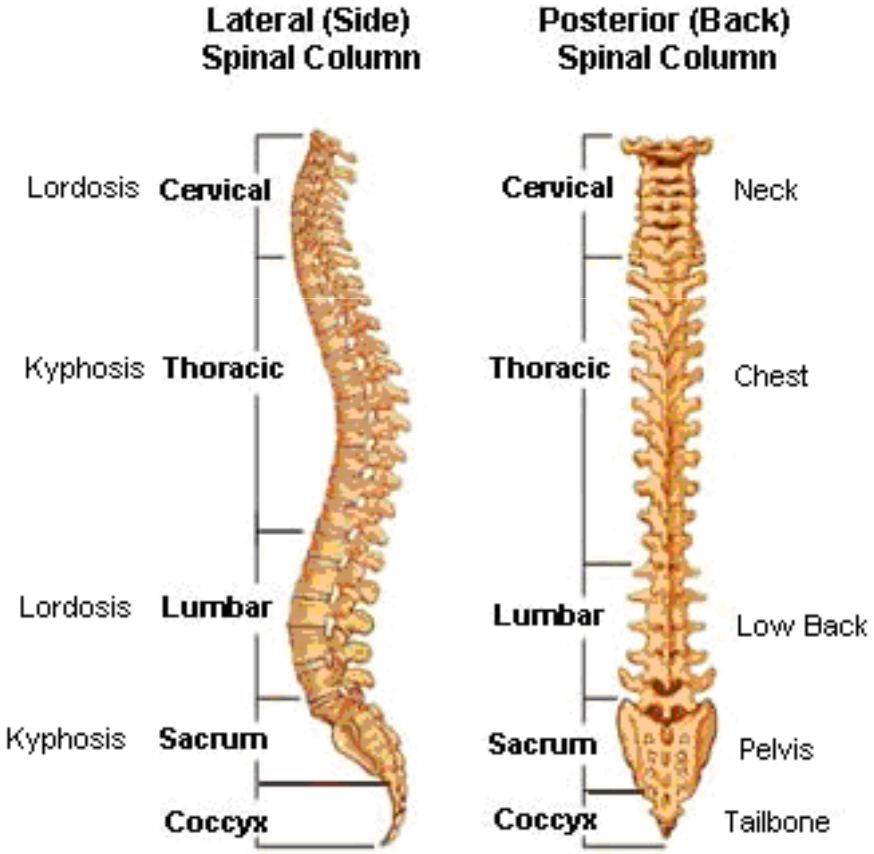
SPINE -ANATOMY

Dr.Khudur Shukur

Anatomy

Components of The Spinal Column



Extends from the skull to the pelvis

33 vertebrae

- **7 Cervical vertebrae (C1-C7)**
- **12 Thoracic vertebrae (T1-T12)**
- **5 Lumbar vertebrae (L1-L5)**
- **5 fused Sacrum vertebrae (S1-S5)**
- **4 Coccyx vertebrae**

Spinal Curves

Curve Description

- **Kyphosis or Kyphotic Curve**
  - **Concave anteriorly and convex posteriorly**
- **Lordosis or Lordotic Curve**
  - **Convex anteriorly and concave posteriorly**

Normal Curvature

- **Cervical Lordosis 20 to 40 degrees**
- **Thoracic Kyphosis 20 to 40 degrees**
- **Lumbar Lordosis 40 to 60 degrees**
- **Sacral Kyphosis Sacrum fused in a kyphotic curve**

Anatomy

Functions of The Spinal Column

- **Protects**
  - **Spinal Cord**
  - **Nerve Roots**
  - **Internal organs**

- **Mobility: allows for**
  - **Flexion (forward bending)**
  - **Extension (backward bending)**
  - **Side bending (left and right)**
  - **Rotation (left and right)**

- **Structure**
  - **Anchors head, shoulders, chest**
  - **Connects upper and lower body**
  - **Balances body**
  - **Distributes weight**

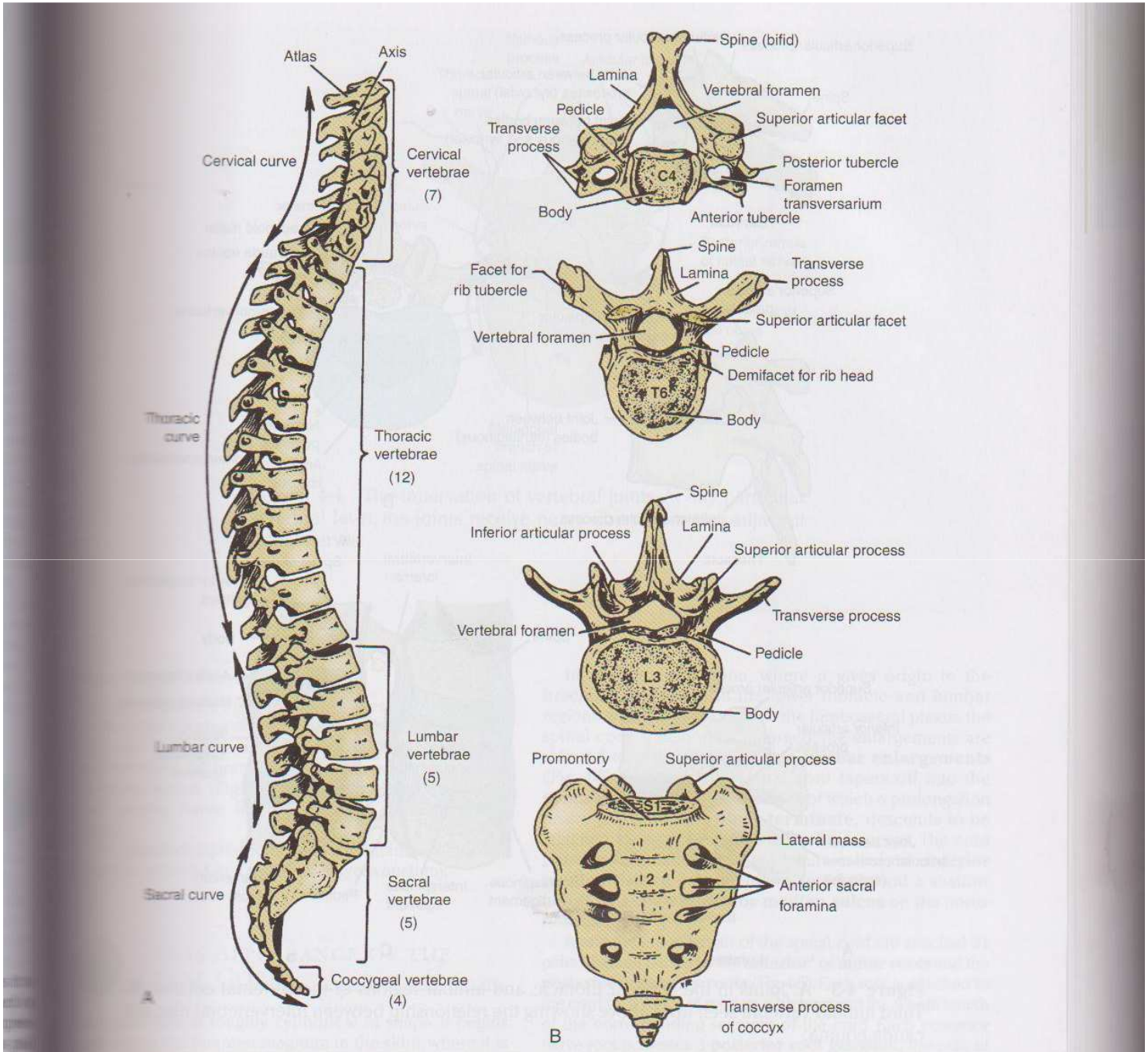
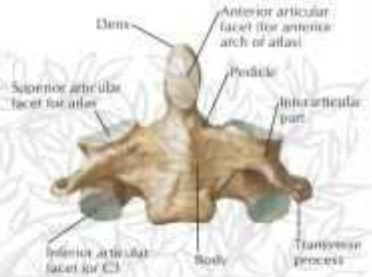
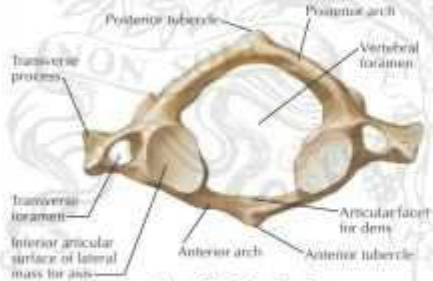


Figure 4-2 **A:** Lateral view of the vertebral column. **B:** General features of different kinds of vertebrae.

