

PTA/OTA 106 Unit 2 Lecture 6



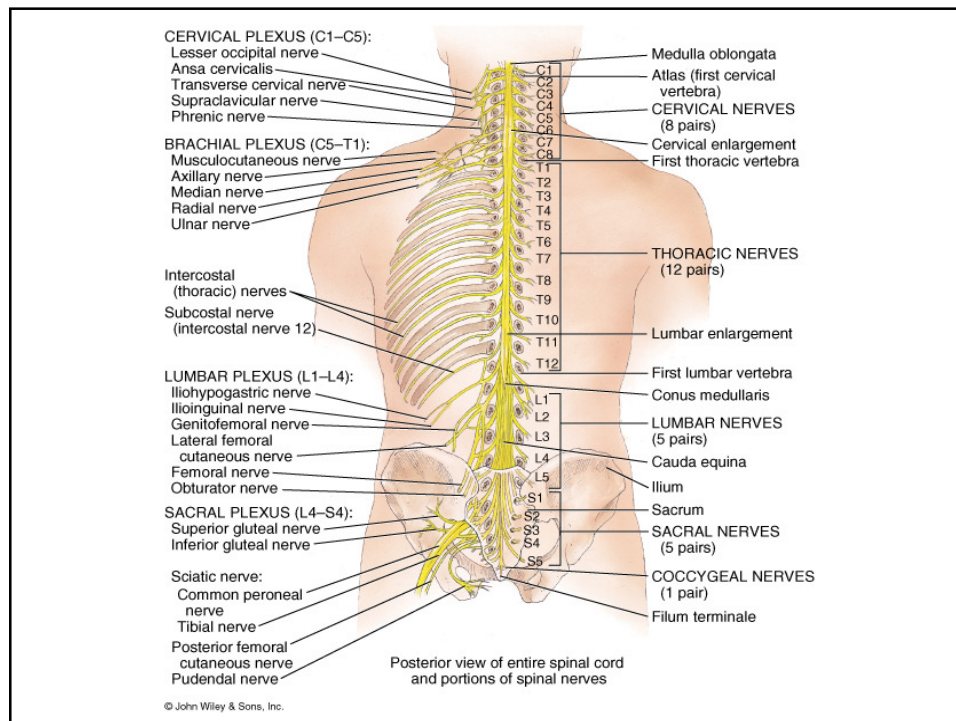
Spinal Nerves

- **Cervical nerves** **8 pairs**
- **Thoracic Nerves** **12 pairs**
- **Lumbar Nerves** **5 pairs**
- **Sacral Nerves** **5 pairs**
- **Coccygeal Nerves** **1 pair**

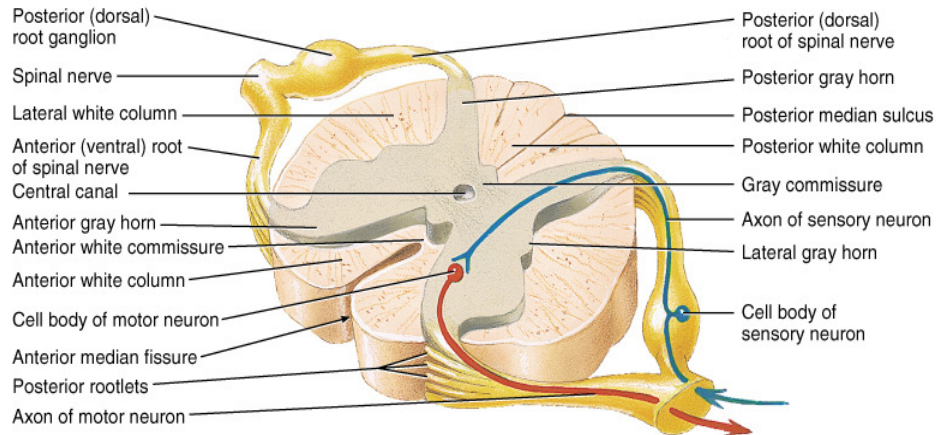
- **Total** **31 pairs**

Spinal Plexuses and Nerves

- **Cervical Plexus (C1-C5)**
- **Brachial Plexus (C5-T1)**
- **Lumbar Plexus (L1-L4)**
- **Sacral Plexus (L4-S4)**



