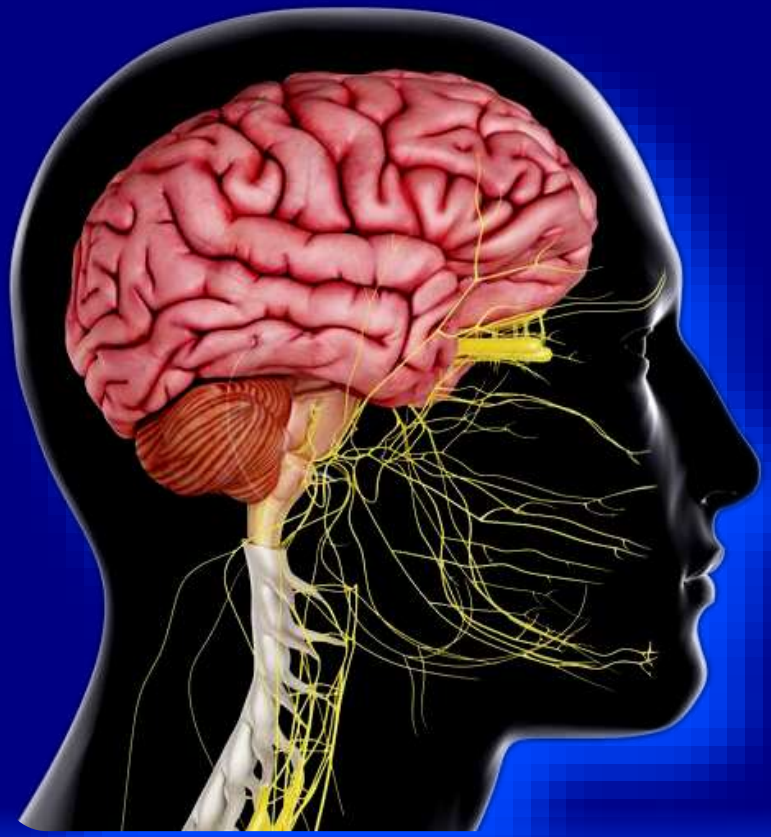
TRACTS OF THE CENTRAL NERVOUS SYSTEM



Thieme

Multimedial Unit of Dept. of Anatomy JU

Tracts of central nervous system

- association
- commissural
- projection

Projection tracts:

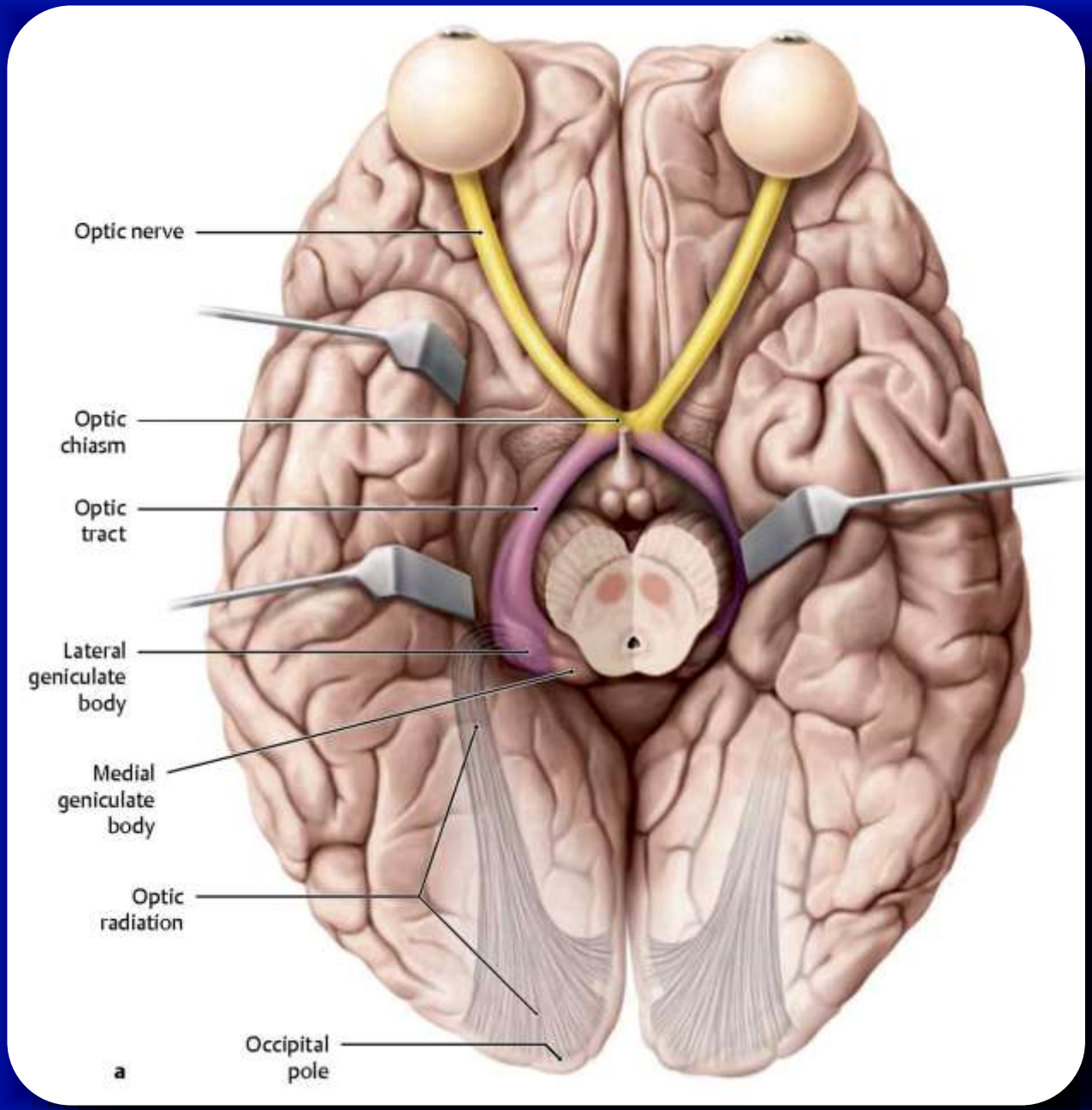
- sensory (ascending)
- motor (descending)

Sensory tracts:

- superficial sensation (light touch, pain, temperature, vibration)
- deep conscious sensation (sense of position)
- deep unconscious sensation
- taste, vision, hearing, balance, olfaction

Motor tracts (target is the skeletal muscle)

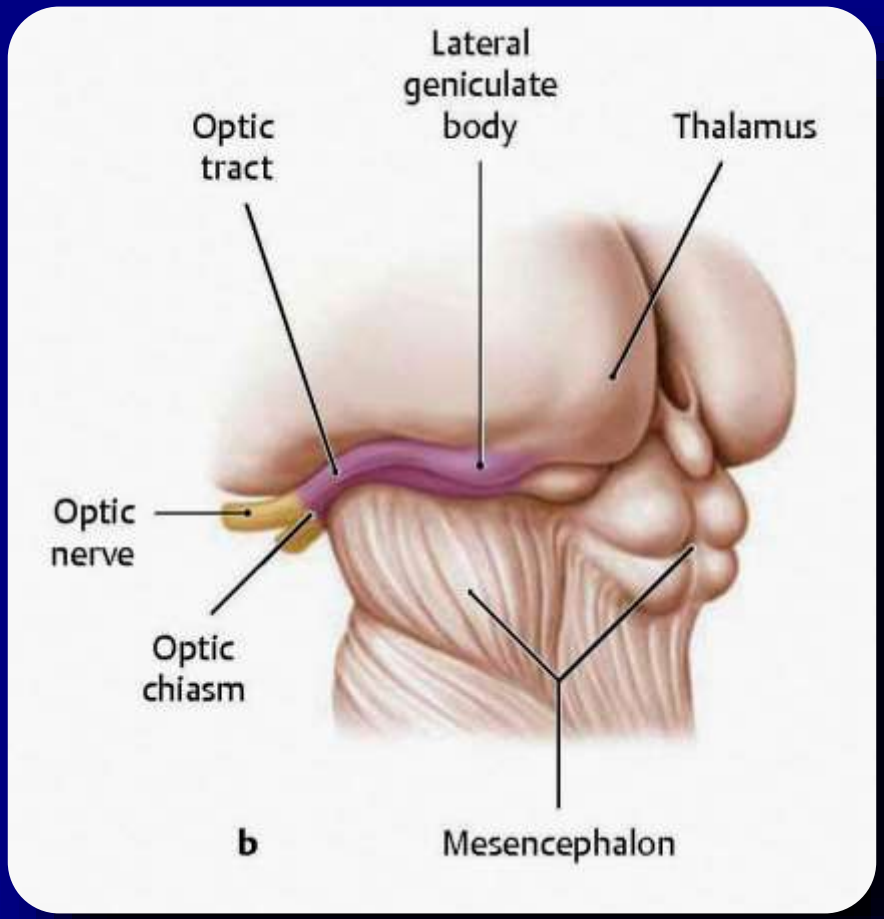
- pyramidal (part of the motor system causing voluntary actions
- extrapyramidal (part of the motor system causing involuntary actions)