Atlas (C1): superior view

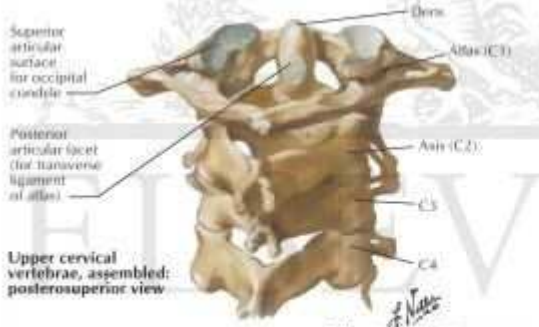


Axis (C2): anterior view



Atlas (C1): inferior view

Axis (C2): posterosuperior view

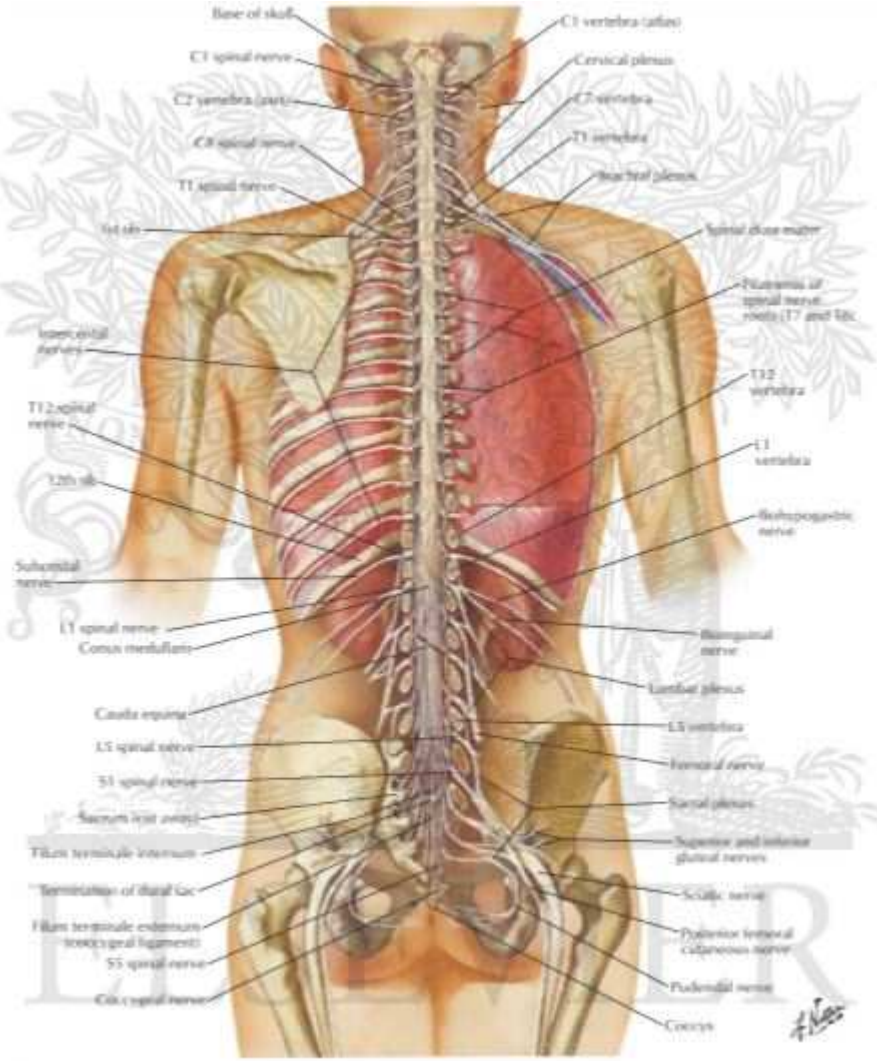


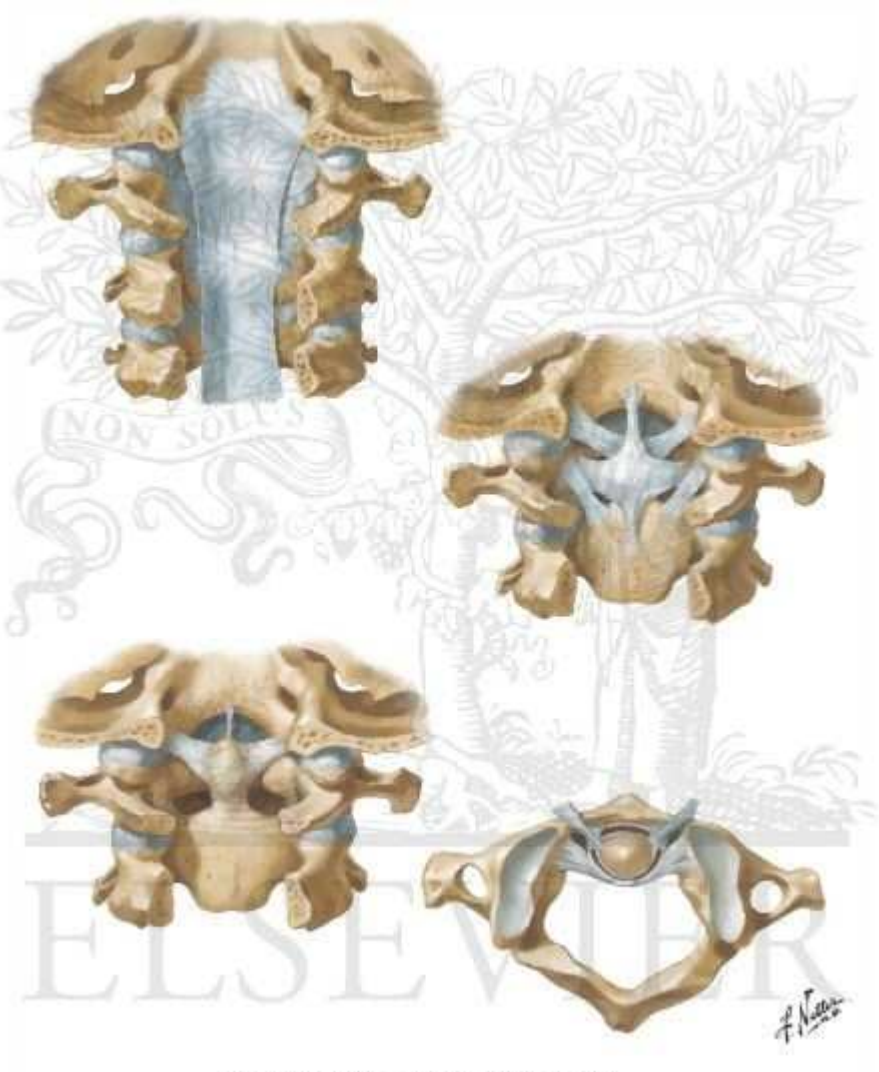
Upper cervical vertebrae, assembled: posterosuperior view

