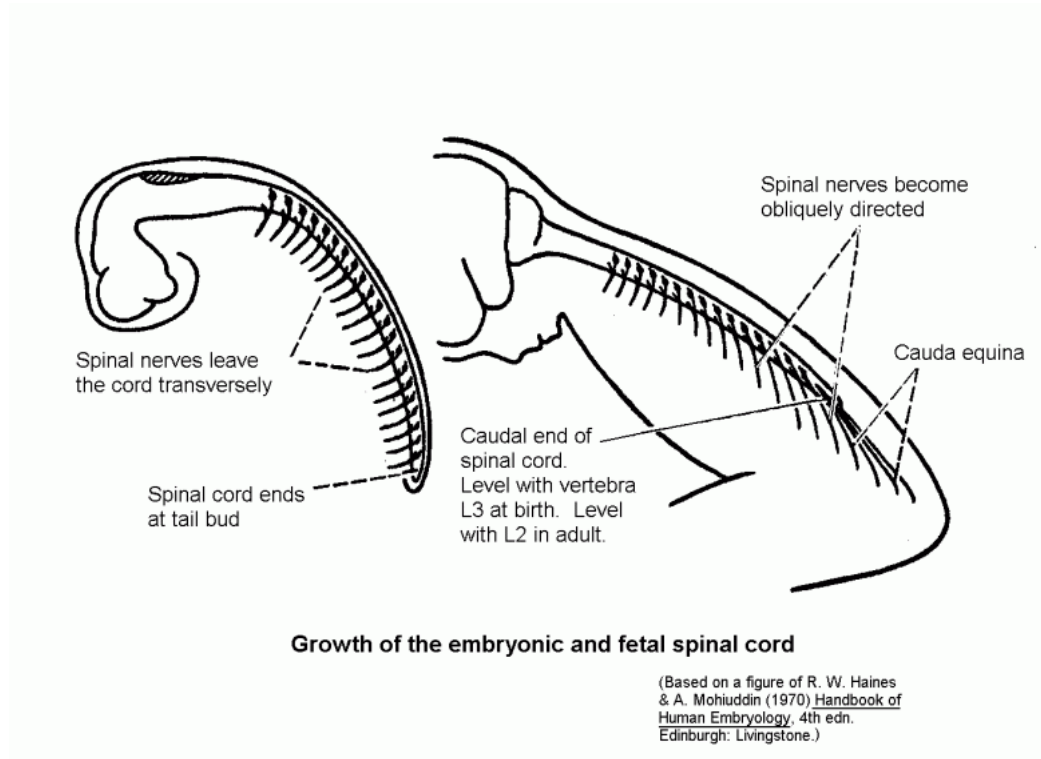
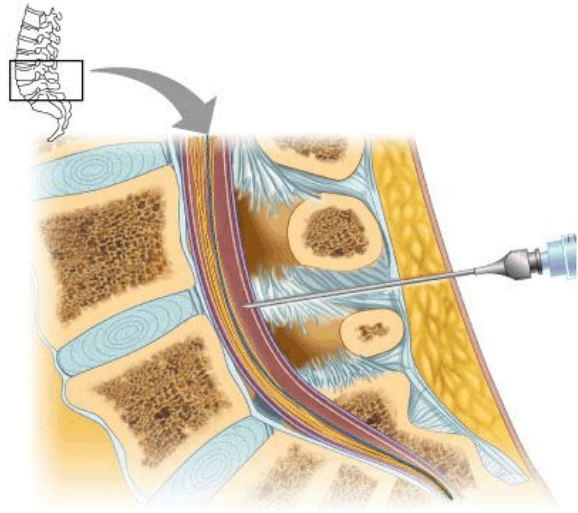


