Spinal Cord

Medical Neuroscience
Dr. Wiegand

Directions

- rostral - toward the “beak”
- caudal - toward the “tail”
- ventral - toward the front (anterior)
- dorsal - toward the back (posterior)
- superior - above
- inferior - below
Spinal Cord

- Central gray nuclei and outer white matter (tracts)
- Descending tracts
- Ascending tracts
- Peripheral nerve fibers

Peripheral and Central Nervous System

- PNS
- Motor
- Sensory
- CNS
- Lesions

Spinal nerves & cord

- 31 pairs with anterior and posterior root
- C1 often doesn't have posterior root
- Spinal cord enlarged in C5 – T1 and L2 – S3 levels
- Spinal cord ends at L1 vertebral level
Dermatomes & Myotomes

- Dermatome – an area of skin innervated by a single posterior root
- Myotome – a group of muscles innervated by a single anterior root
**Stretch Reflexes**

- Examples:
  - C5-6 = biceps tendon
  - C6 = brachioradialis
  - C7-8 = triceps tendon
  - L2-4 = patellar tendon
  - S1-2 = Achilles tendon

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**External Spinal Cord**

- Conus medullaris
- Filum terminale
- Cauda equina
- Dura mater

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**External Structure – Spinal Cord**

- Posterior Median Sulcus
- Lateral sulci
- Posterior Intermediate Sulci
- Anterior Median Fissure
Internal Structure – White Matter

White Matter Organization:
Ascending Pathways

White Matter Organization:
Descending Pathways
White Matter Organization: Intersegmental Pathways

Lissauer’s Tract
Intersegmental Tracts

White Matter Organization: Ascending Pathways

Lateral & Anterior Spinothalamic Tracts
Posterior Columns
White Matter Organization: Descending Pathways

Grey Matter Organization

Grey Matter Organization: Anterior Cell Columns
Grey Matter Organization:
Lateral Grey Horns: T1 – L2/3

AKA Intermediolateral Cell Column

Grey Matter Organization:
Posterior Cell Column

From Pritchard & Alloway: Fig. 3-7
"Mr. Osborne, may I be excused? My brain is full."