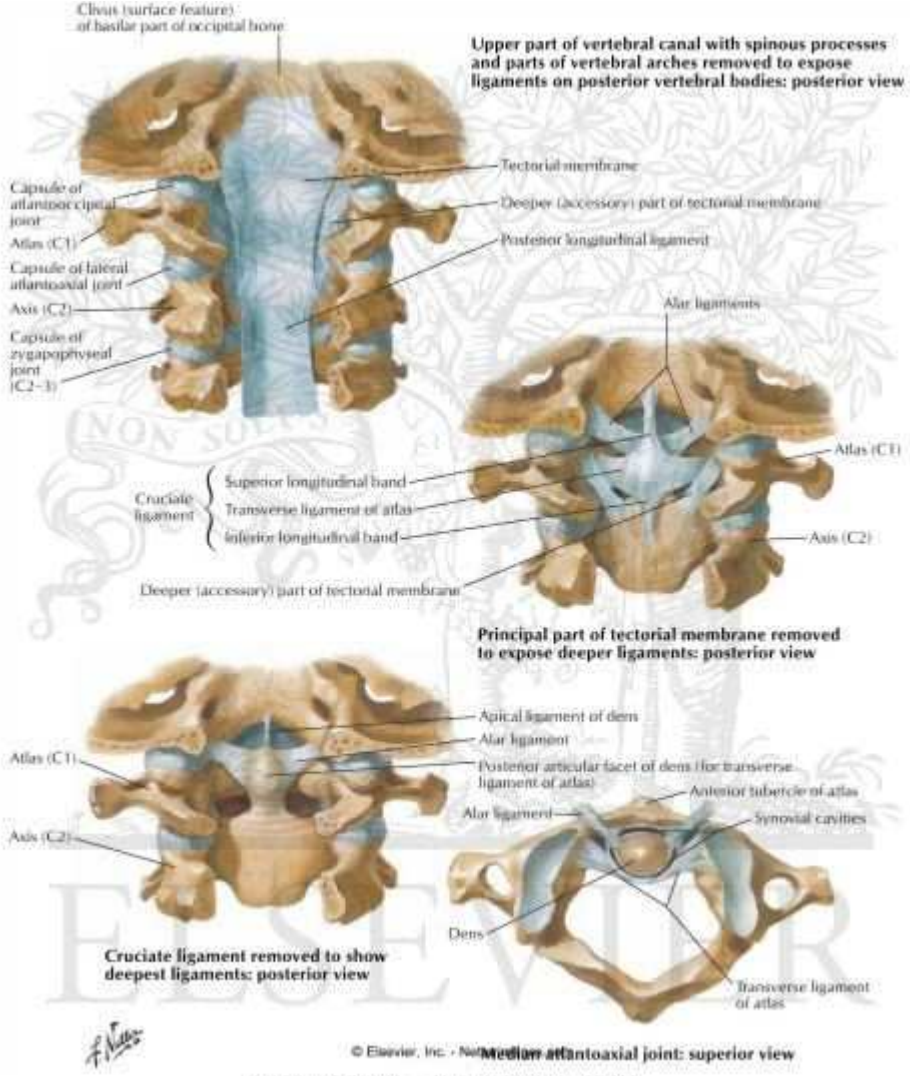
Radiograph of atlantoaxial joint (open mouth odontoid view)

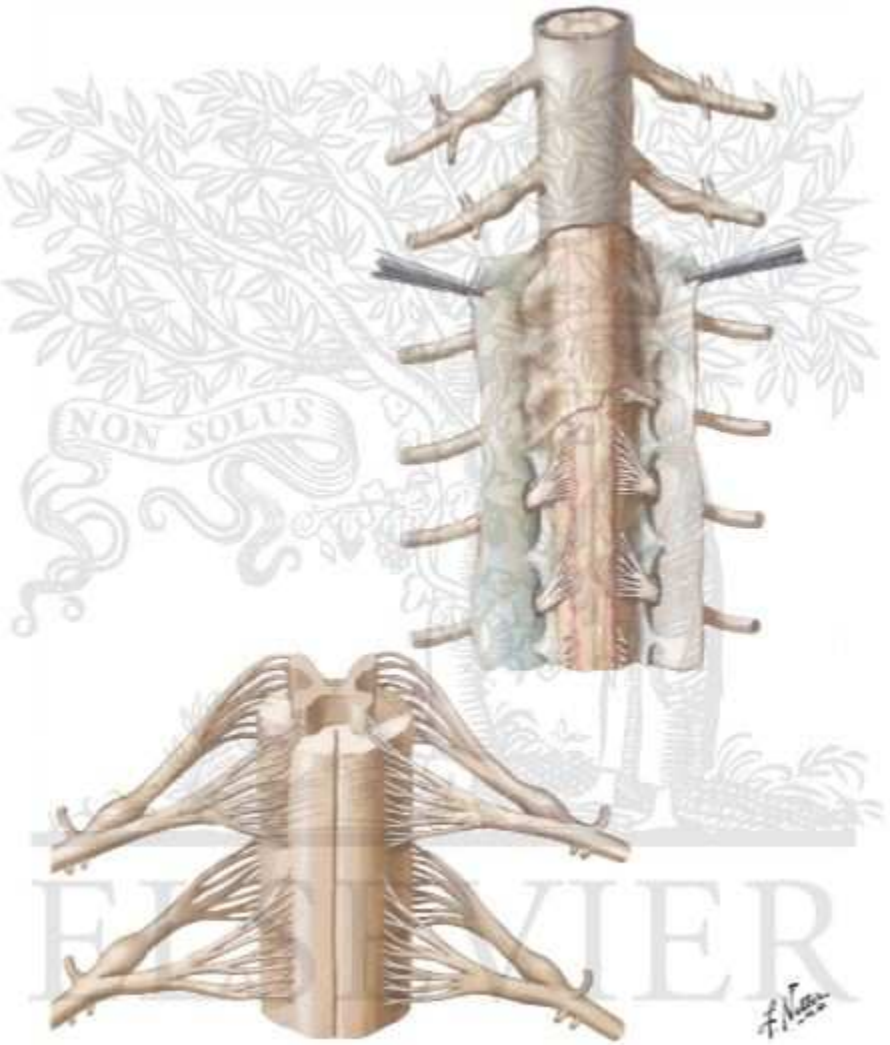
A Lateral masses of atlas (C1 vertebra)

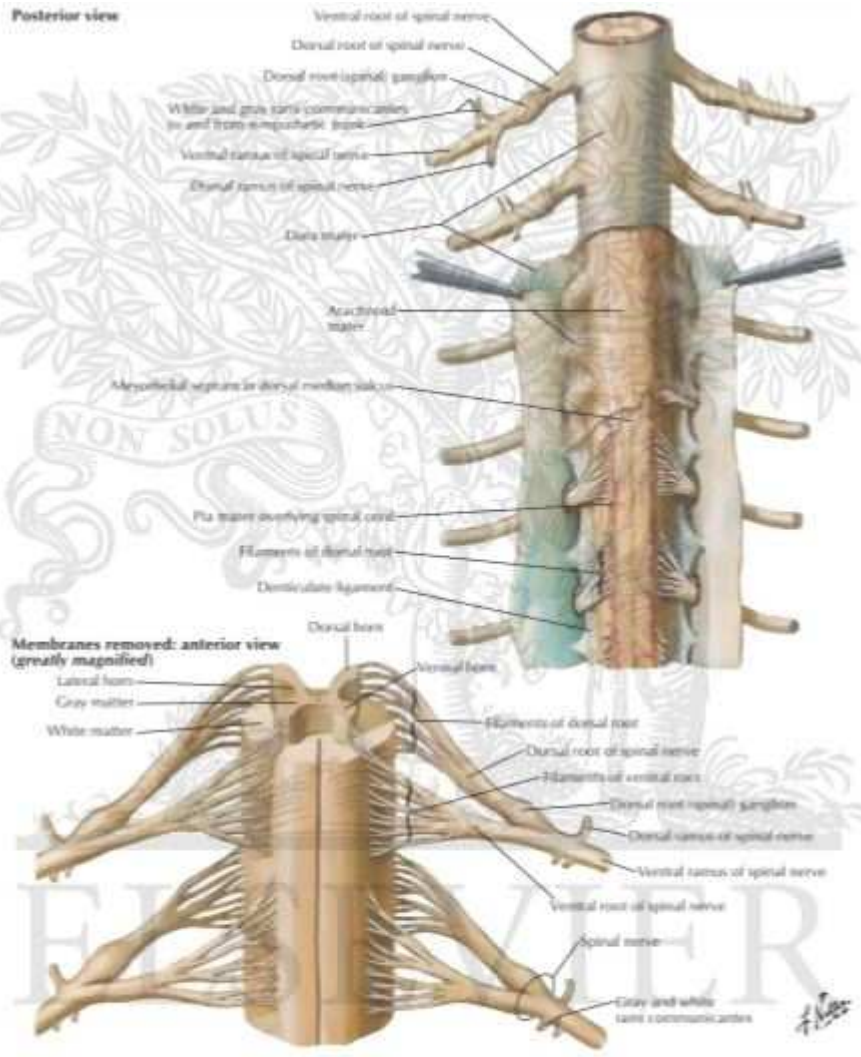
D Dens of axis (C2 vertebra)

