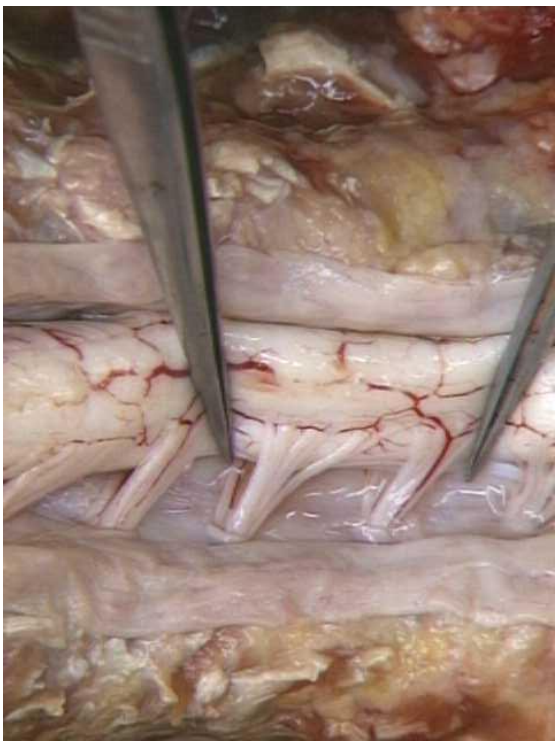
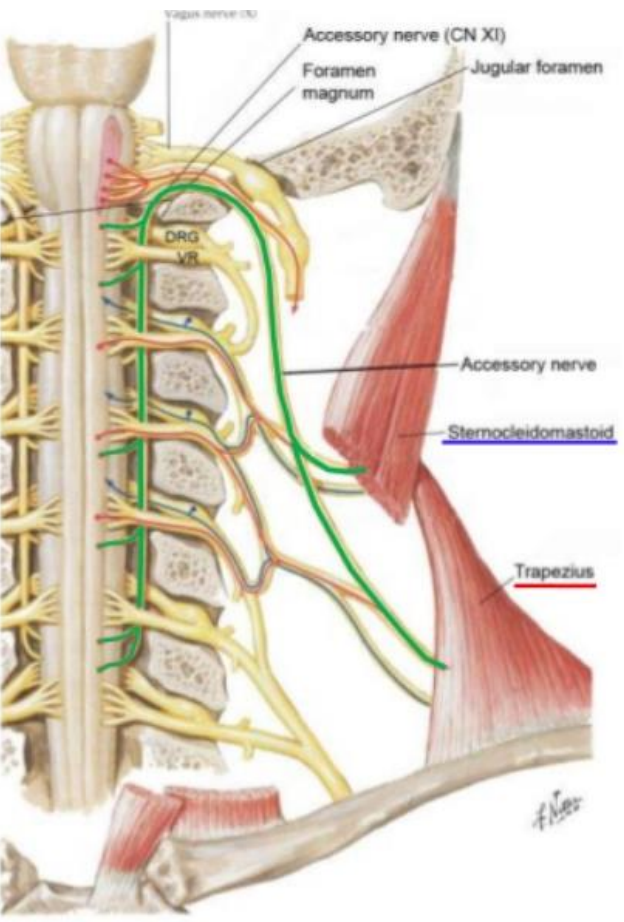
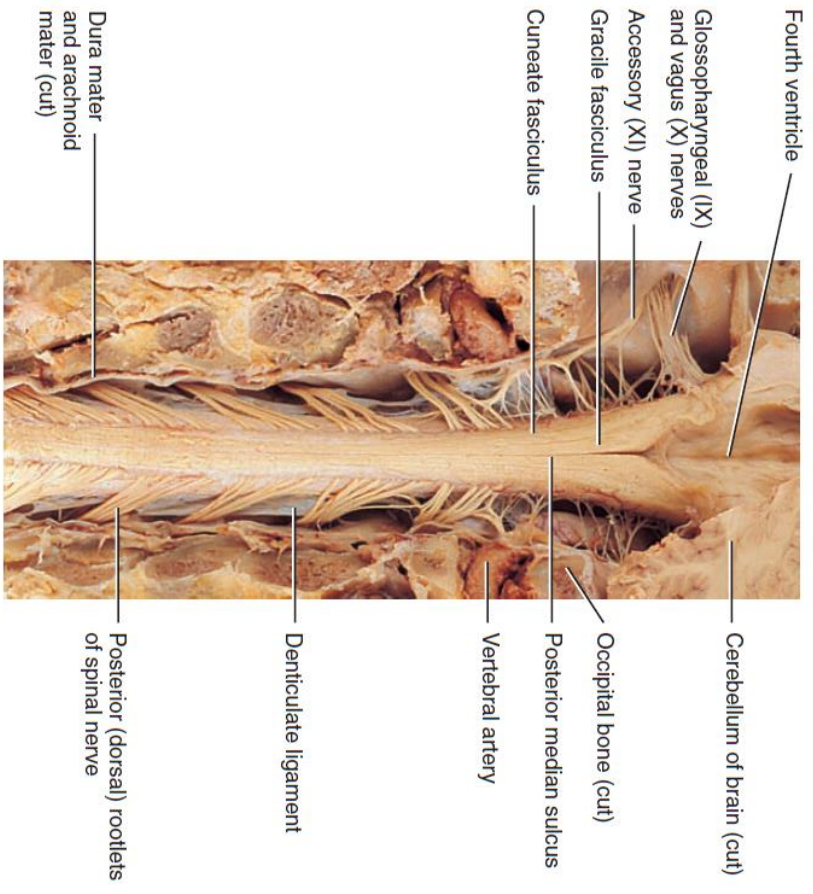


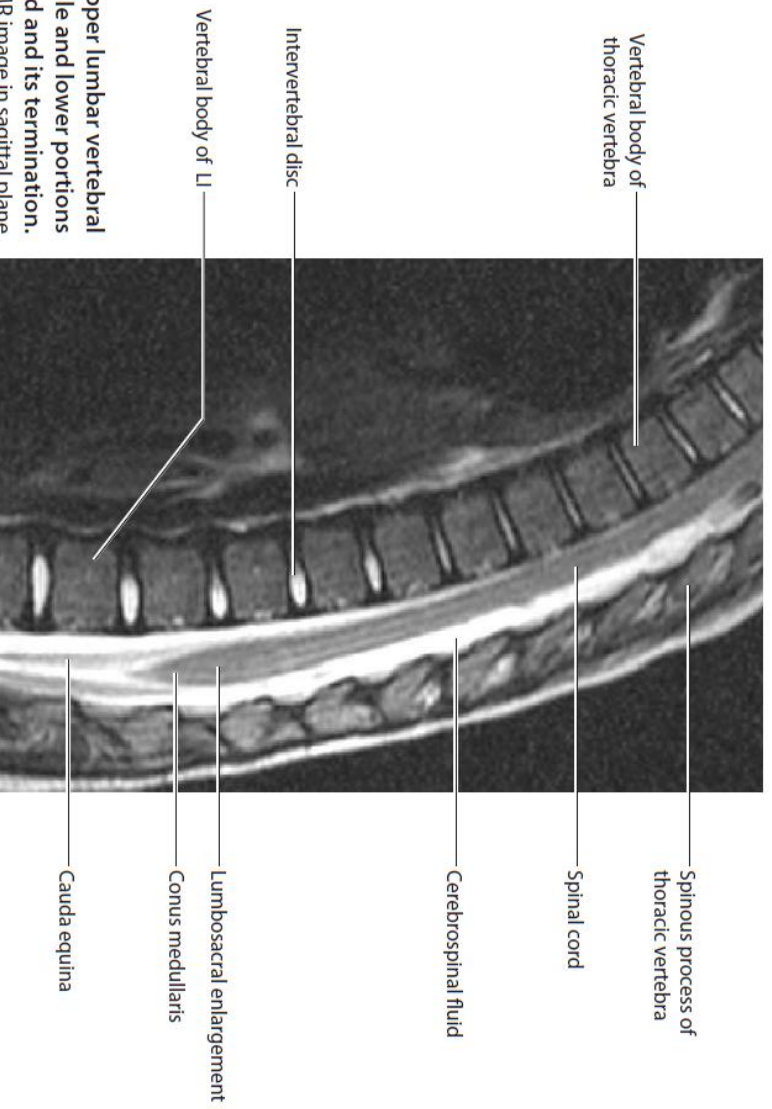
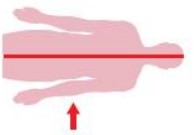
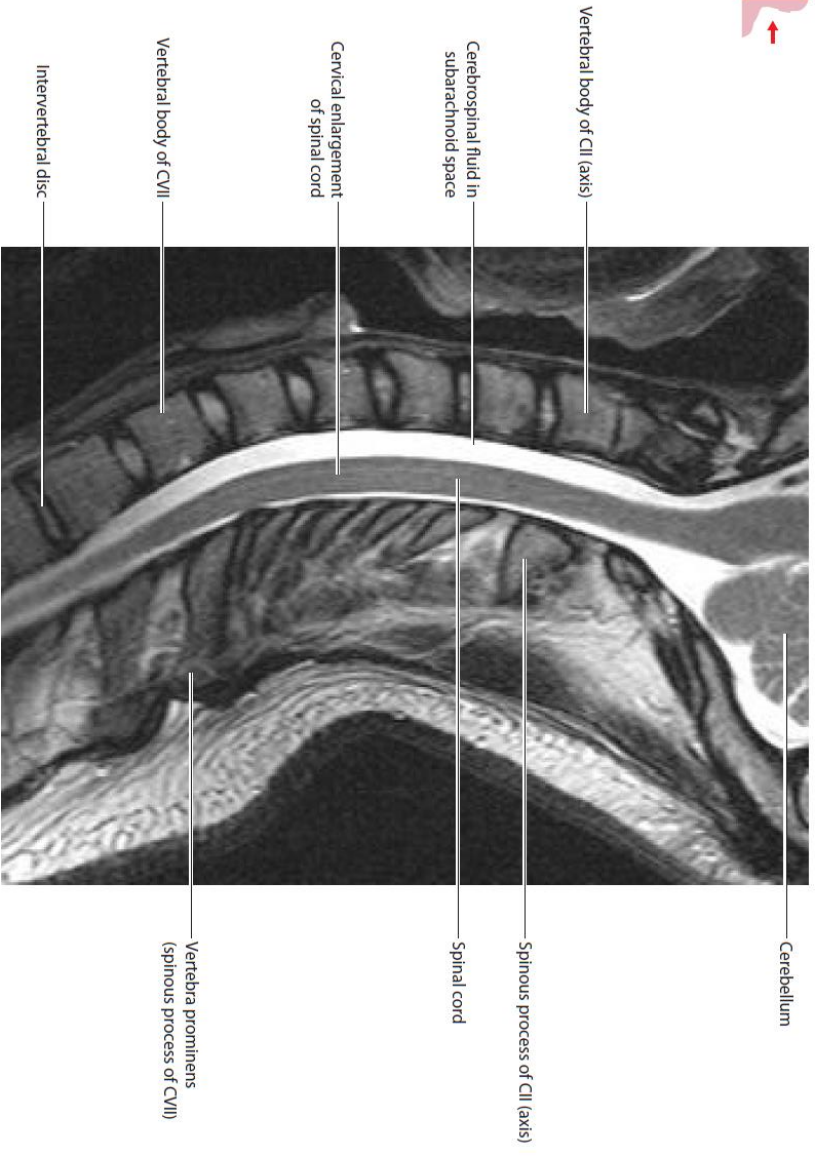
Images of the Back, lecture 4

