

Anatomy II



*Rembrandt van Rijn 1632
The Anatomy Lesson of Dr. Nicolaes Tulp*



*Rembrandt van Rijn 1656
The Anatomy Lesson of Dr. Deijman*

Recommended textbooks

Dubový, Petr. ***Gross Anatomy and Structure of the Human Nervous System - Part I. Surface Anatomy and Structural Arrangement of the Central Nervous System.***
Brno, Muni Press, 2012, 91pp. ISBN 978-80-210-6125-5.

Dubový, Petr. ***Instructions for Anatomical Dissection Course.***
Brno, Muni Press, 2013, 71pp.
ISBN 978-80-210-6202-3.

COMPARTMENTS OF CNS

Brain

Spinal cord

brainstem

medulla oblongata

pons

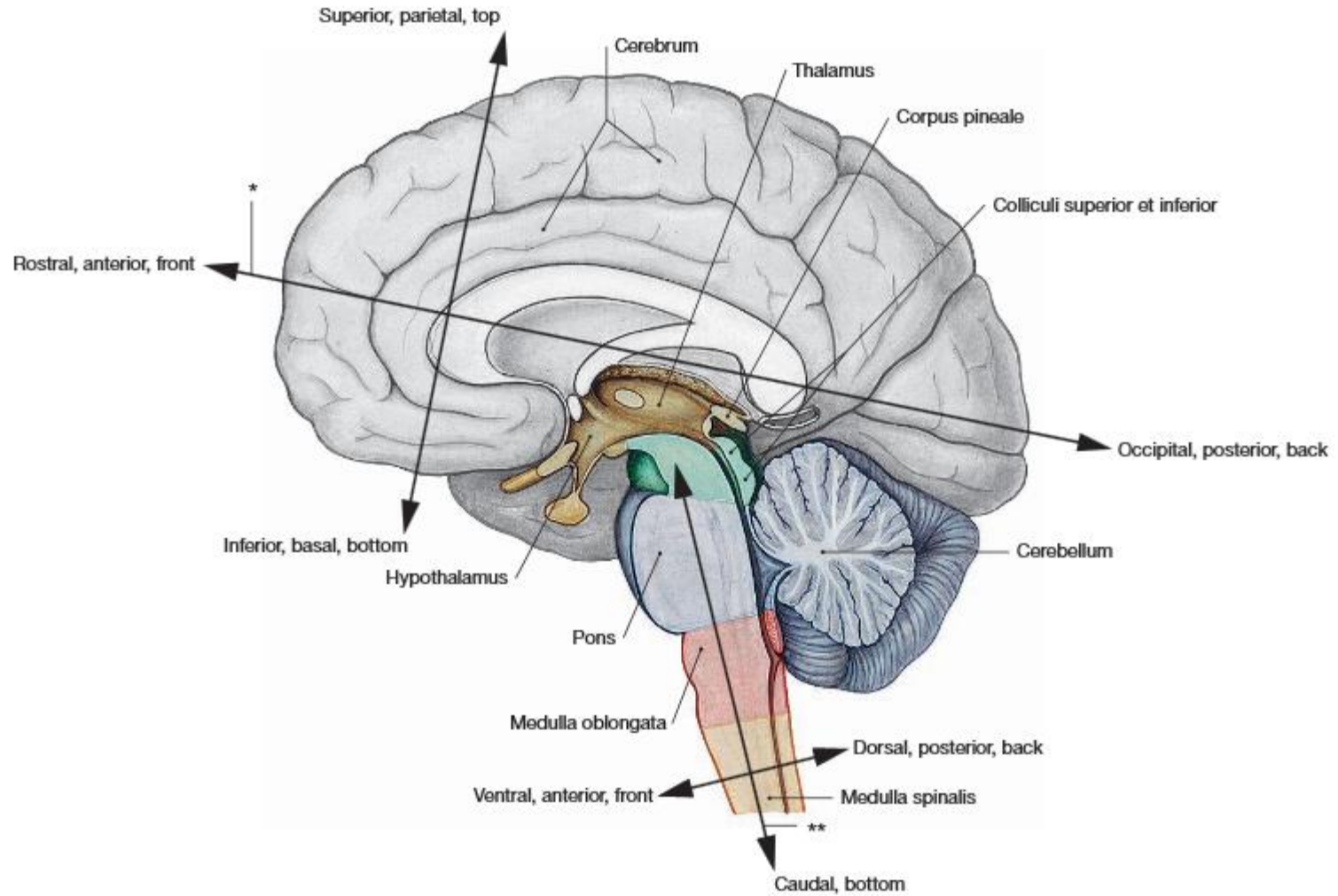
mesencephalon (midbrain)

cerebellum

diencephalon

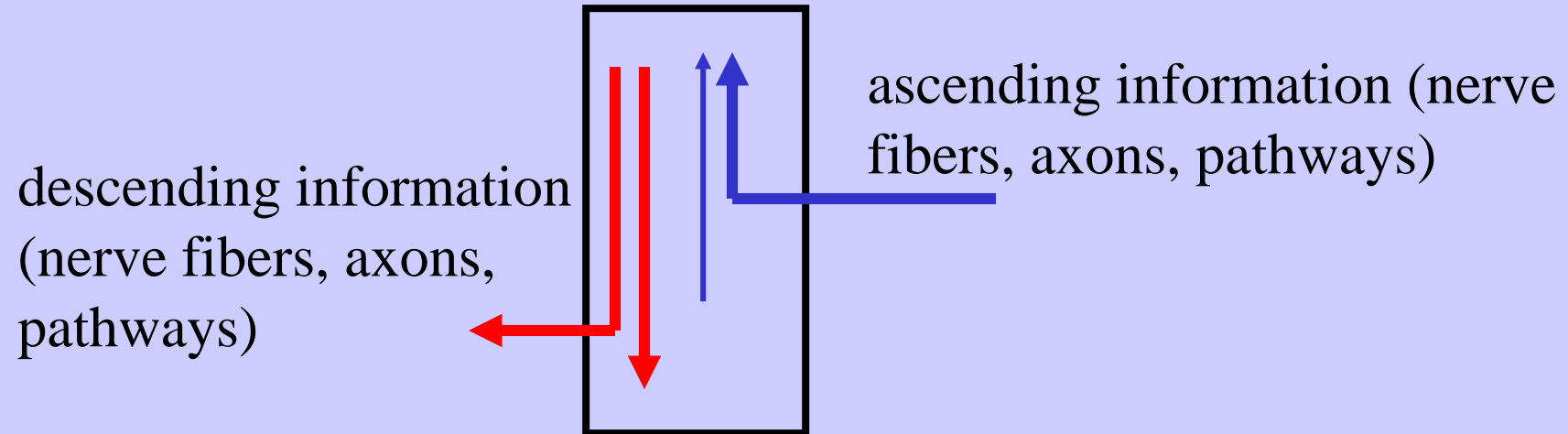
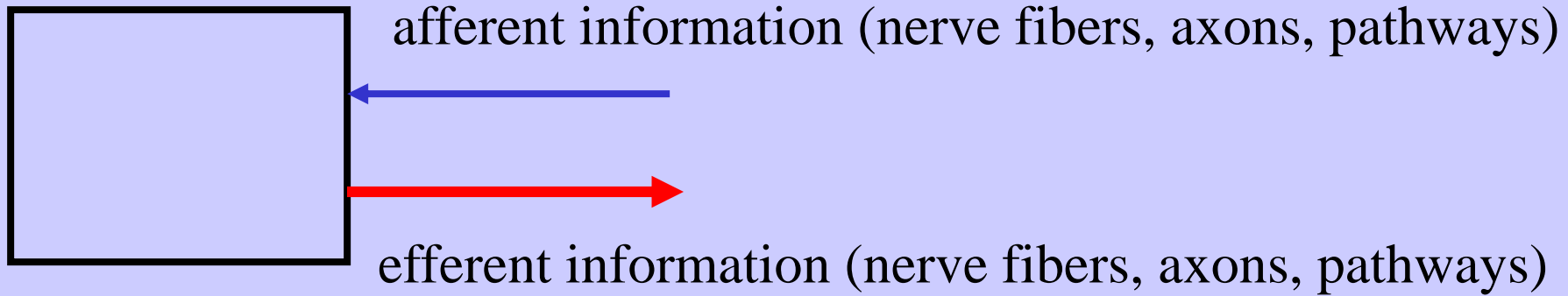
telencephalon (forebrain)

Basic orientation on CNS



 Telencephalon	 Mesencephalon	 Medulla oblongata
 Diencephalon	 Metencephalon and Pons	 Medulla spinalis