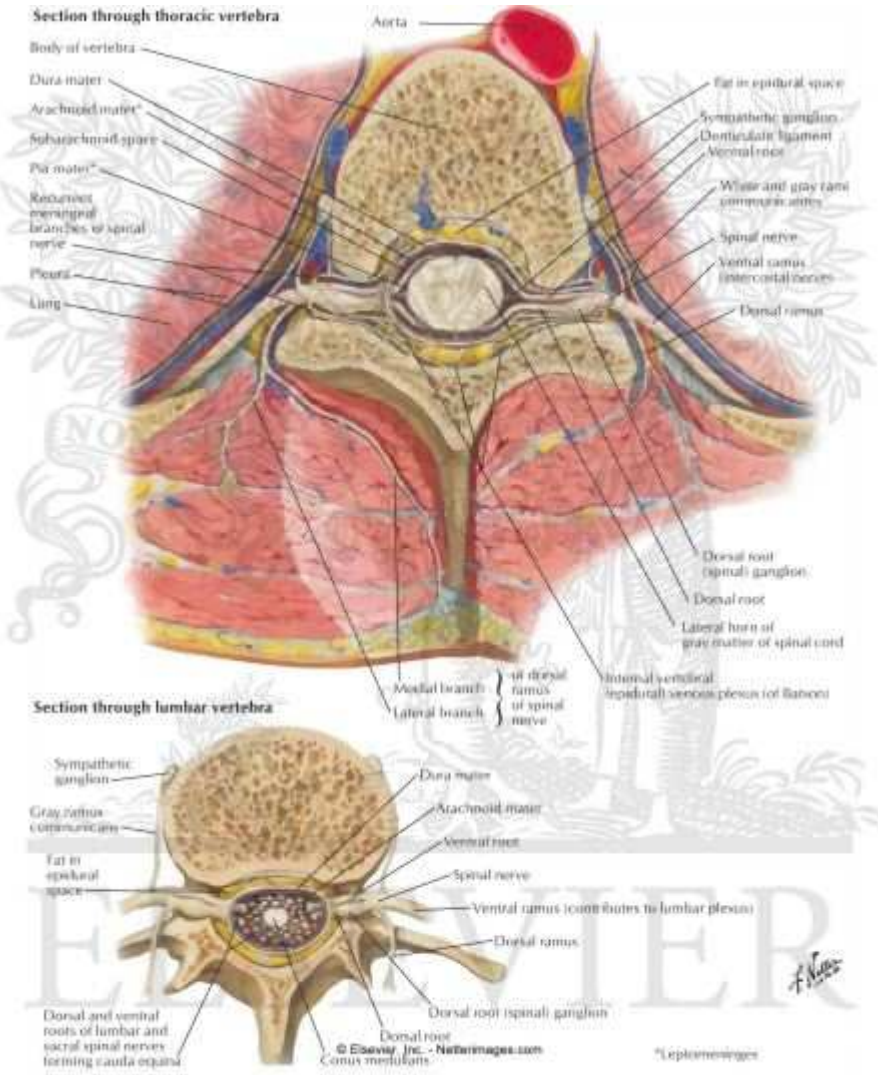


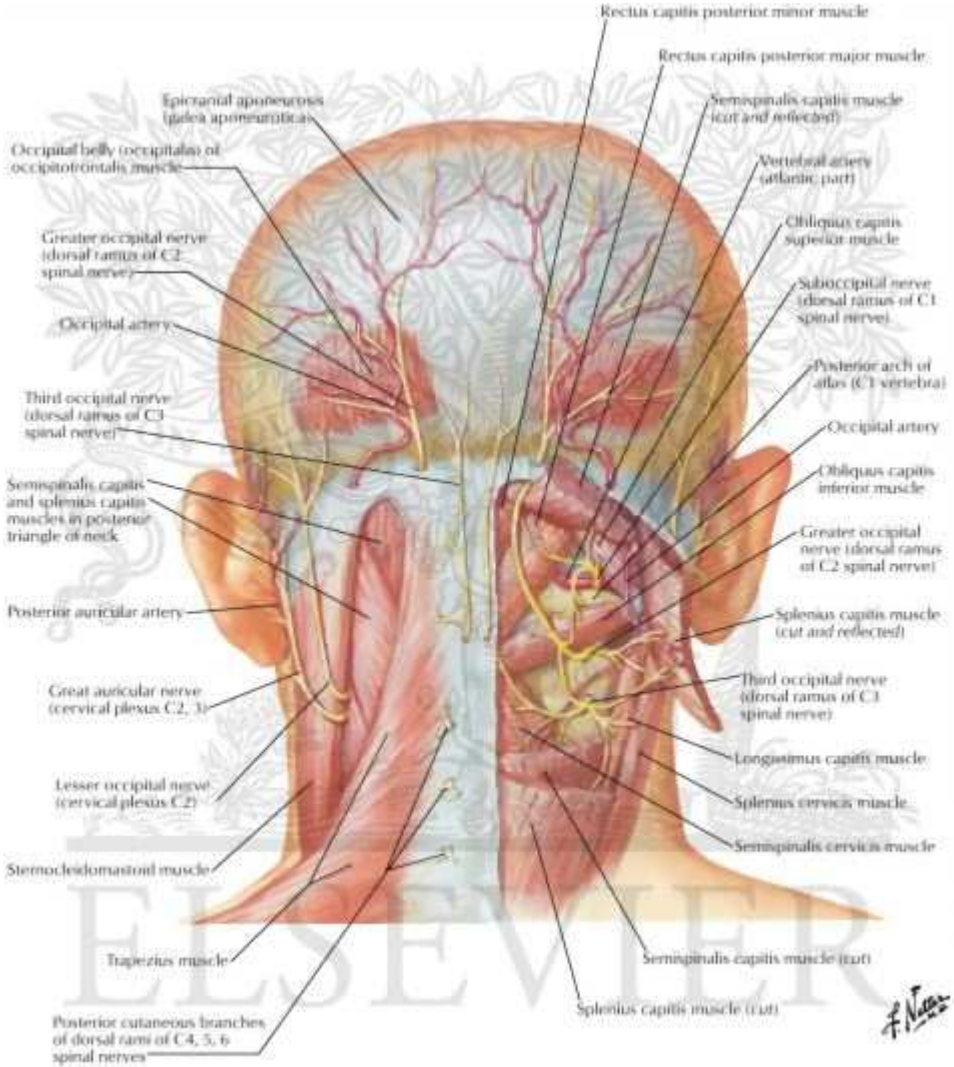


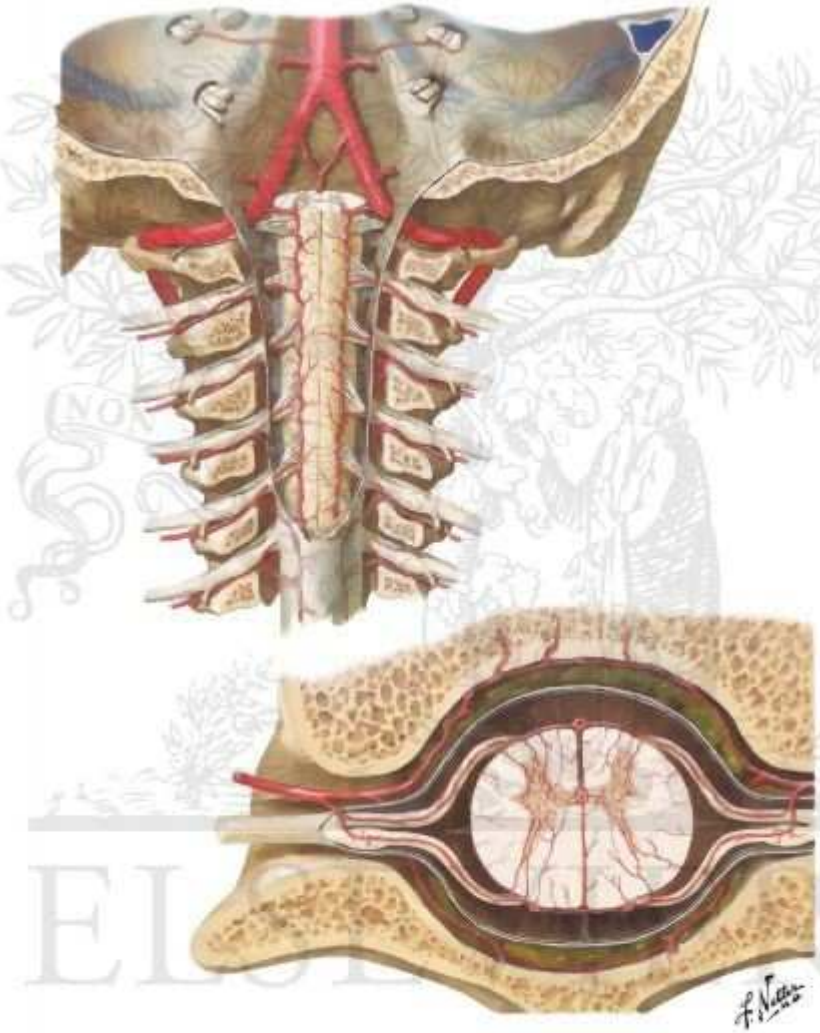