Dr. Ali Mohsin

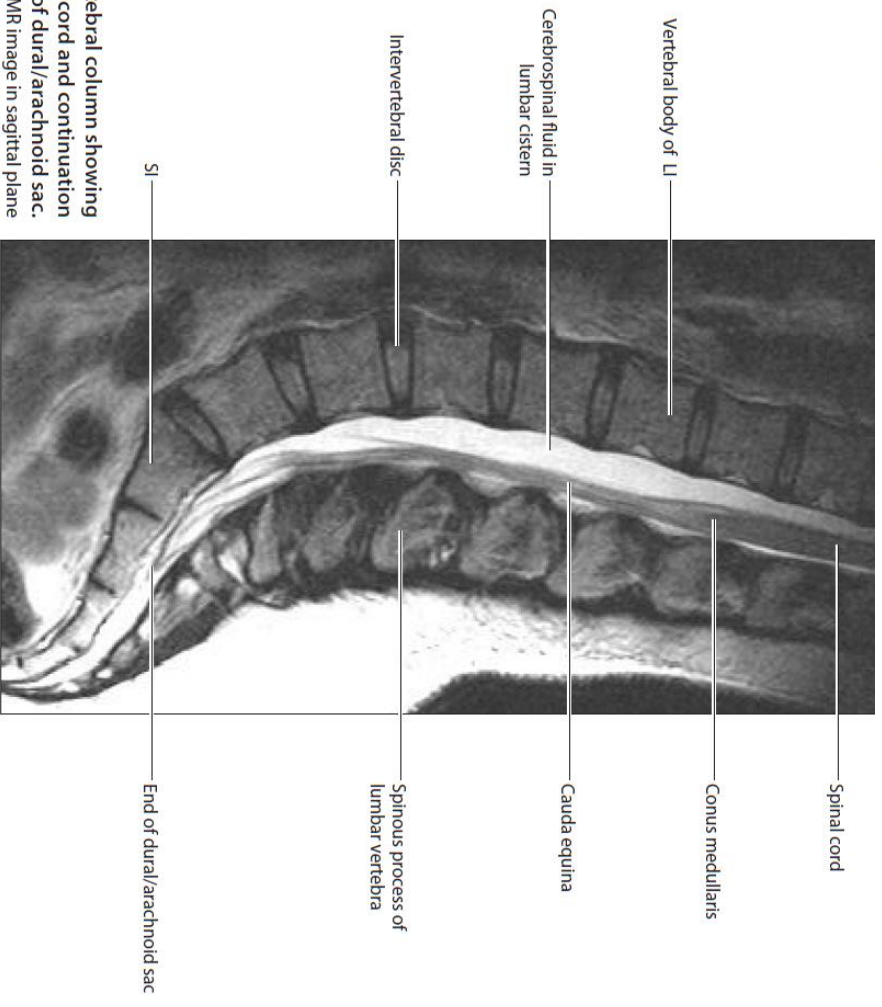


SUPERIOR

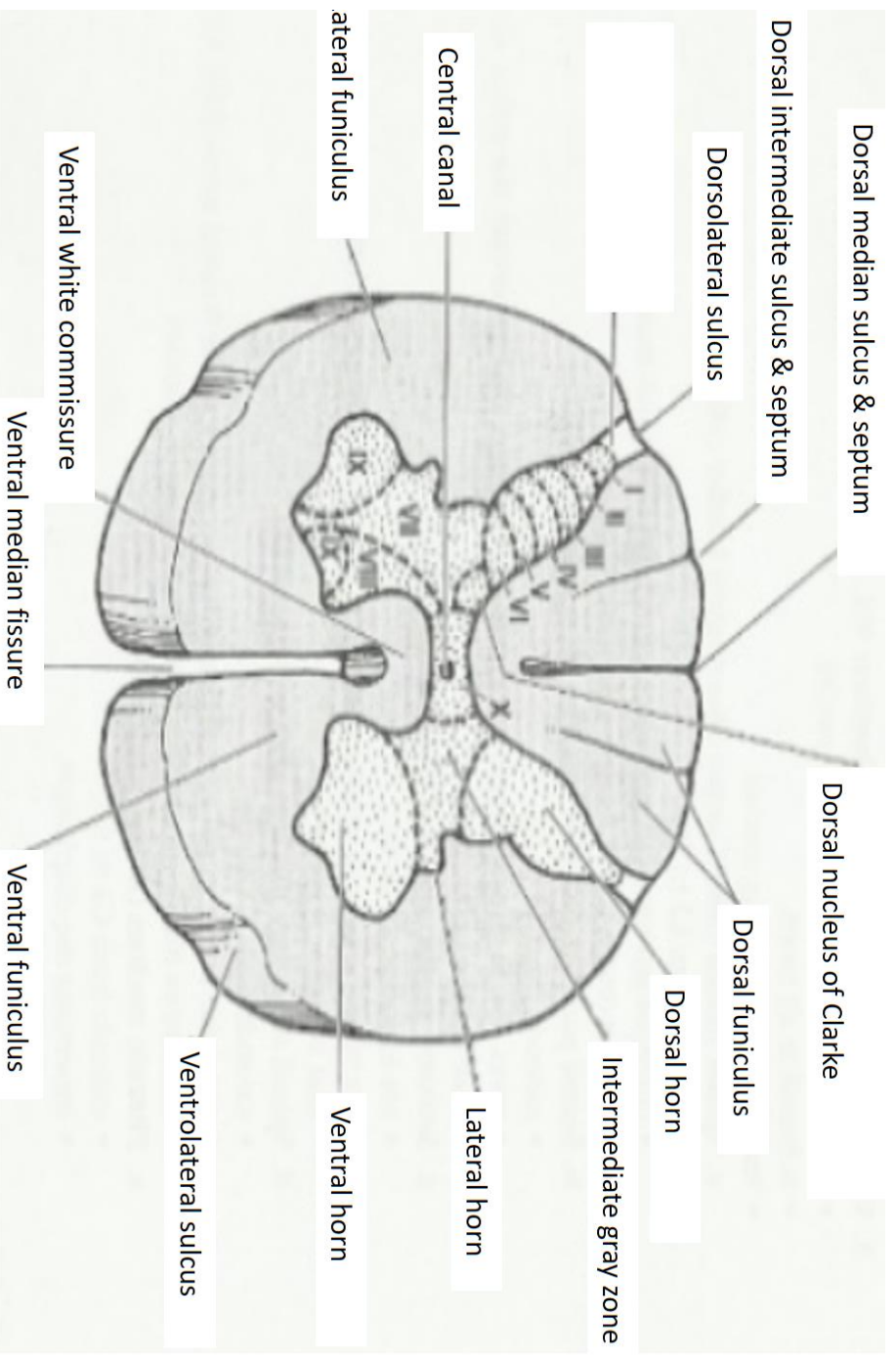
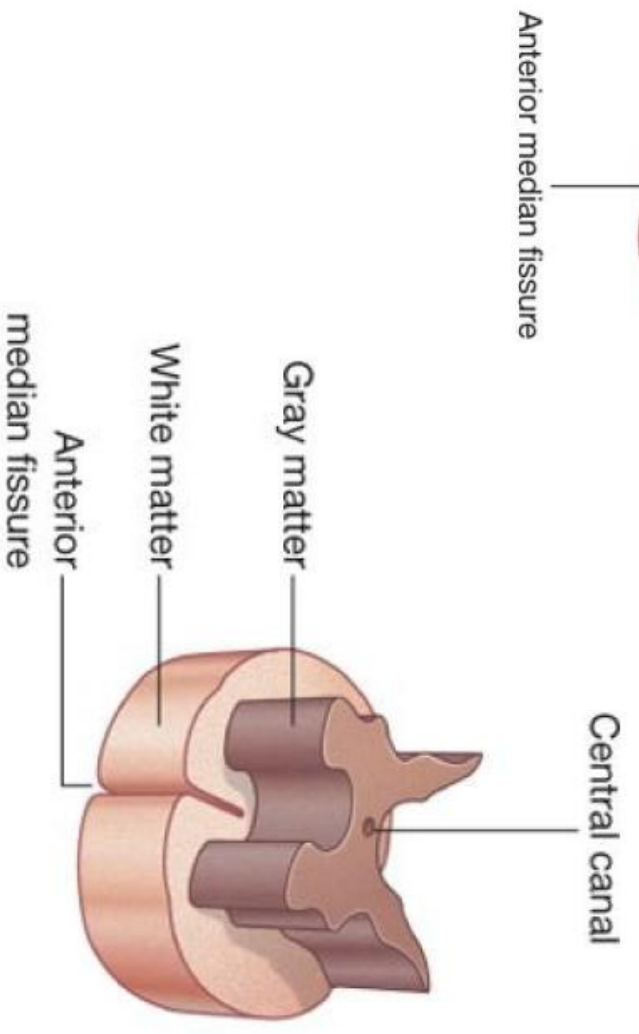
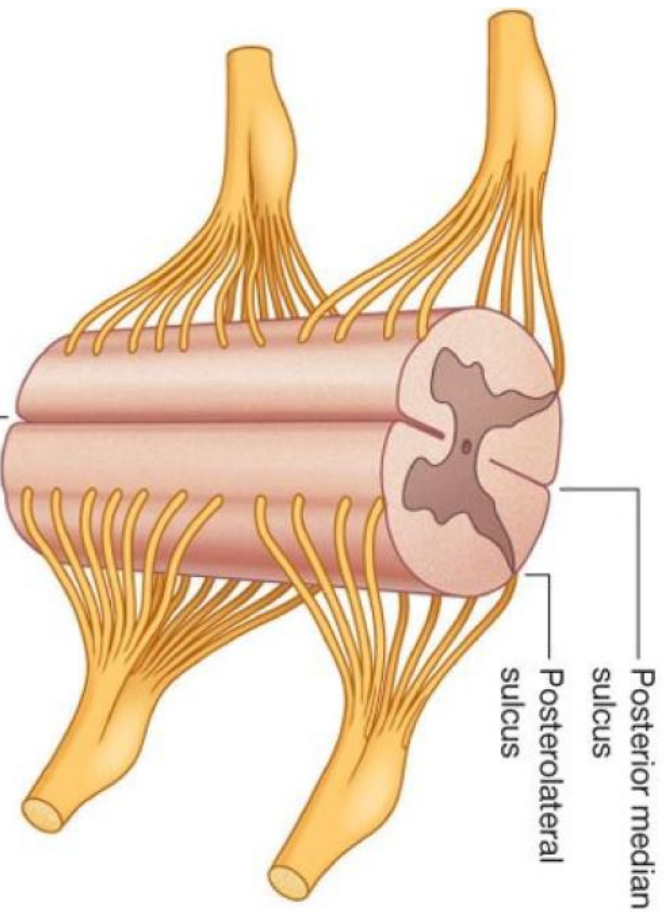