Neuroanatomy at UWO

Anatomy 9535b. THE SPINAL CORD



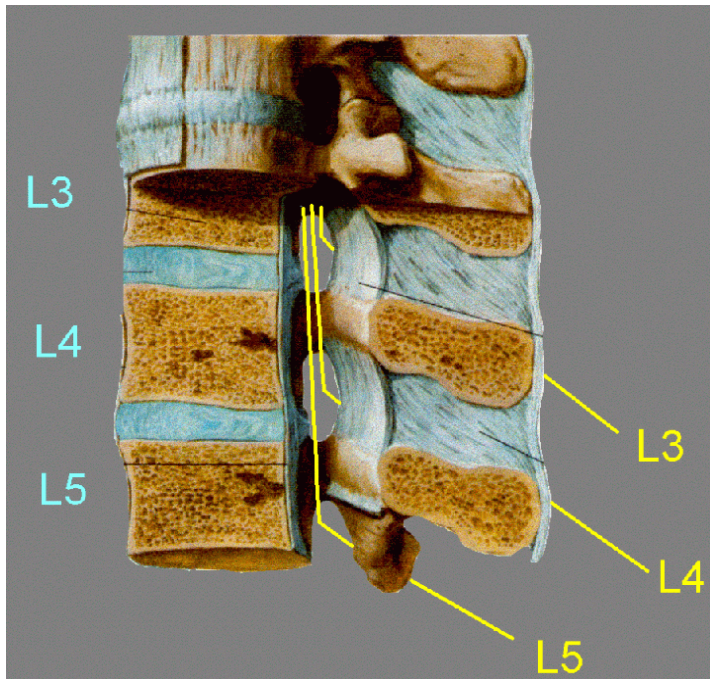
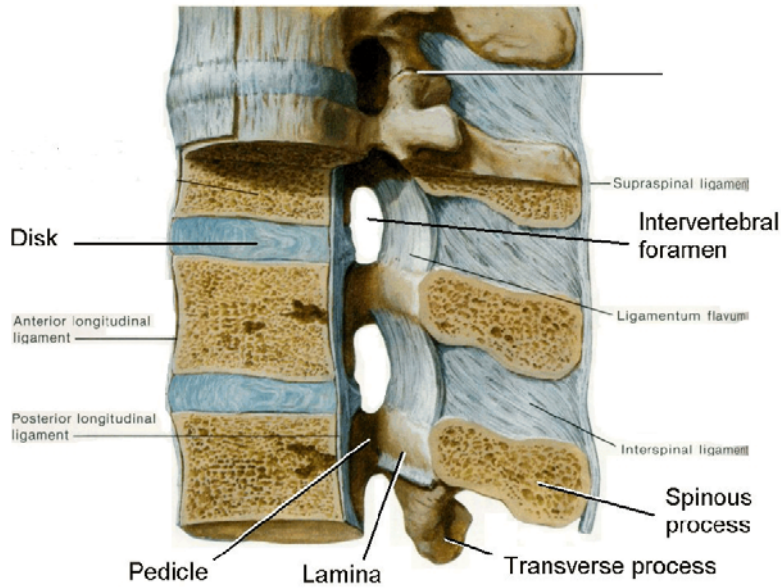
The spinal cord is **shorter than the spinal canal** in which it is suspended. Except in the neck, spinal cord segments are rostral to the corresponding vertebrae. **The end of the adult spinal cord (the conus medullaris) is level with the 2nd lumbar vertebra.**



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Lumbar puncture: Cerebrospinal fluid can be sampled by a needle put into the subarachnoid space below the level of the conus medullaris.