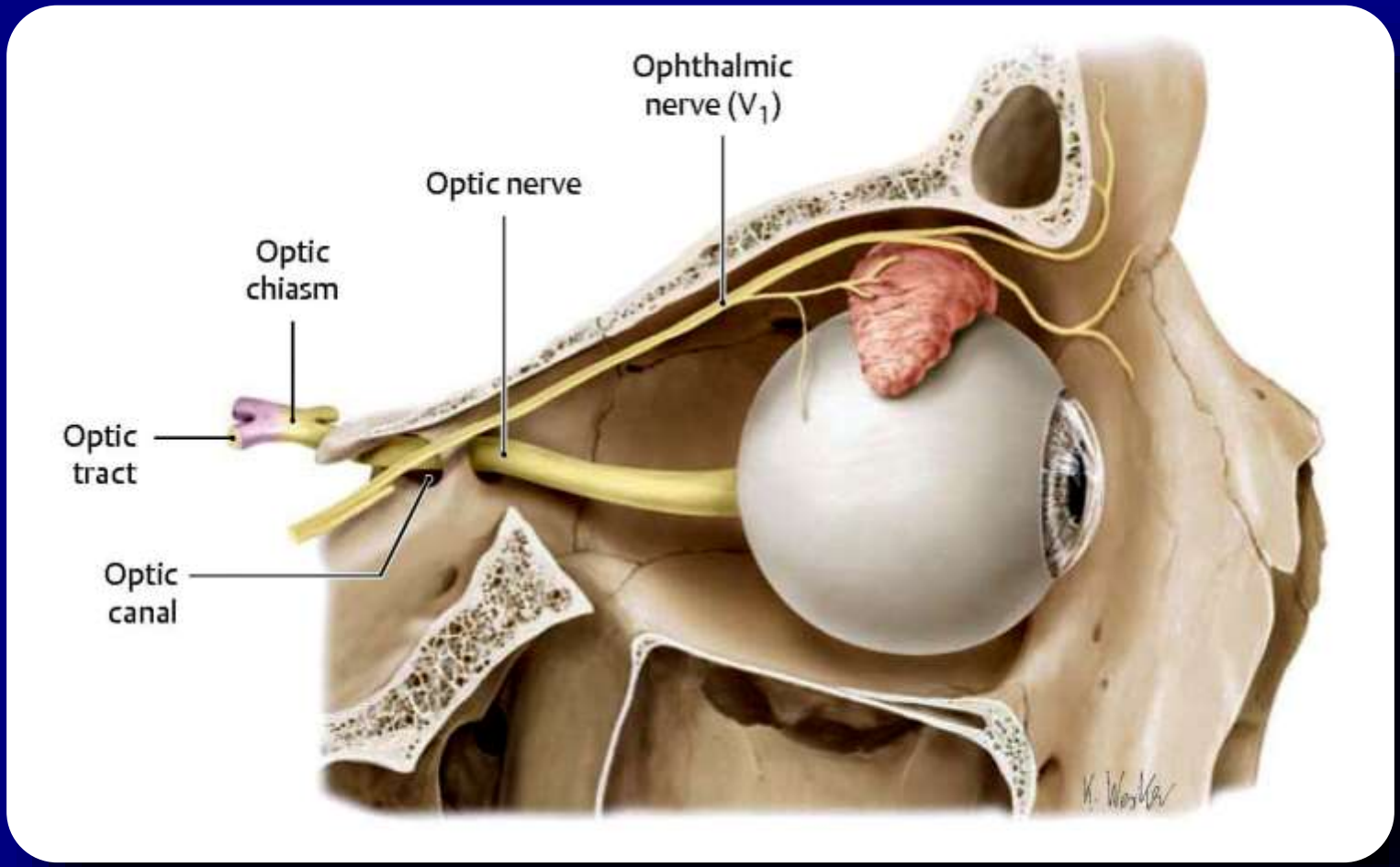


Eye, optic nerve,

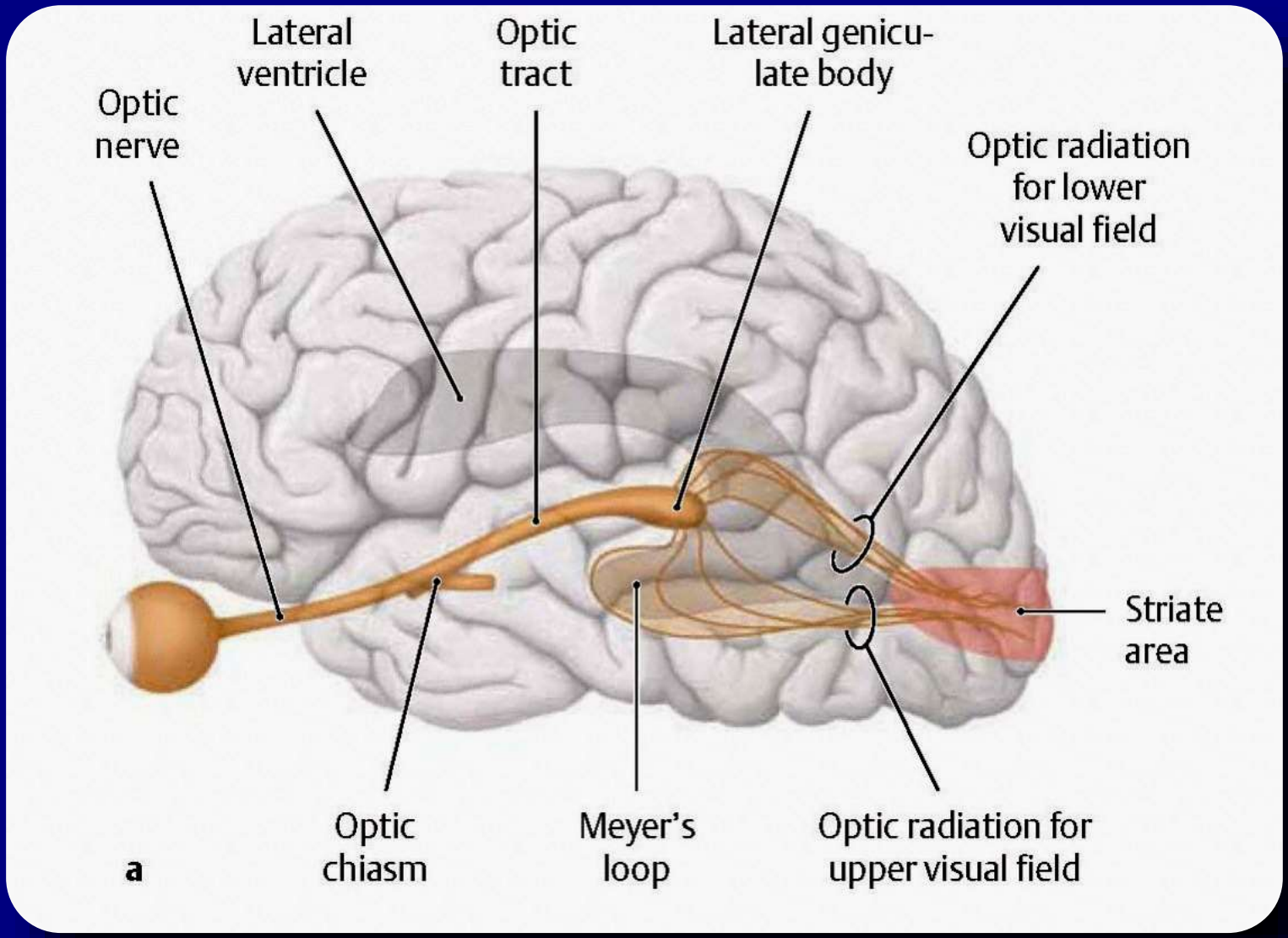
optic chiasm,

and optic tract

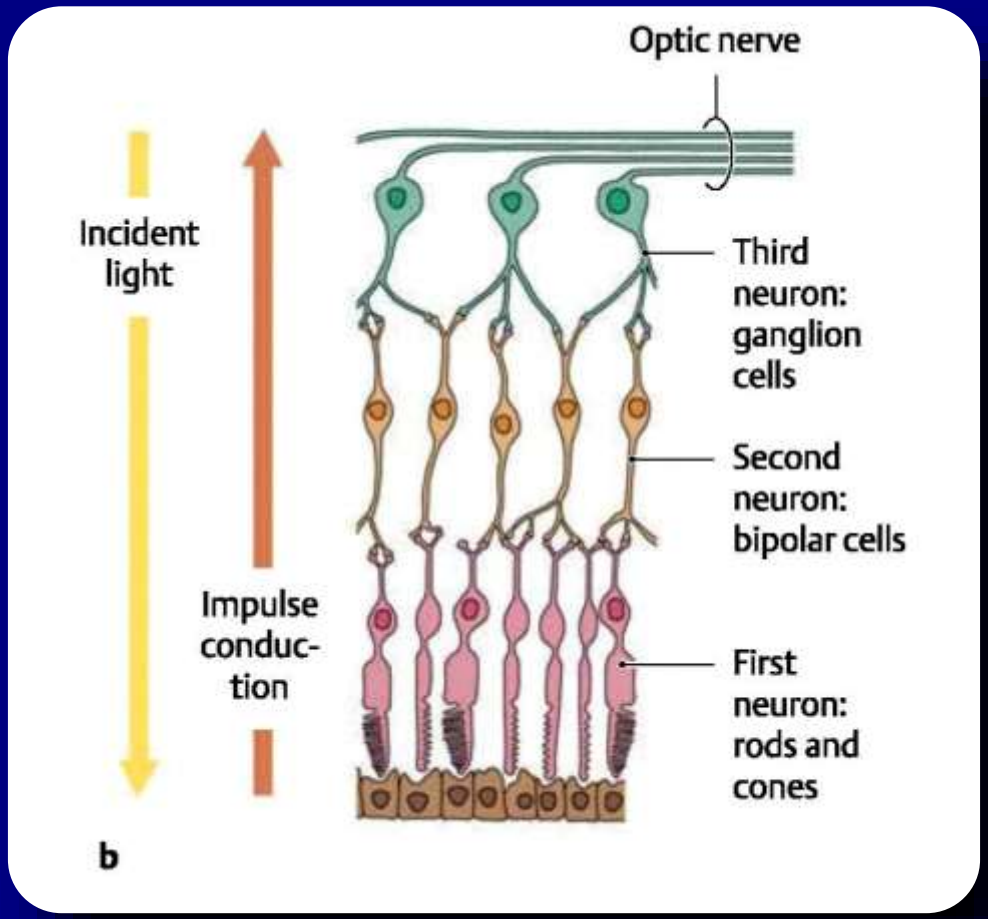

Lateral geniculate body
Optic tract
Thalamus
Optic nerve
Optic chiasm
b
Mesencephalon



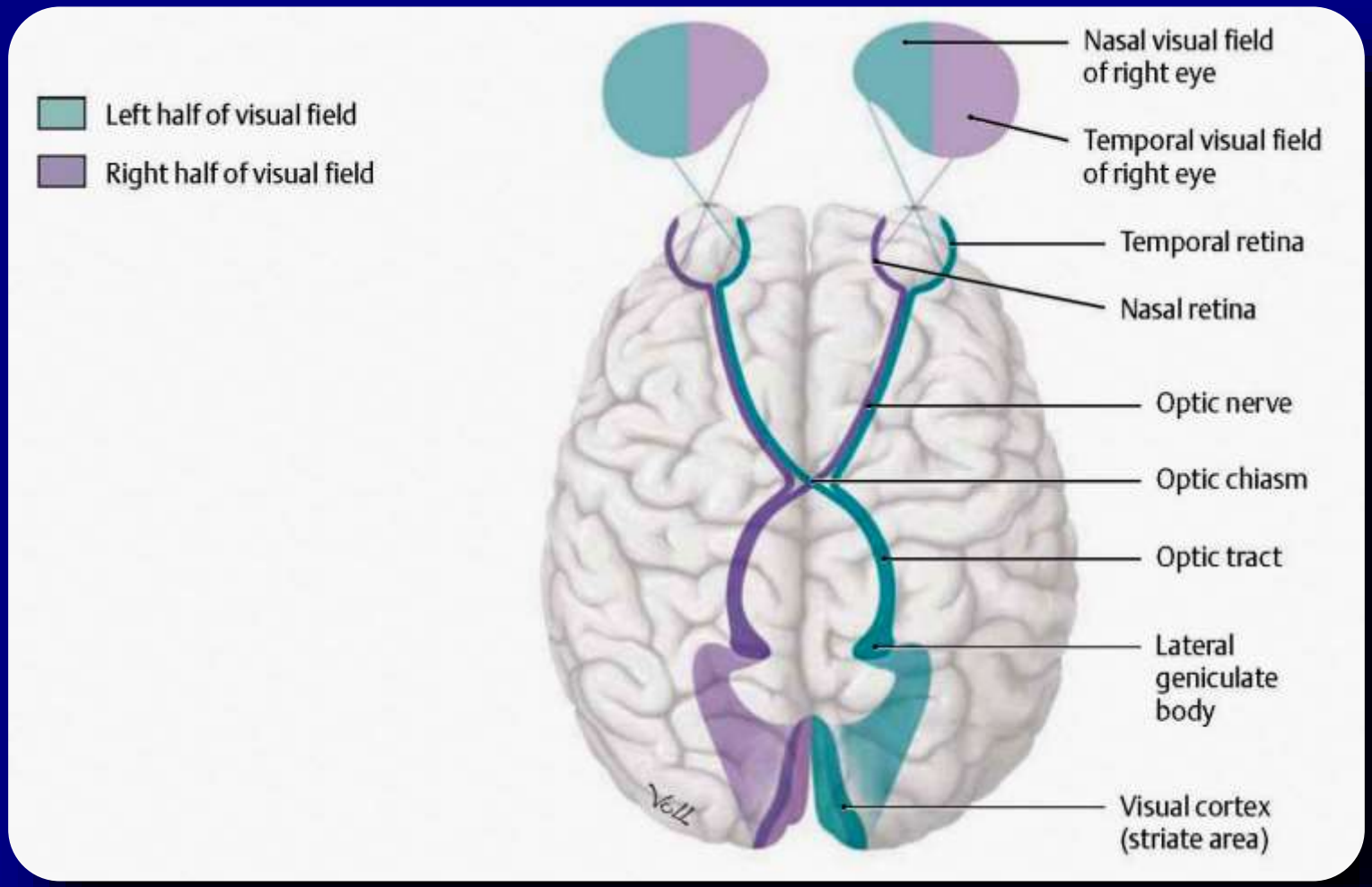
Course of the optic nerve in the right orbit