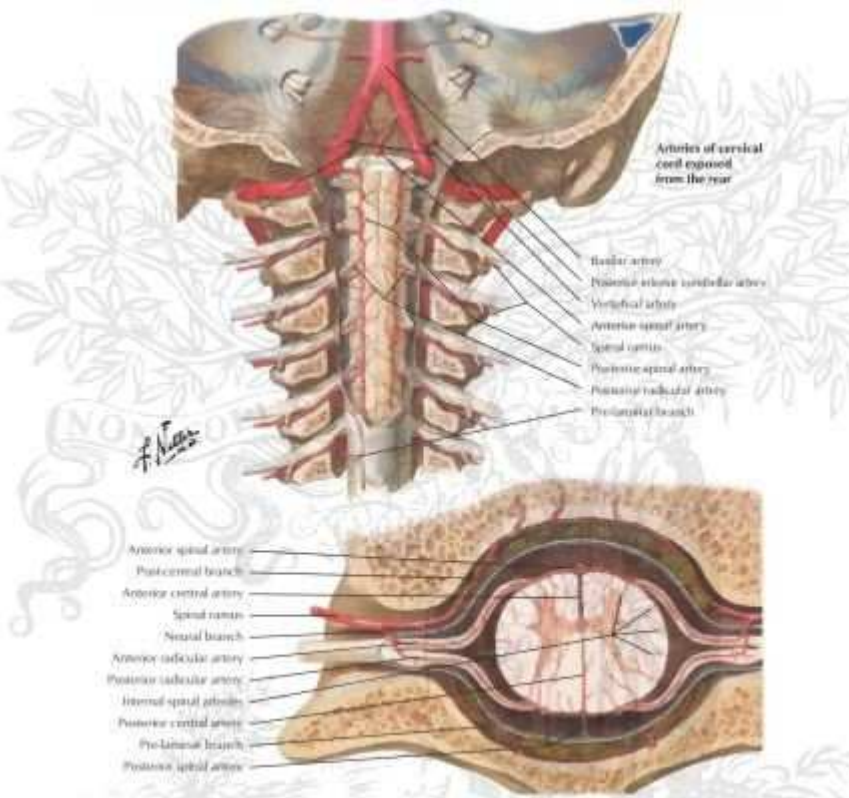


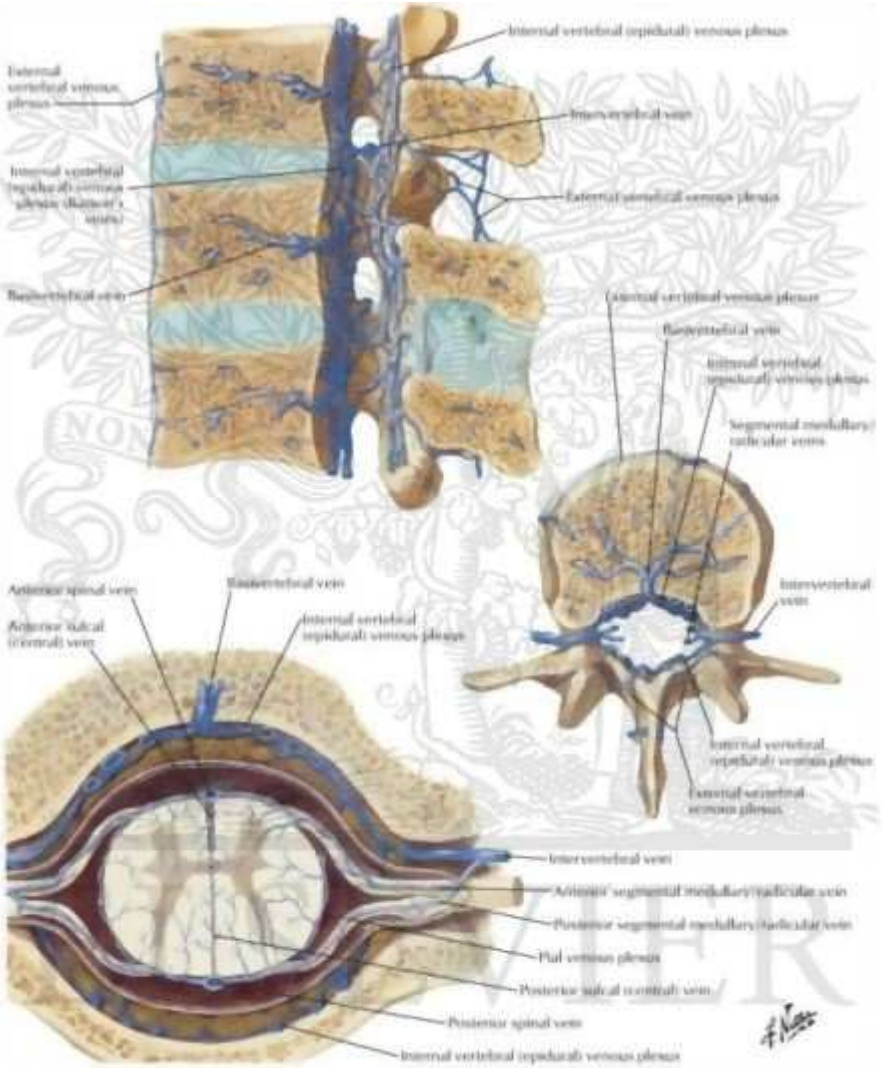


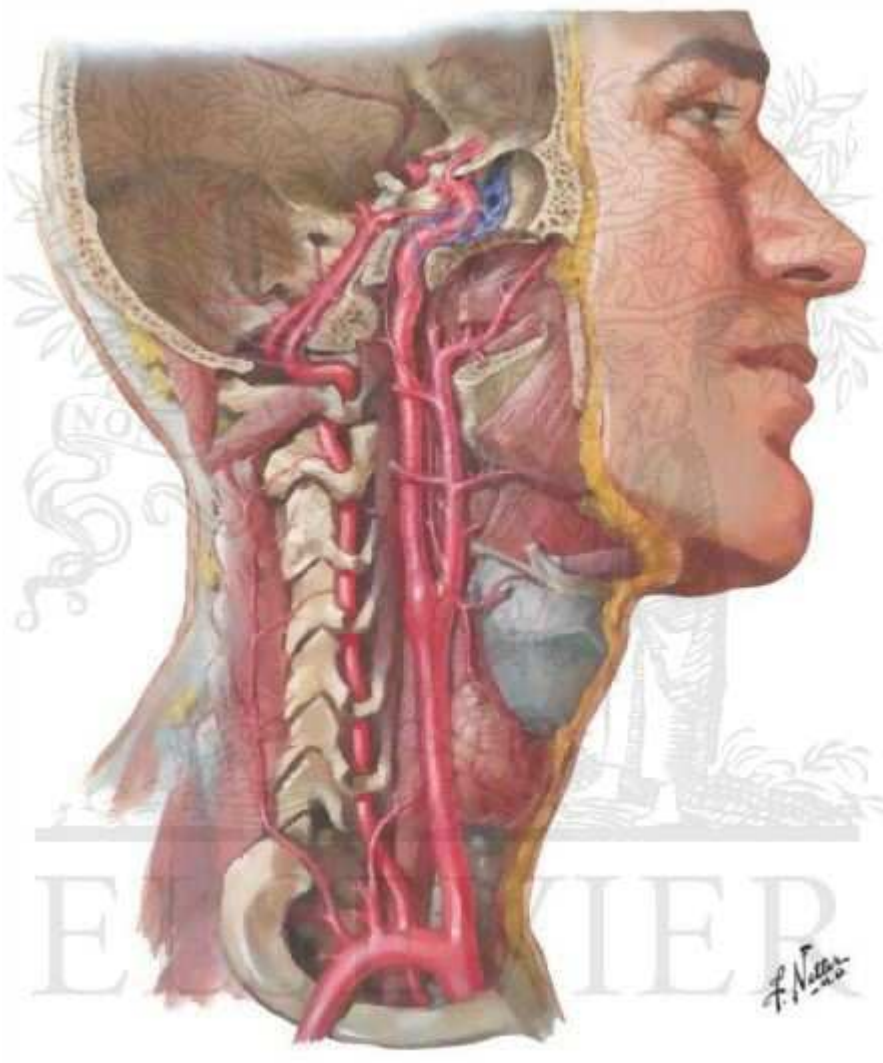