Thoracic and upper lumbar vertebral column showing middle and lower portions of spinal cord and its termination. T2-weighted MR image in sagittal plane



Lumbar and sacral vertebral column showing termination of spinal cord and continuation and termination of dural/arachnoid sac. T2-weighted MR image in sagittal plane

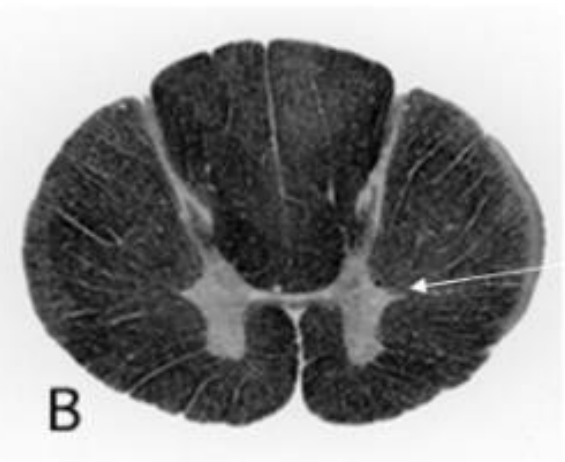
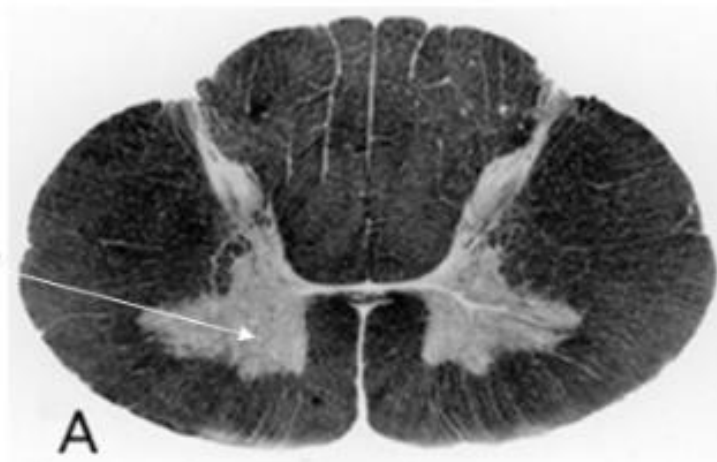


Cervical

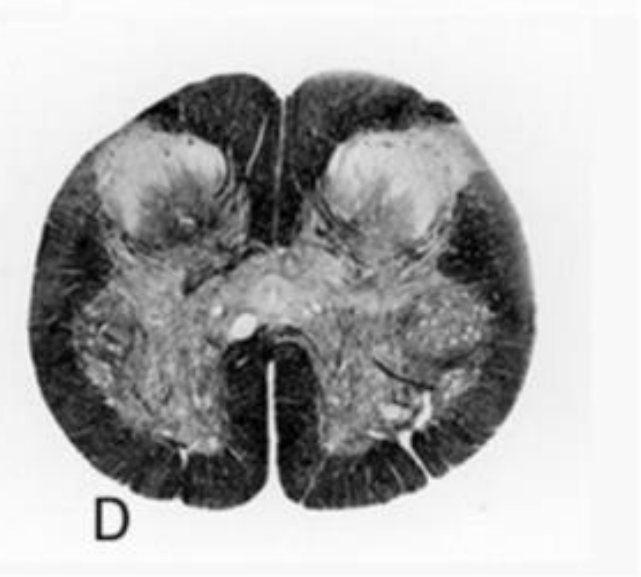
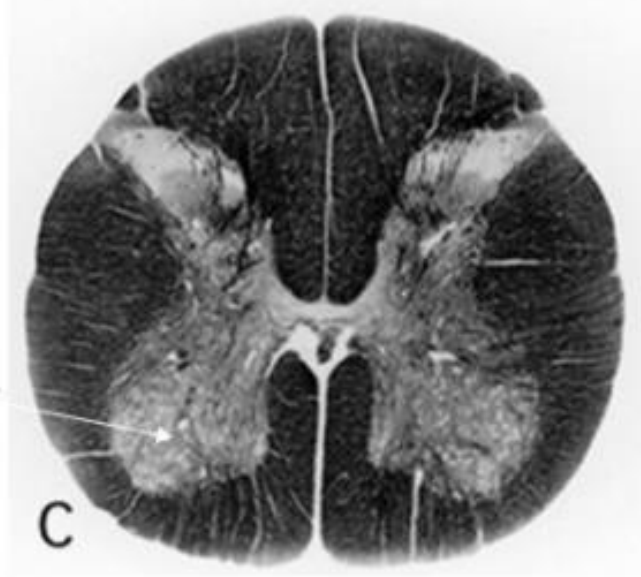
Thoracic