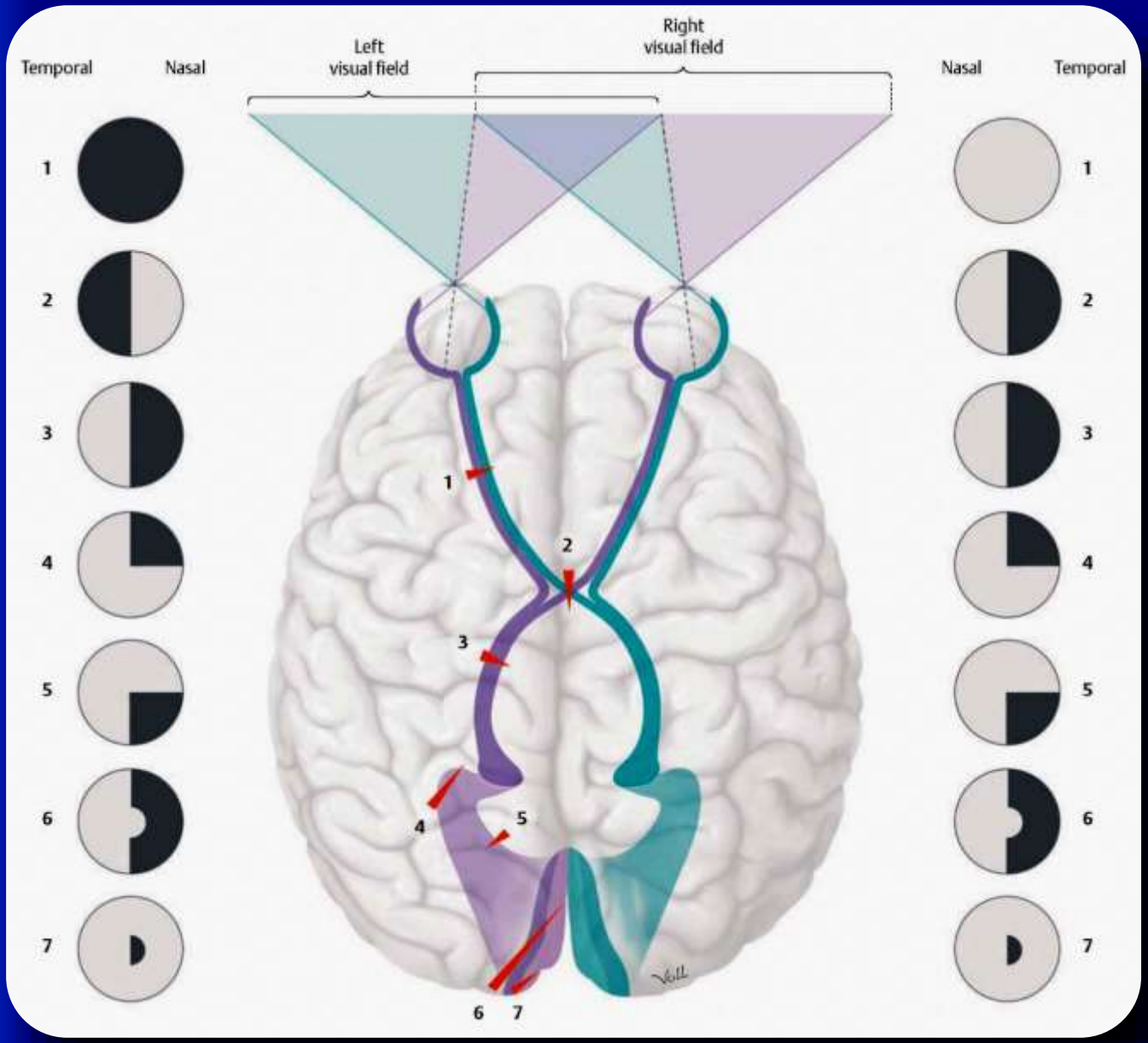
Overview of the visual pathway



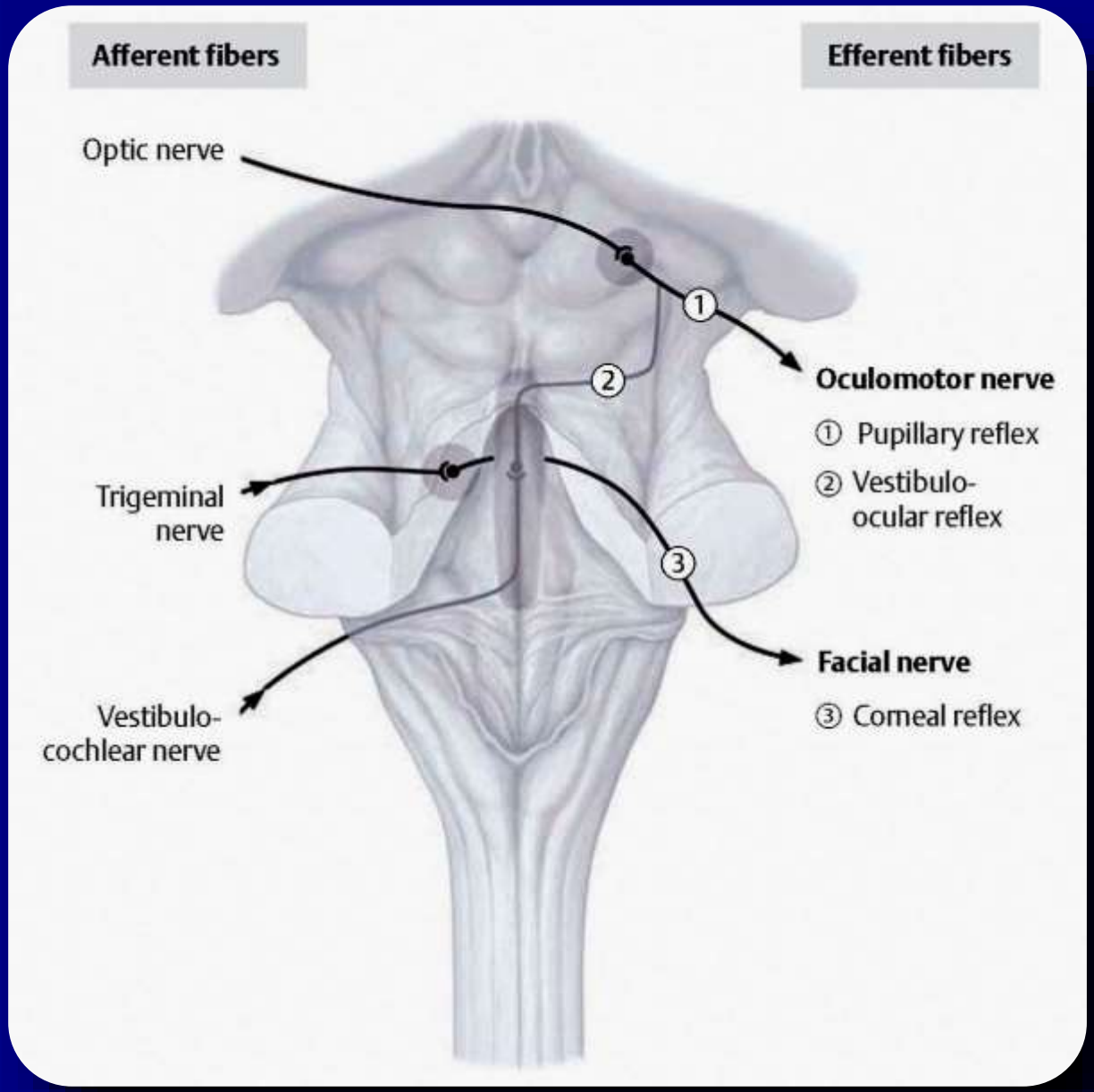
Overview of the visual pathway



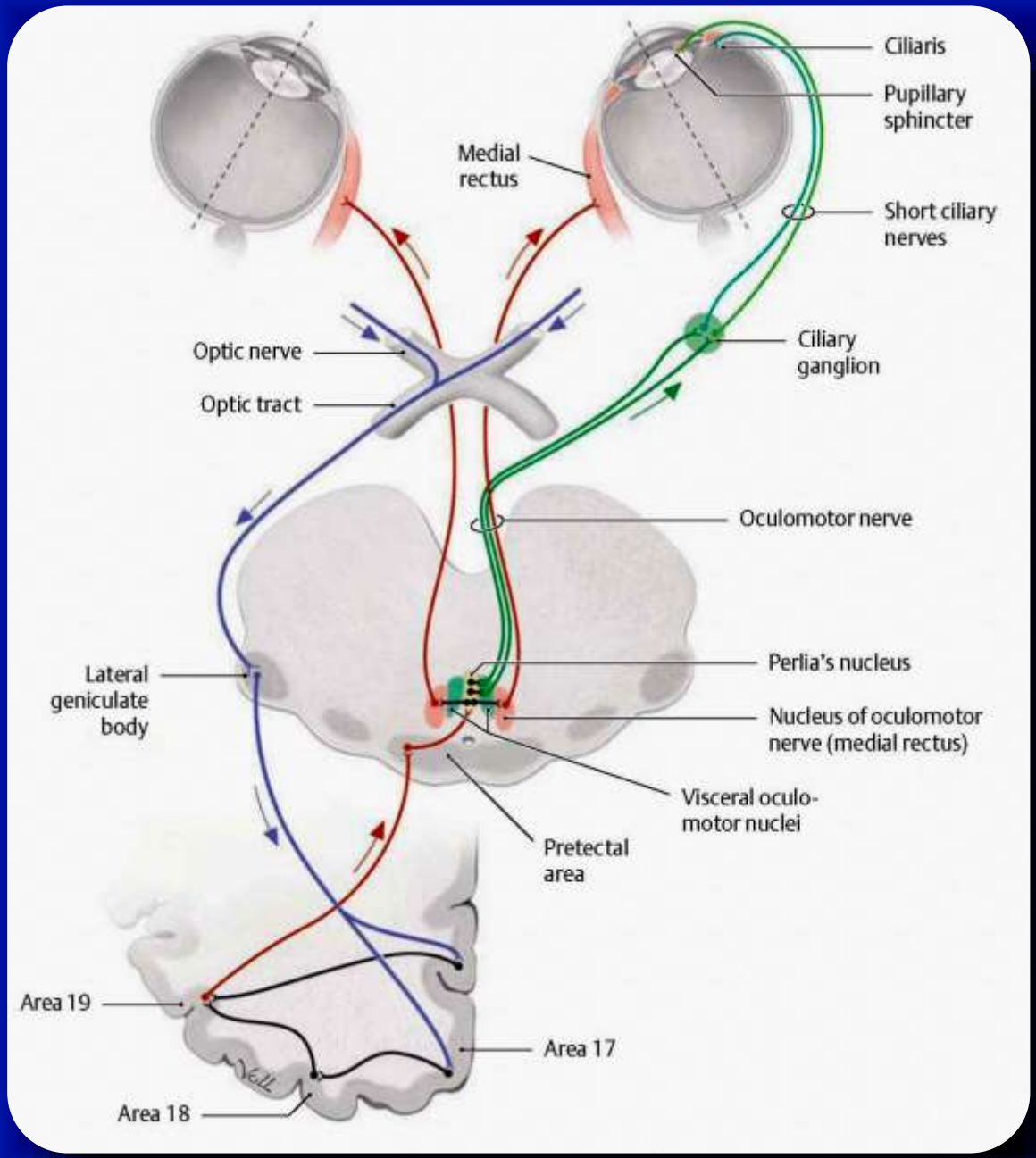
Representation of each visual field in the contralateral visual cortex



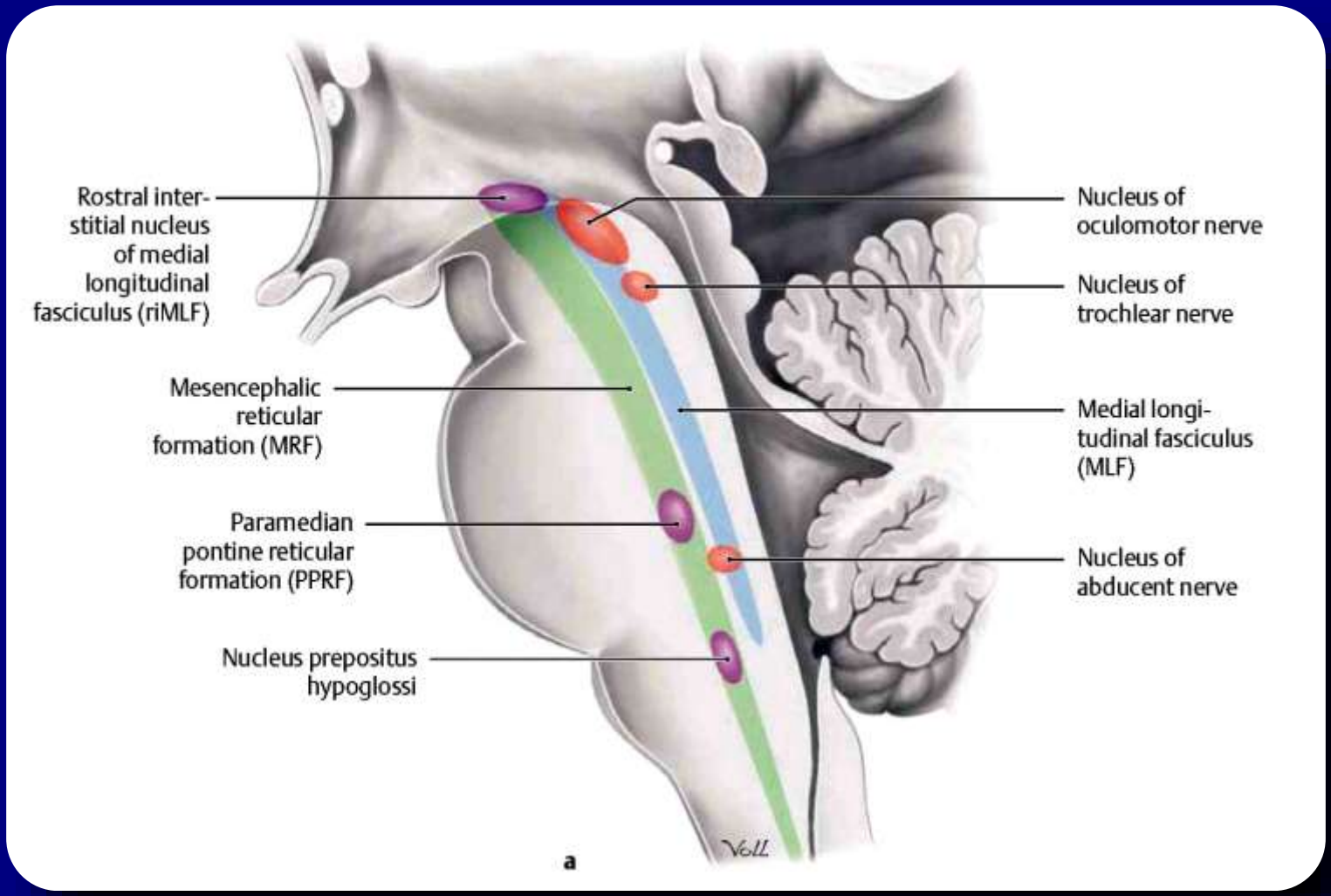
Visual field defects (scotomata) and their location along the visual pathway



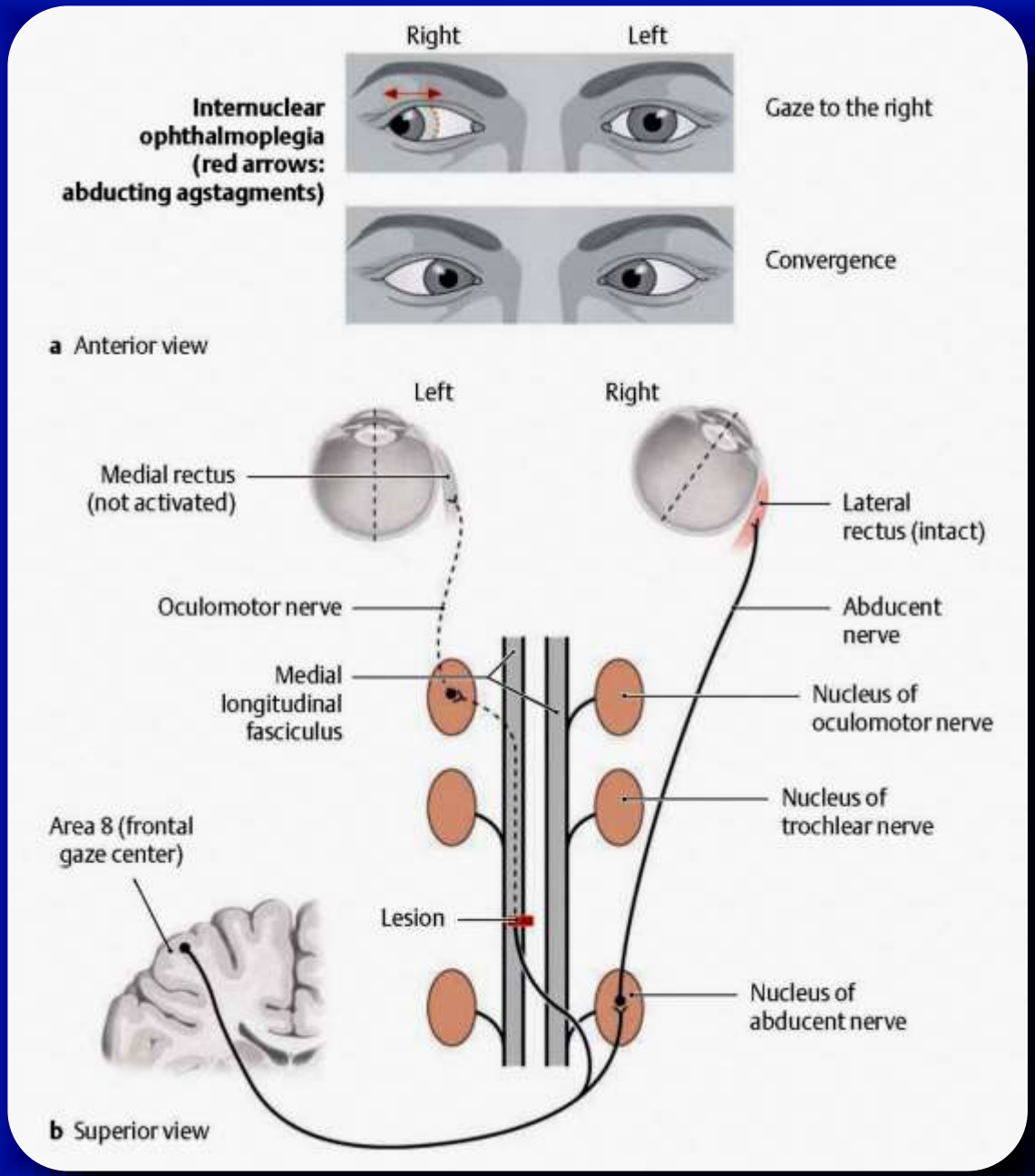
Brainstem reflexes: clinical importance of the nongeniculate part of the visual pathway



Pathways for convergence and accommodation



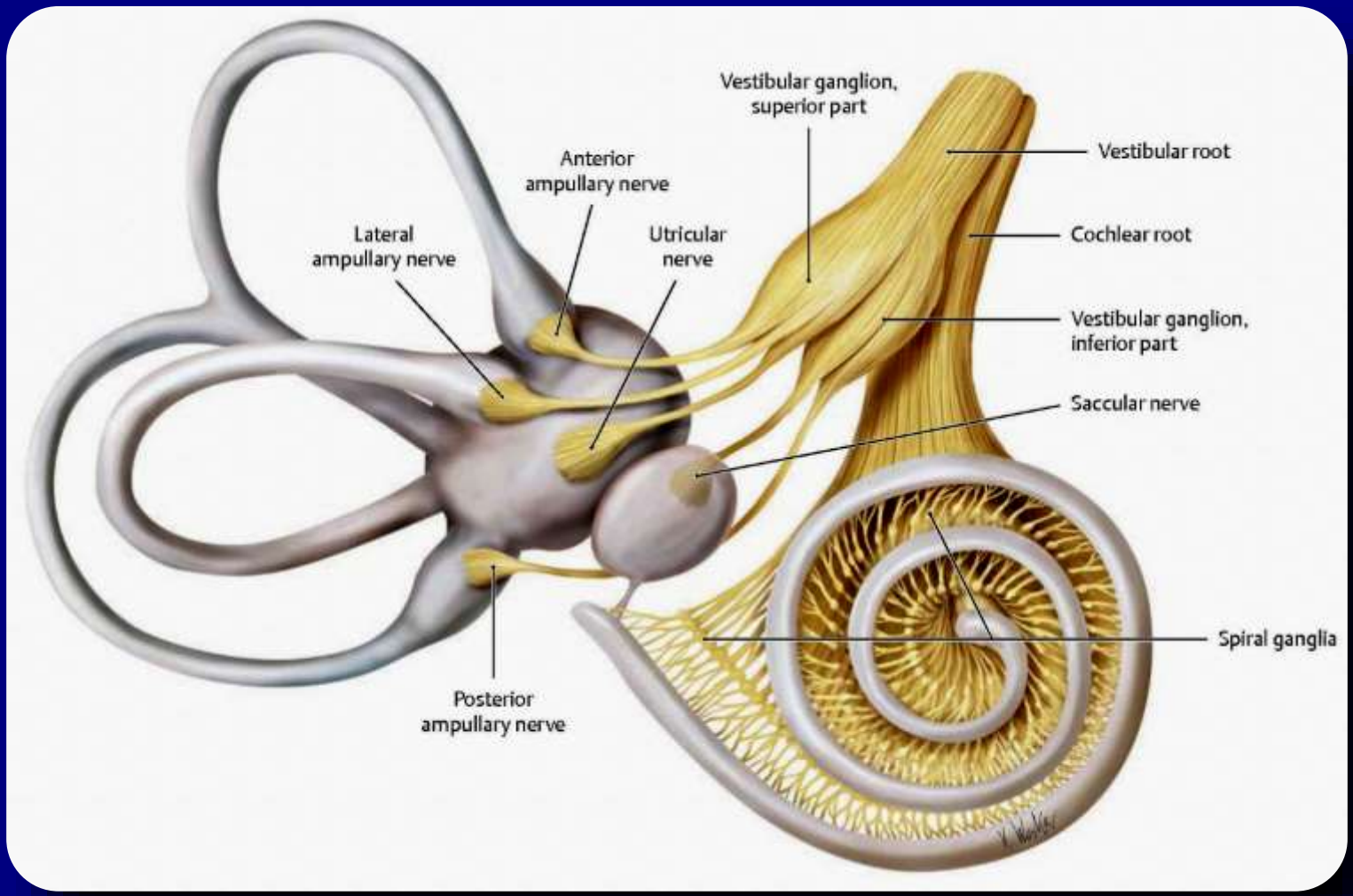
Oculomotor nuclei and their higher connections in the brainstem