Basic terms



PARTS OF THE NERVOUS SYSTEM

CNS

PNS

oligodendrocytes
astrocytes

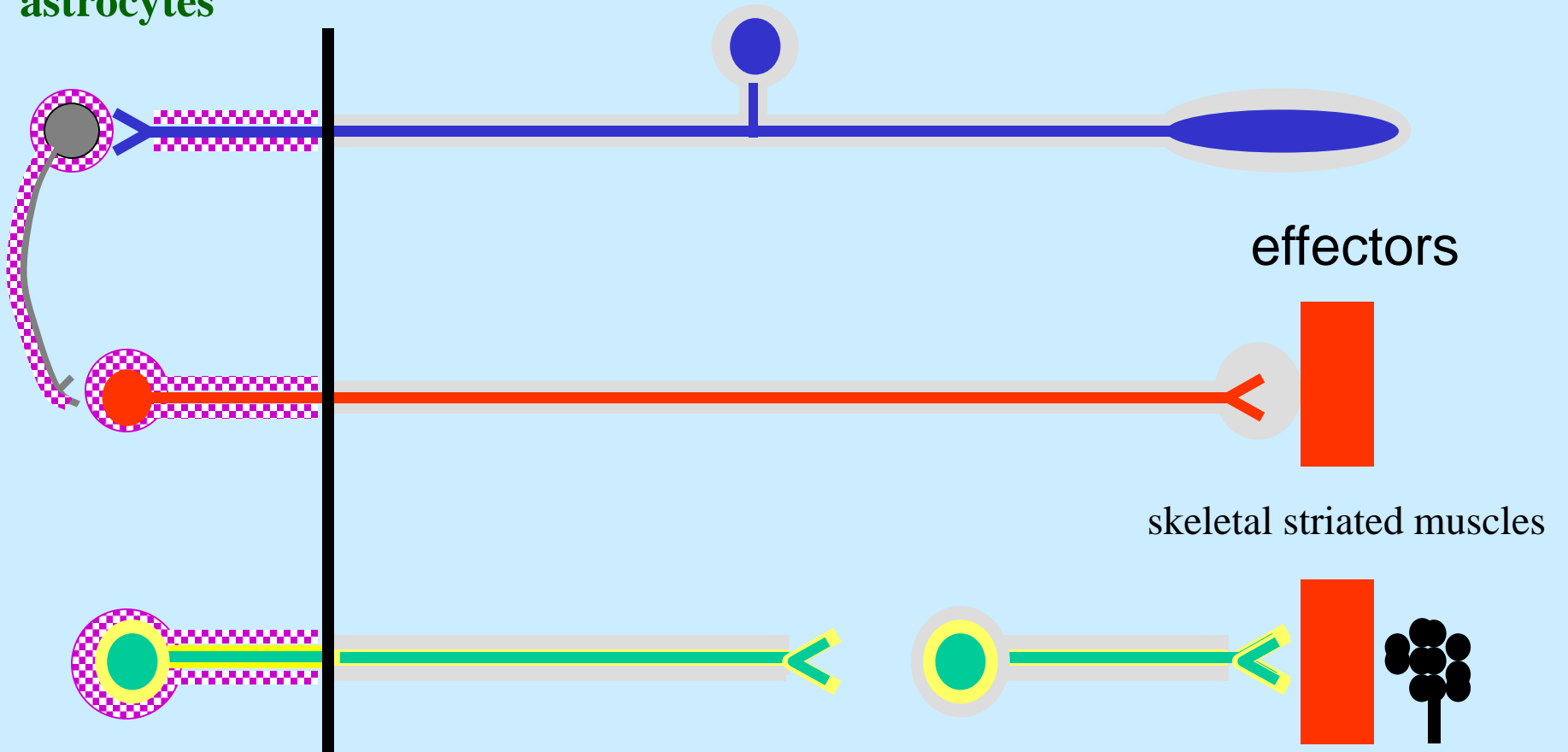
Schwann cells and their derivatives

sensors

effectors

skeletal striated muscles

smooth muscles, myocardium, glands



FUNCTIONAL TYPES OF PNS AXONS

Afferent

somatosensory



skin sense, proprioception, pain

viscerosensory



mechanoreception, pain

sensory

afferentation of taste, hearing, vestib. inform.

