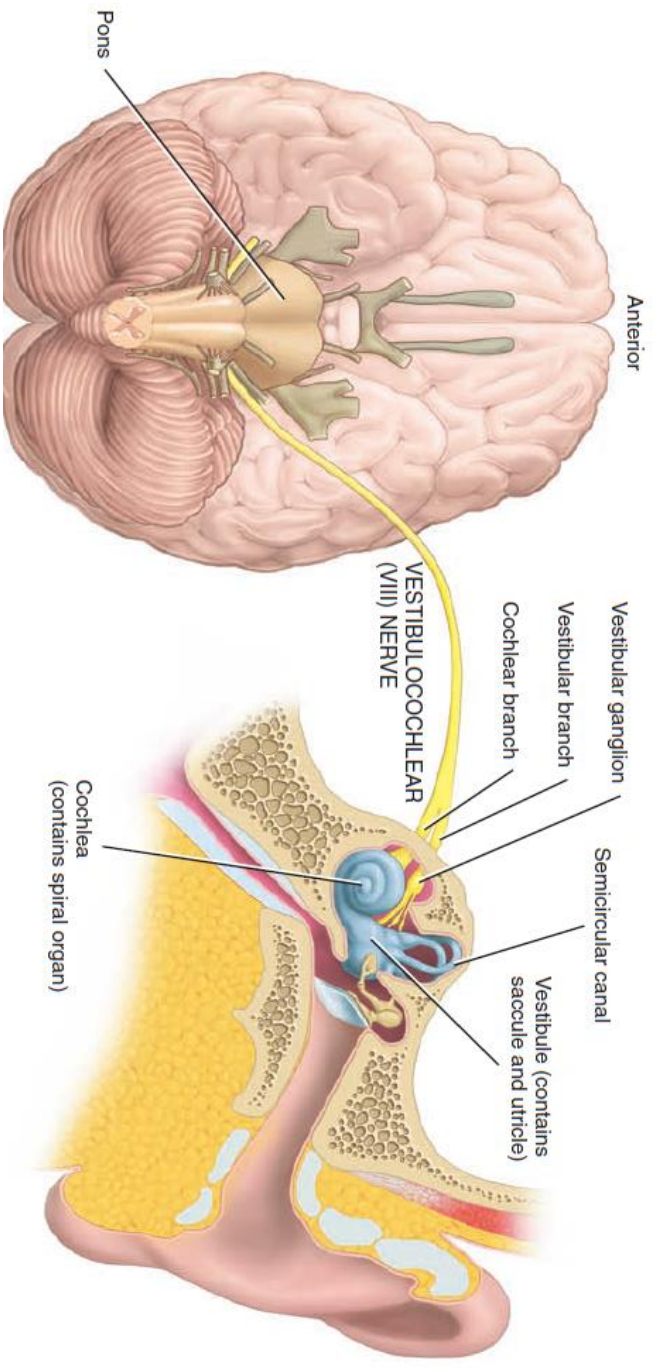
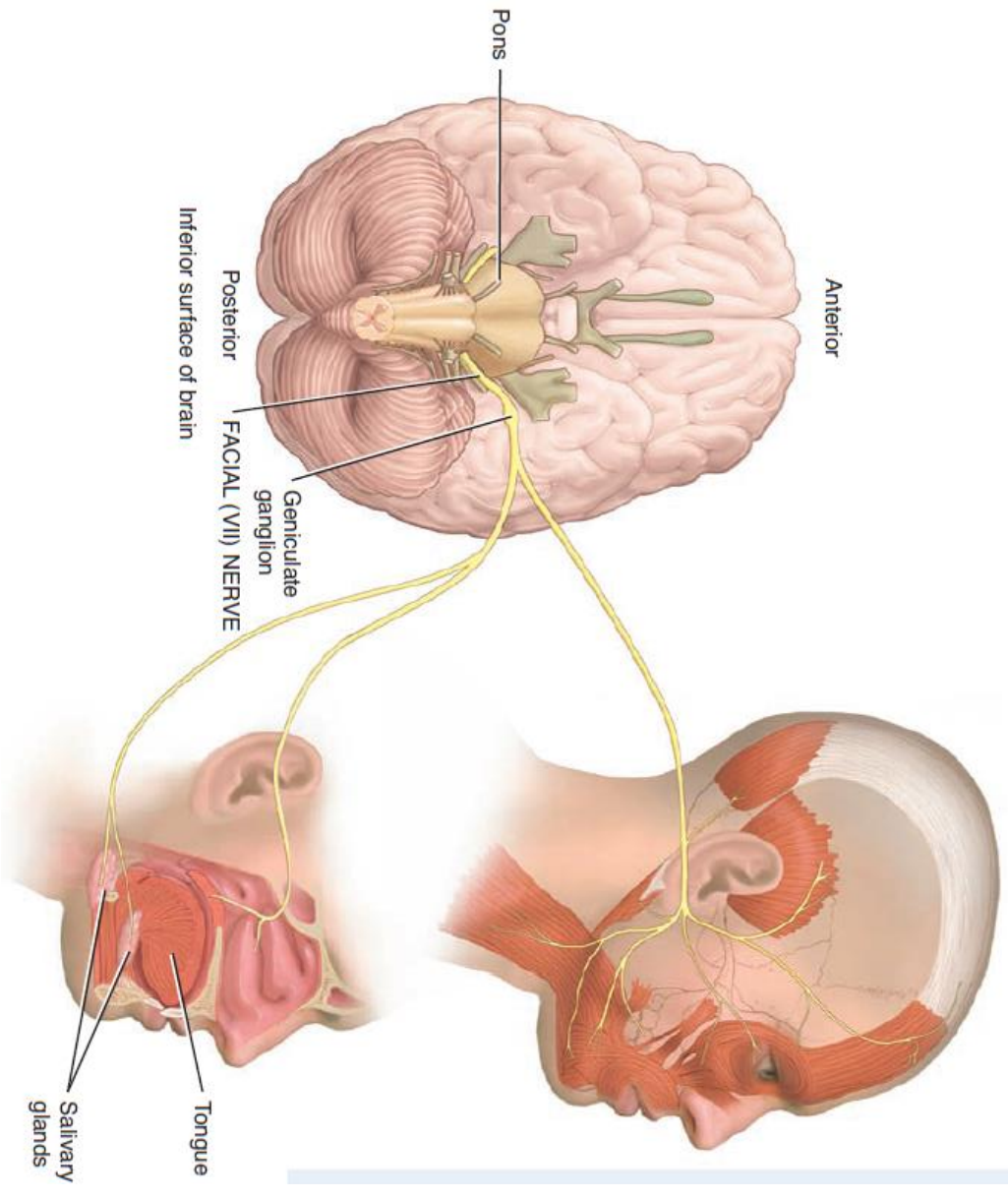


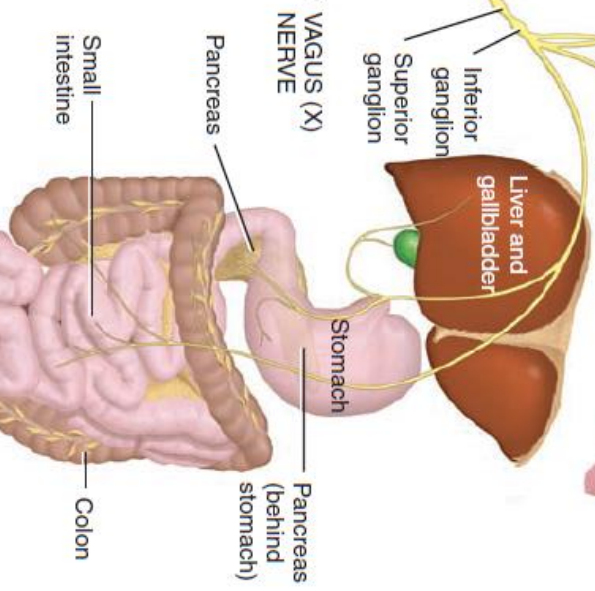
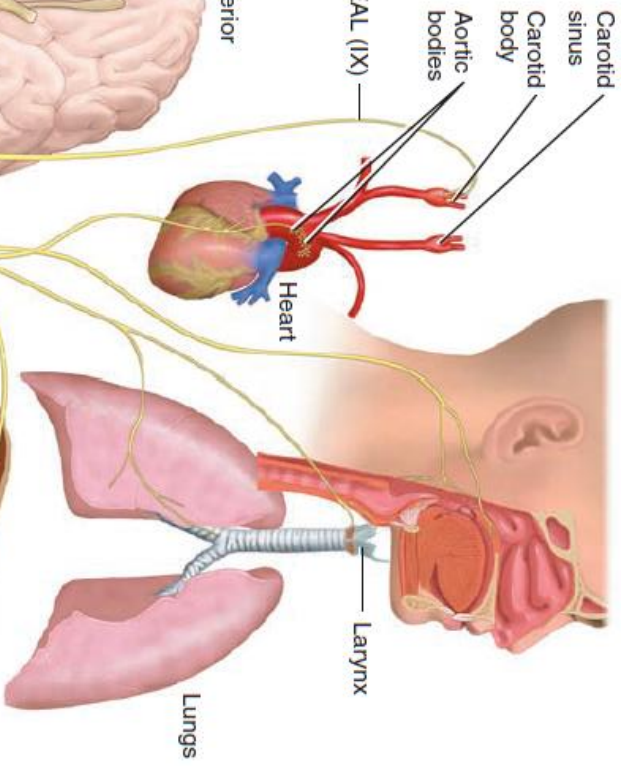