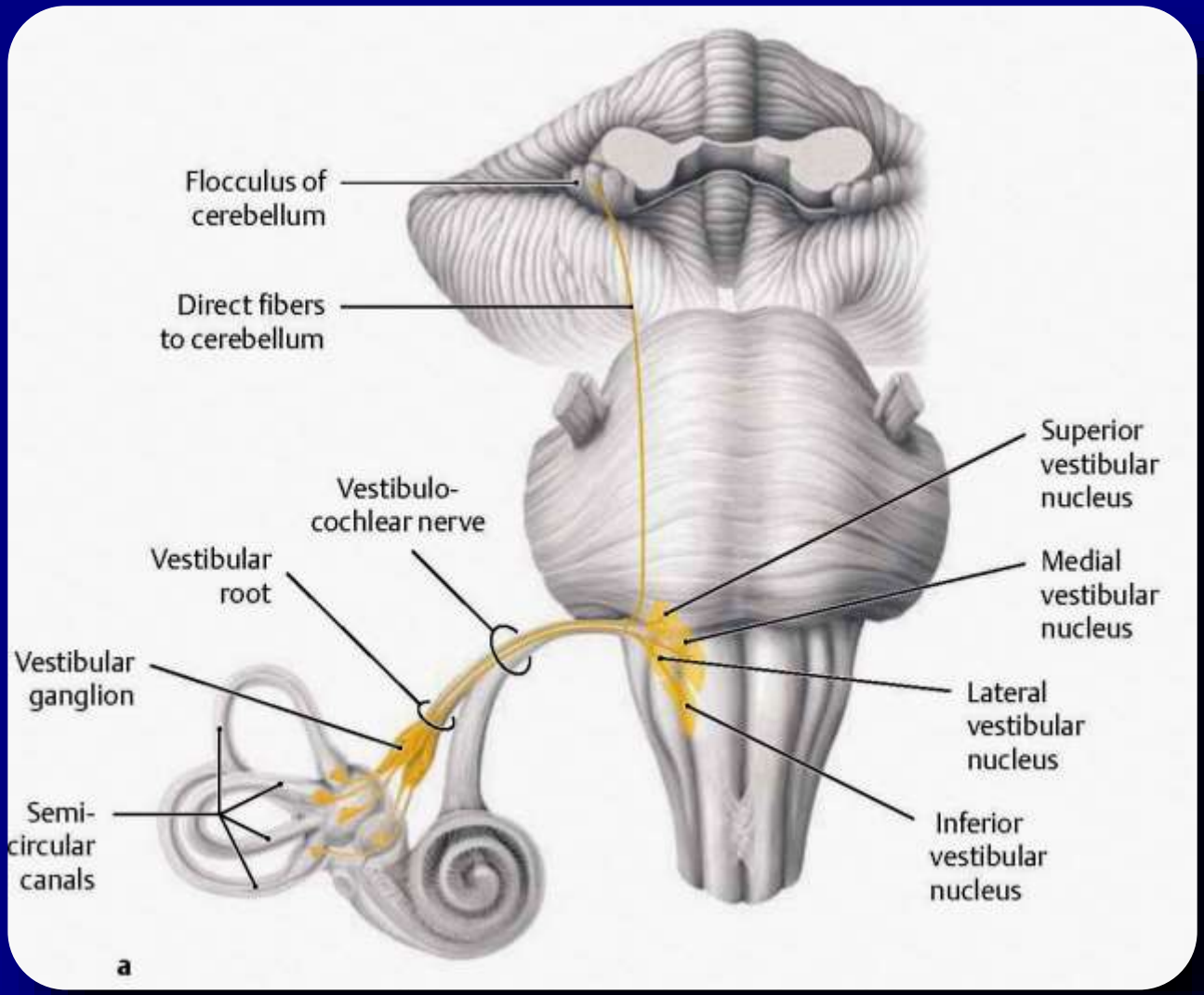
Lesion

of the medial longitudinal fasciculus

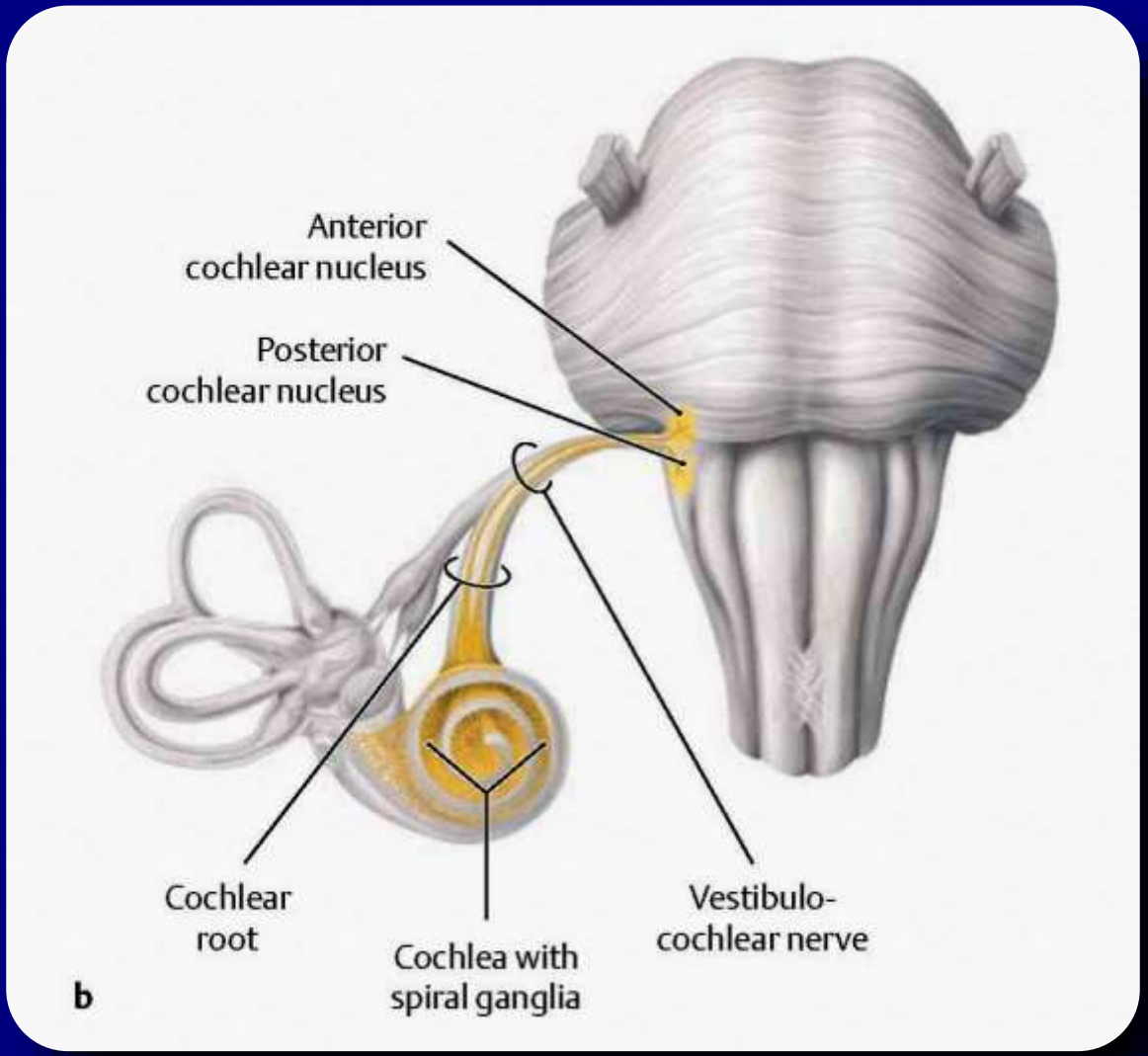
and internuclear ophthalmoplegia



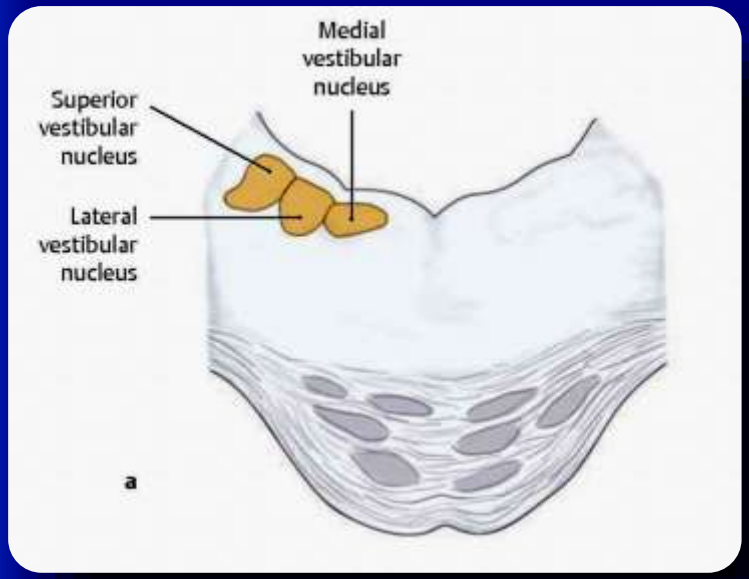
Vestibular ganglion and cochlear ganglion (spiral ganglia)

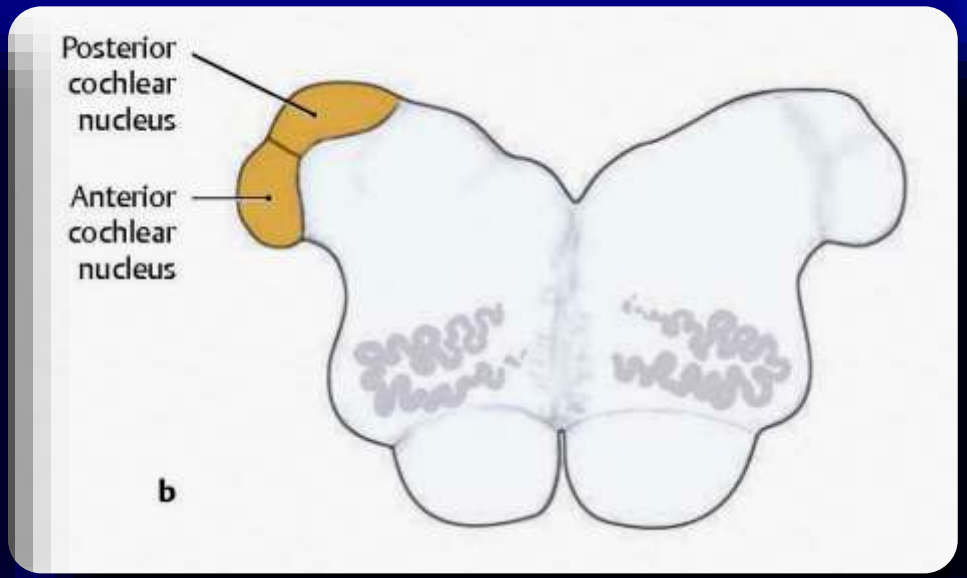


Nuclei of the vestibulocochlear nerve in the brainstem



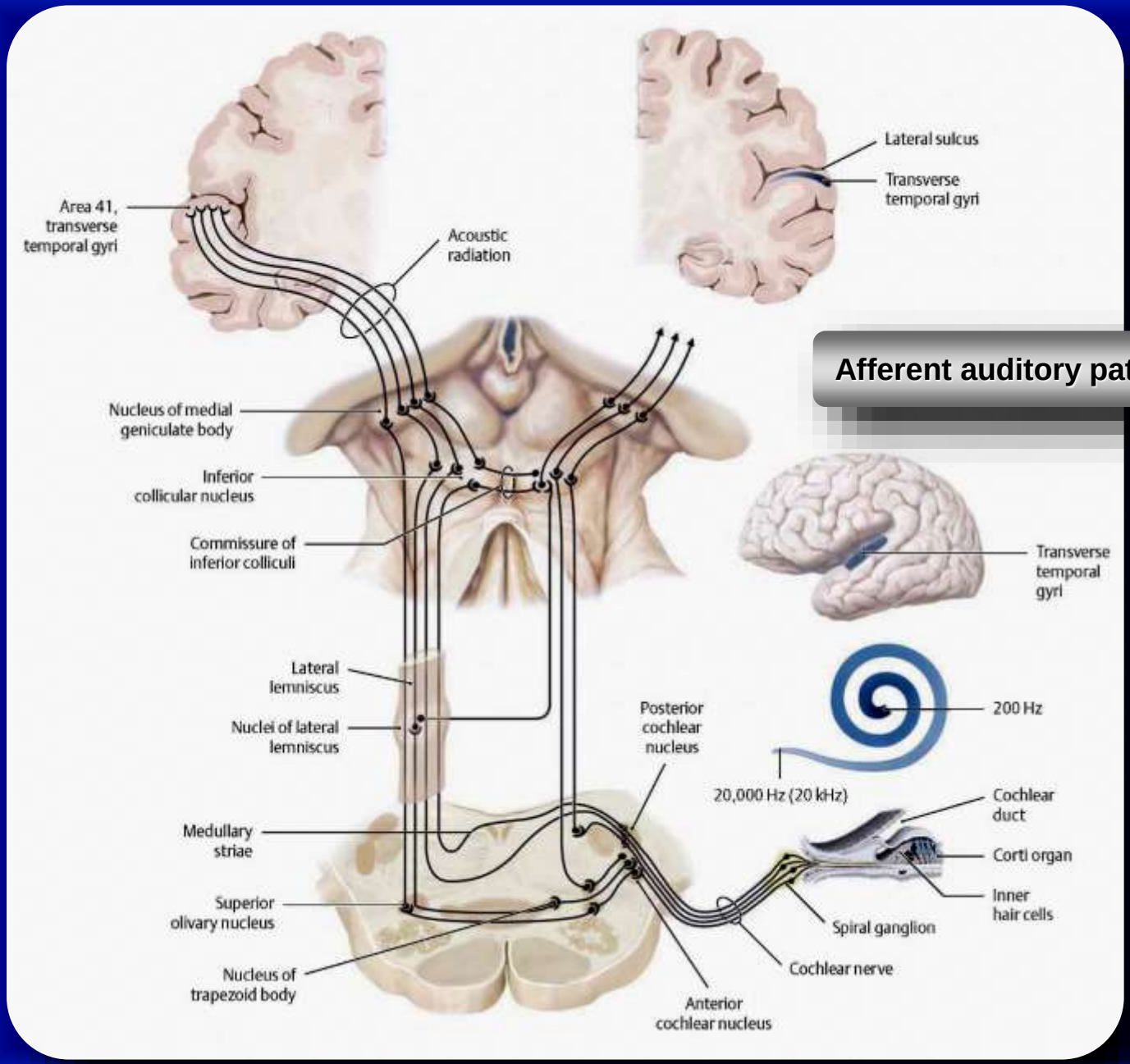
Nuclei of the vestibulocochlear nerve in the brainstem