somatomotor



striated muscles

branchiomotor



striated muscles

Efferent

visceromotor



smooth muscles

sympathetic



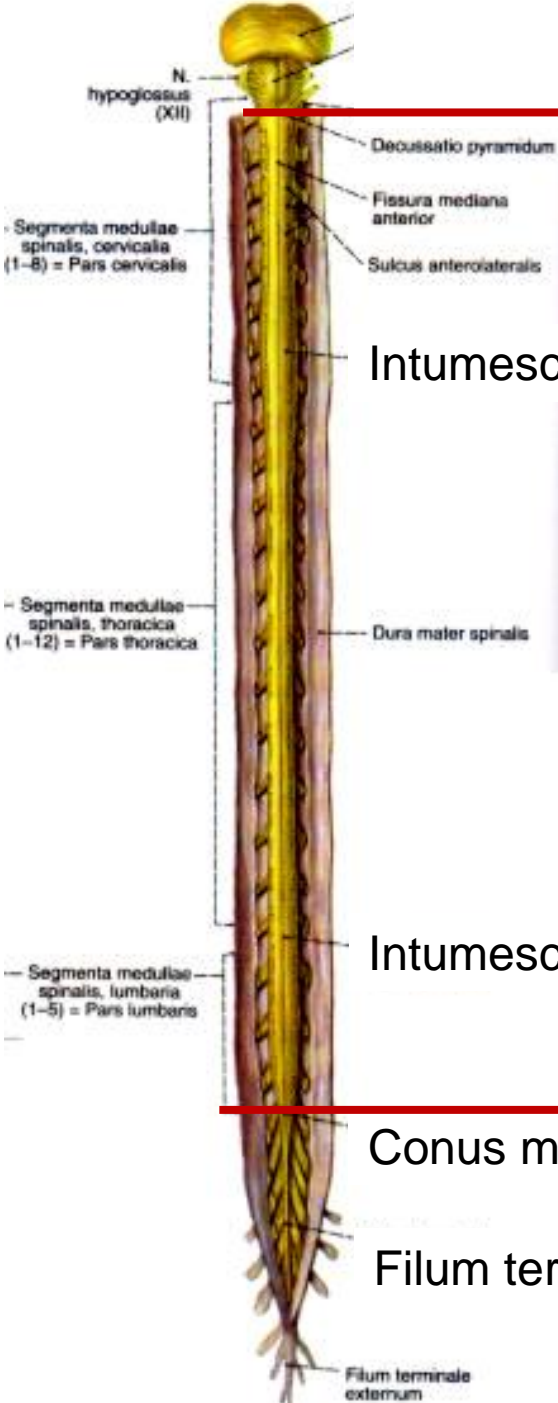
myocardium

parasympathetic

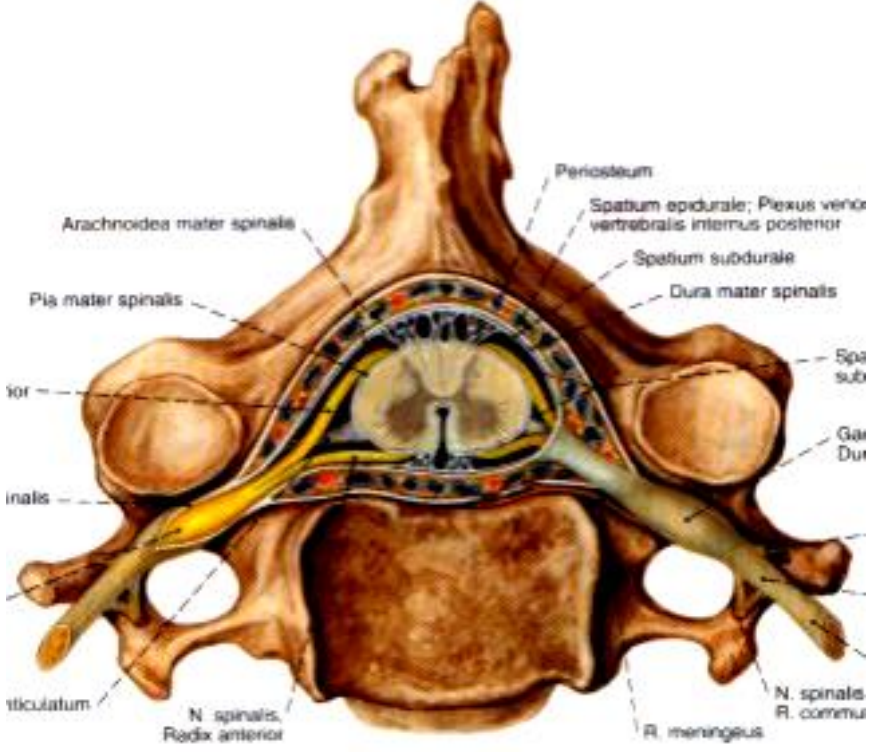


glands

MEDULLA SPINALIS



Cranial boundary



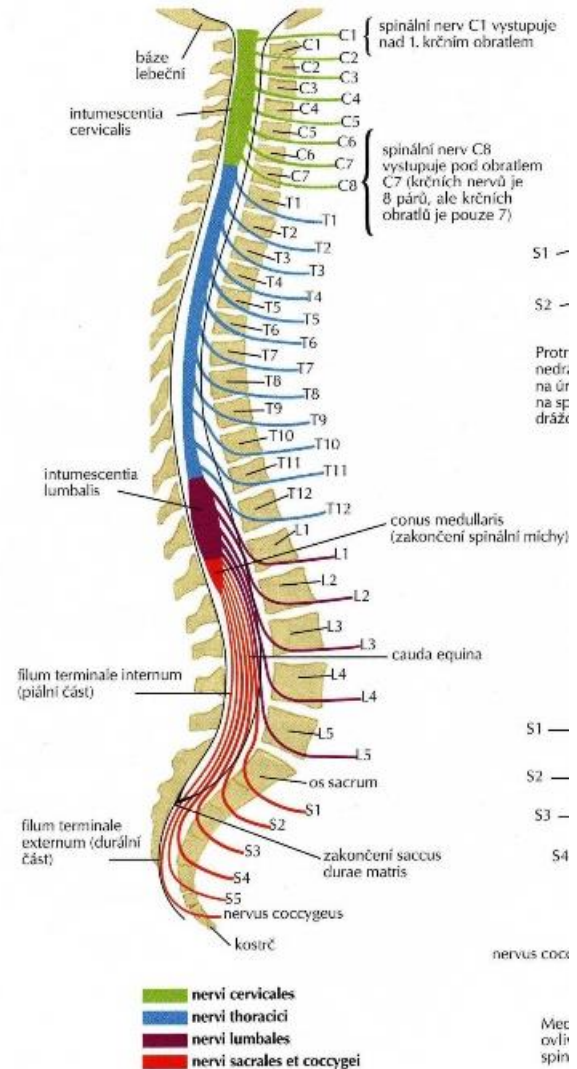
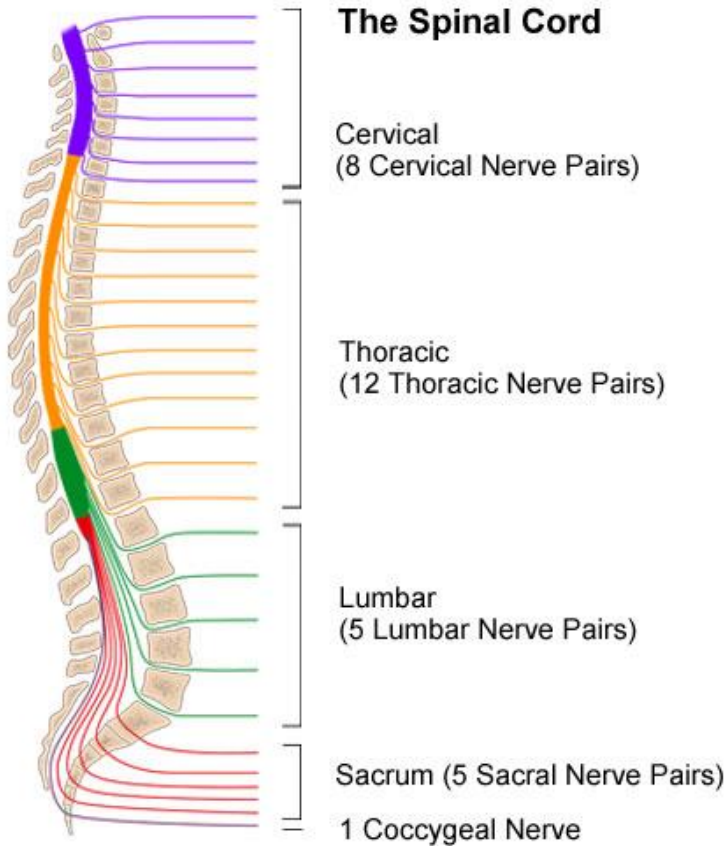
L2 – Caudal boundary

Conus medullaris

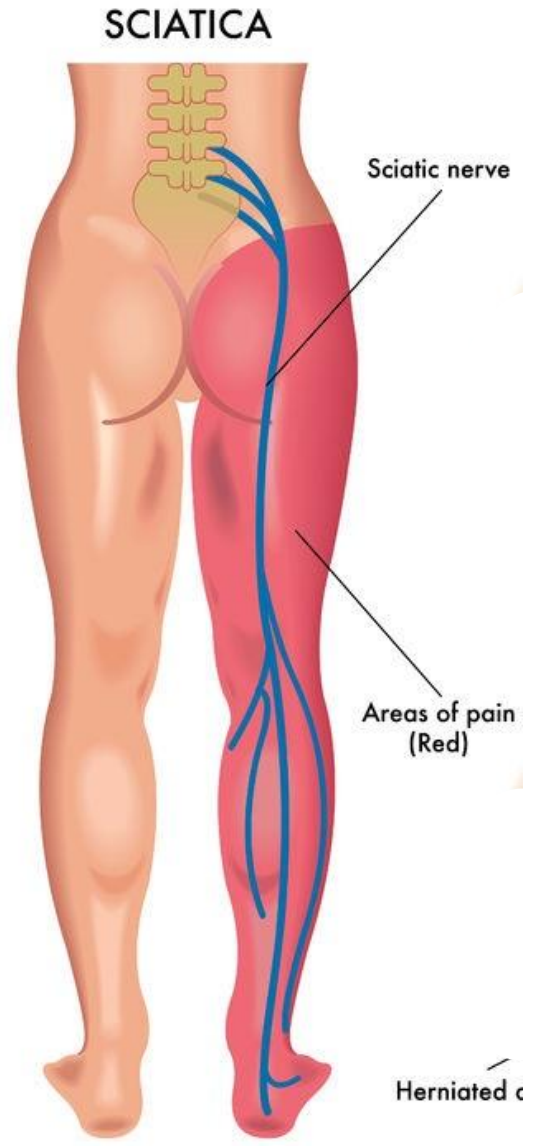
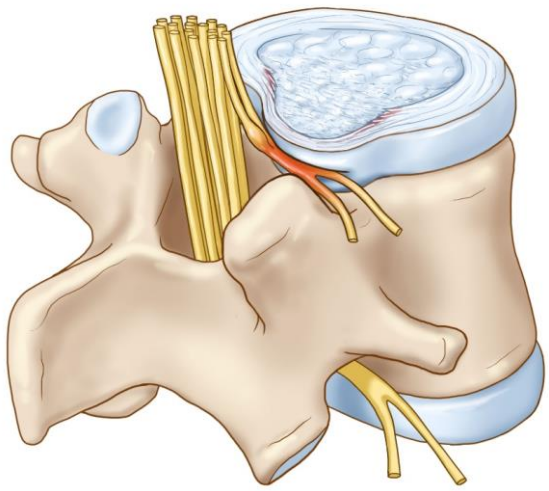
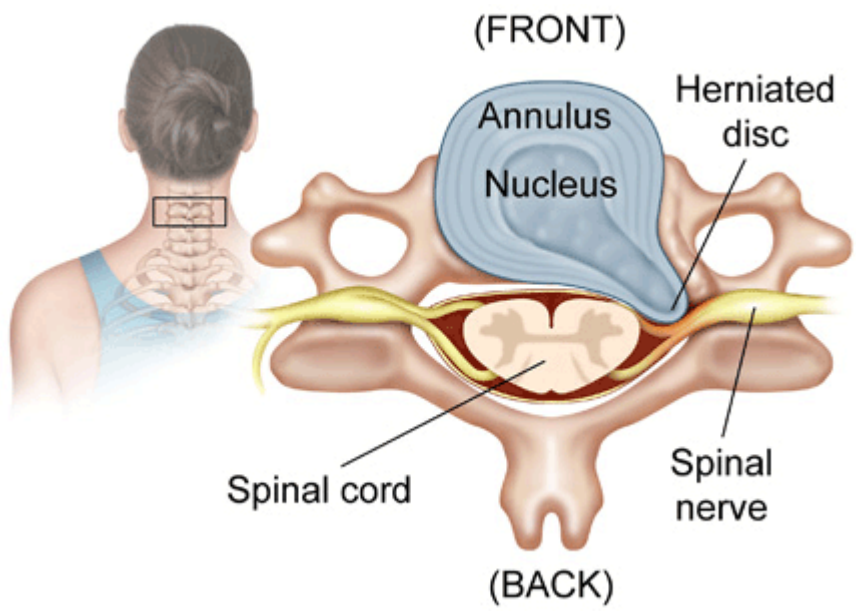
Filum terminale