Cervical
enlargement

Lateral
horn



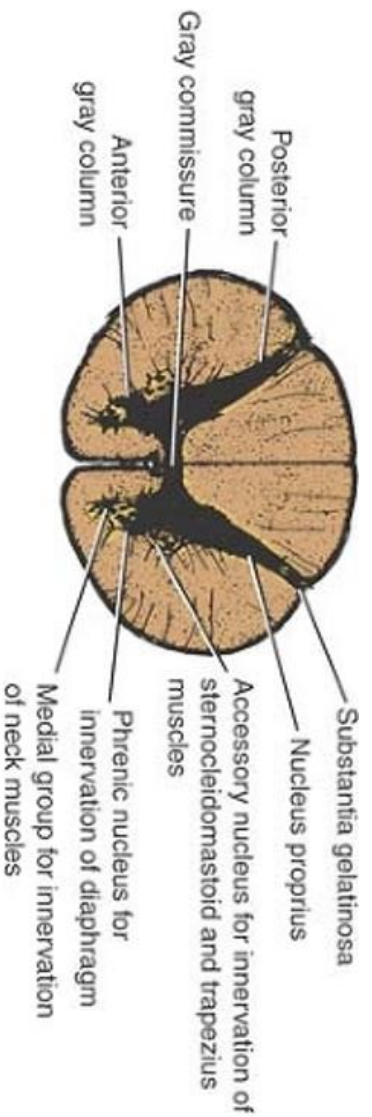
Lumbar
enlargement



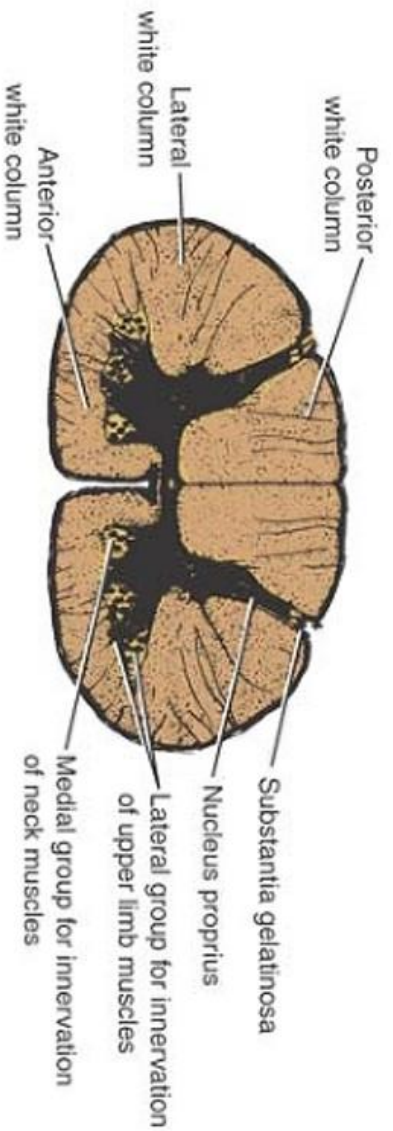
Lumbar

Sacral

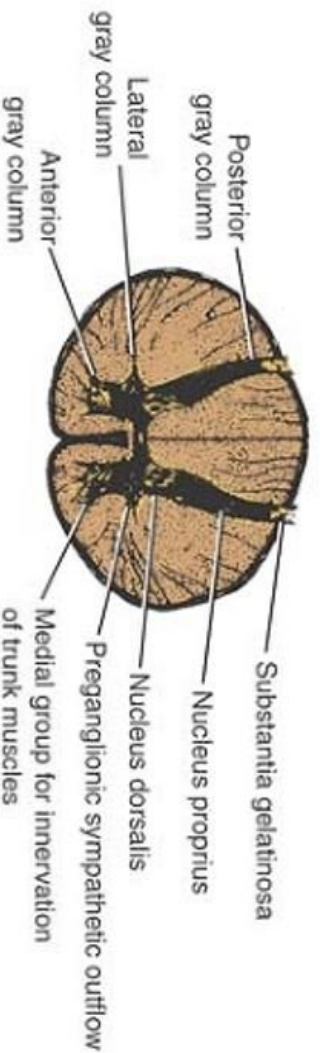
Third cervical segment



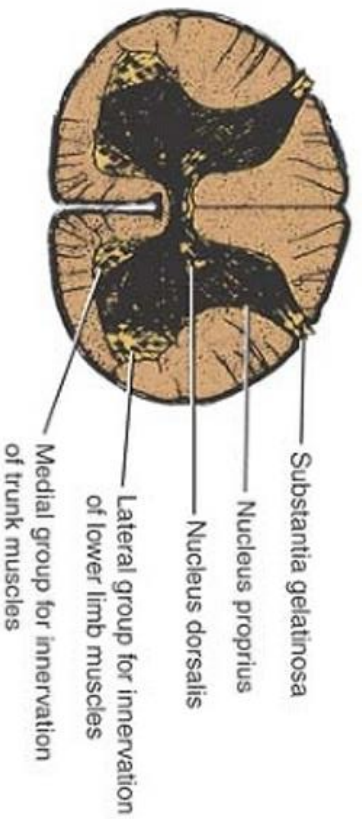
Sixth cervical segment



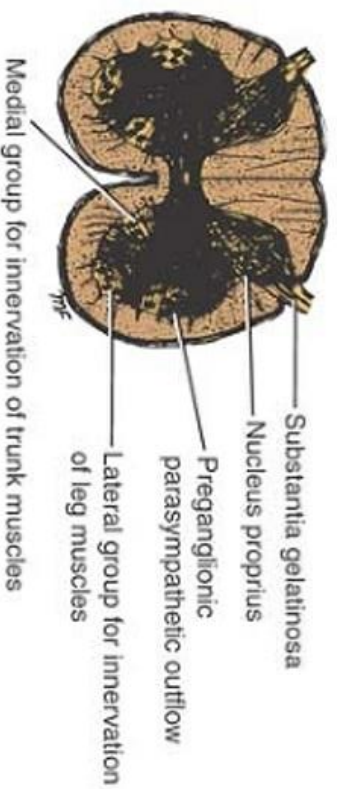
Sixth thoracic segment



Third lumbar segment



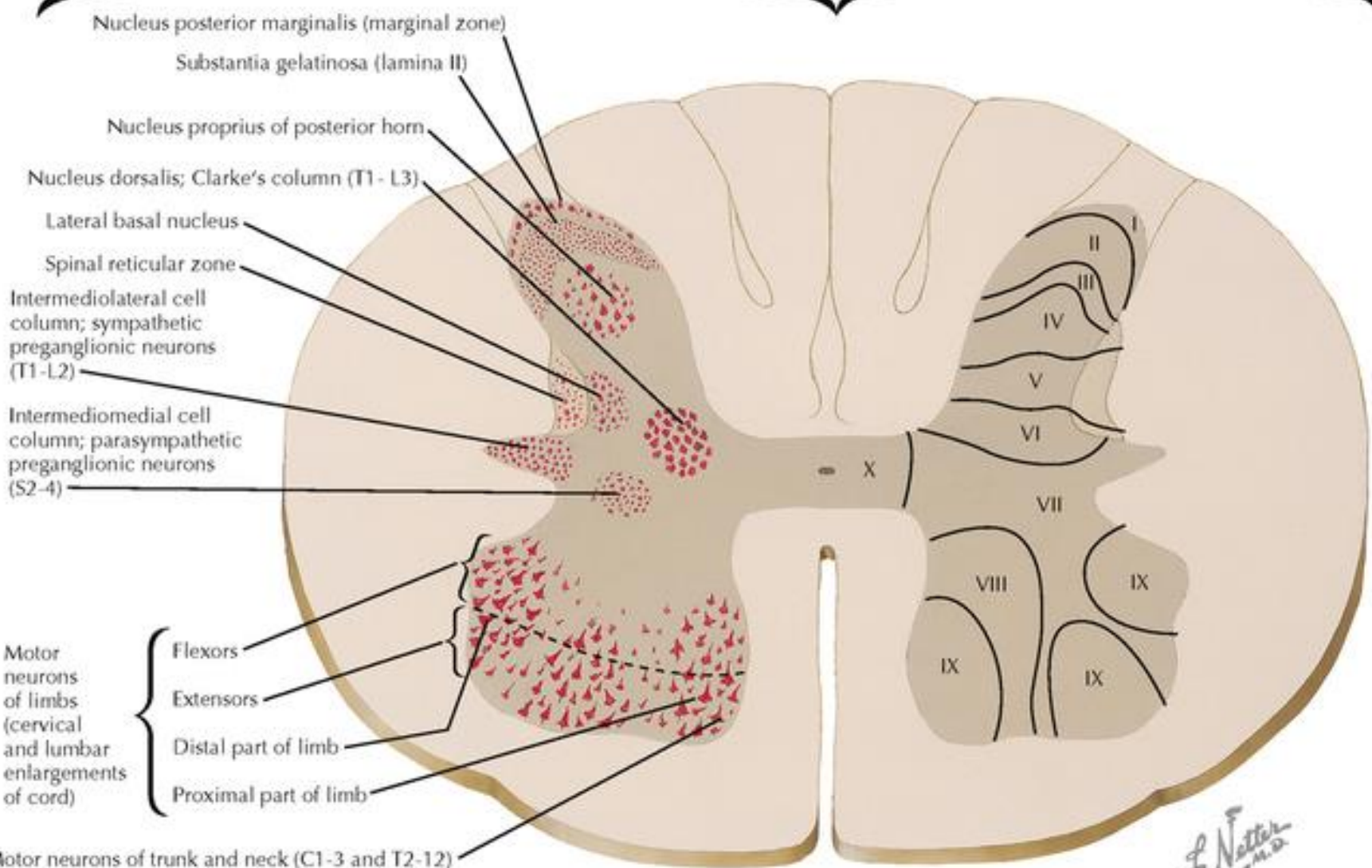
Third sacral segment



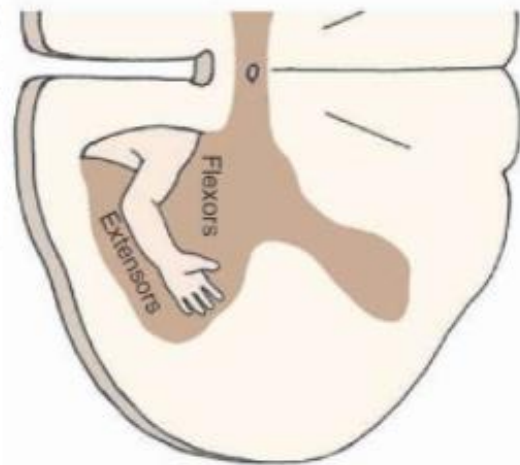
A. Cytoarchitecture of the spinal cord gray matter