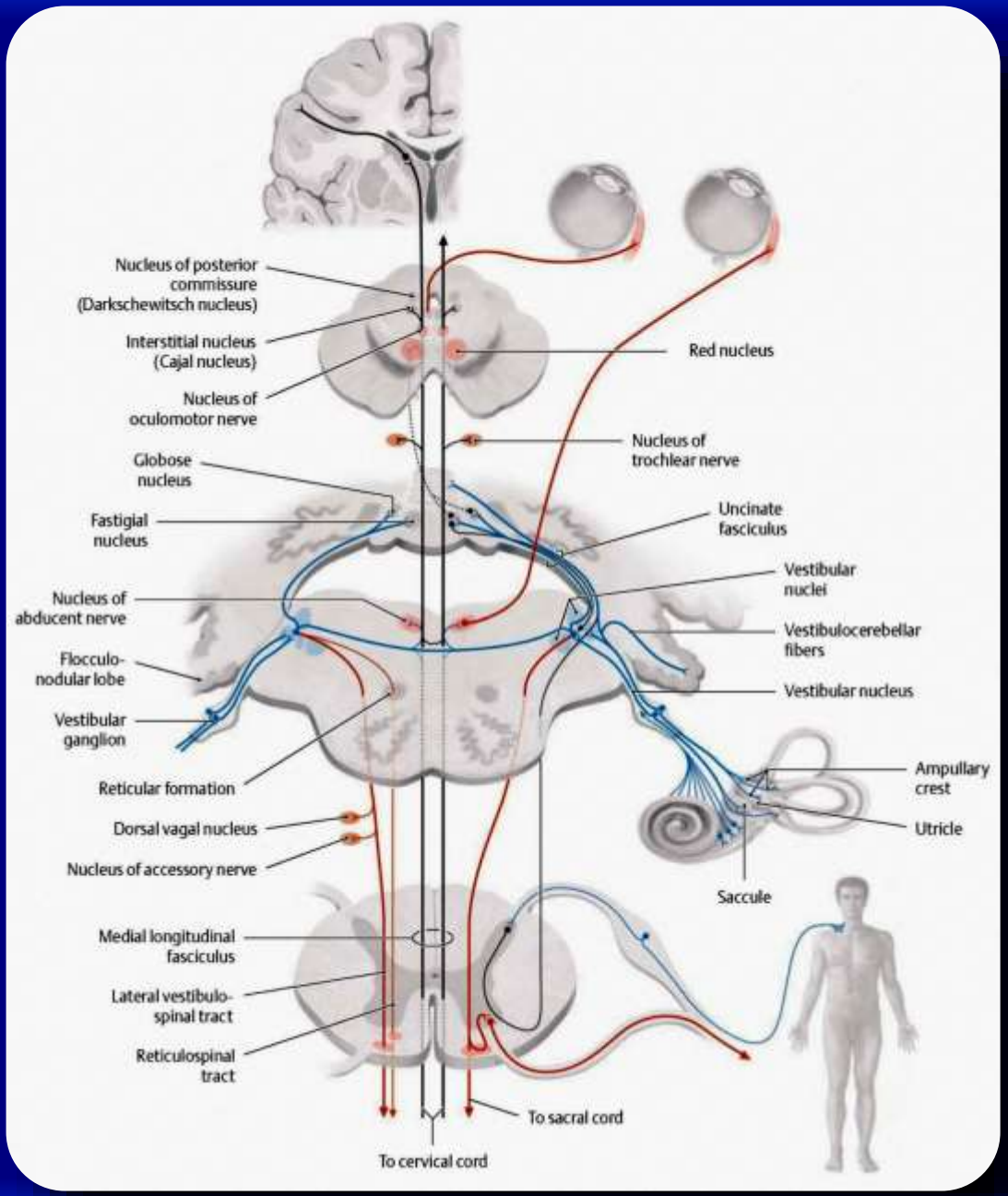


Nuclei of the vestibulocochlear nerve (CN VIM)

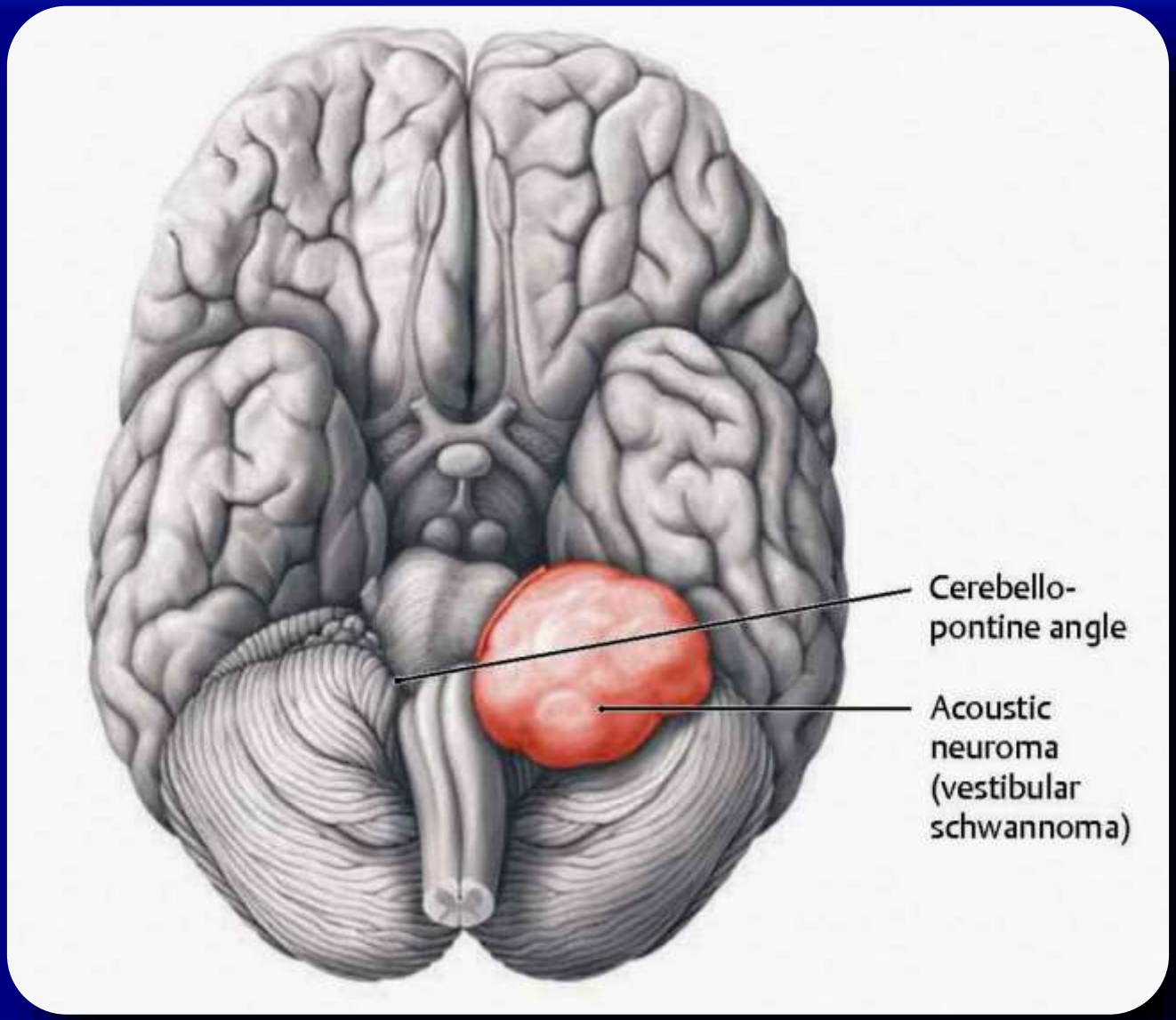
a. Vestibular nuclei, b. Cochlear nuclei.



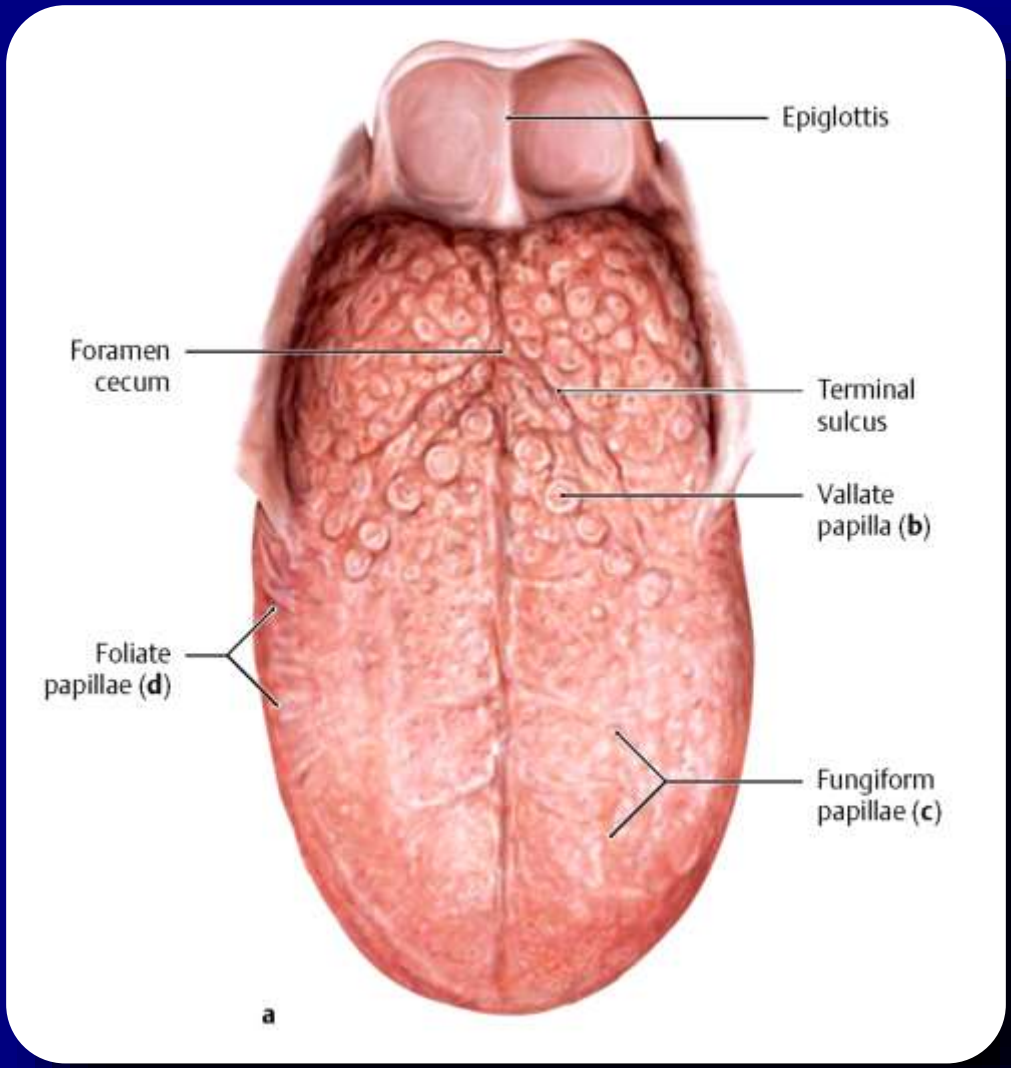
Afferent auditory pathway of the left ear



Central connections of the vestibular nerve

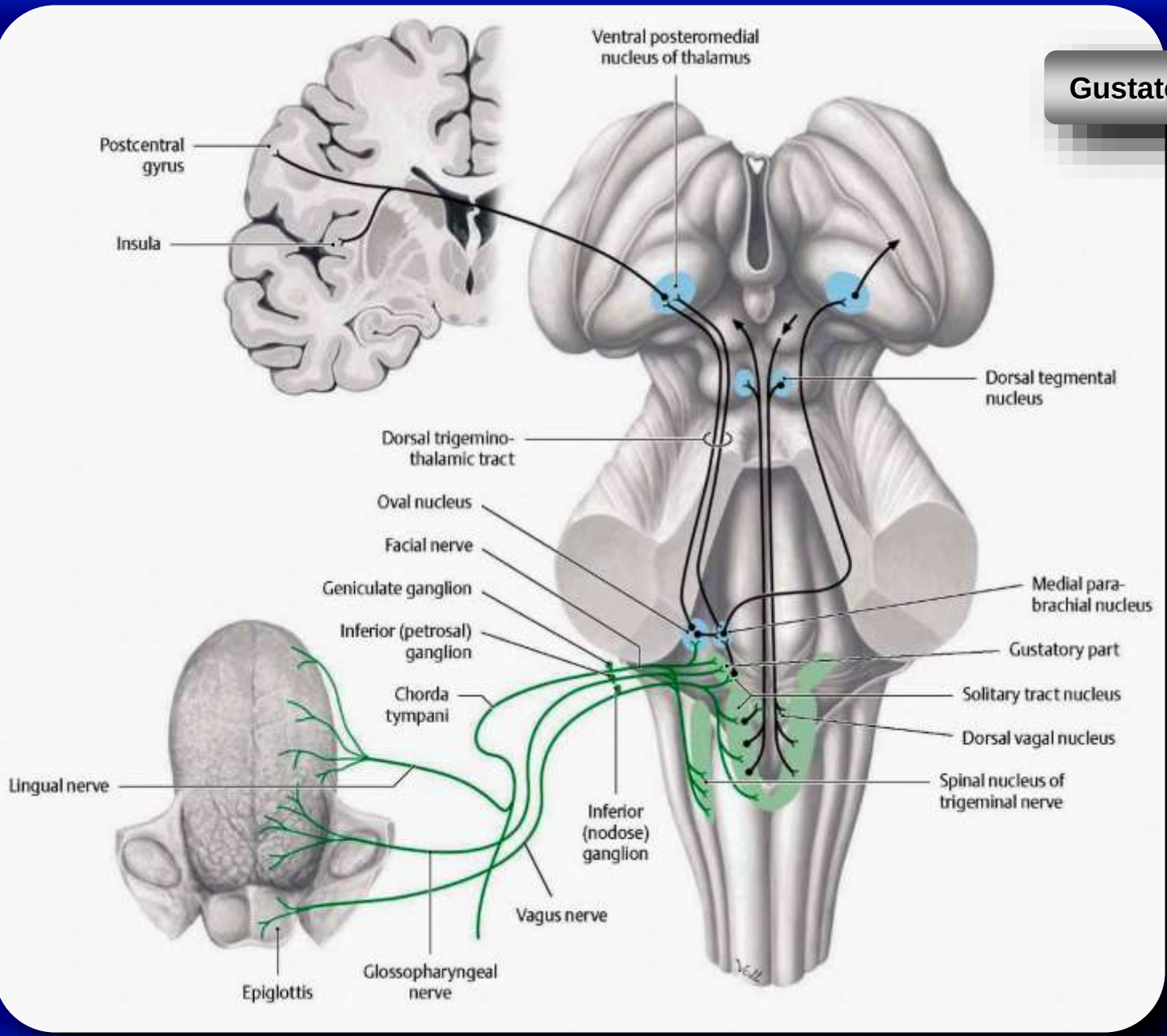


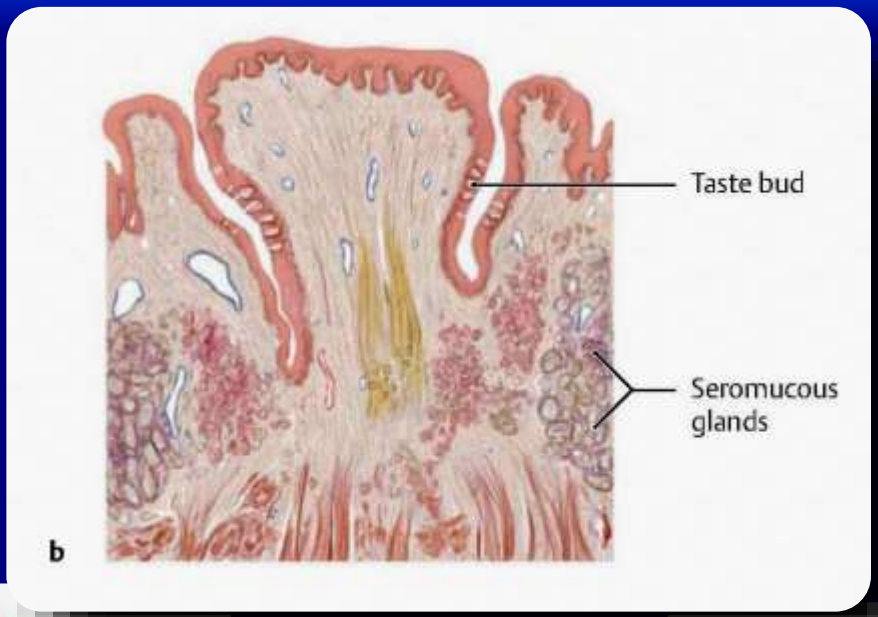
Acoustic neuroma in the cerebellopontine angle