MEDULLA SPINALIS - segments

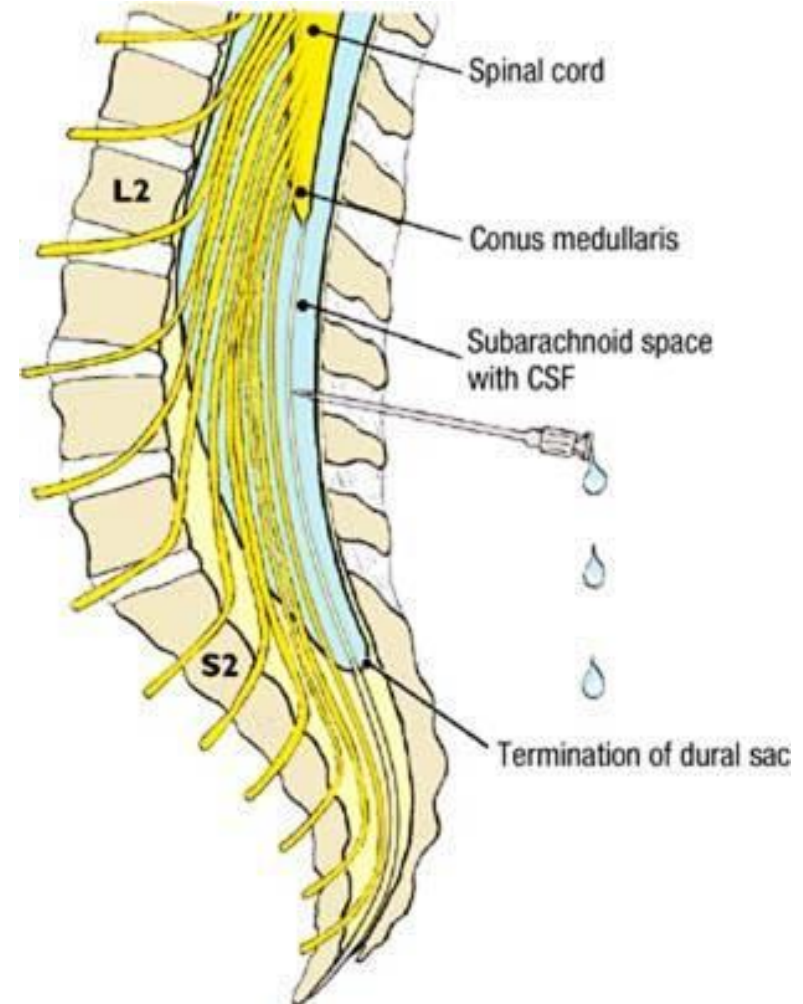
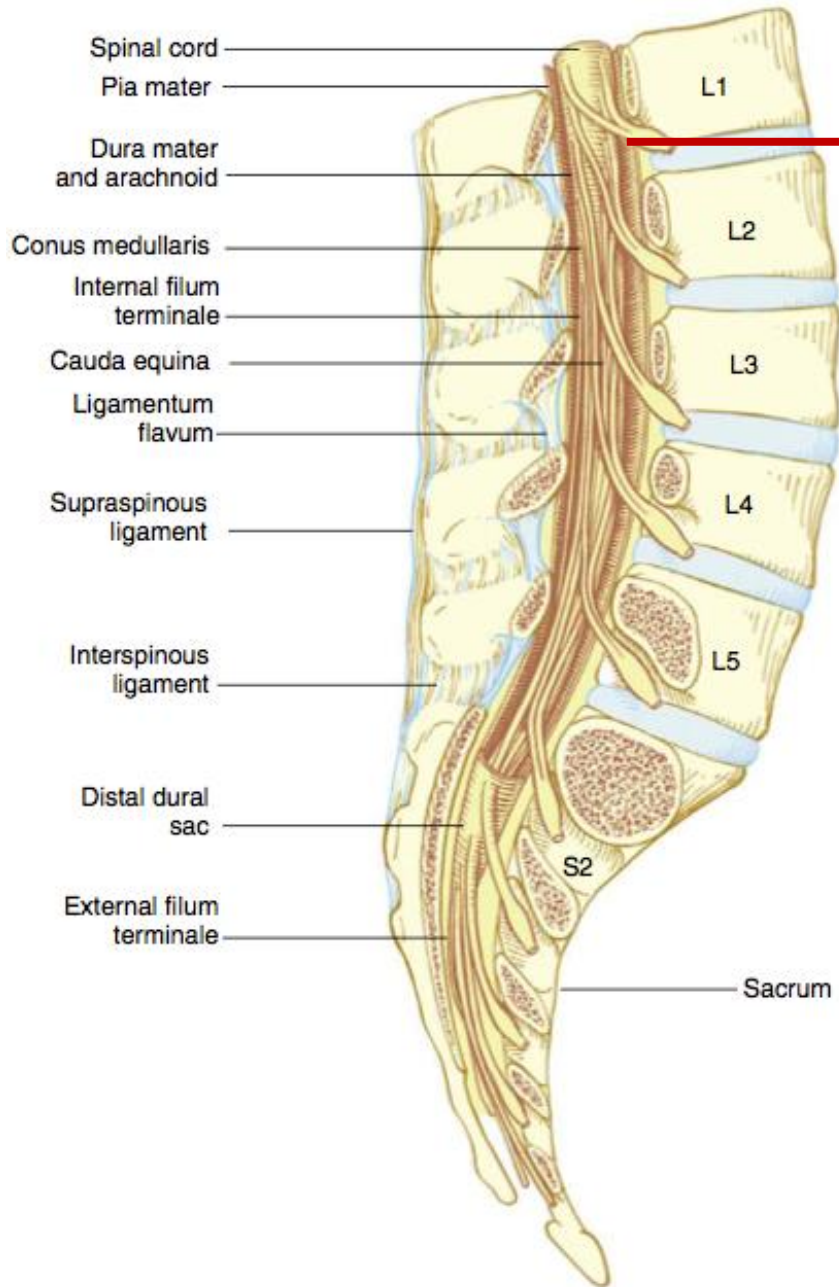
Chipault's rule