Nuclear cell columns

Laminae of Rexed

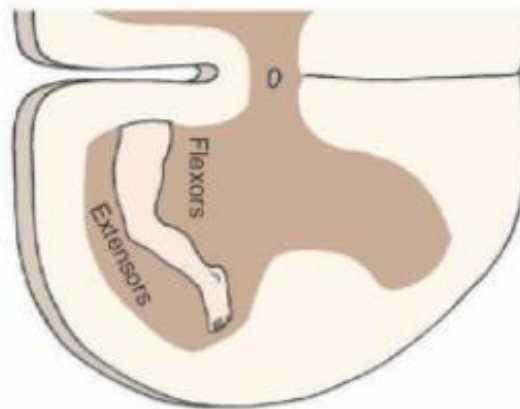


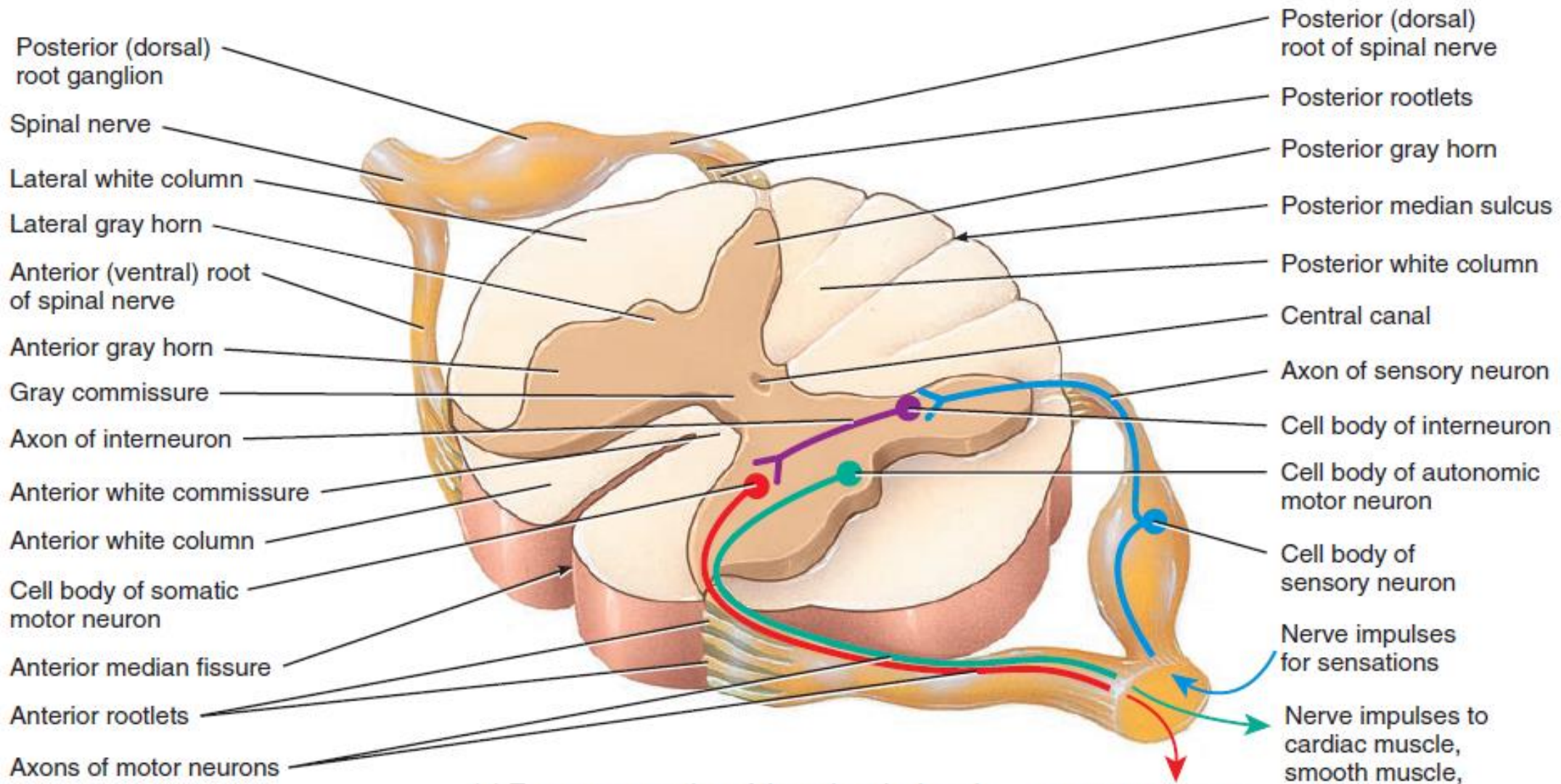
Cervical enlargement



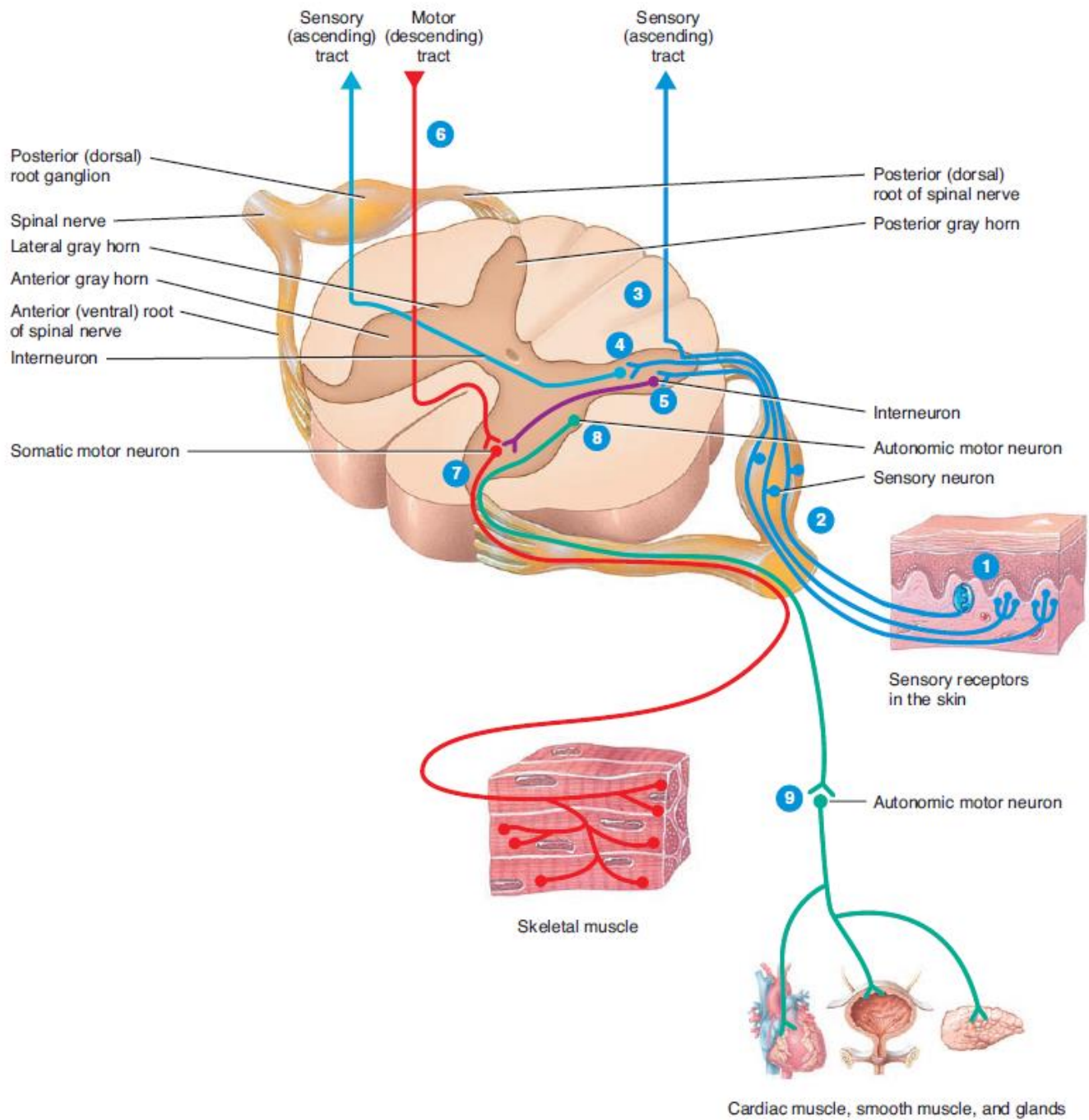
D

Lumbar enlargement



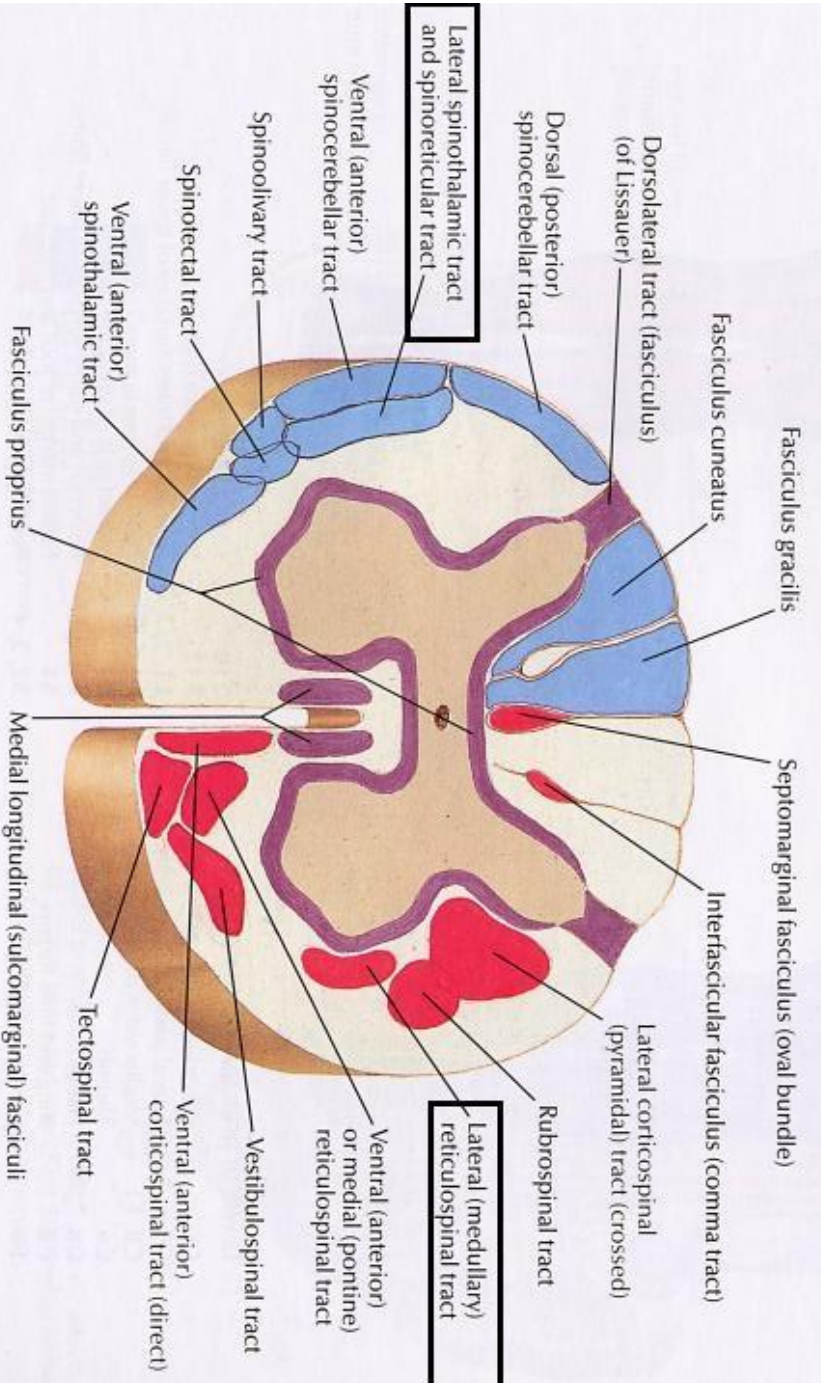


(a) Transverse section of thoracic spinal cord