Ligaments of Spinal Column

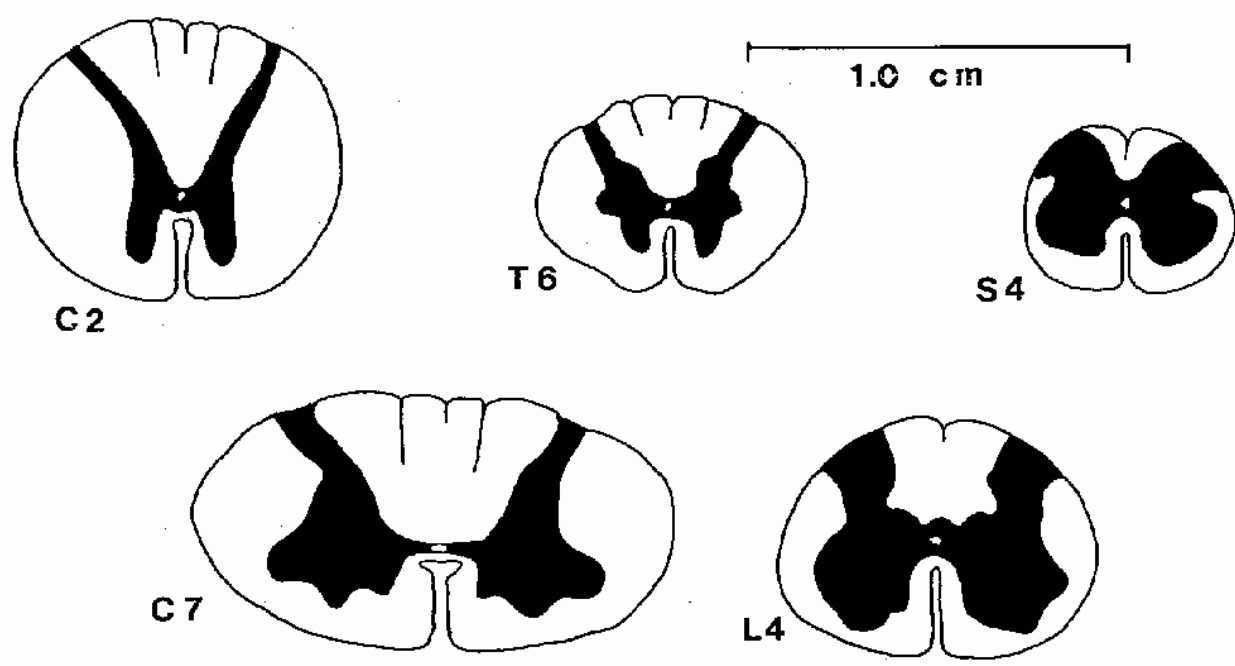


Herniation of a lumbar intervertebral disc presses on a spinal nerve that has not yet left the spinal canal.

Example. The disk between vertebrae L3 and L4 could compress nerve L4 or L5, but not L3.

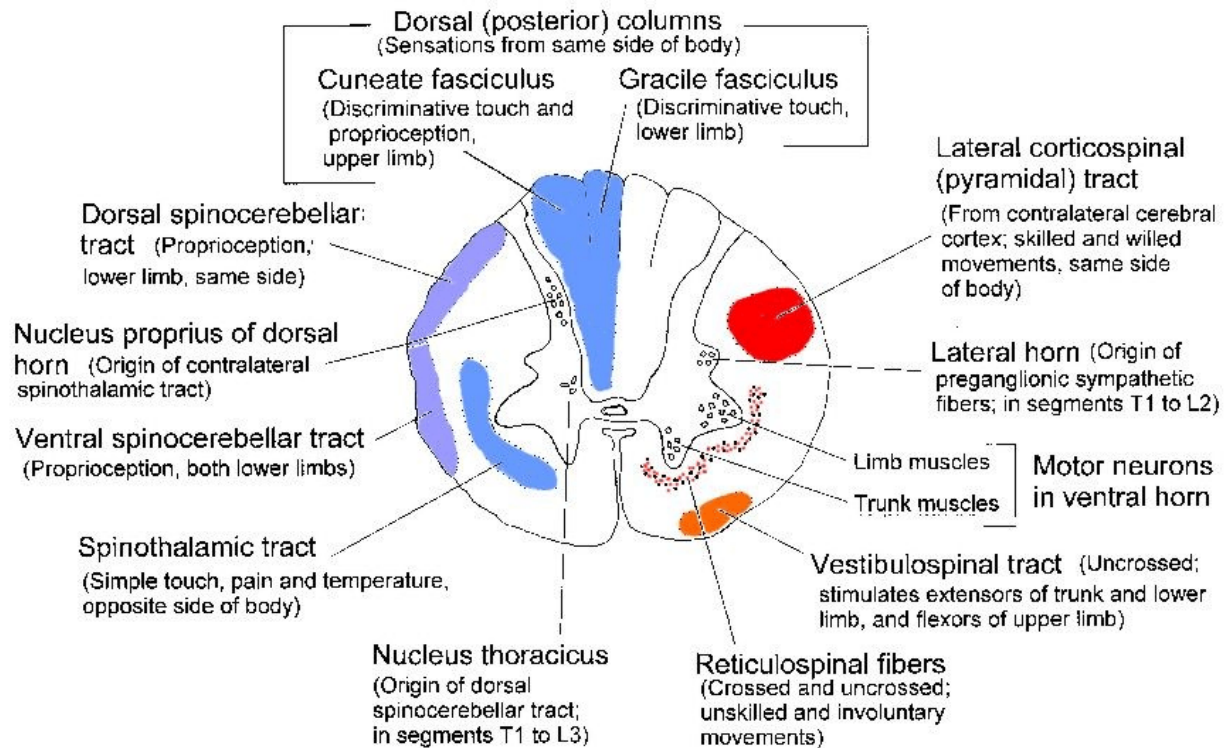
The **cross sectional area of the central gray matter** indicates the number of neurons: largest for segments supplying limbs.