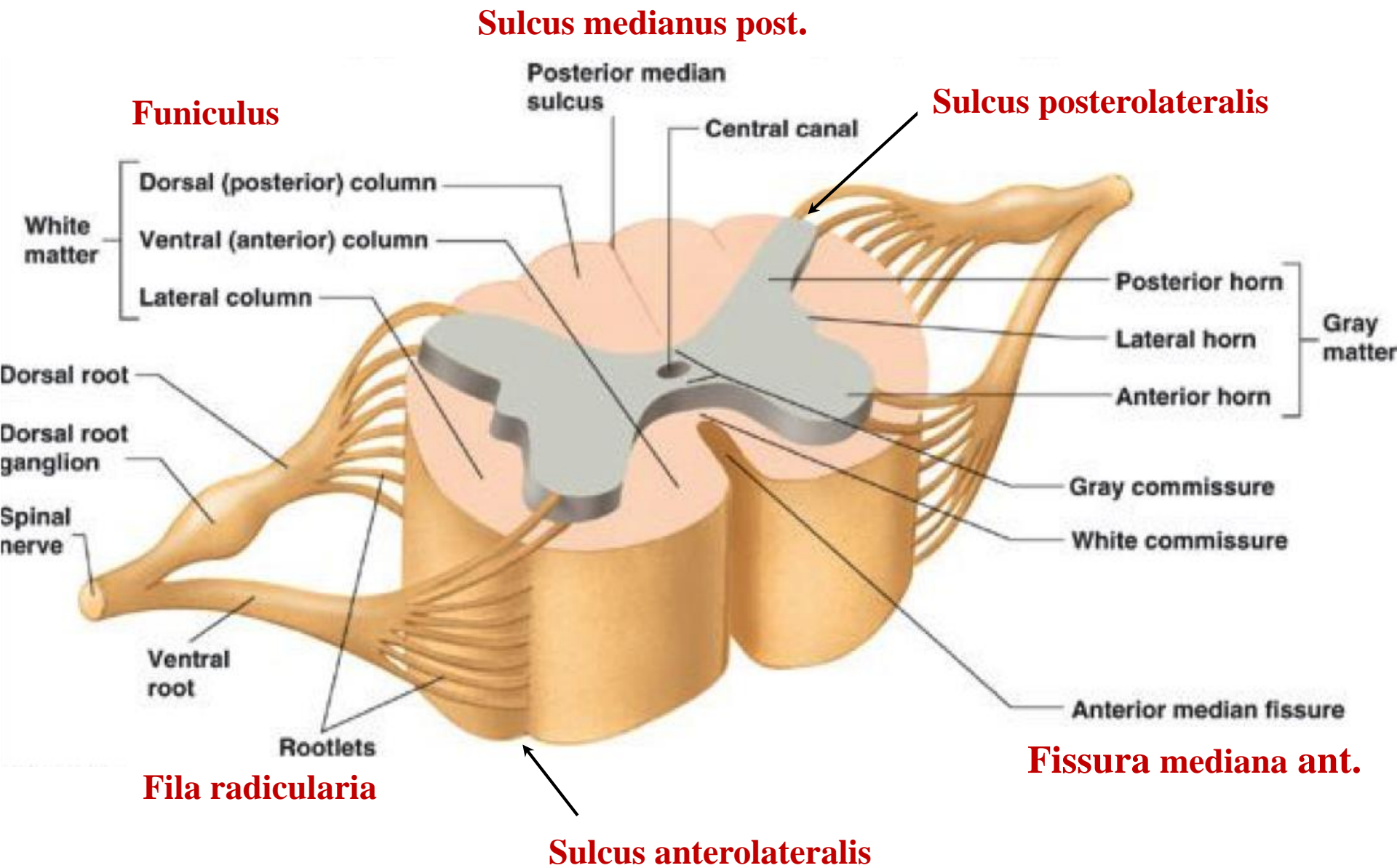


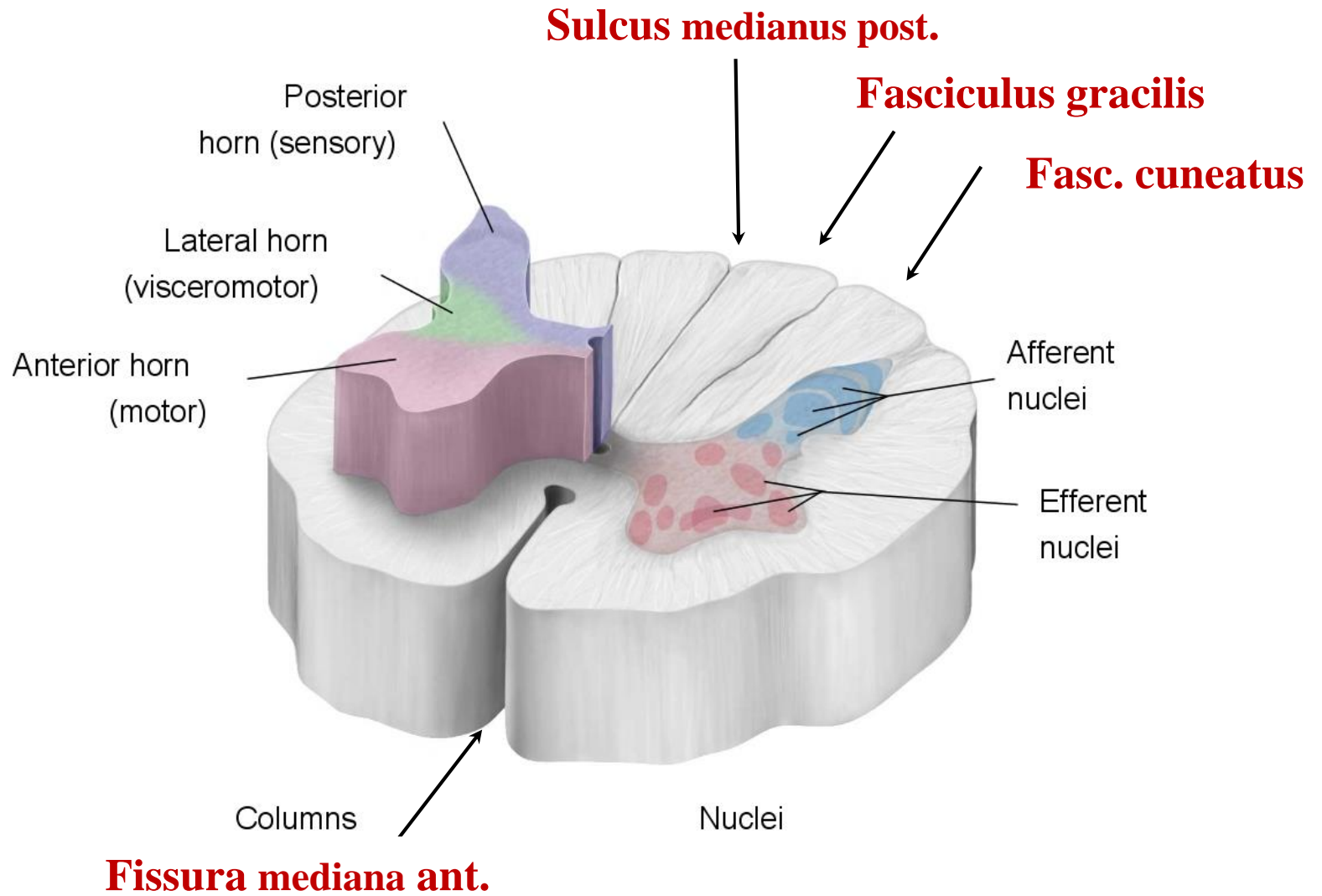
MEDULLA SPINALIS – clinical note

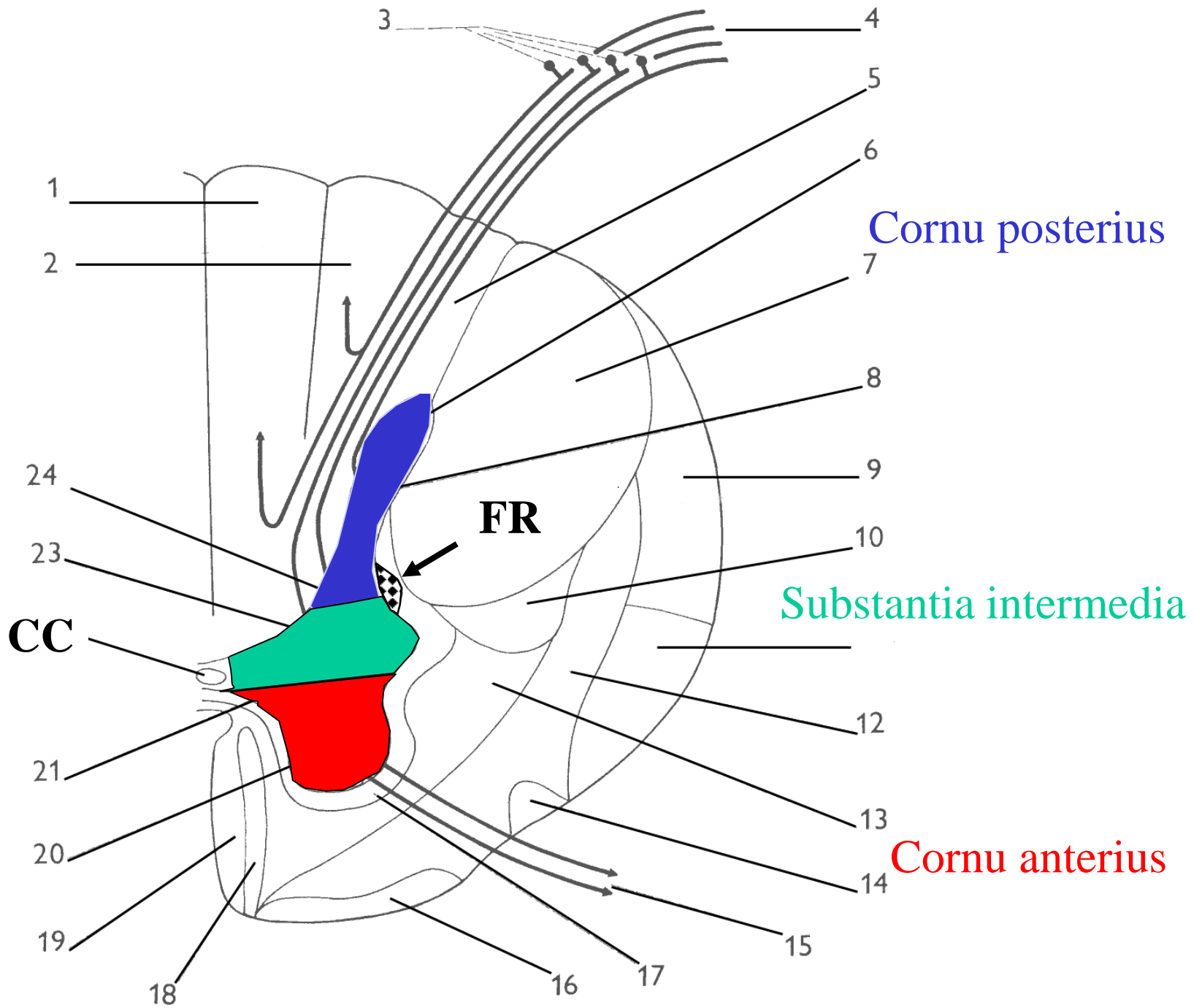


MEDULLA SPINALIS – clinical note

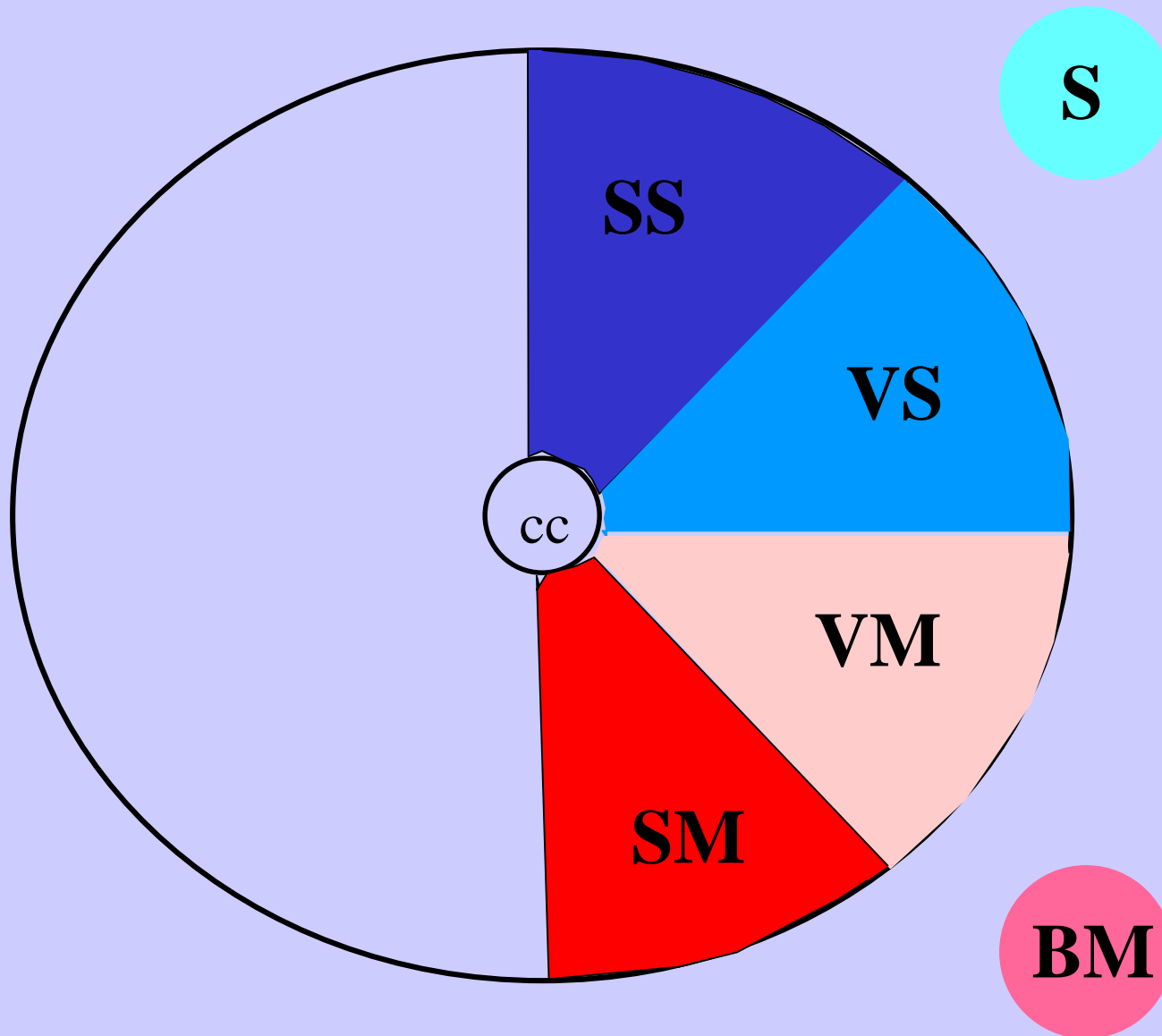