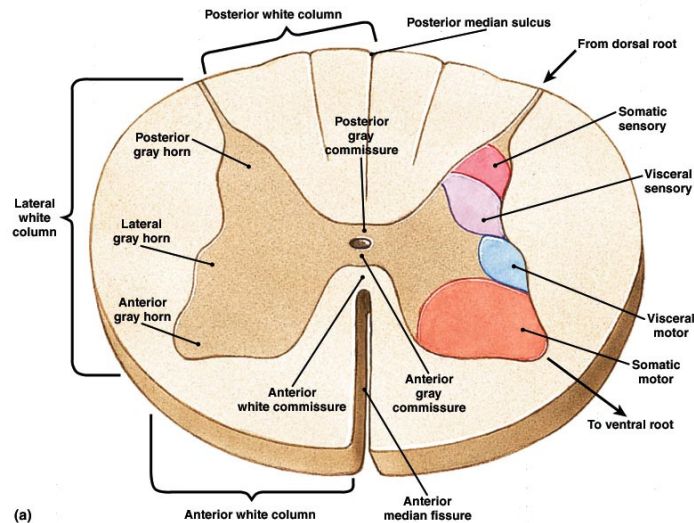
Gross Anatomy of the Spinal Cord



(a) Transverse section of the thoracic spinal cord

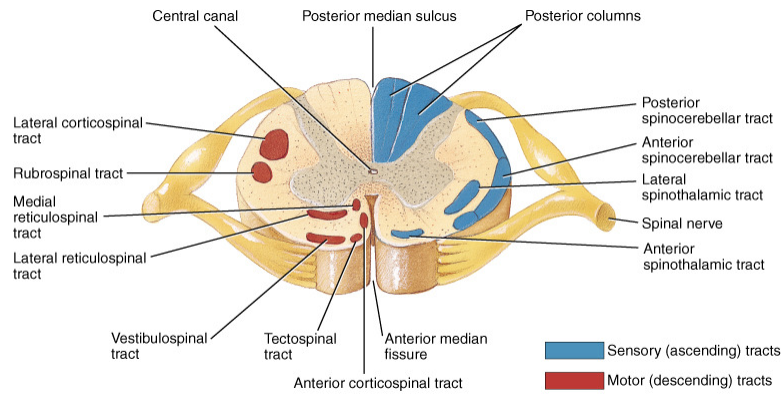
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Functional Organization of the Nuclei within the Gray Matter of the Spinal Cord



(a)

Location of Ascending and Descending Tracts of the Spinal Cord

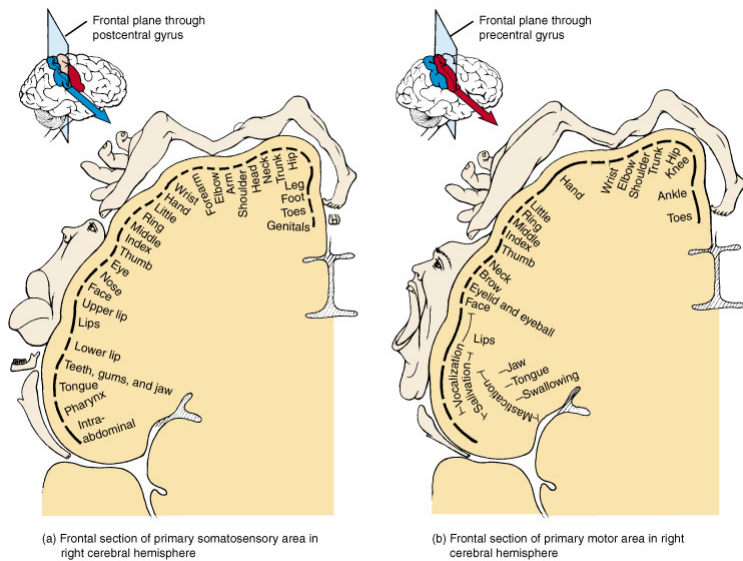
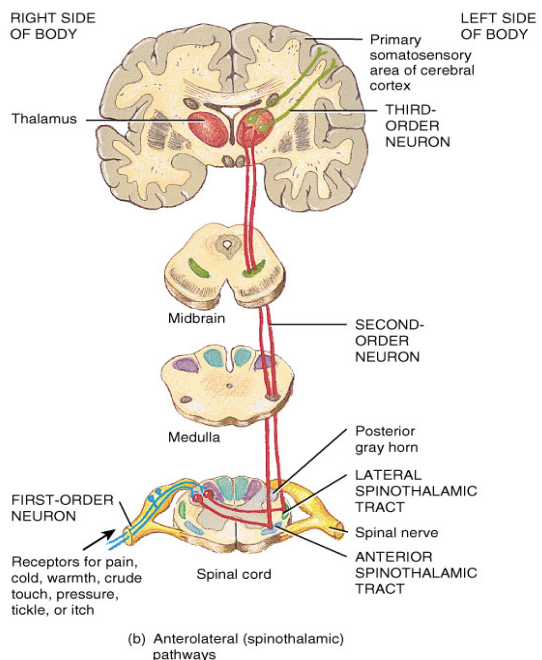