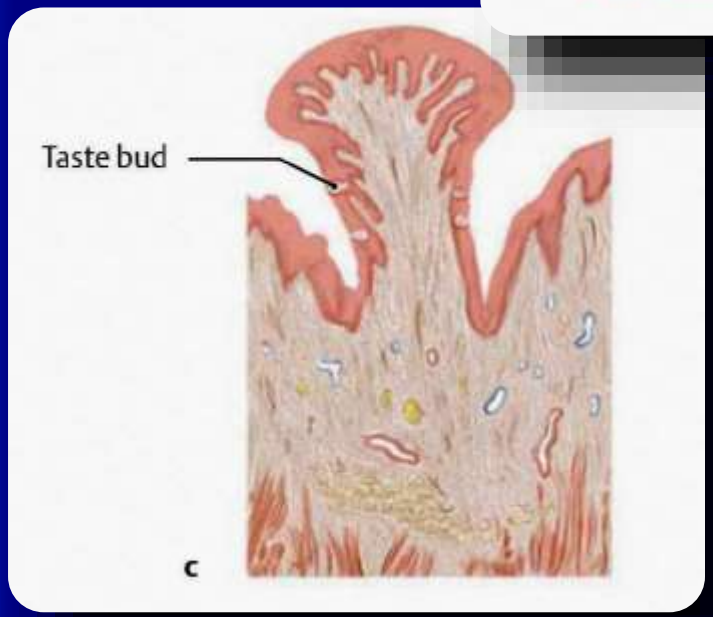


Organization of the taste receptors in the tongue

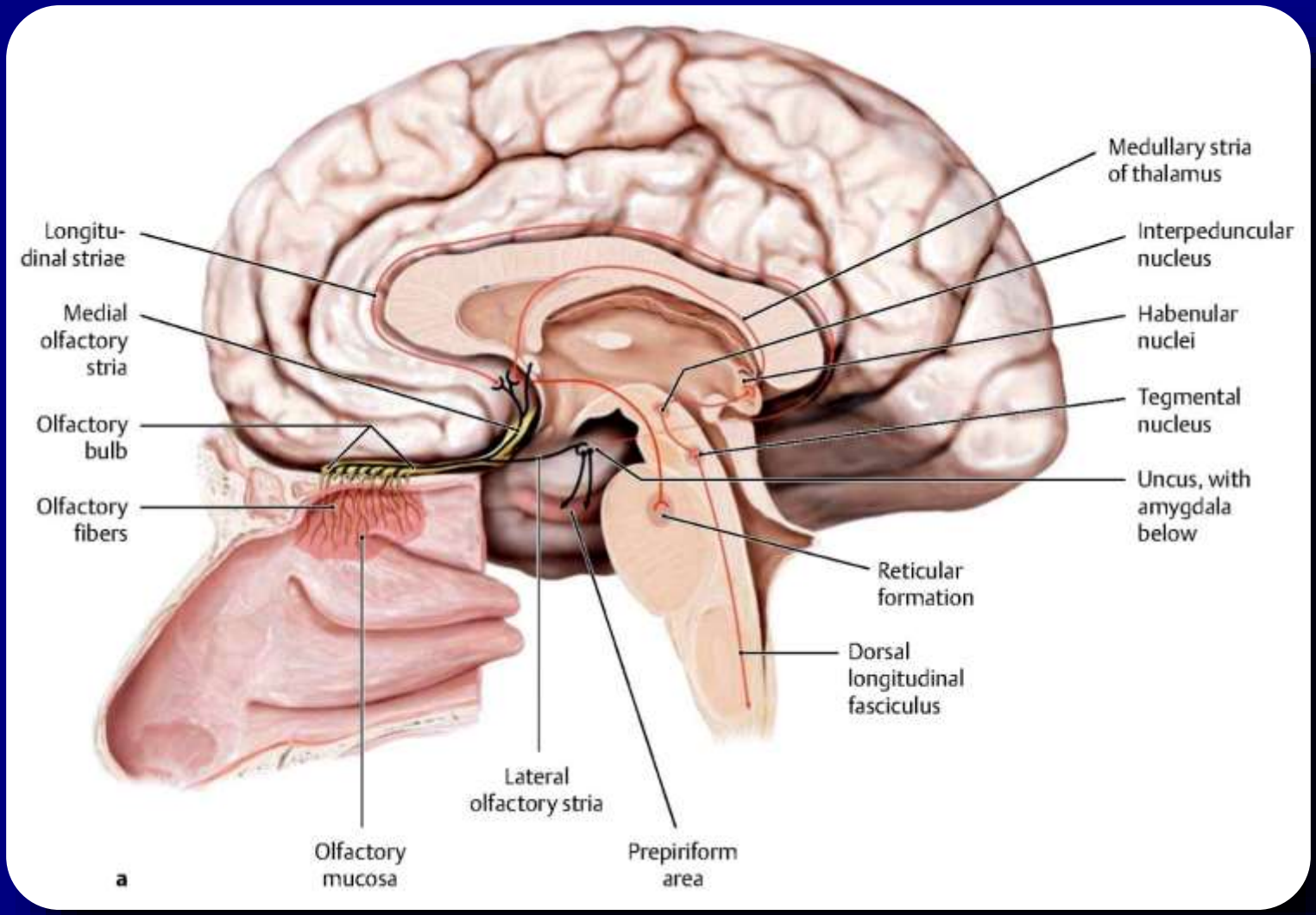
Gustatory pathway



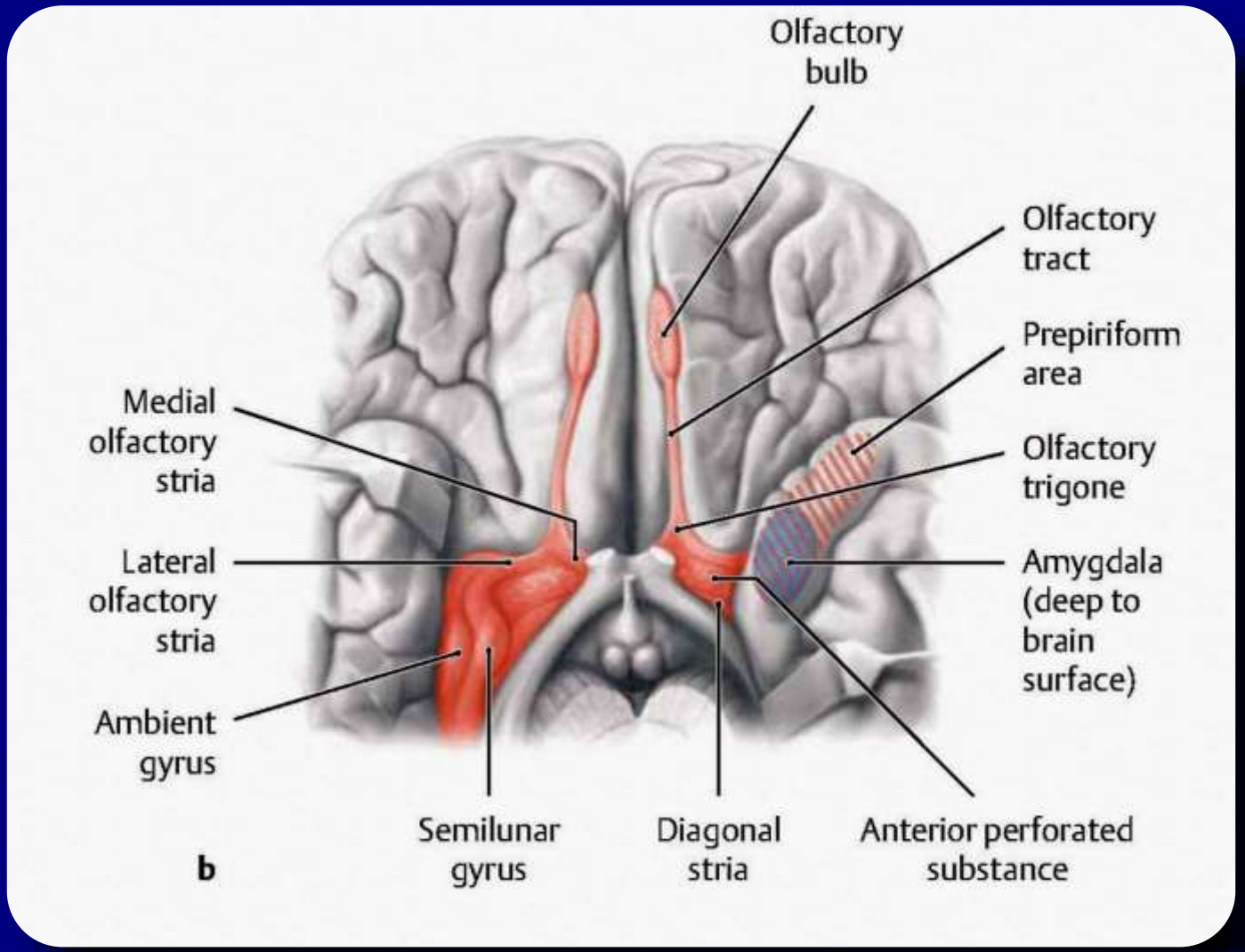




Organization of the taste receptors in the tongue

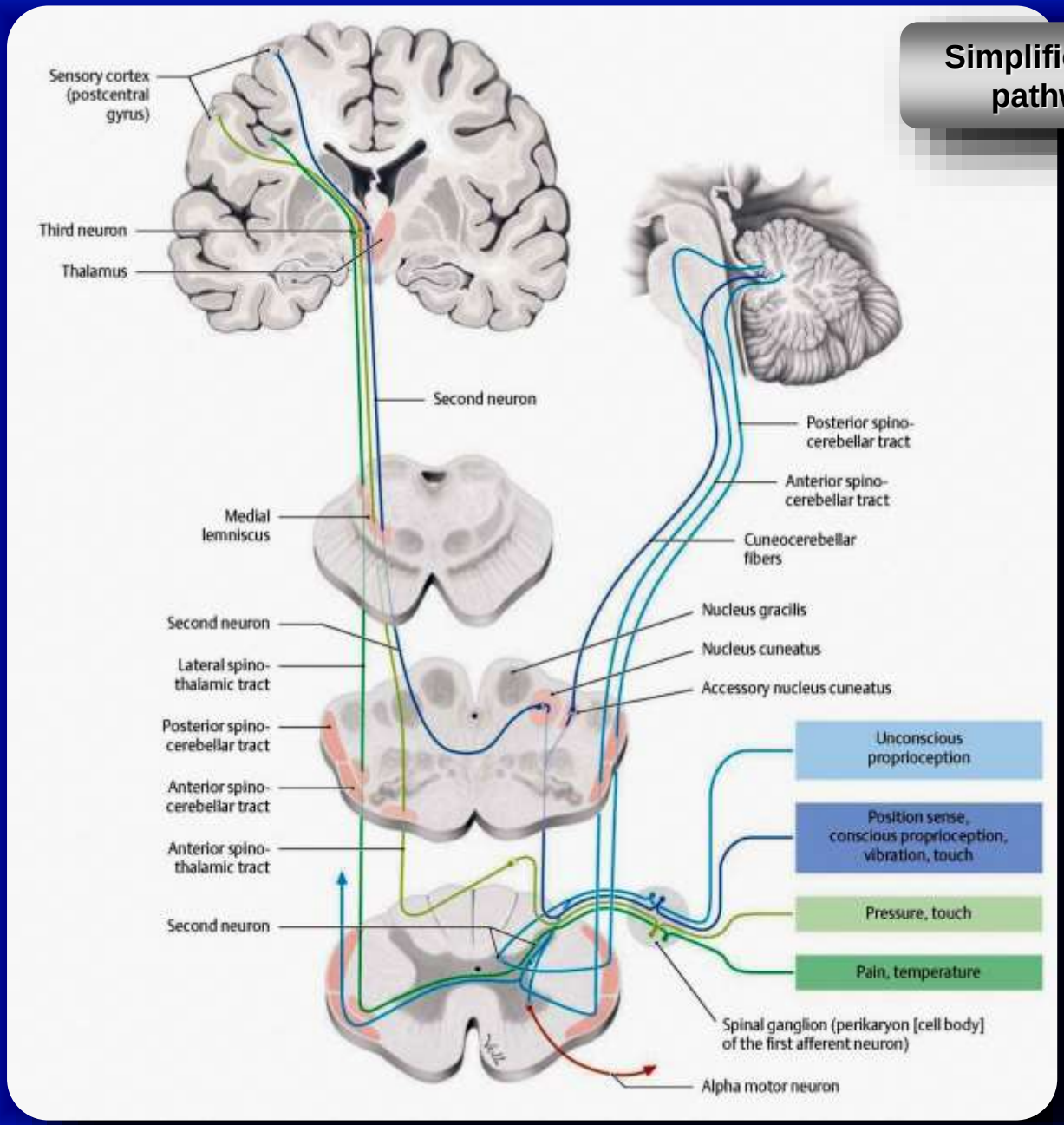


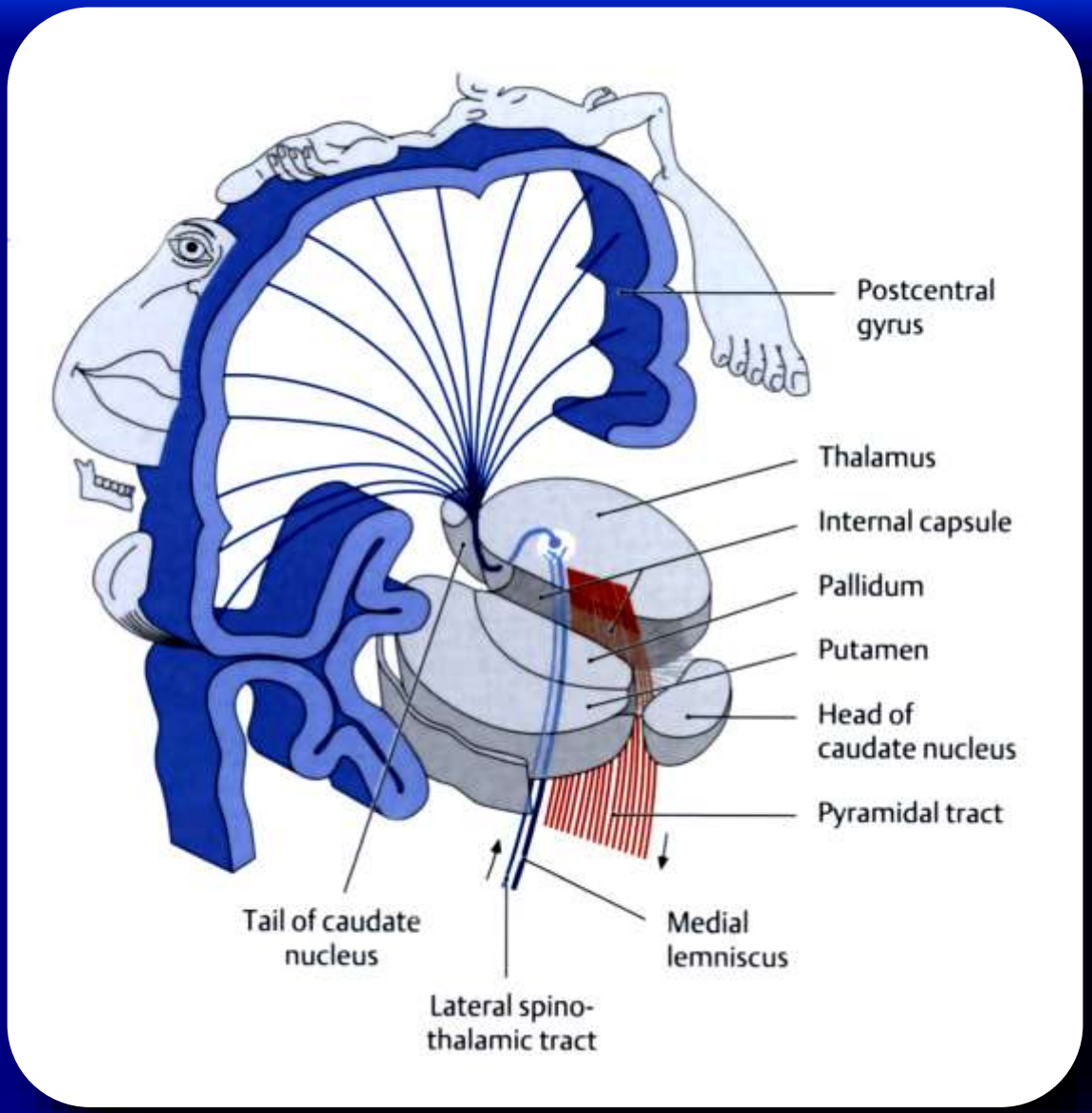