FUNTIONAL ZONES OF NEURONS IN CNS



Anatomical nomenclature of the white matter

Cortical neurons



Tractus cortico-spinalis

Ncl ruber, red nucleus



Vestibular nuclei

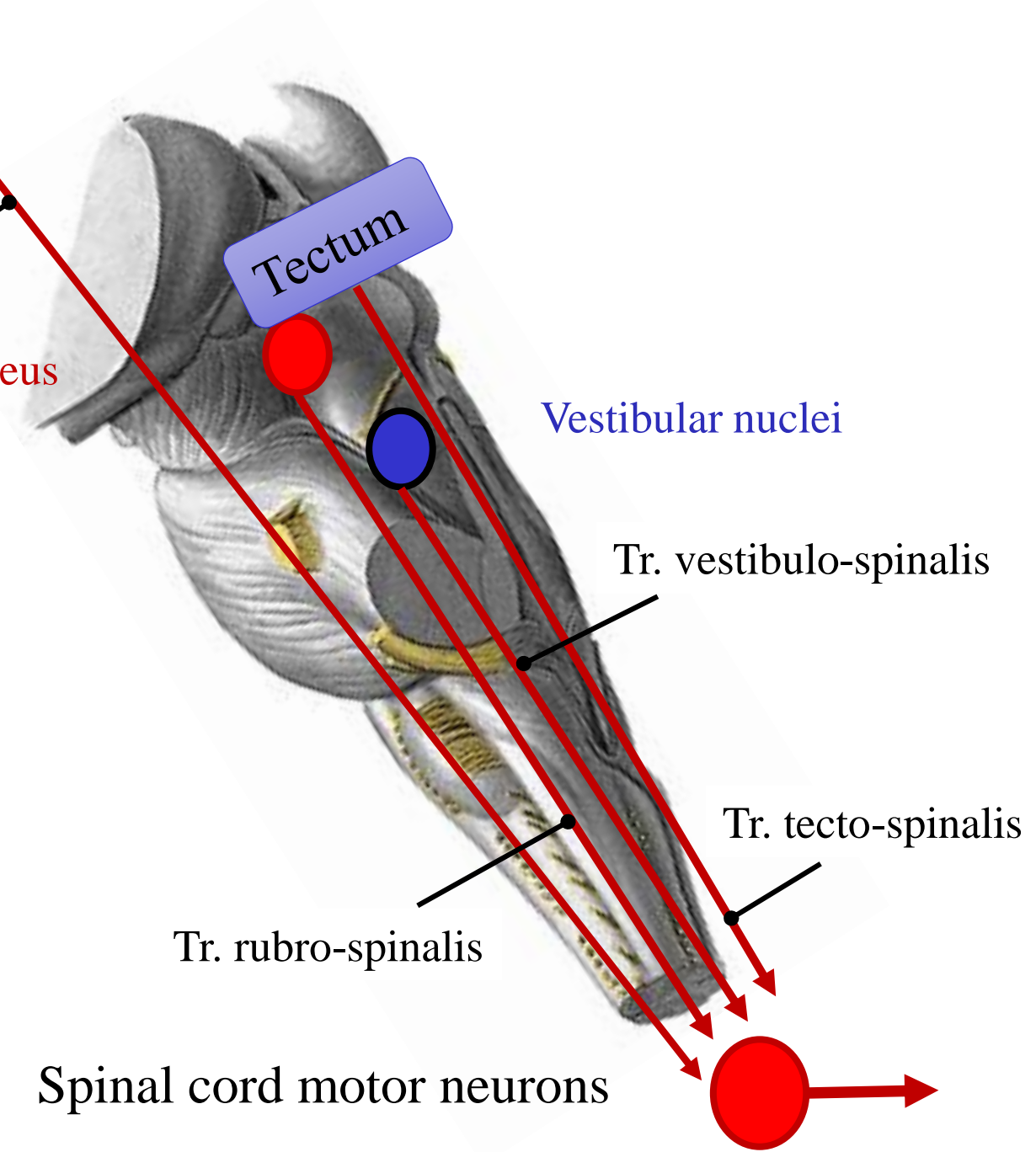
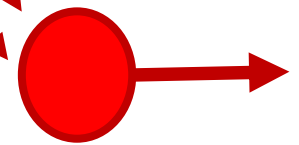


