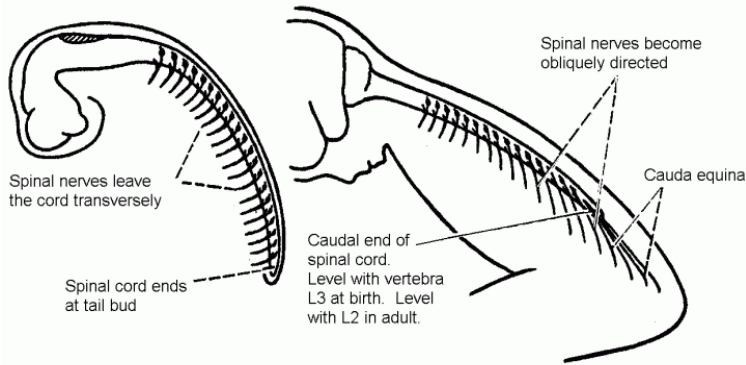


THE SPINAL CORD.

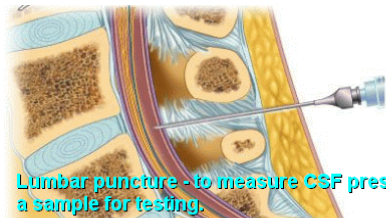
Growth of the developing vertebral column and spinal cord.



Growth of the embryonic and fetal spinal cord

(Based on a figure of R. W. Haines & A. Mohiuddin (1970) *Handbook of Human Embryology*, 4th edn. Edinburgh: Livingstone.)

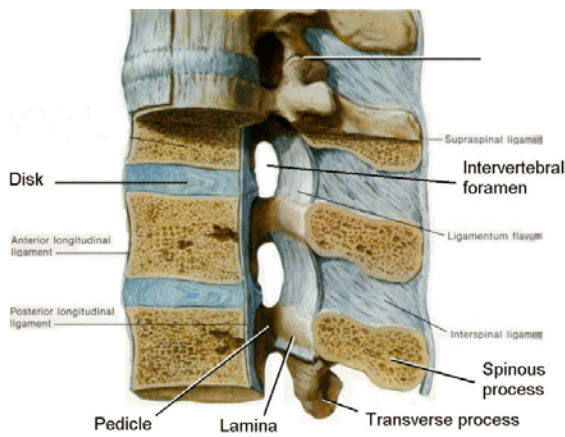
Lumbar puncture (spinal tap).



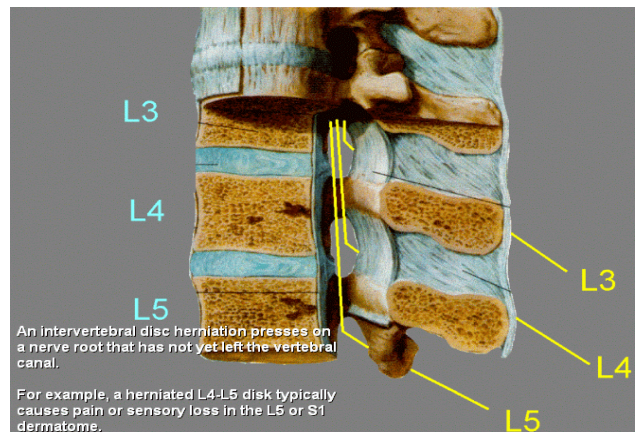
Lumbar puncture - to measure CSF pressure and collect a sample for testing.

The needle is inserted in the midline (to miss nerve roots) and half-way between the dorsal spinous processes of vertebrae L3-L4 or L4-L5 (to miss the conus medullaris of the spinal cord, which is at the level of vertebra L2).

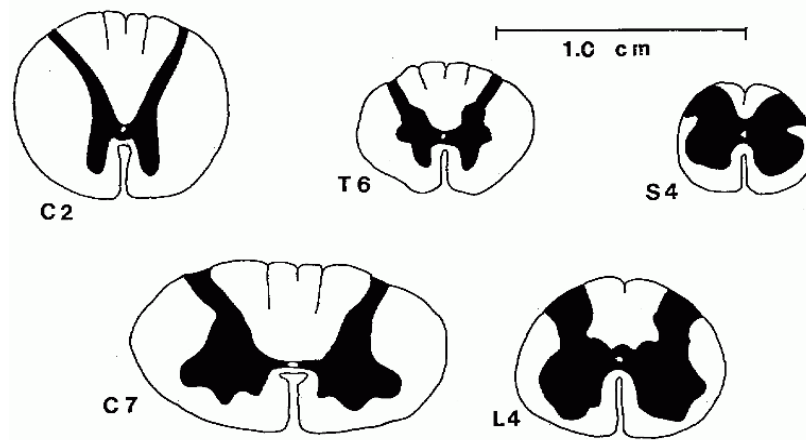
Lumbar spine.