Olfactory system: the olfactory mucosa and its central connections



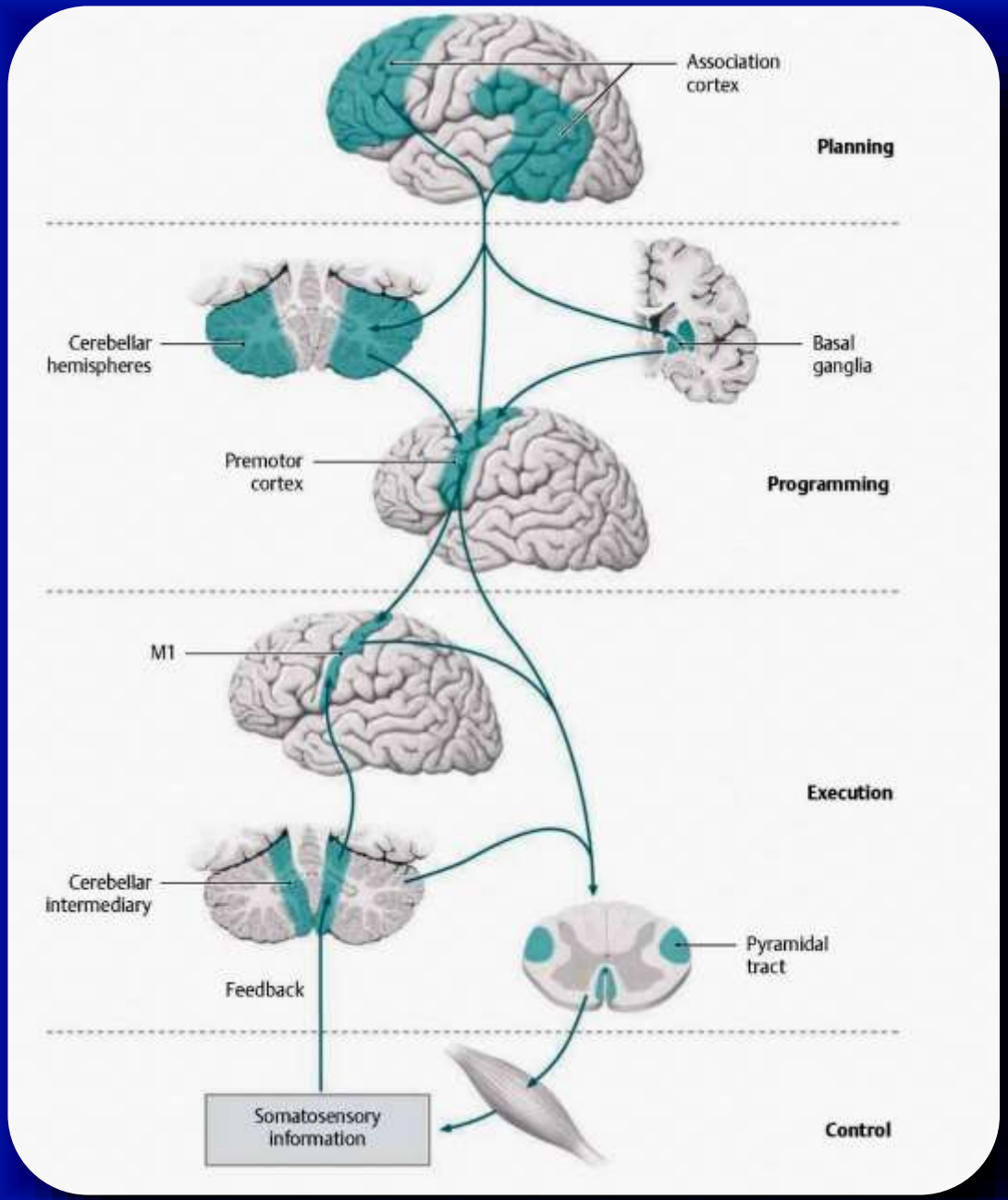
Olfactory system: the olfactory mucosa and its central connections

Simplified diagram of the sensory pathways of the spinal cord

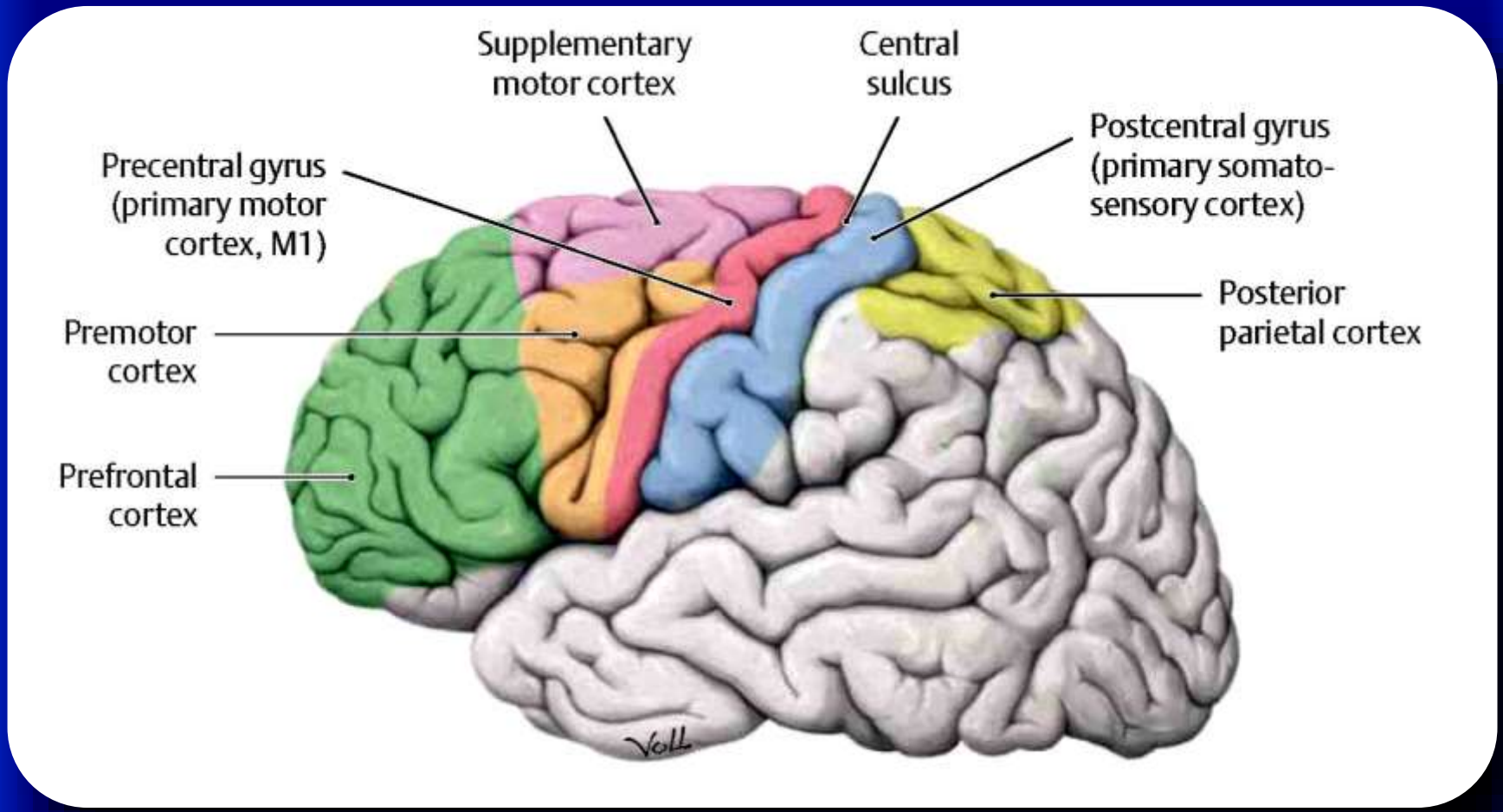




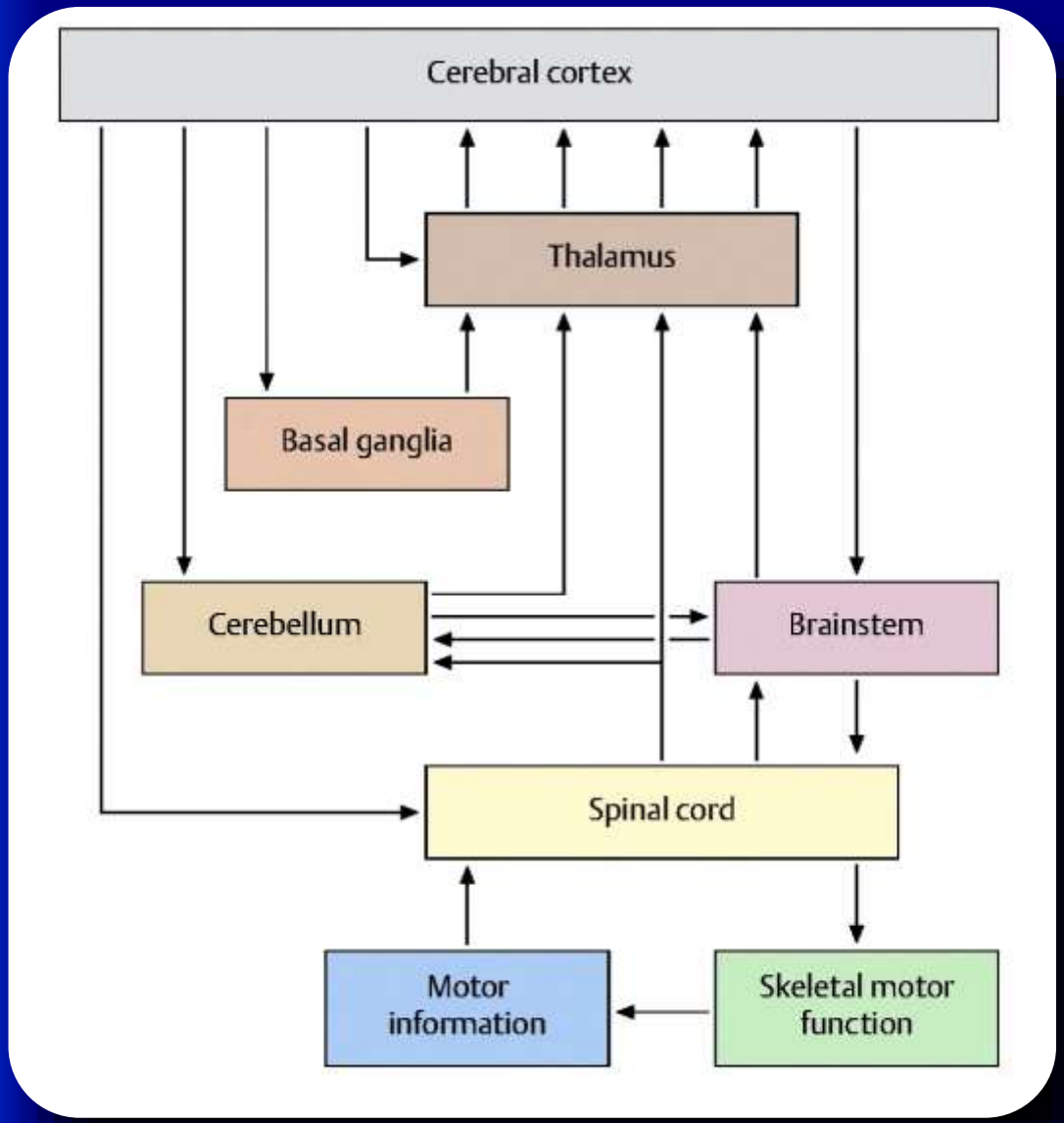
Arrangement of sensory pathways in the cerebrum