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Major Sensory or Ascending Tracts

Name	Location	Function
Fasciculus gracilis	Posterior Column	Discriminative touch, proprioception Weight discrimination
Fasciculus Cuneatus	Posterior Column	Same as FG
Lateral Spinothalamic	Lateral Column	Pain and Thermal sensations
Anterior Spinothalamic	Anterior Column	Itch, Tickle, Pressure, Crude touch sensations
Posterior and Anterior Spinocerebellar	Lateral Column	Proprioceptors

Organization of Sensory or Ascending Pathways

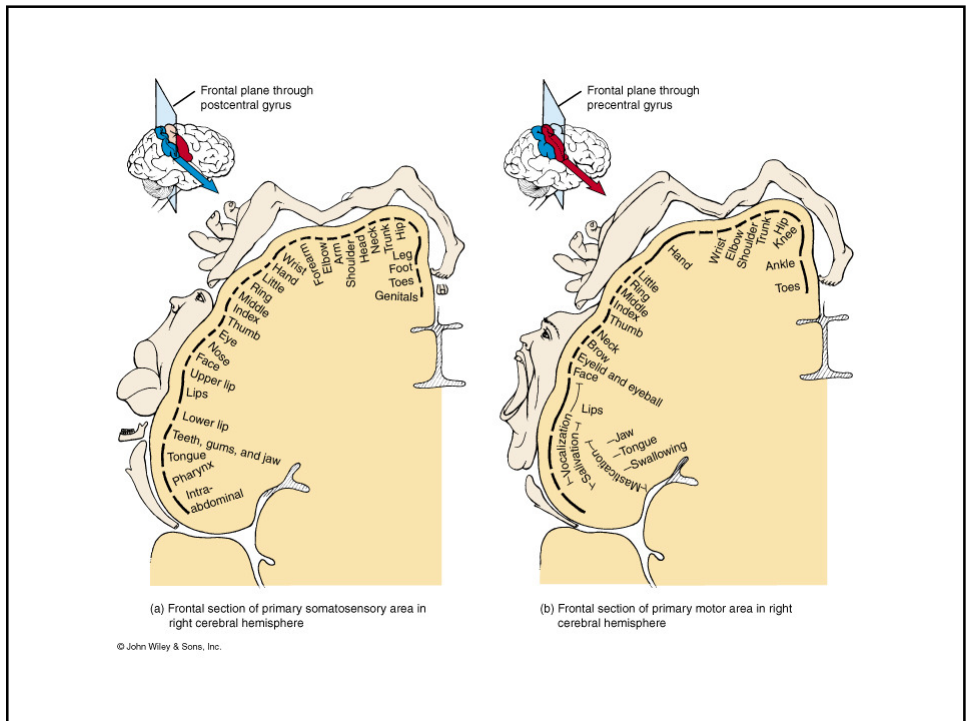
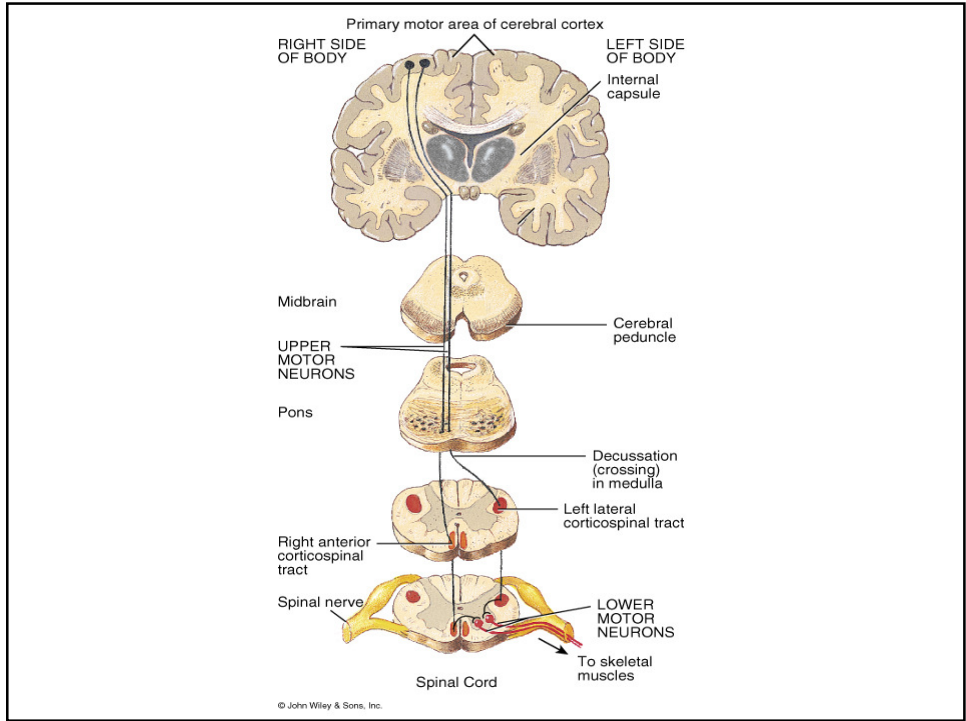