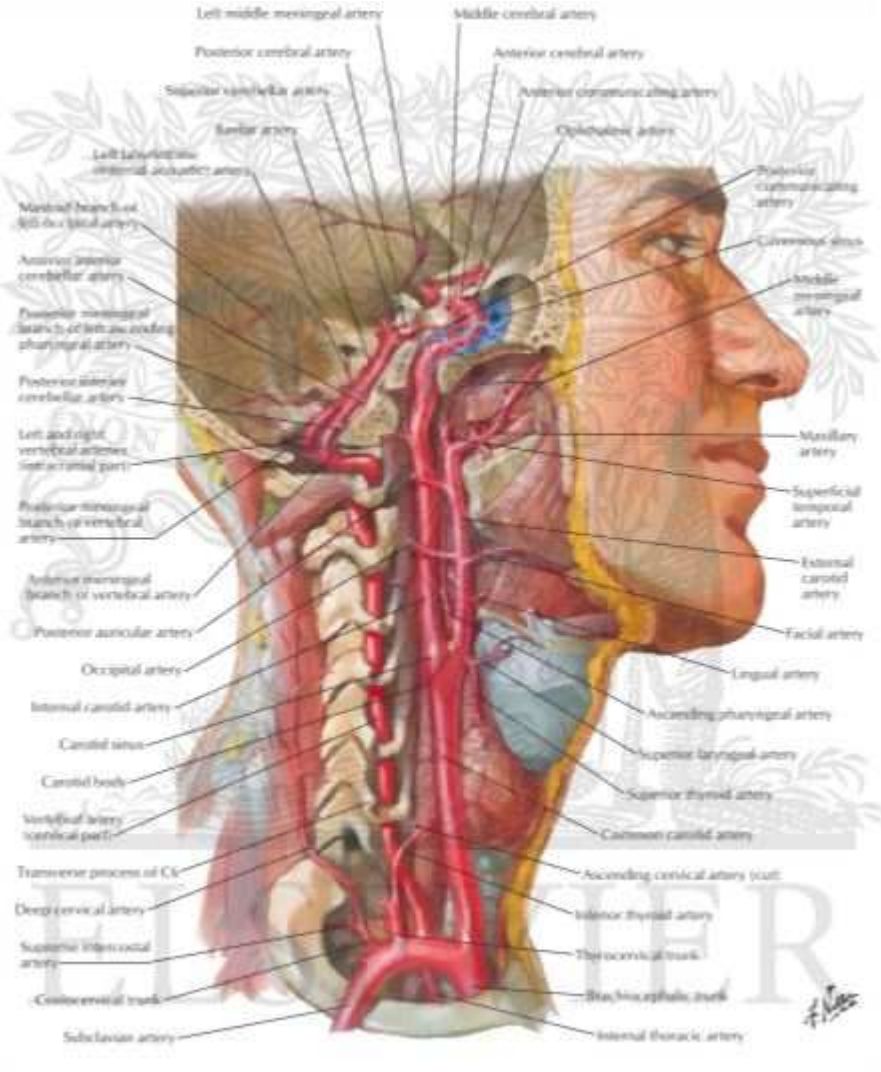


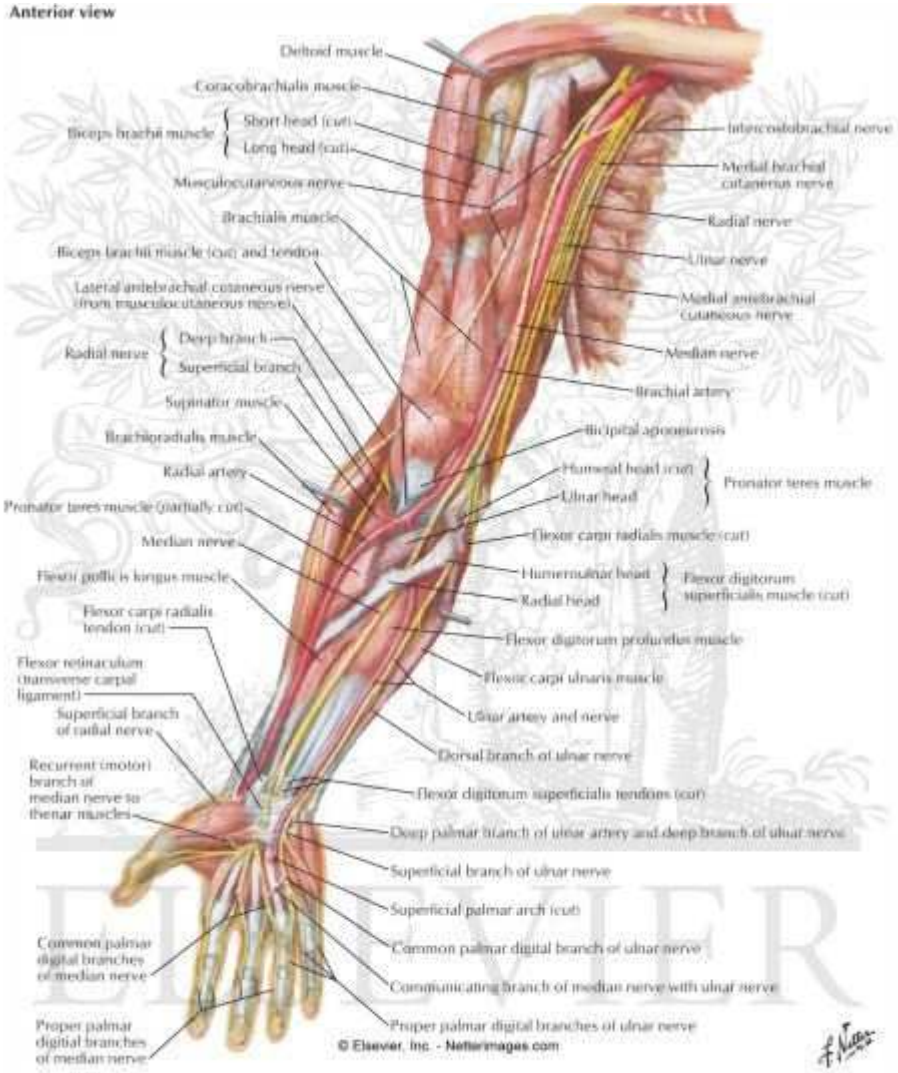




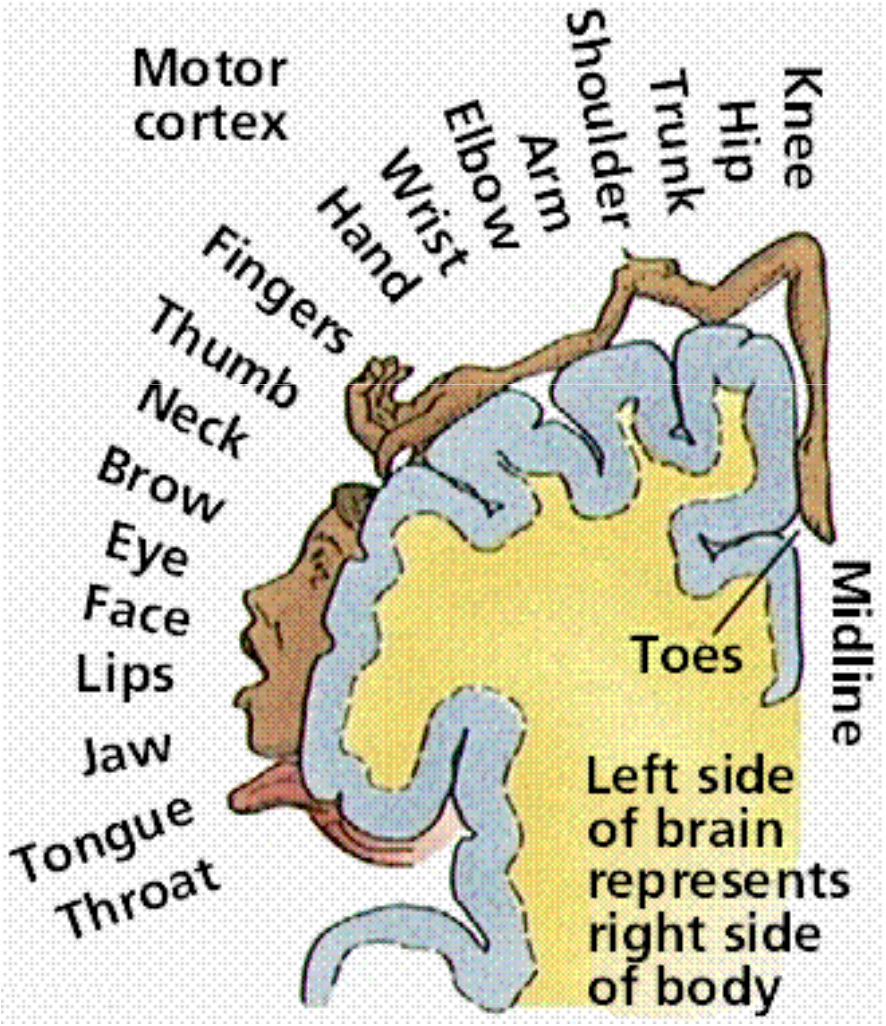