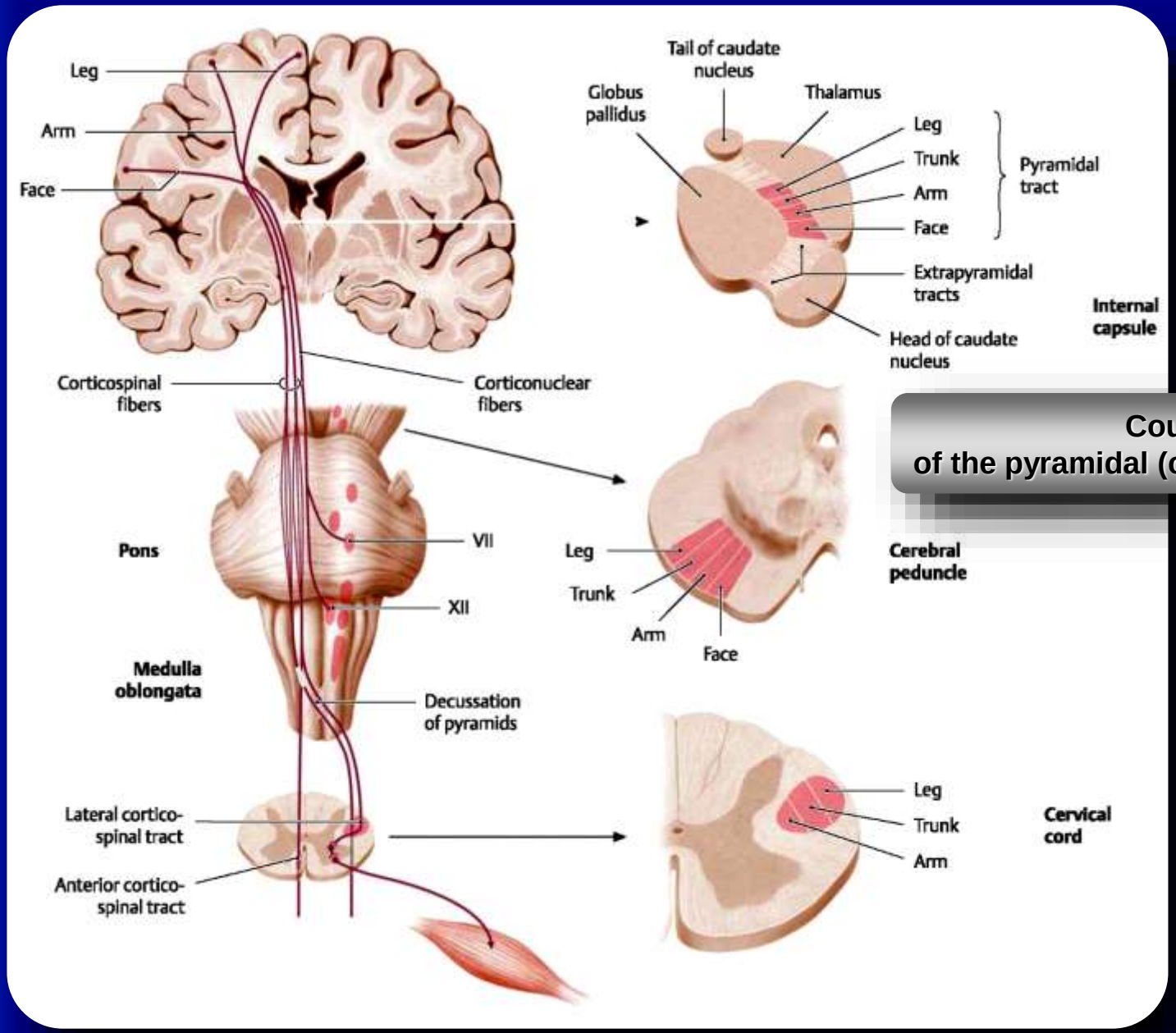
Simplified representation of the anatomical structures involved in a voluntary movement



Cortical areas with motor function: initiating a movement

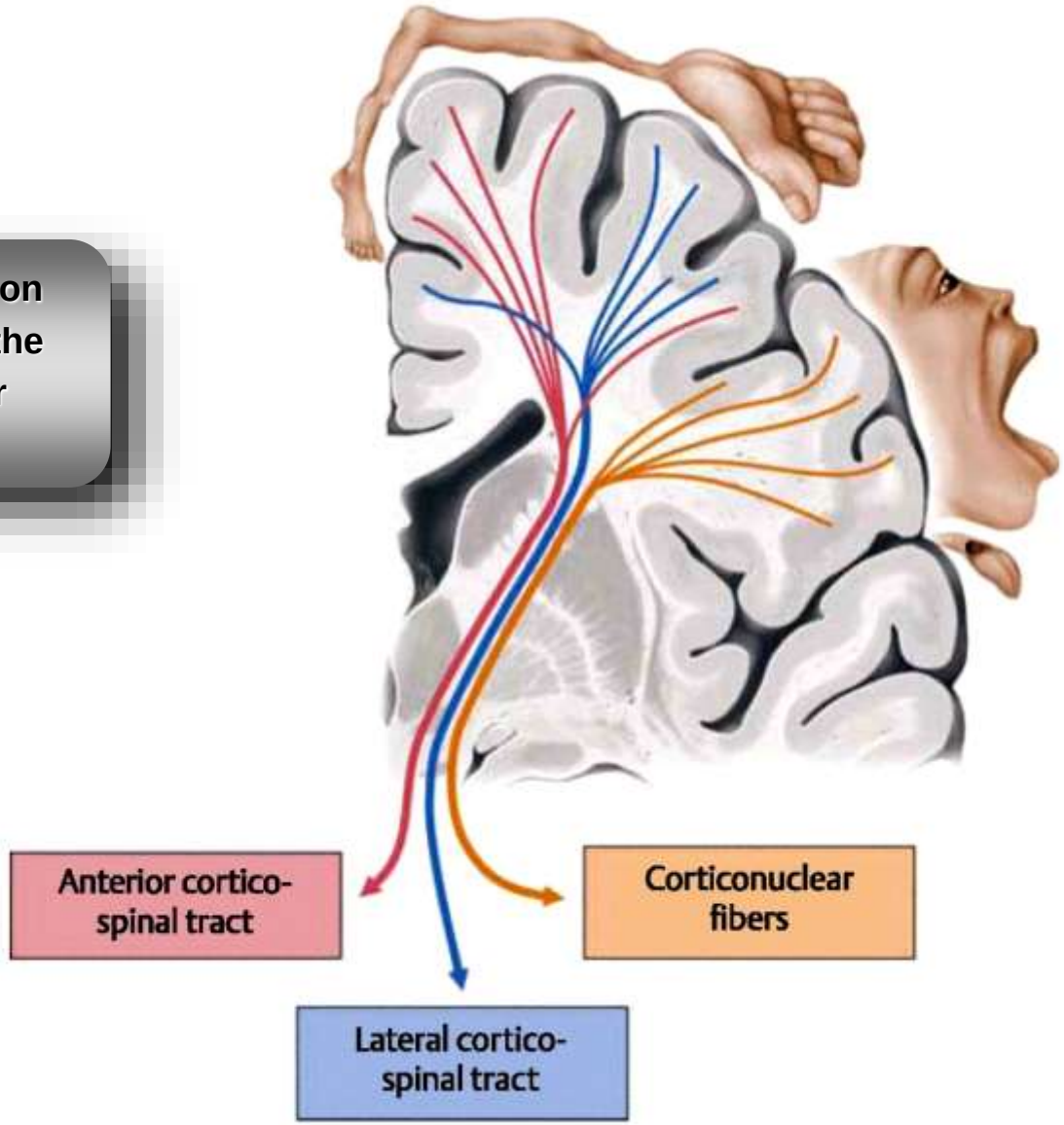


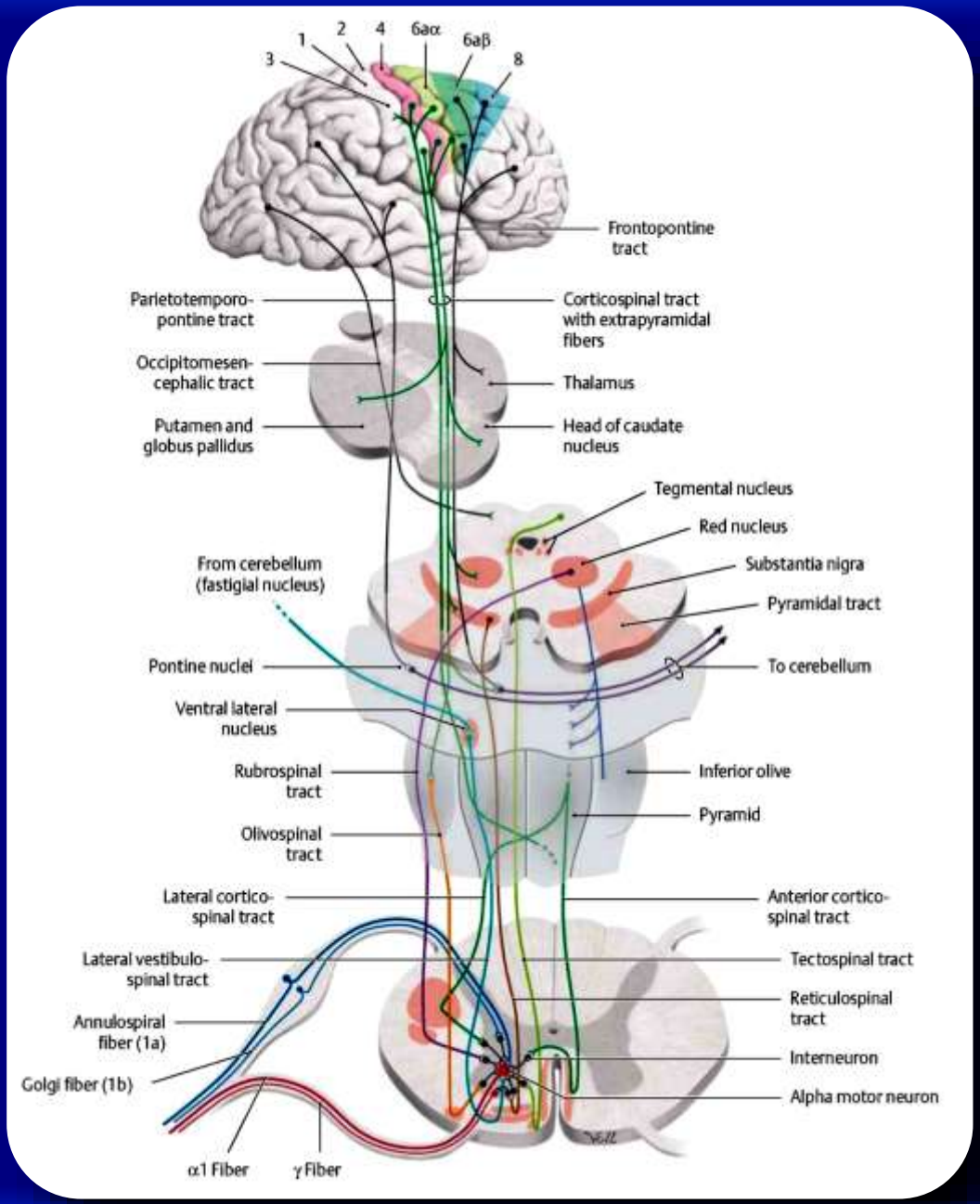
Simplified block diagram of the sensorimotor system in movement control



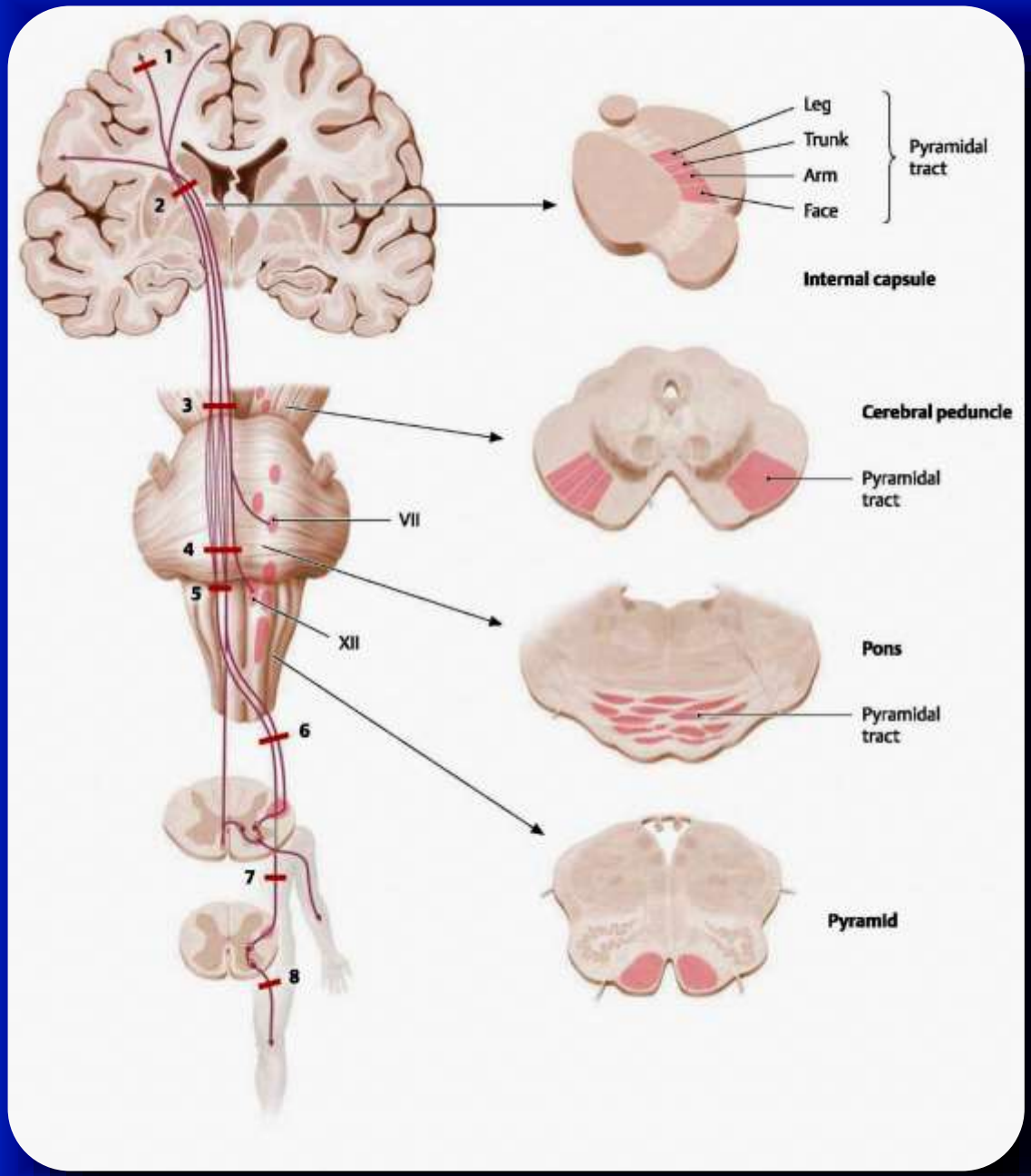
Course of the pyramidal (corticospinal) tract

Somatotopic representation of the skeletal muscle in the precentral gyrus (motor homunculus)





Descending tracts of the extrapyramidal motor system



Lesions of the central motor pathways and their effects

Thank you very much