Tr. vestibulo-spinalis

Tr. rubro-spinalis

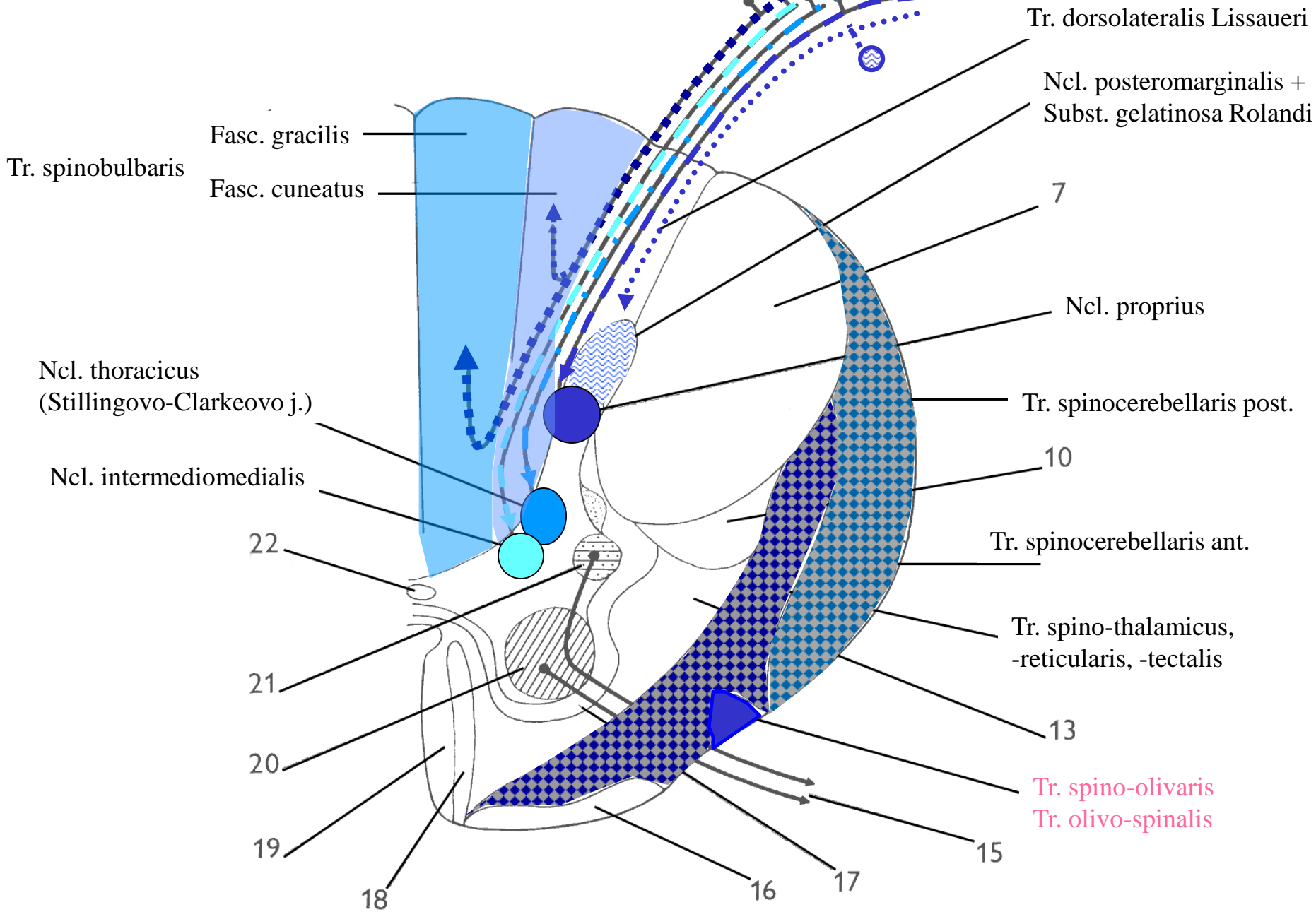
Tr. tecto-spinalis

Spinal cord motor neurons

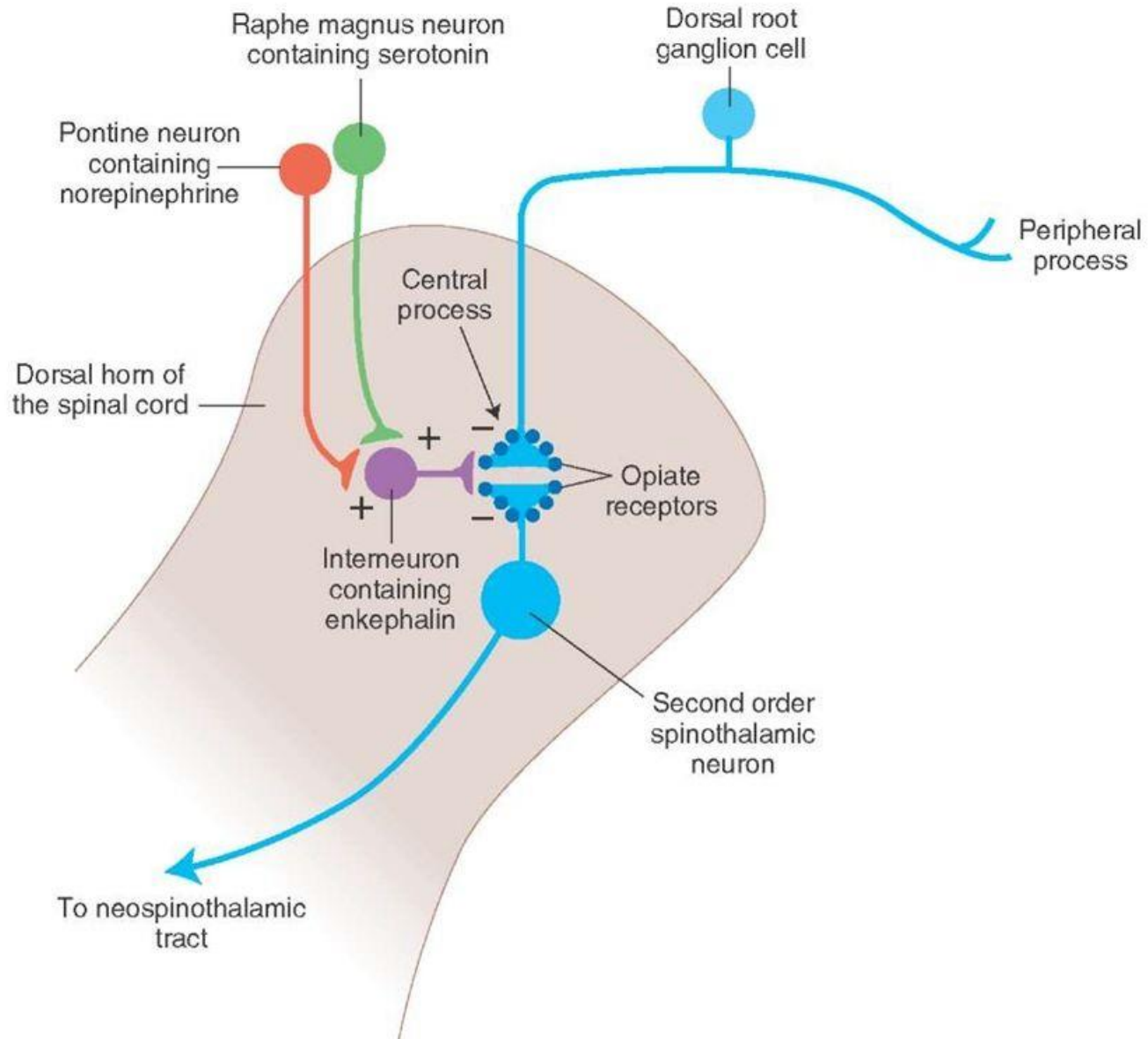


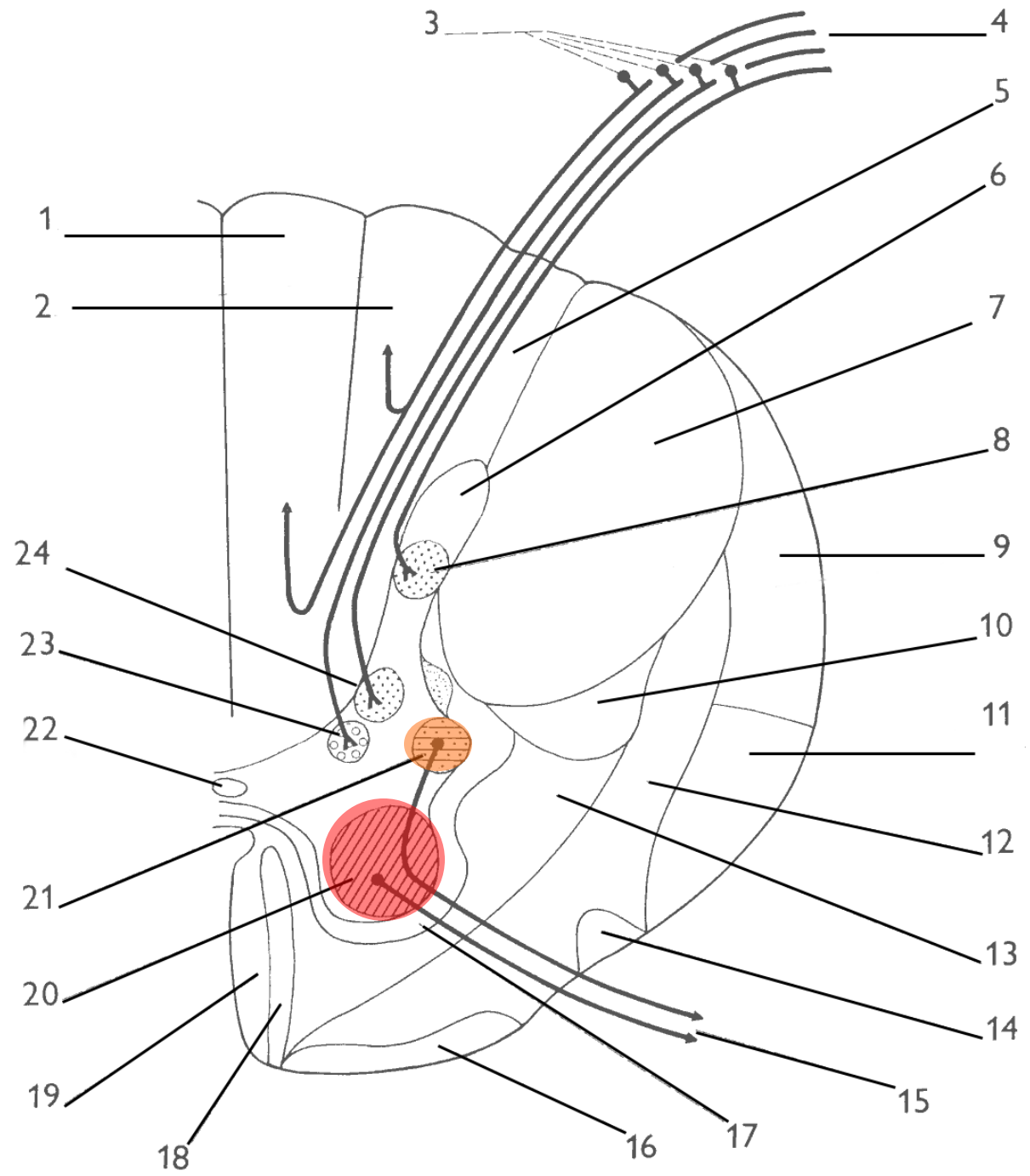
Pseudounipolar neurons in SG (DRG)