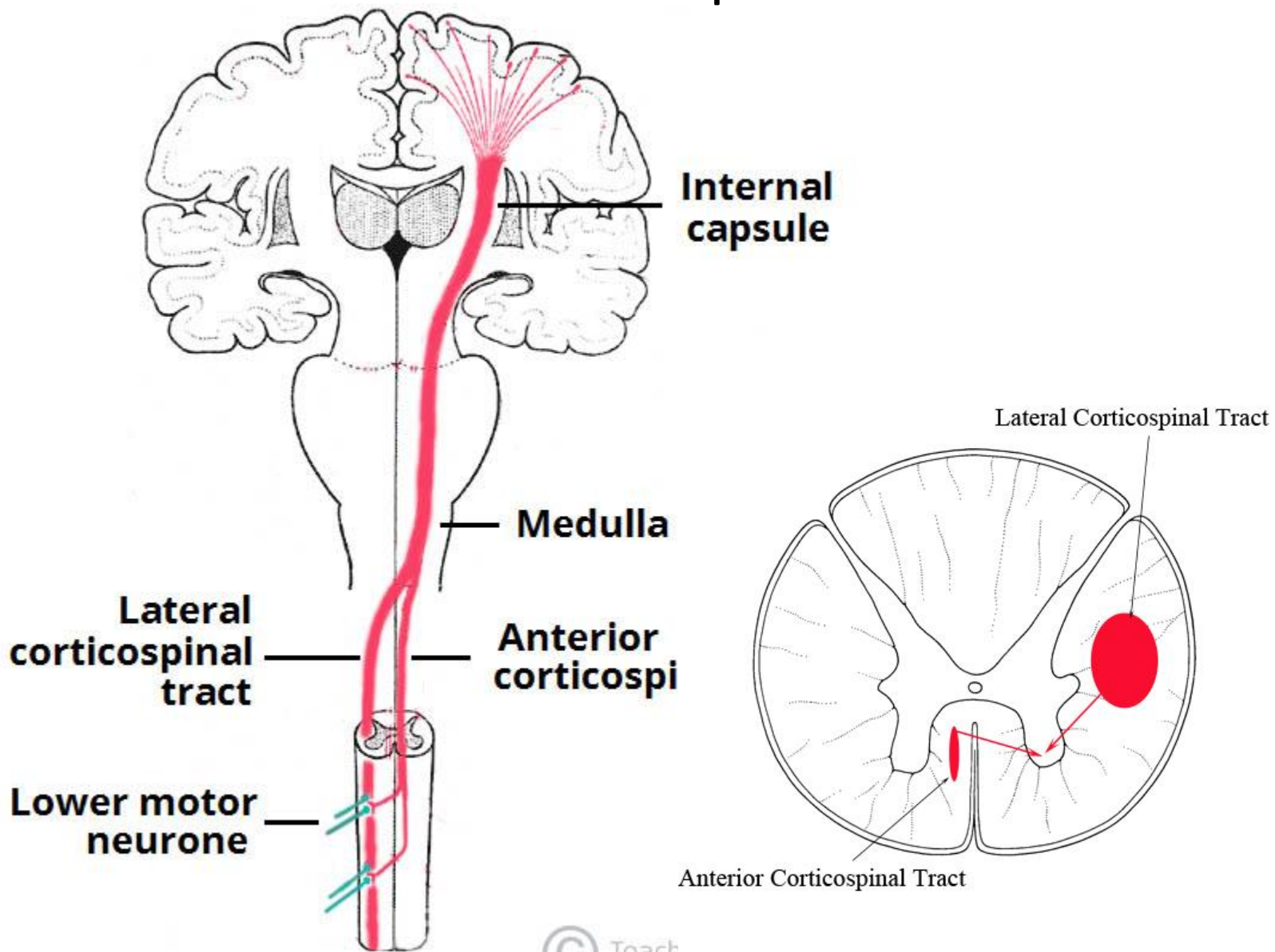


Principal fiber tracts of spinal cord

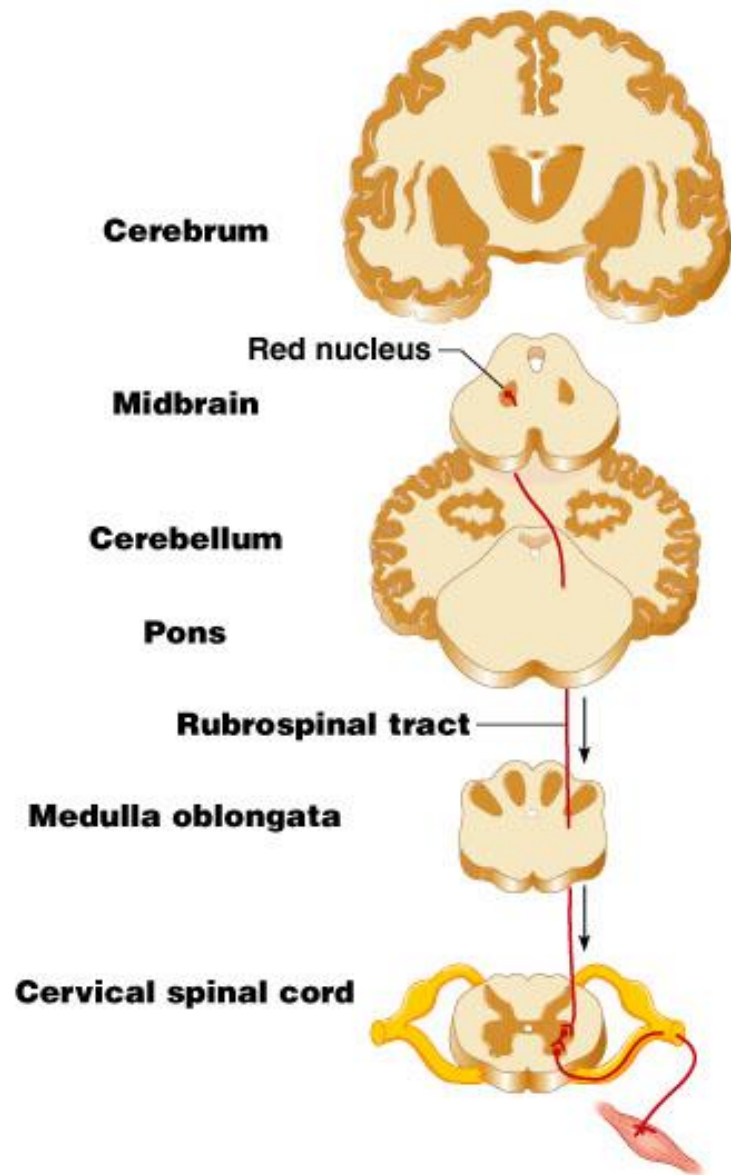
- █ Ascending pathways
- █ Descending pathways
- █ Fibers passing in both directions



Corticospinal Tract



© Teachmeanatomy



(b) Rubrospinal tract (an extrapyramidal tract)