Motor or Descending Tracts of the Spinal Cord

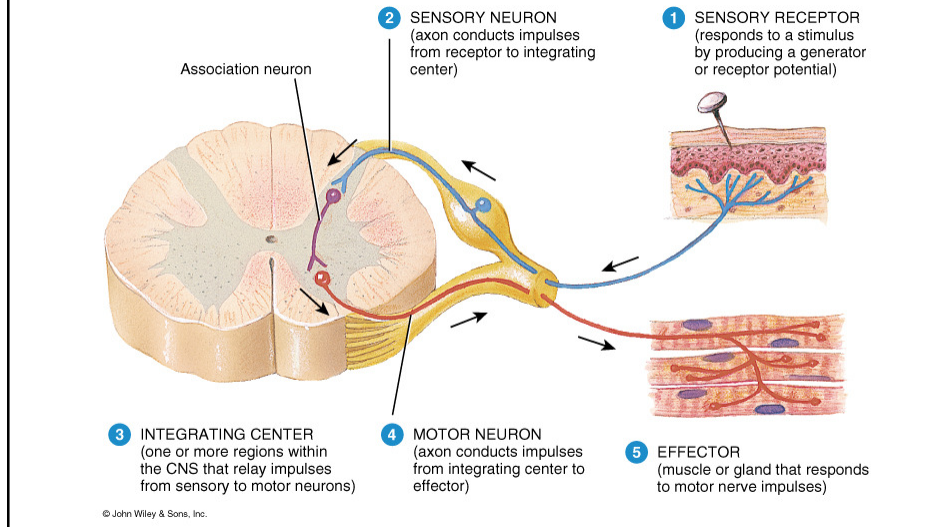
Name	Location	Function
Lateral Corticospinal	Lateral Column	Muscles of the limbs, hands, and feet
Anterior Corticospinal	Anterior Column	Muscles of the axial skeleton
Corticobulbar	Cerebral Peduncle	Skeletal muscles of the head and neck via cranial nerves
Rubrospinal	Lateral Column	Skeletal muscles of the limbs, hands, and feet
Tectospinal	Anterior Column	Skeletal muscles of the head and eyes in response to visual stimuli

Motor or Descending Tracts of the Spinal Cord

Name	Location	Function
Vestibulospinal	Anterior column	Muscle for maintaining balance in response to head movements
Lateral reticulospinal	Anterior column	Facilitates flexor reflexes Inhibits extensor reflexes
Medial reticulospinal	Anterior column	Facilitates extensor reflexes Inhibits Flexor reflexes