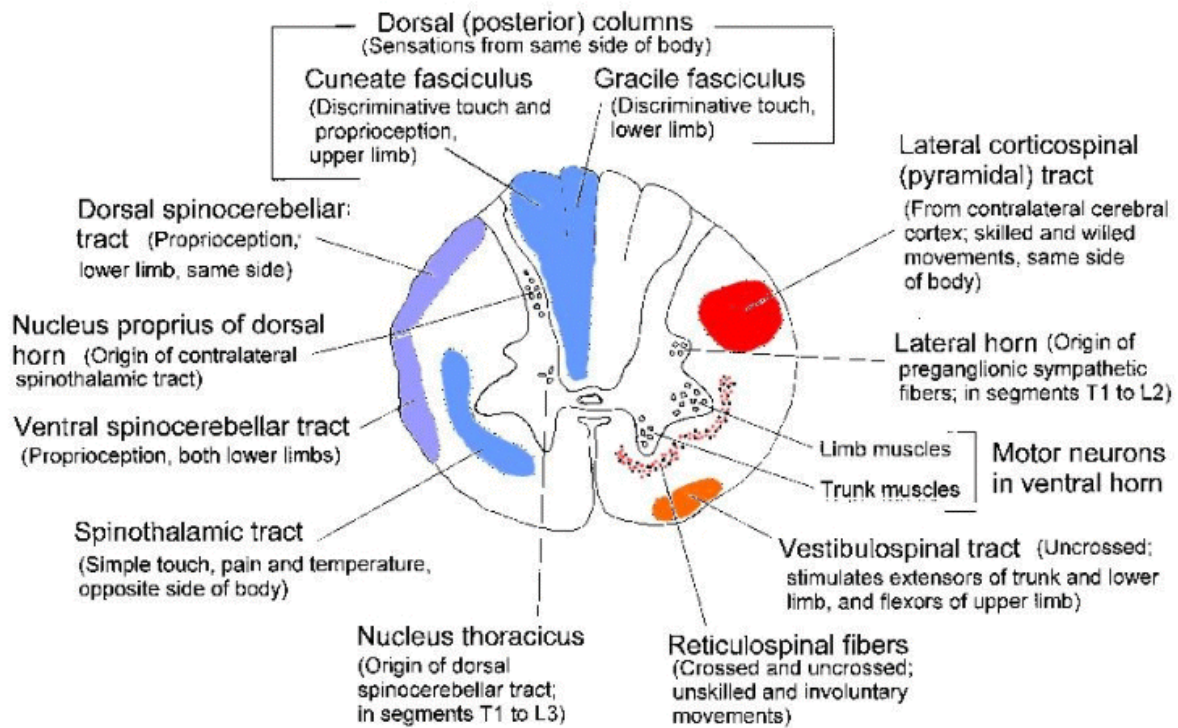
Nerve roots.



Segmental levels.



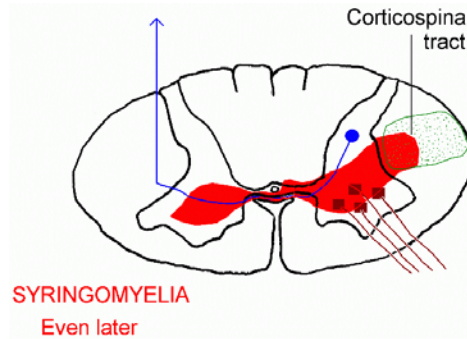
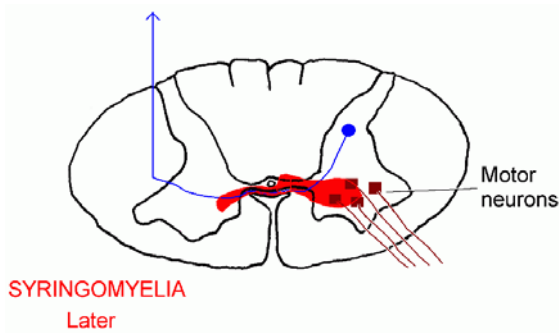
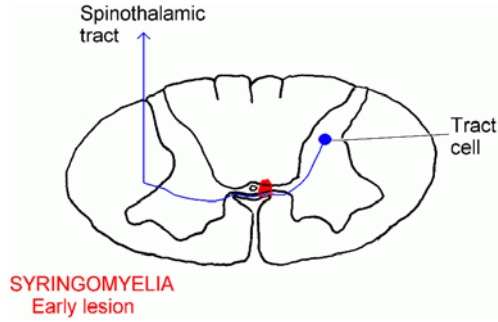
Tracts and cell columns



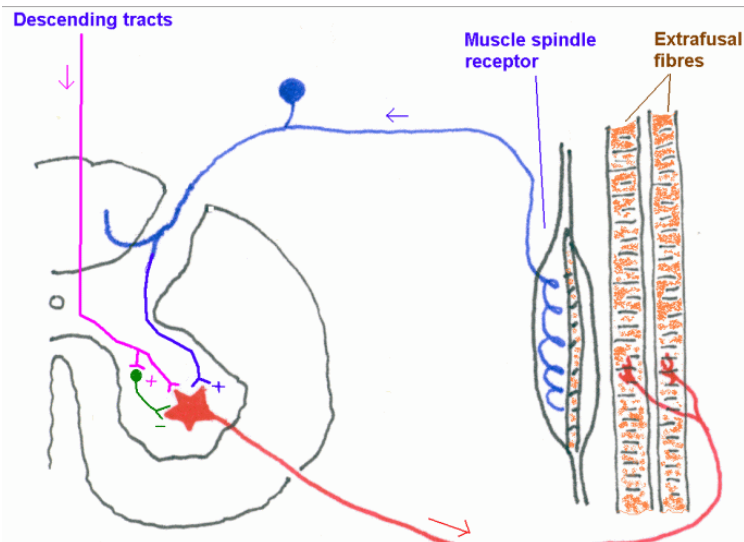
SYRINGOMYELIA

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.



The stretch reflex.



Removal of the descending pathways results in spasticity, due to uninhibited stretch reflexes.
The stretch reflex and its modification by descending pathways.

The overall effect of descending motor pathways is to inhibit the stretch reflex. Damage to the descending pathways can cause spastic paralysis.