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Spinothalamic Tract

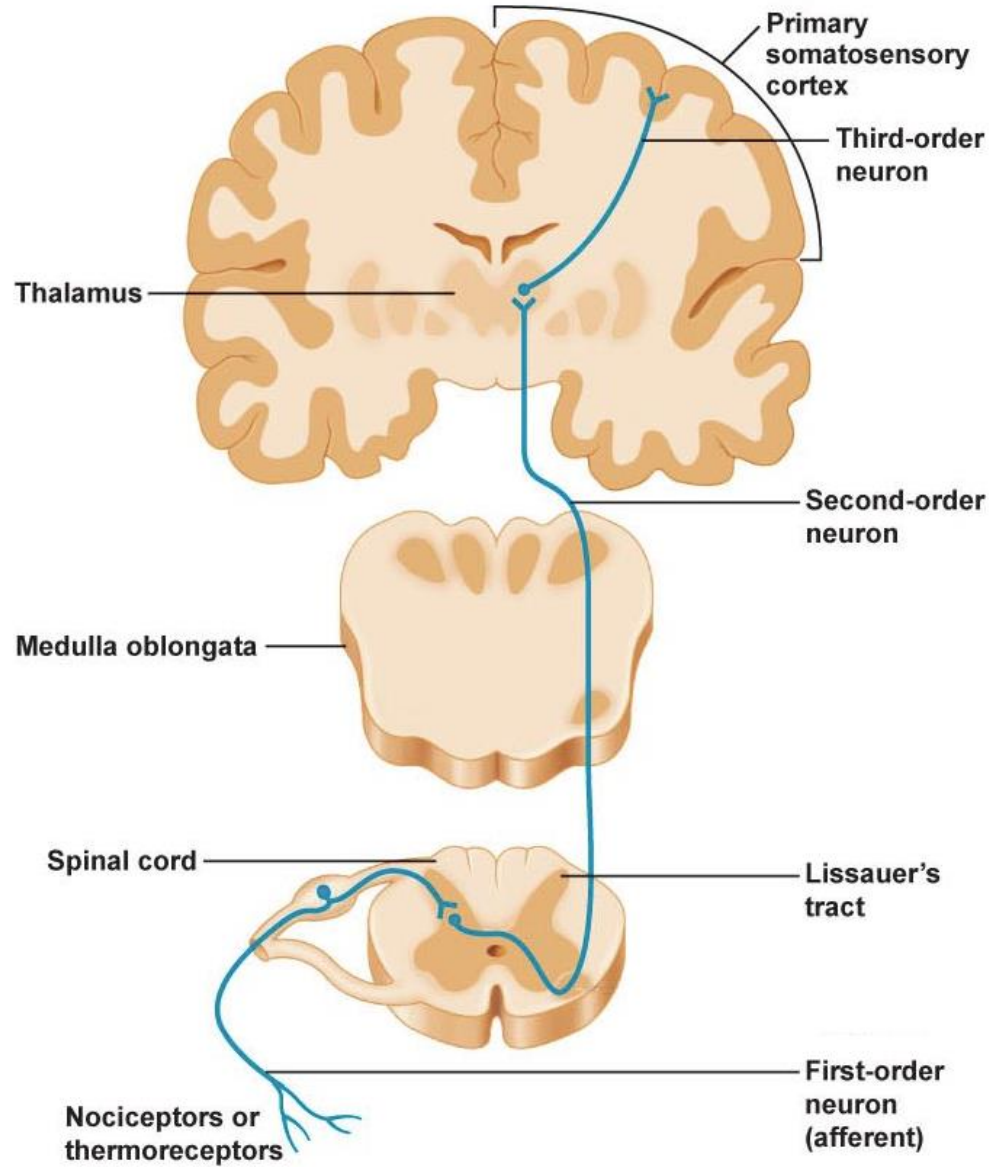
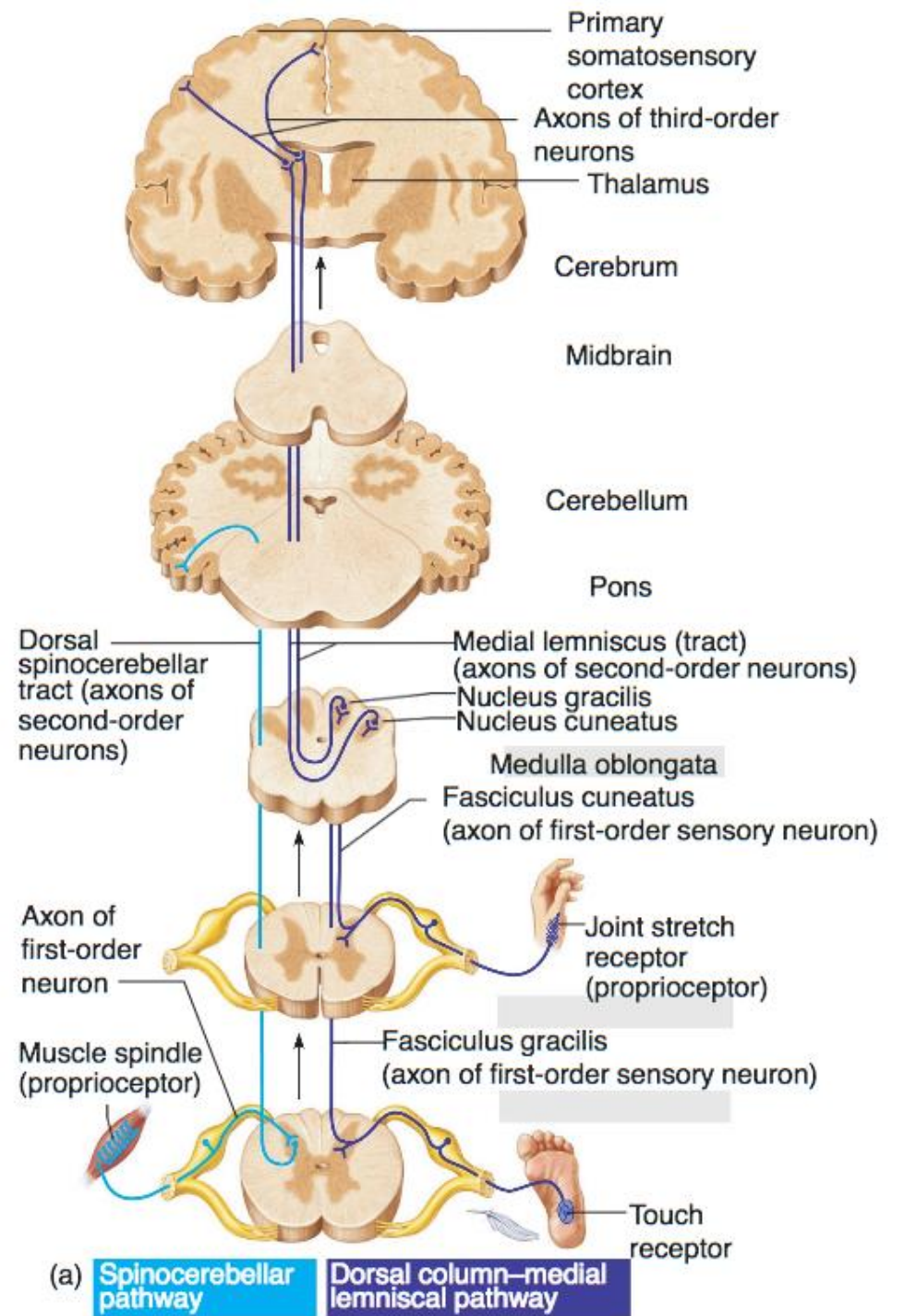
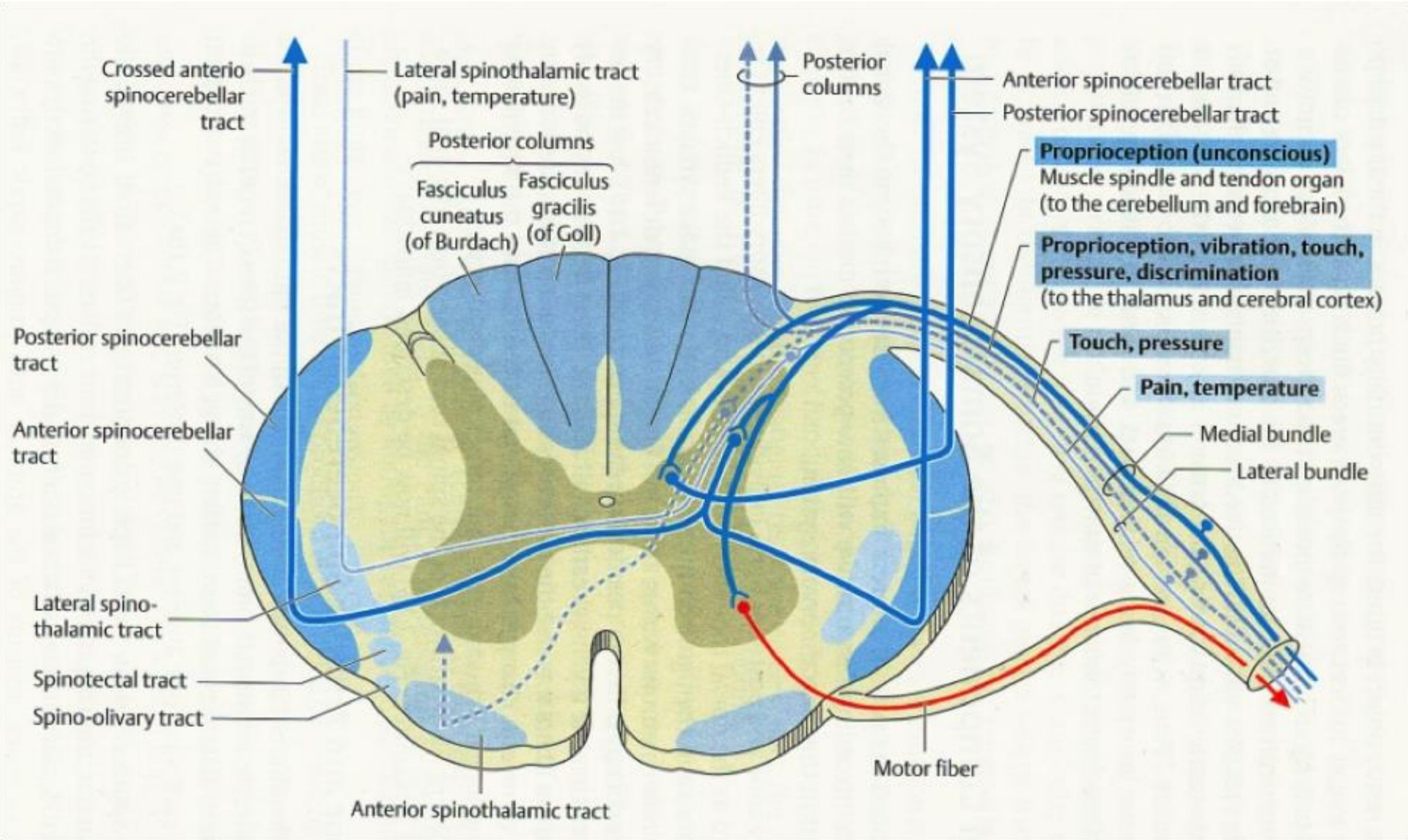


Image from: Pearson Education





Crossed antero spinocerebellar tract

Lateral spinothalamic tract (pain, temperature)

Posterior columns

Anterior spinocerebellar tract
Posterior spinocerebellar tract

Posterior columns
Fasciculus cuneatus (of Burdach)
Fasciculus gracilis (of Goll)

Proprioception (unconscious)
Muscle spindle and tendon organ (to the cerebellum and forebrain)

Proprioception, vibration, touch, pressure, discrimination
(to the thalamus and cerebral cortex)