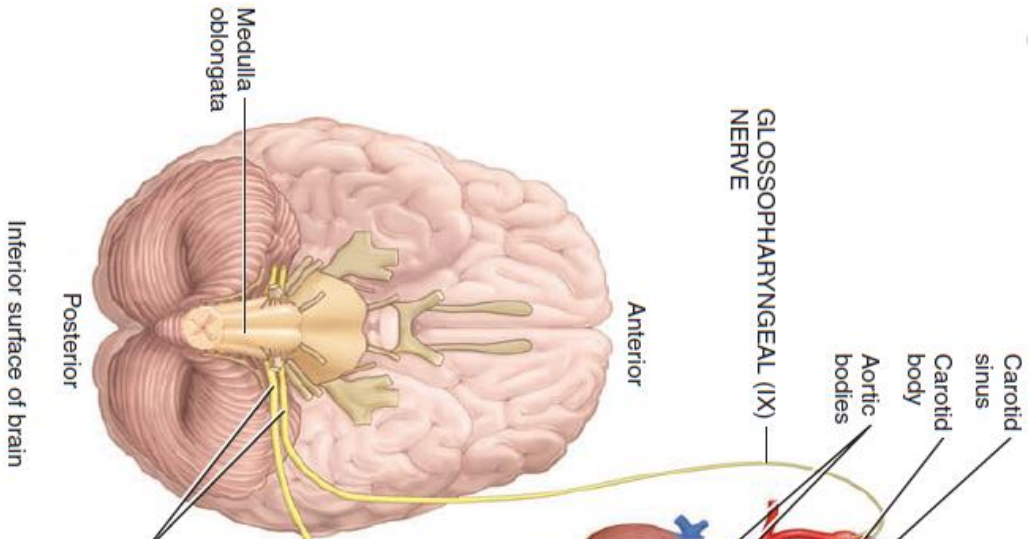
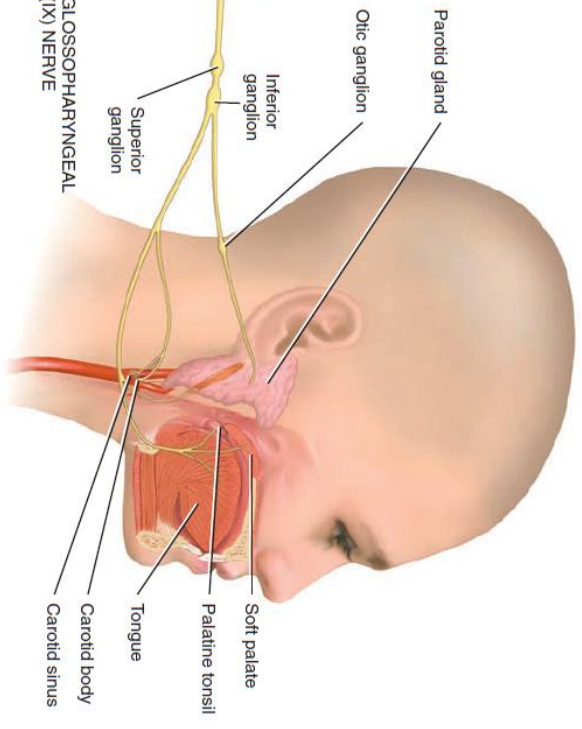
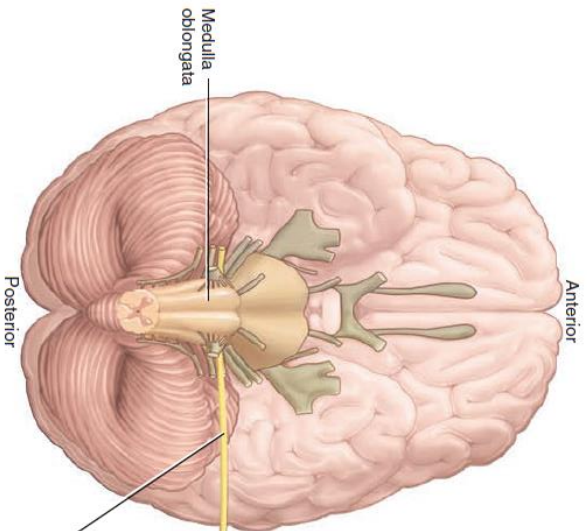
CLINICAL CONNECTION | Anopia