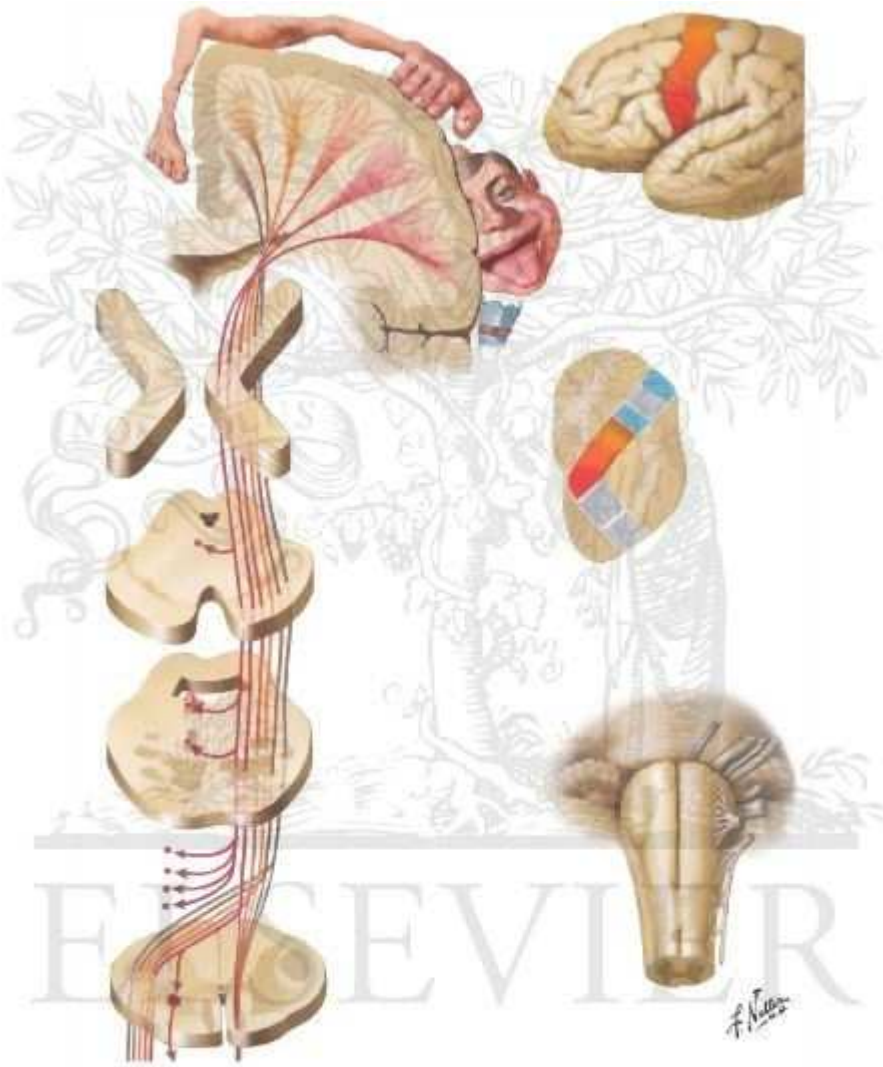


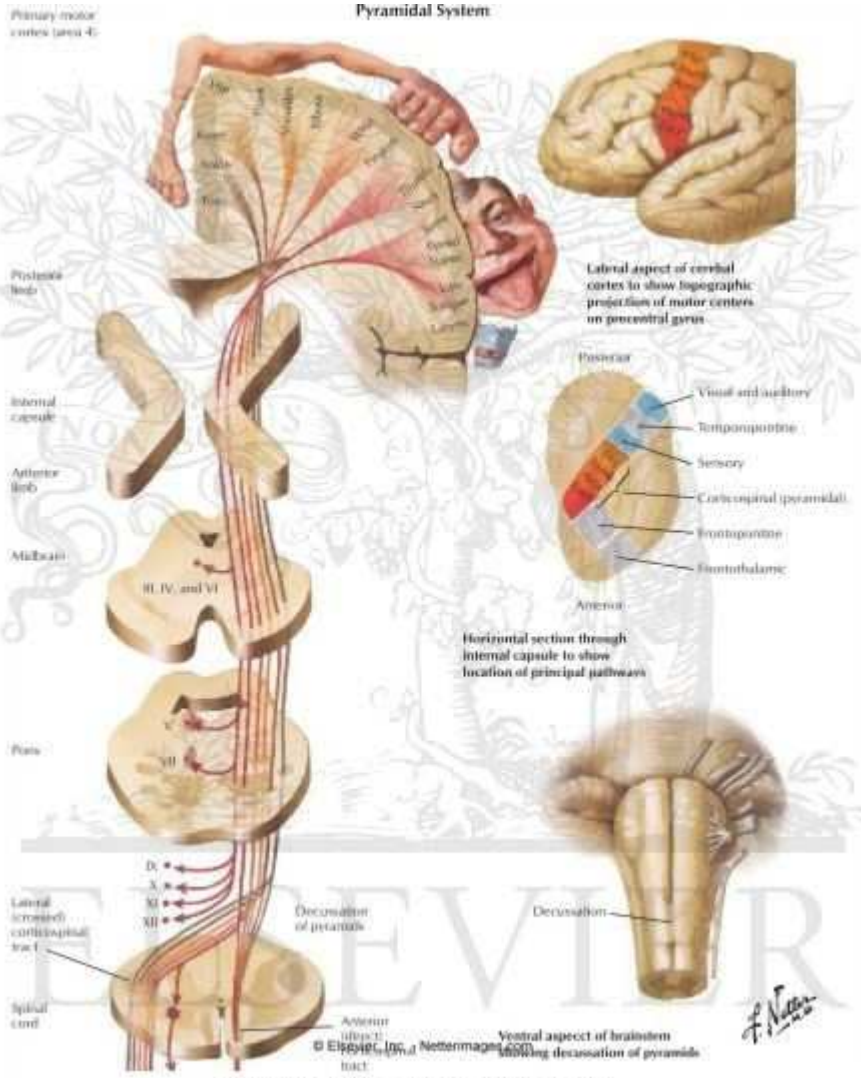




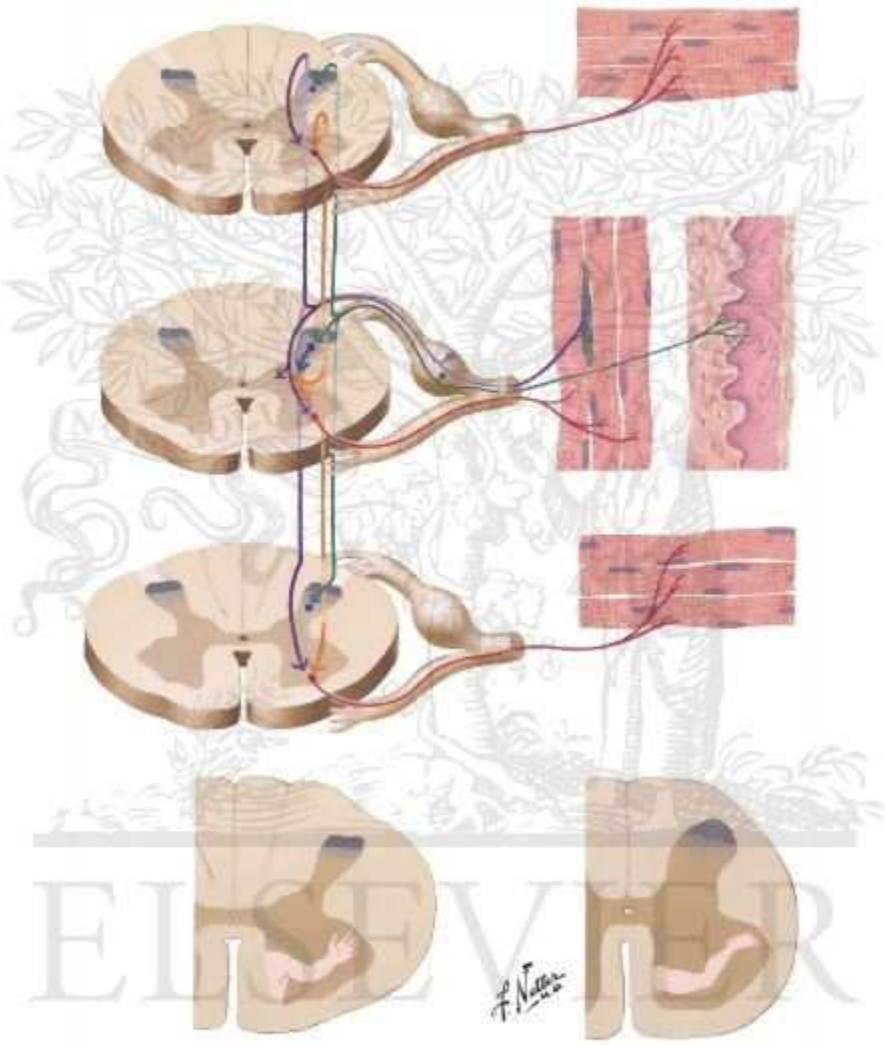