The **cross sectional area of the white matter** decreases caudally because there are fewer descending and ascending fibers.



ASCENDING AND DESCENDING TRACTS and some cell columns

Section of a thoracic segment of the spinal cord showing major groups of neurons in the grey matter, and positions of tracts in white matter.



Motor neurons are in the **ventral horn**; **sensory axons** enter the **dorsal horn** and the dorsal funiculi. **Preganglionic autonomic neurons** are laterally placed, in segments T1-L2 and S2-S4.

Ascending tracts include the uncrossed **gracile and cuneate fasciculi** (from sensory ganglia) and the crossed **spinothalamic tract** (from the dorsal horn). These are concerned with different types of sensation.

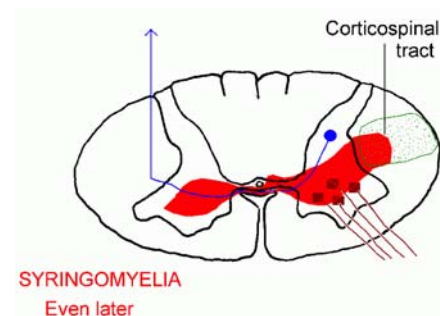
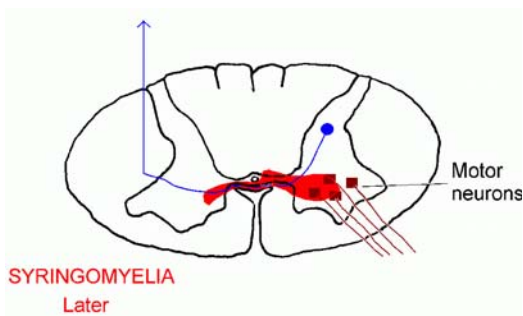
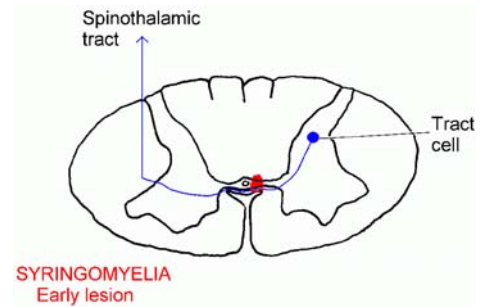
Descending motor tracts include the uncrossed **vestibulospinal** and the crossed **lateral corticospinal tract**. **Hypothalamospinal** and some **reticulospinal** fibers influence autonomic functions.