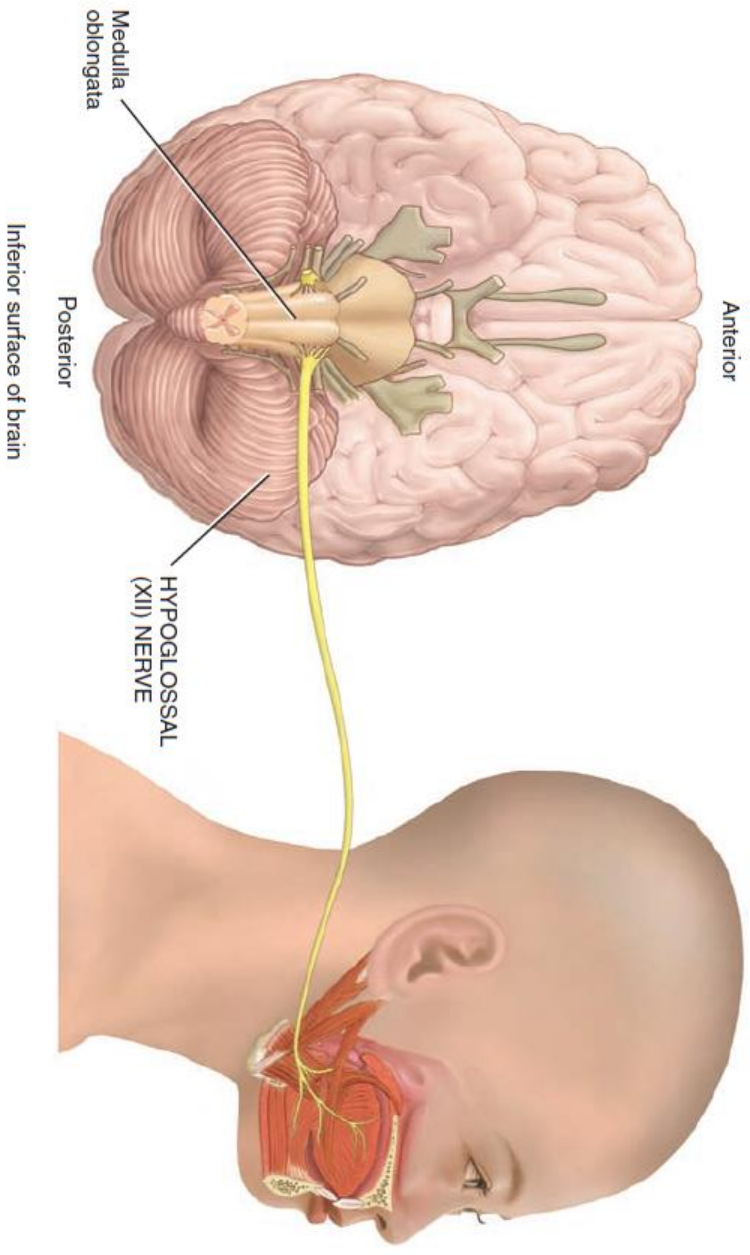
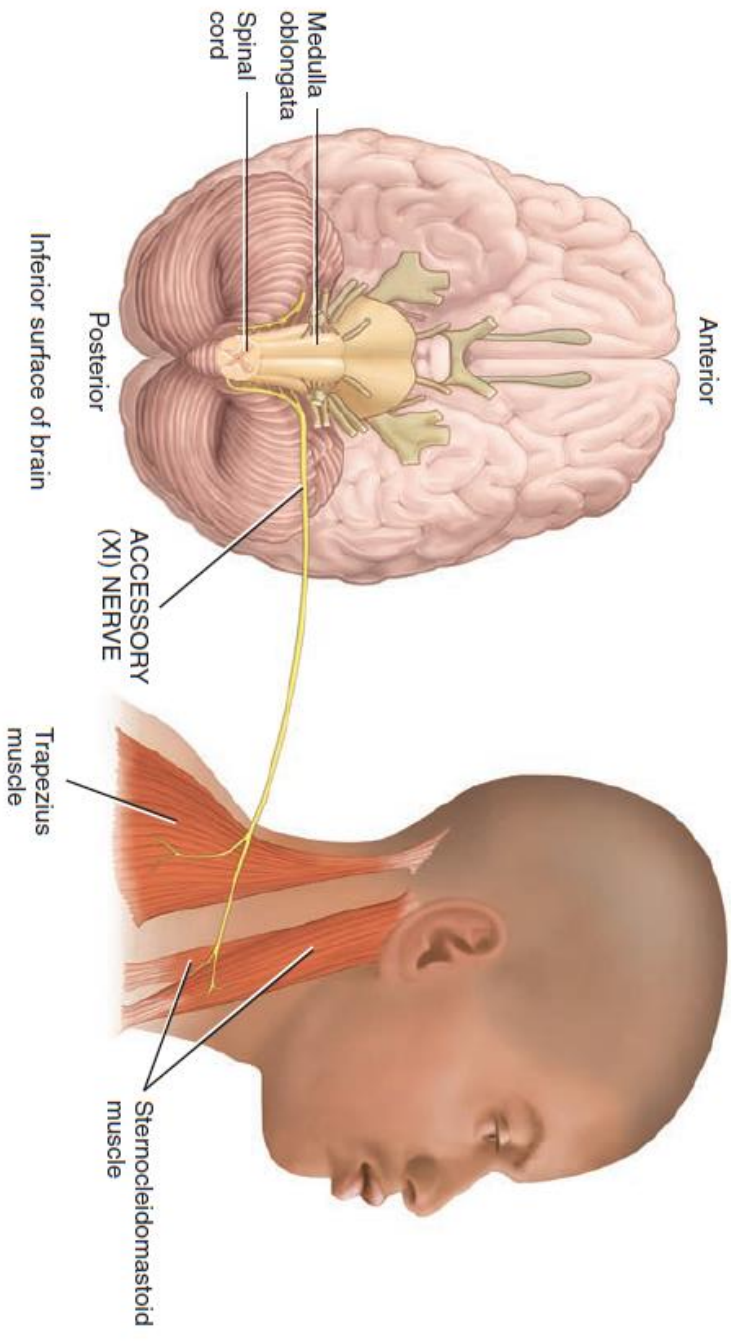
Fractures in the orbit, brain lesions, damage along the visual pathway, diseases of the nervous system (such as multiple sclerosis), pituitary gland tumors, or cerebral aneurysms (enlargements of blood vessels due to weakening of their walls) may result in visual field defects and loss of visual acuity. Blindness due to a defect in or loss of one or both eyes is called **anopia** (an-O-pē-ə).