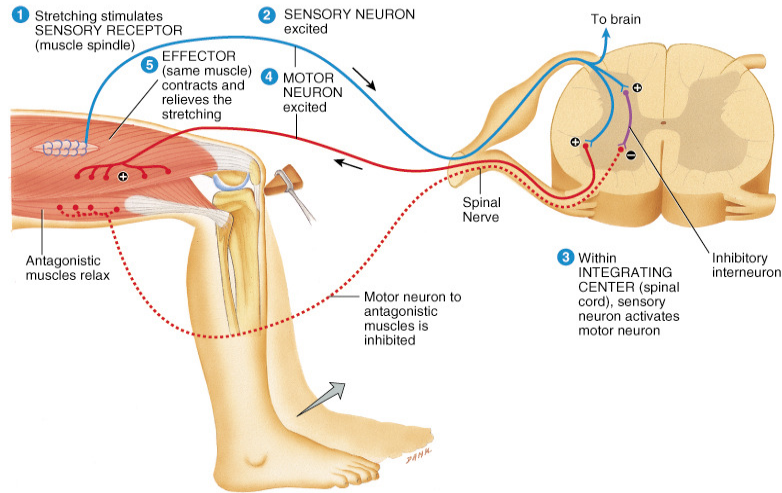
Basic Organization of a Reflex Pathway



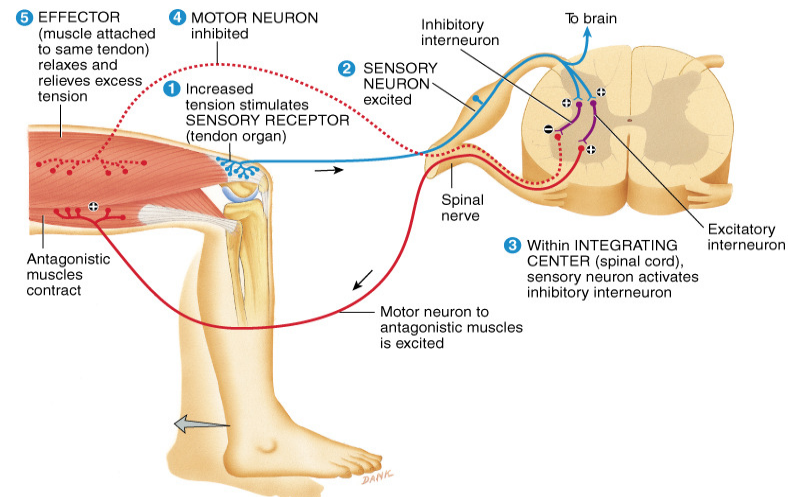
Terms Associated with Reflex Pathways

- **Spinal Reflexes // Cranial Reflexes**
- **Somatic Reflexes // Visceral (Autonomic) Reflexes**
- **Monosynaptic Reflex // Polysynaptic Reflex**
- **Ipsilateral Reflex // Contralateral Reflex**
- **Segmental Reflex // Intersegmental Reflex**
- **Reciprocal innervation**

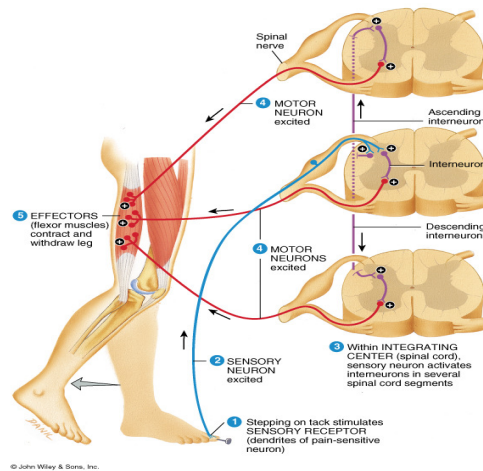
A Spinal, Somatic, Monosynaptic, Ipsilateral, Segmental Reflex demonstrating Reciprocal Innervation



A Spinal, Somatic, Polysynaptic, Ipsilateral, Segmental Reflex demonstrating Reciprocal Innervation



A Spinal, Somatic, Polysynaptic, Ipsilateral, Intersegmental Reflex demonstrating Reciprocal Innervation



A Spinal, Somatic, Polysynaptic, Contralateral, intersegmental Reflex demonstrating Reciprocal Innervation