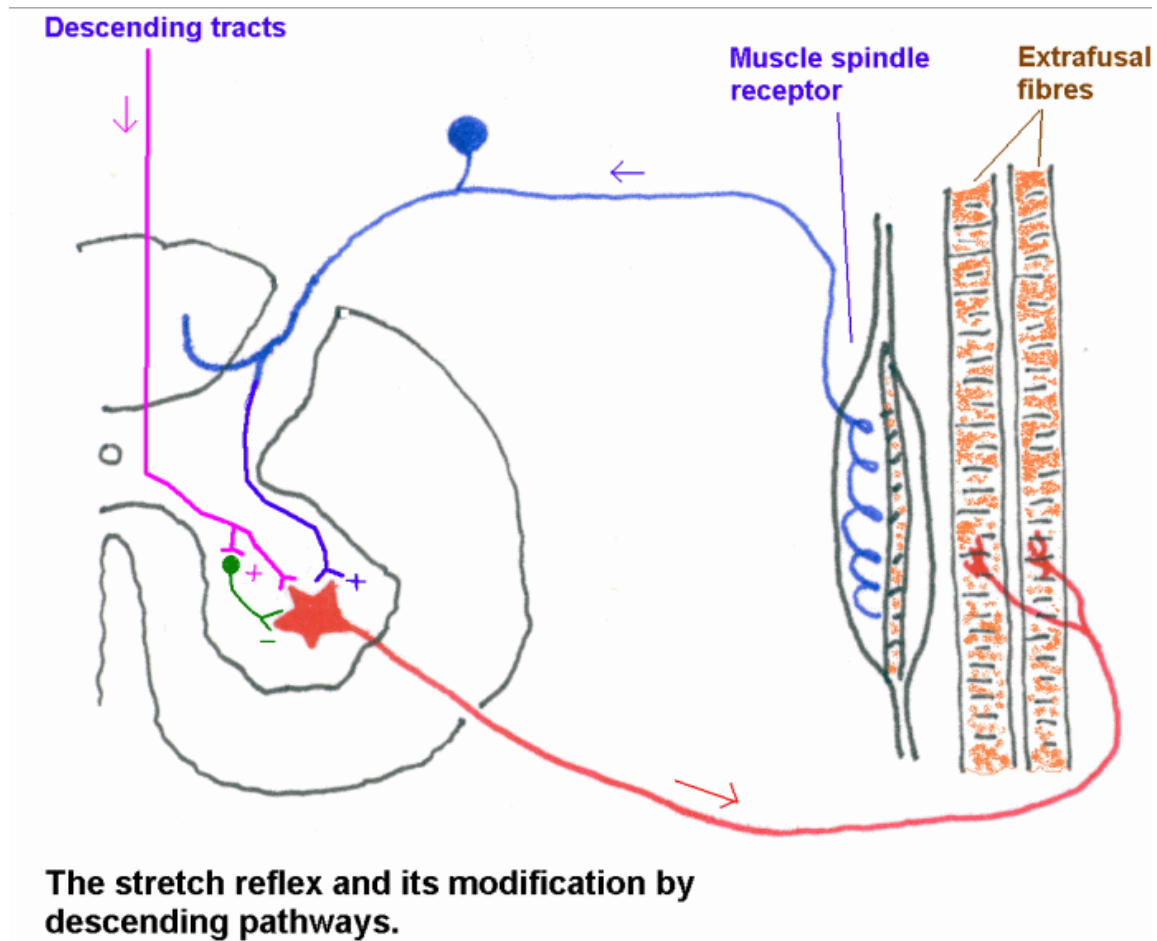
Lesions in different parts of the spinal cord produce sensory and motor abnormalities appropriate to the functions of the tracts that have been transected. The segmental level of a lesion is indicated by the affected dermatomes and movements.

SYRINGOMYELIA

A slowly developing (chronic) disease of the spinal cord. A narrow cavity forms in the centre of the cord, near the central canal, and gradually becomes larger. The lesion typically extends through the middle and lower cervical and the upper few thoracic segments of the spinal cord, which serve the upper limb, especially the hands.

This is not a common disease, but its effects are instructive.





Muscle spindles monitor the length of a muscle.

Receptors in tendons monitor tension.