Posterior spinocerebellar tract

Touch, pressure

Anterior spinocerebellar tract

Pain, temperature

Lateral spinothalamic tract

Medial bundle

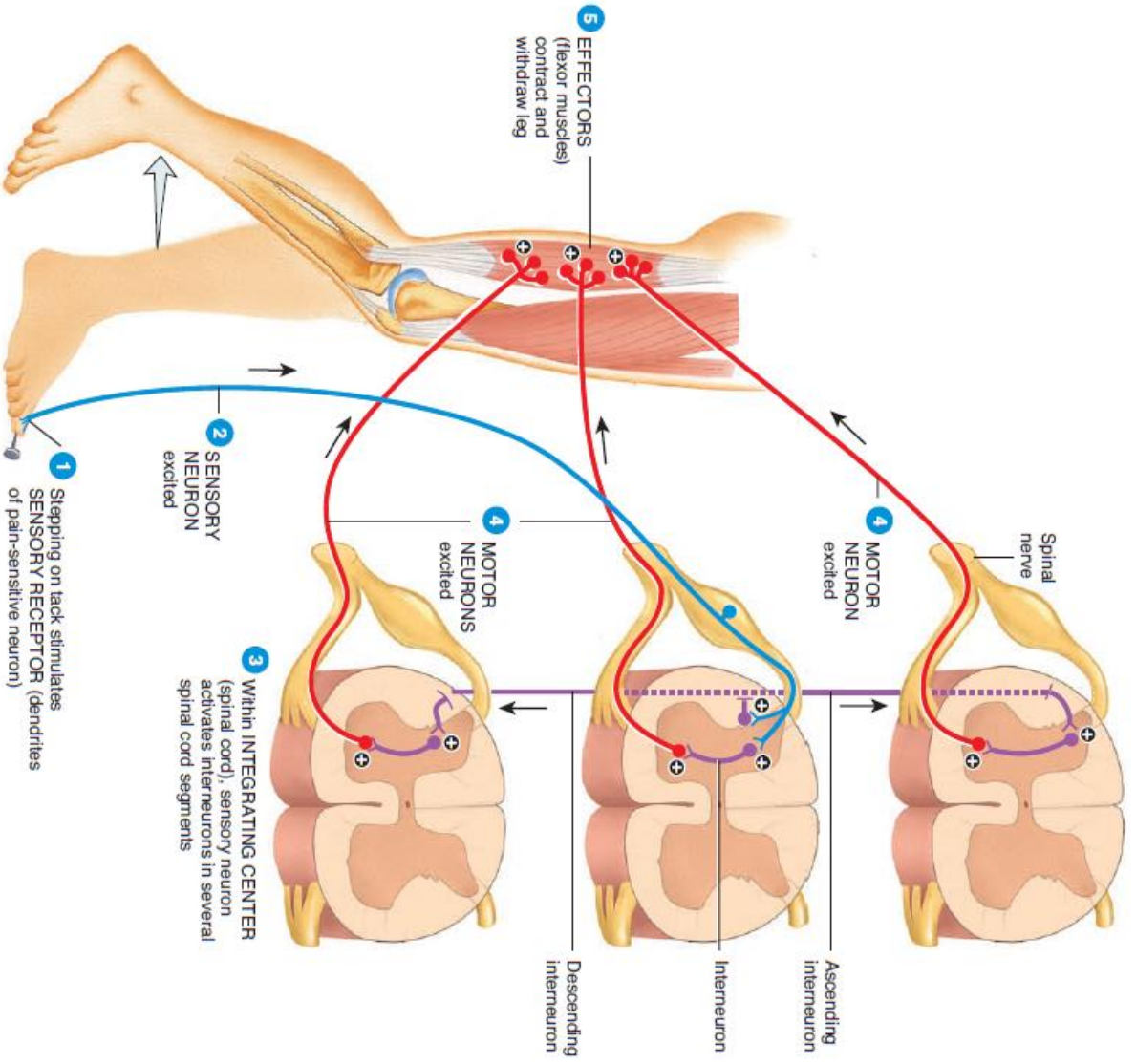
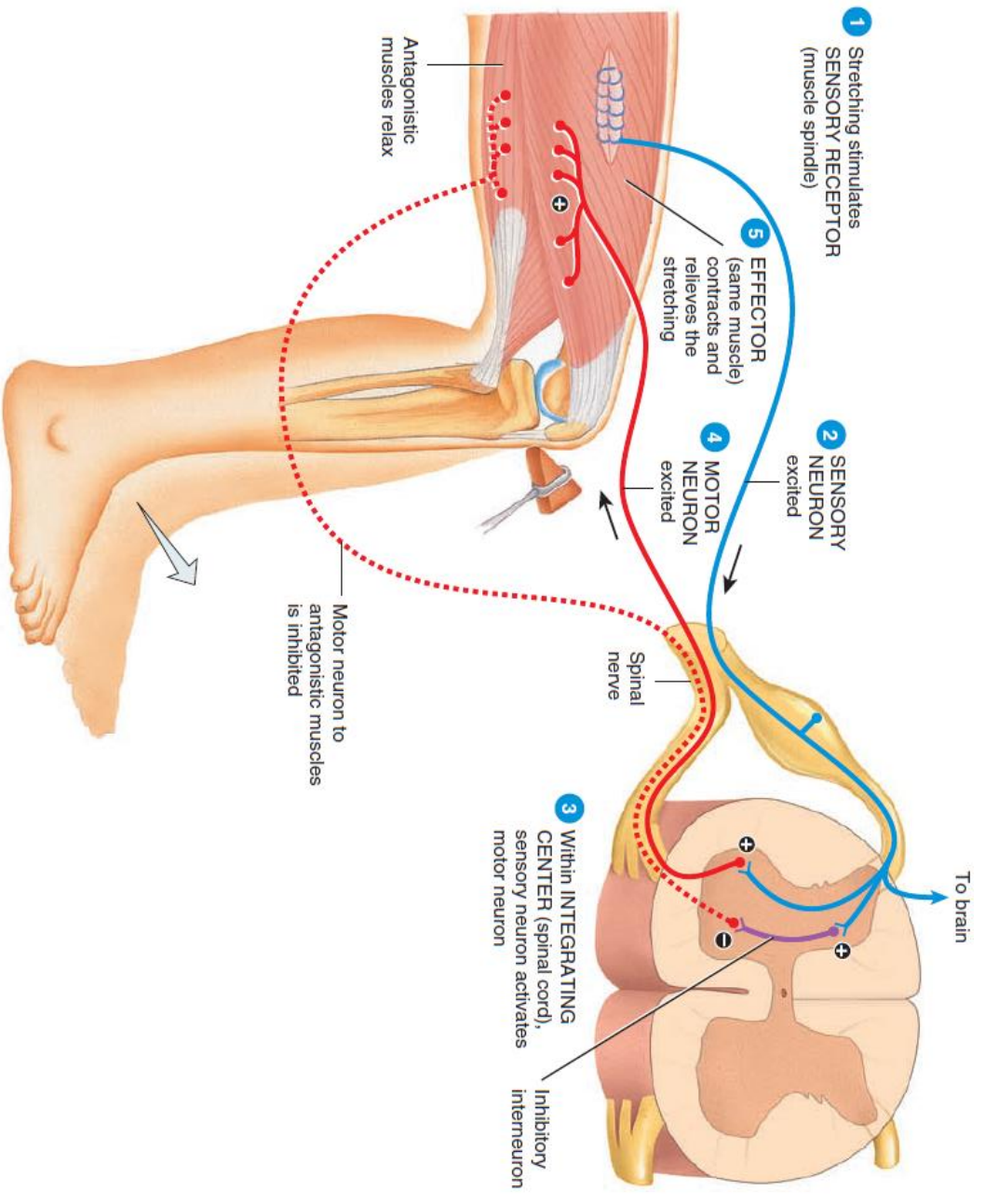
Spinotectal tract

Lateral bundle

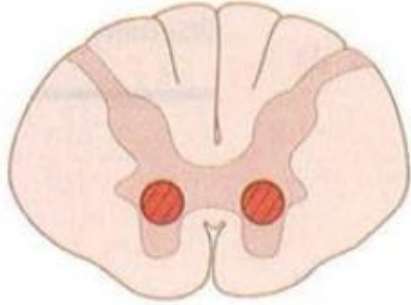
Spino-olivary tract

Motor fiber

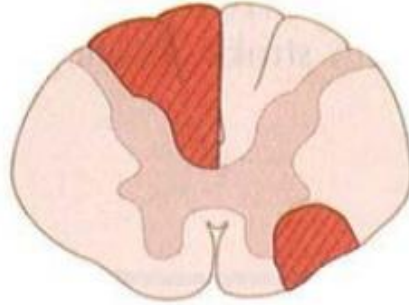
Anterior spinothalamic tract



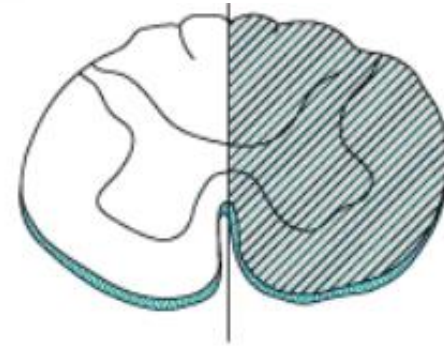
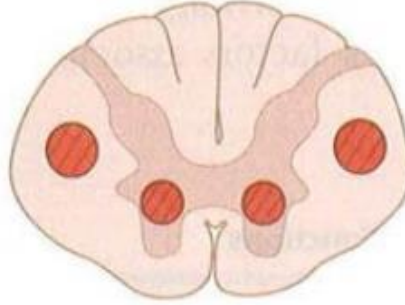
Poliomyelitis and Werdnig-Hoffmann disease: lower motor neuron lesions only, due to destruction of anterior horns; flaccid paralysis



Multiple sclerosis: mostly white matter of cervical region; random and asymmetric lesions, due to demyelination; scanning speech, intention tremor, nystagmus



ALS: combined upper and lower motor neuron deficits with no sensory deficit; both upper and lower motor neuron signs

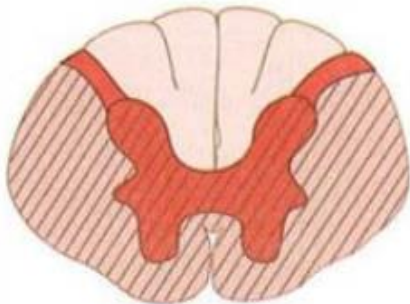


Hemisection
Brown-Séquad
Syndrome

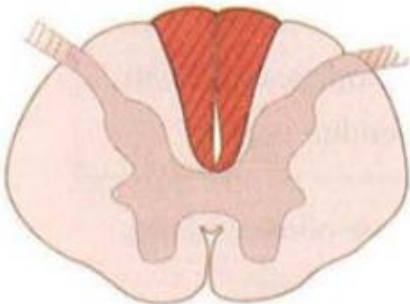


Complete
Transection

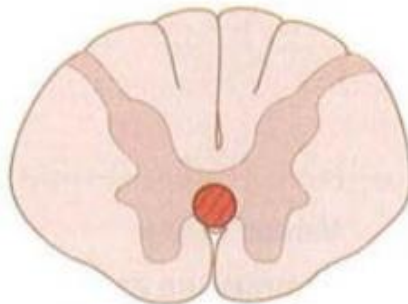
Complete occlusion of anterior spinal artery; spares dorsal columns and tract of Lissauer



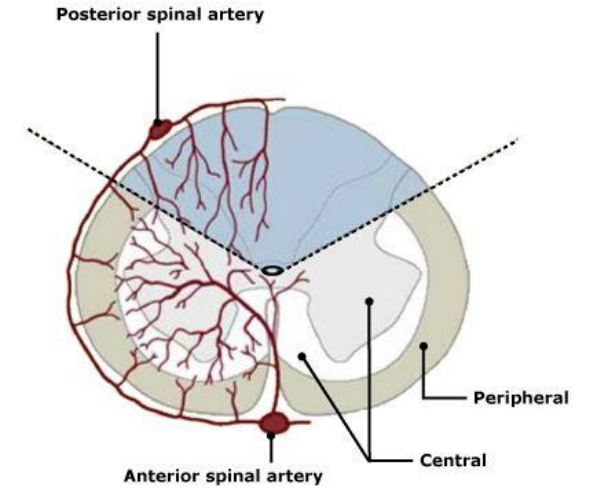
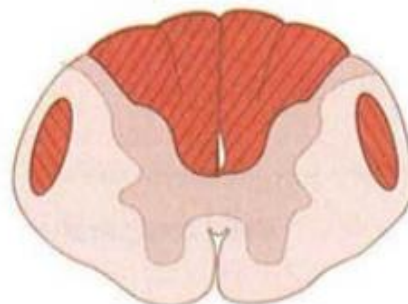
Tabes dorsalis (3° syphilis): degeneration of dorsal roots and dorsal columns; impaired proprioception, locomotor ataxia



Syringomyelia: crossing fibers of spinothalamic tract damaged; bilateral loss of pain and temperature sensation



Vitamin B₁₂ neuropathy and Friedreich's ataxia: demyelination of dorsal columns, lateral corticospinal tracts, and spinocerebellar tracts; ataxic gait, hyperreflexia, impaired position and vibration sense



Brown-Sequard syndrome

Syringomyelia