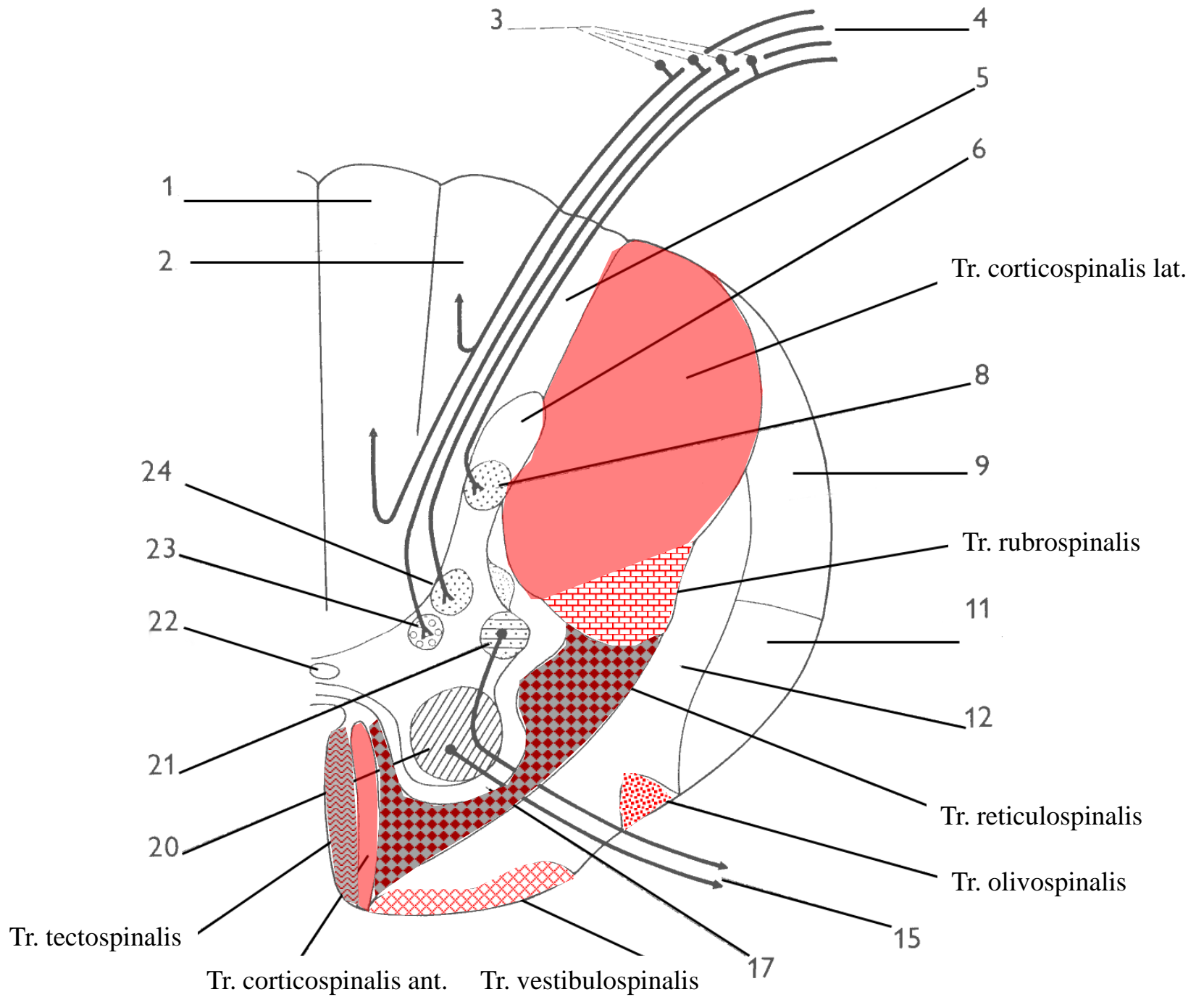
Radix dorsalis

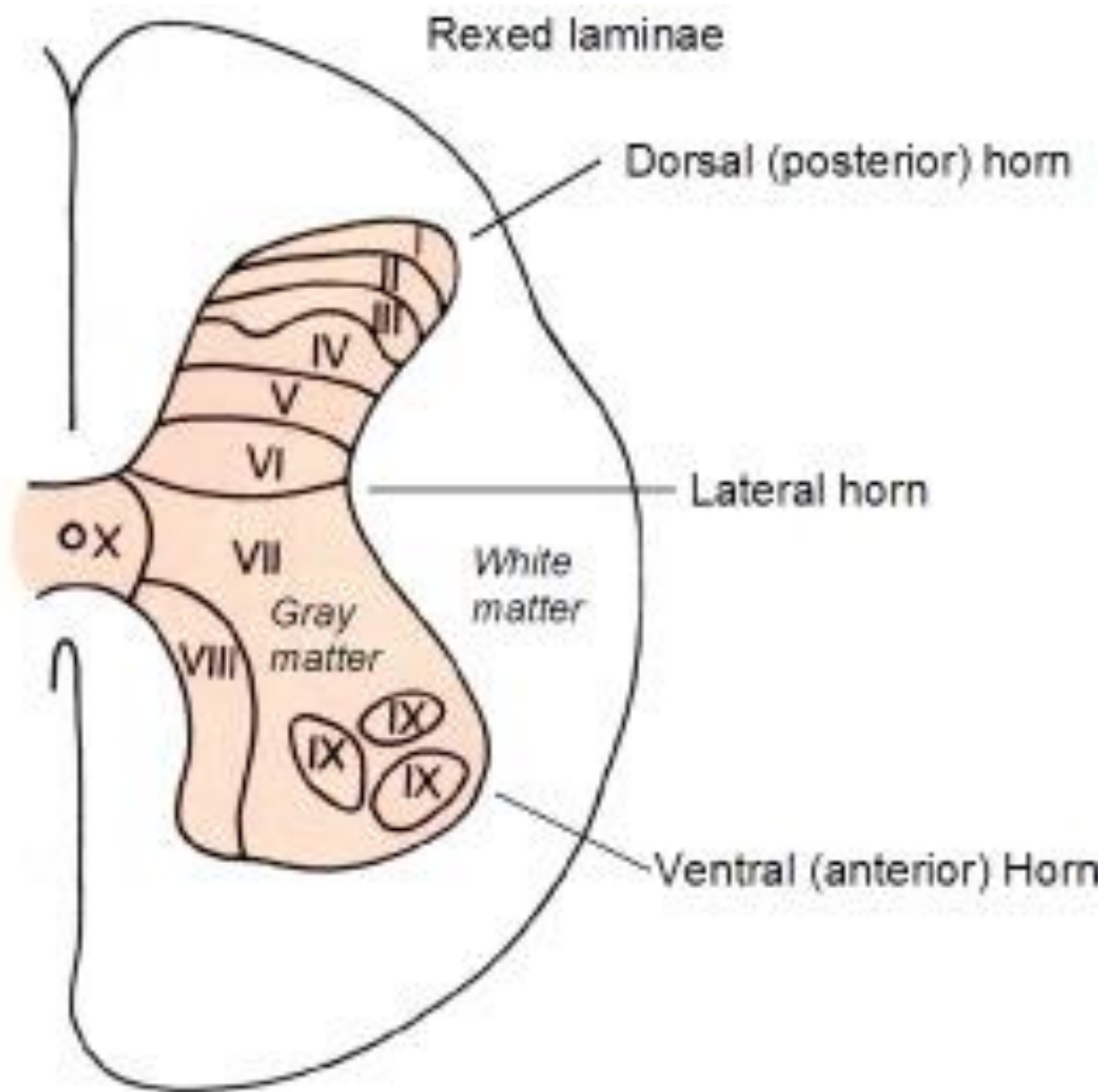


Modulation of pain afferentation in the dorsal horn









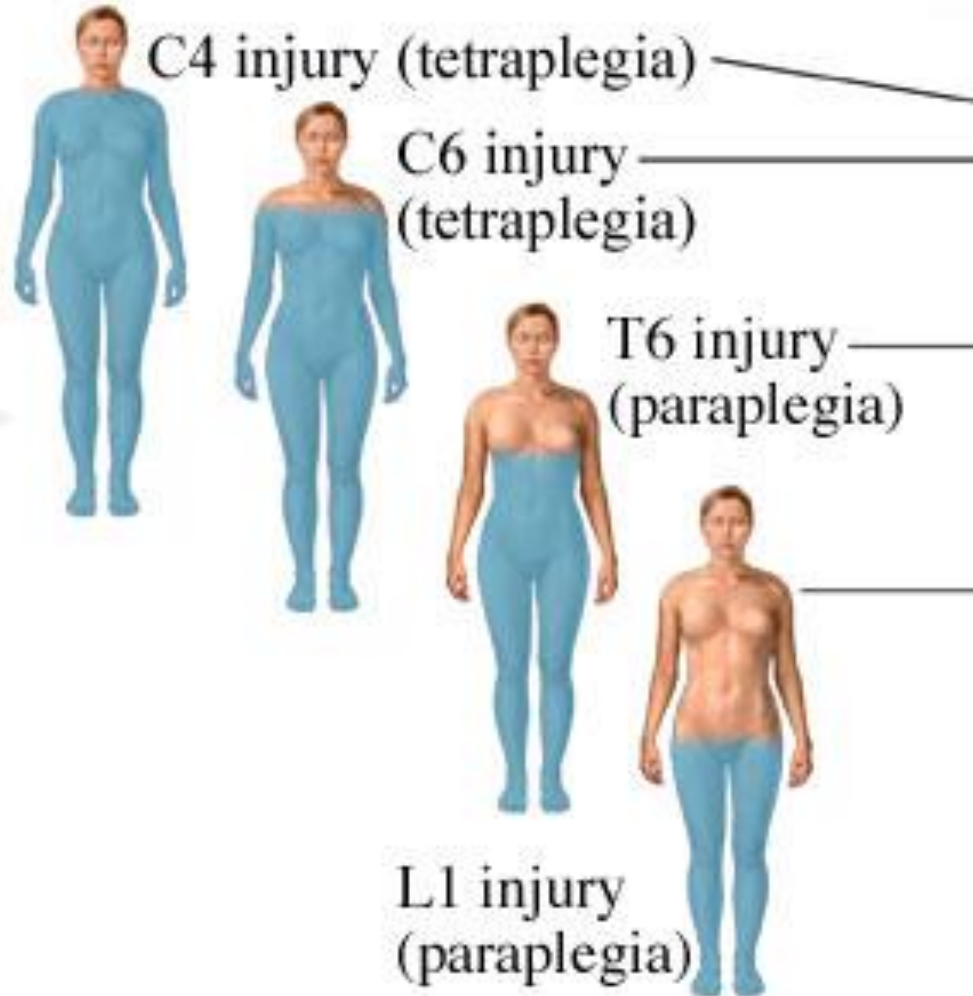
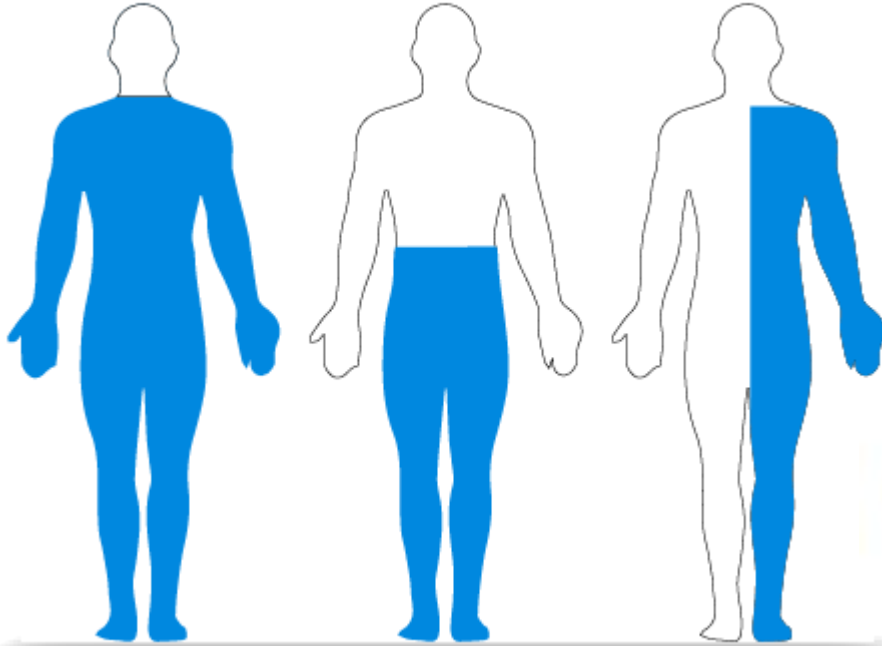
lamina (Rexed 1952)	Nuclei
I	ncl. apicalis (apical nucleus)
II + III	substantia gelatinosa Rollandi
IV + V	ncl. proprius (proper nucleus)
VI	ncl. thoracicus (Stilling – Clarke’s nucleus) C8-L3
VII	interneurons in the cornu anterius
VIII	medial group of motoneurons
IX	lateral group of motoneurons
X	zona centralis, gray mater around canalis centralis

MEDULLA SPINALIS – Traumatic spinal cord injury

Quadriplegia

Paraplegia

Hemiplegia



tetraplegia