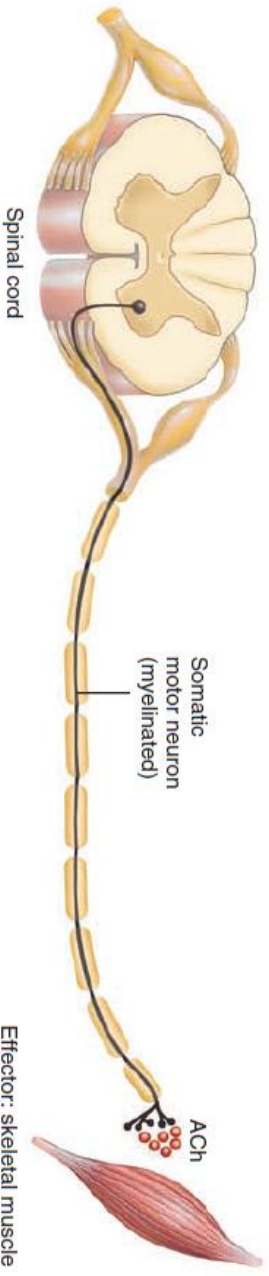




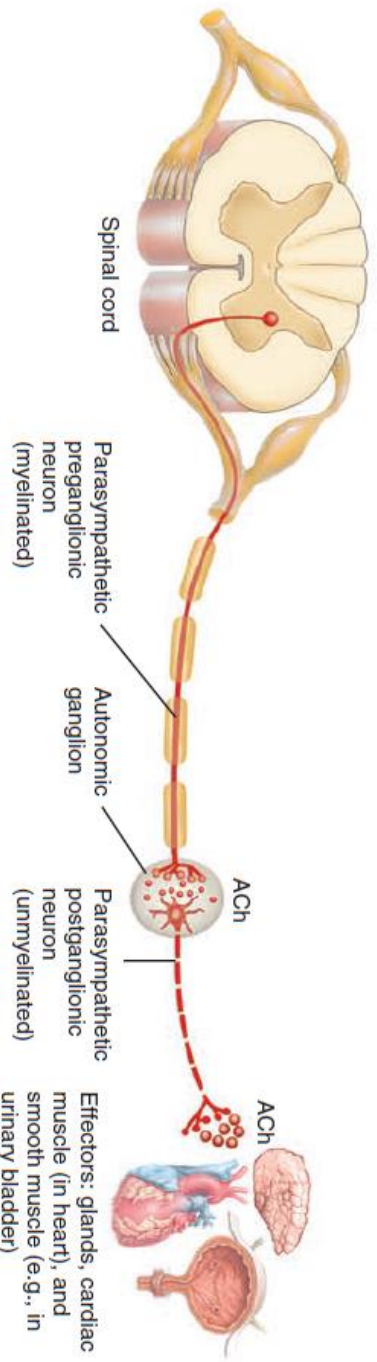
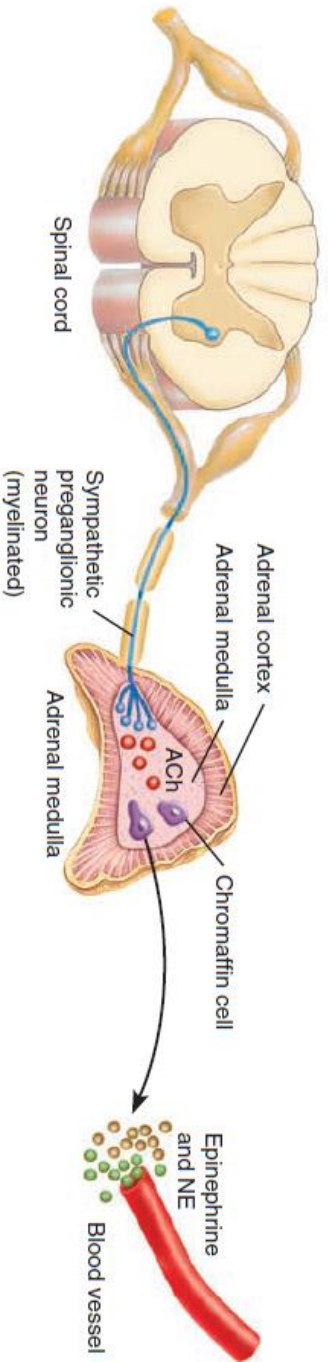
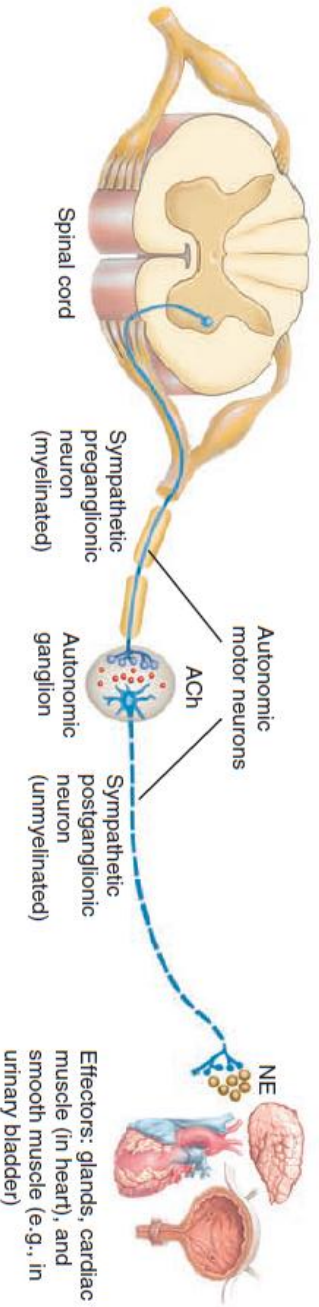




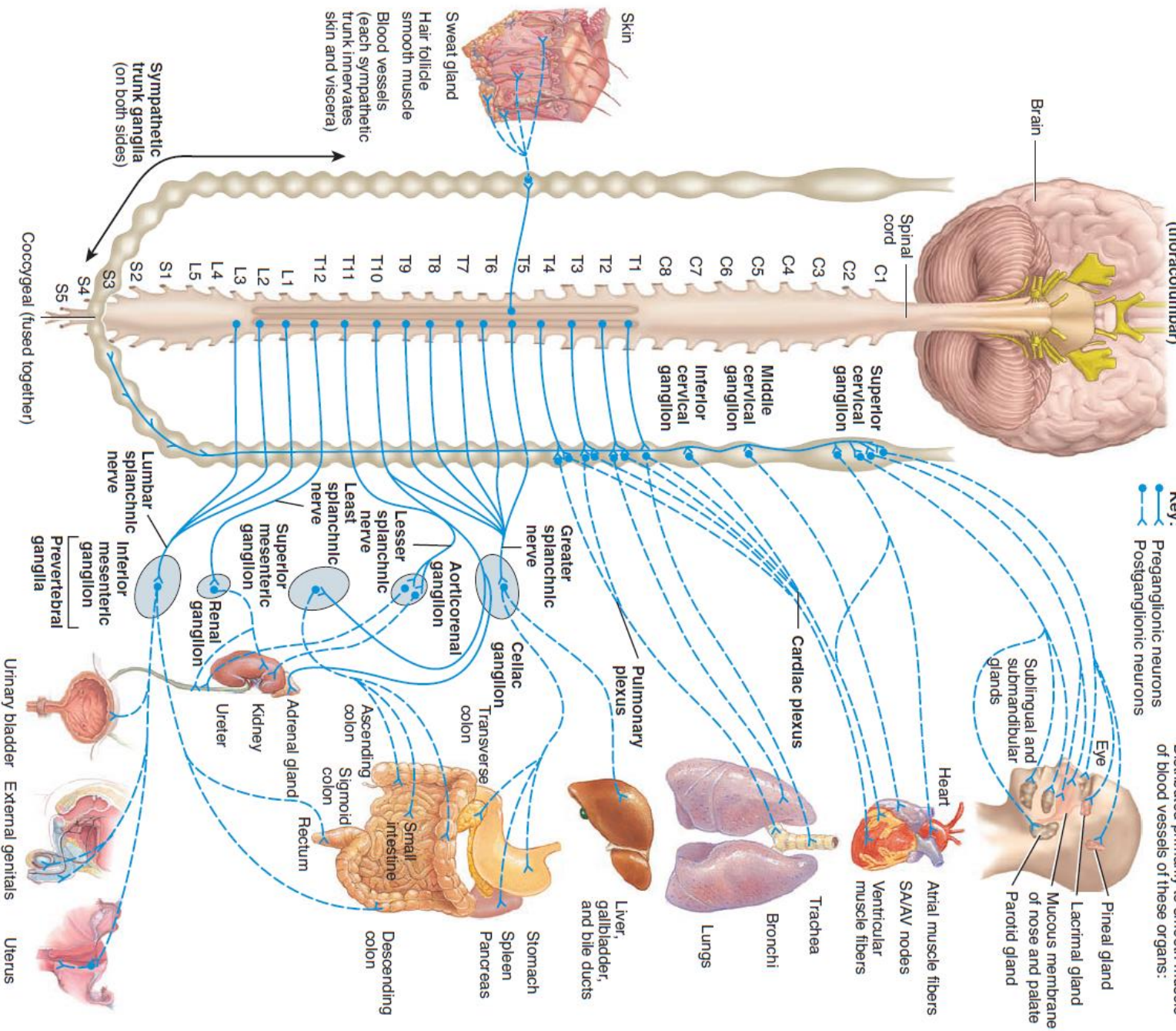




(a) Somatic nervous system



SYMPATHETIC DIVISION (thoracolumbar)



Distributed primarily to smooth muscle of blood vessels of these organs:

**PARASYMPATHETIC DIVISION
(craniosacral)**

Key:
 Preganglionic neurons
 Postganglionic neurons

