

SPINAL CORD AND NERVES

1/14/82, 25 Jan 1996, 20 Jan 98, 18 Jan 00, 29 Jan 03, 26 Jan 05, 28Jan08, 28Jan09, 27Jan10, 25Jan12, 12Apr13, 3Dec15
 S&M p 321, Martini, 426-452, Martini's 4th: 417-4435, Martini's 7th: 429-460, Martini 8th: 430-456, 9th: 417-444
 Martini 10th: 430-457

The Spinal Cord: (p 432) as embryo grows, cord grows less.

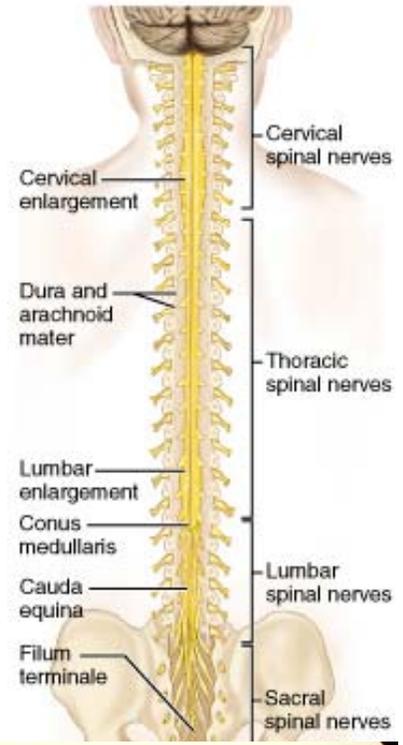
End of cord branches extensively at L1: meninges form **filum terminale** at **conus medularis**. (p 432)

lumbar puncture between L3 and L4 where **cauda equina** is found (test for meningitis, blood)

Two enlargements: **cervical** and **lumbar** innervate upper and lower limbs

Anterior median fissure, posterior median sulcus on cord

dura mater extends laterally, blends with epineurium (connective tissue covering nerve)
 arachnoid and pia mater as in brain.



ANATOMY OF SPINAL CORD, CROSS SECTION: (P 436)

anterior gray horn

somatic motor cell bodies

posterior gray horn

axons of sensory, internuncial cell bodies

lateral horn

cell bodies of visceral (autonomic) motor neurons

gray commissure

posterior funiculus (white) sensory cord
 lateral funiculus (white) sensory and motor cord
 anterior funiculus (white) sensory and motor cord
 posterior median sulcus
 anterior median fissure

infolding of pia mater
 carries only motor fibers
 carries axons from dorsal root ganglion
 sensory neurons
 forms where dorsal and ventral roots unite
 lined with ependymal cells, contains CSF

ventral root
 dorsal root of spinal nerve

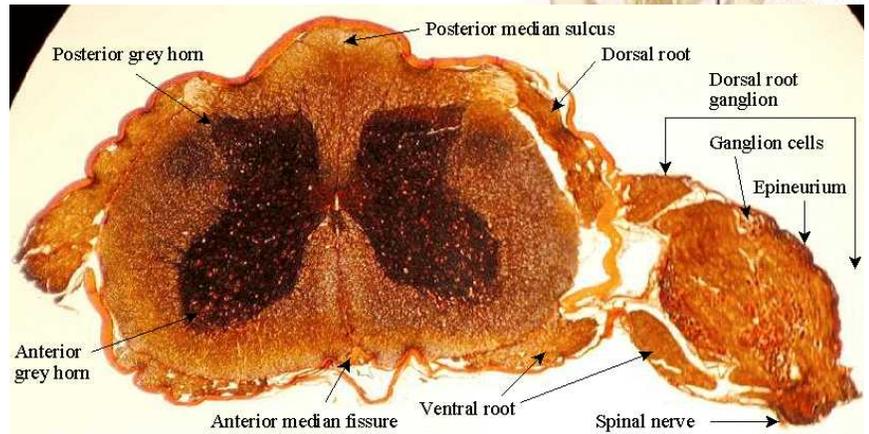
dorsal root ganglion
 spinal nerve

central canal

vertebra features:

[neural arch]
 [centrum of vertebra]
 [denticulate ligament]

arachnoid's largest connection to cord



SPINAL NERVES:

dorsal ramus carries motor and sensory fibers for skin and back muscles:

dermatome (area of skin on surface of body) and muscles (p. 439), shingles, p 428.referred pain, p.522,

Upper limbs	cervical and T1
Trunk	C4 to L5
Lower limbs	L1 to S2
Buttocks	S1 to S5

THREE MAJOR PLEXUSES Ventral rami intermix in plexuses: (p 443-447)

1	Cervical: (443)	neck and shoulder,	phrenic laryngeal	supplies diaphragm , to voice box, etc
2	Brachial: (444)	formed from cervical nerves C5-C8, Three cords posterior, medial and lateral cords	radial median ulnar	"funny bone"
3	Lumbosacral: (446) separate into two plexi:	lumbar plexus: from T12-L4:	femoral	skin & muscles of buttocks, pelvis, lower abdomen, legs
		sacral plexus: (fr L4, L5 and S1-S4)	sciatic pudendal	largest nerve in body skin and muscles of genitals, perineum, anal, GU&I sphincters

SPINAL REFLEX: bisynaptic reflex arc: p 436, stretch reflex: p 439 (muscle spindle p 439), polysynaptic: p 442

Illustrate: sensory **dorsal root ganglion**, dorsal root (pain or proprioceptor), spinal nerve
 association **posterior grey horn** (axon can cross posterior grey commissure, inhibit antagonistic muscle.)
 motor **anterior grey horn**, ventral root, spinal nerve