The Motor Strip

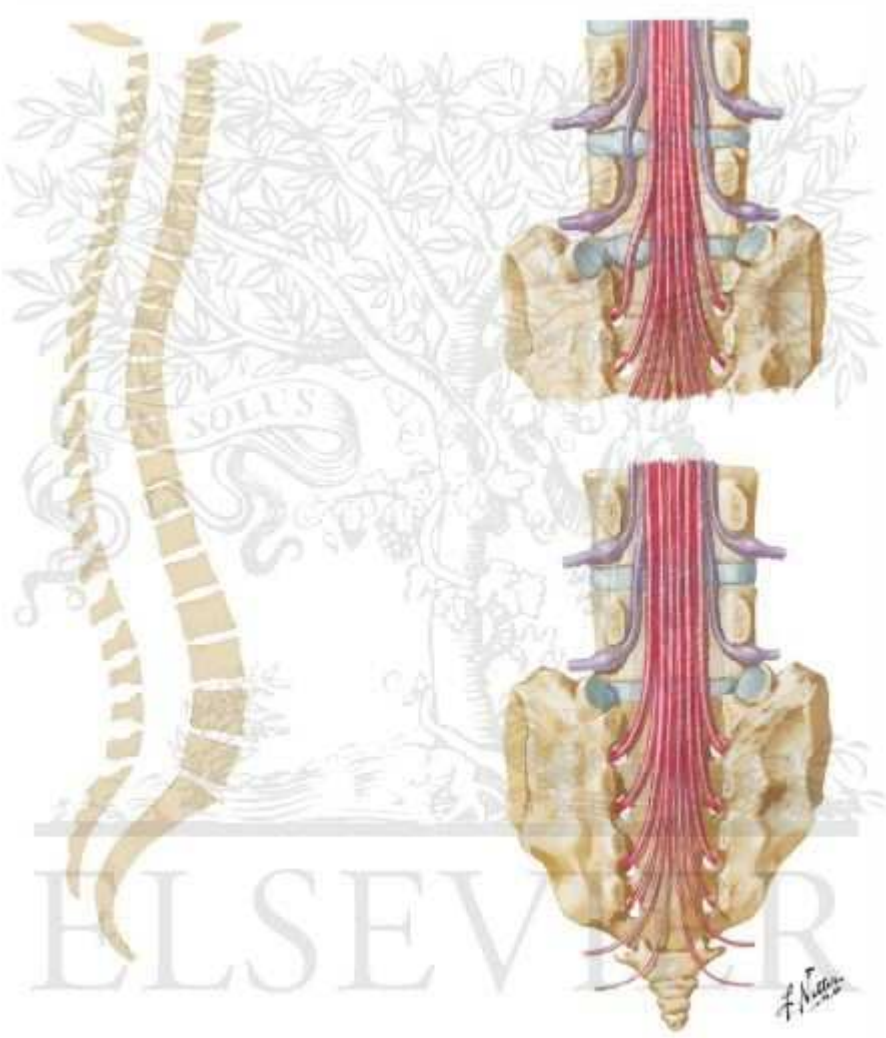


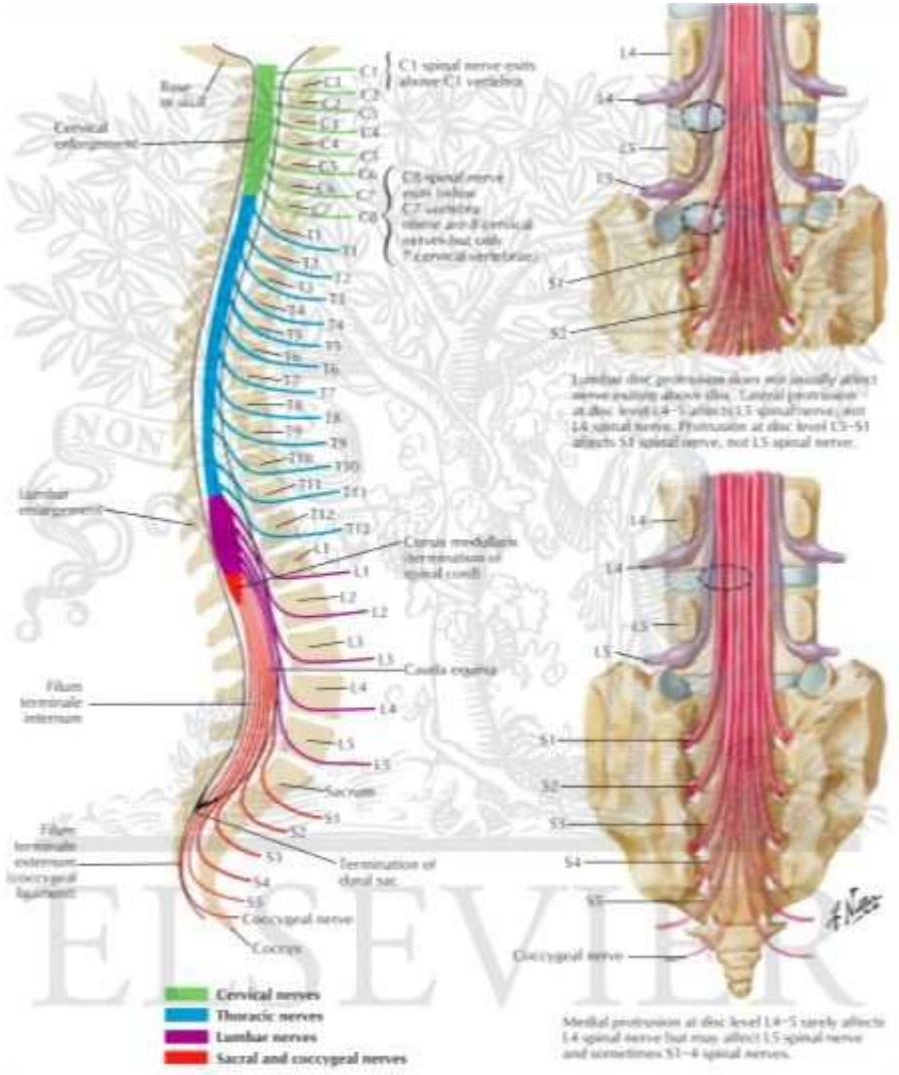




Fibers







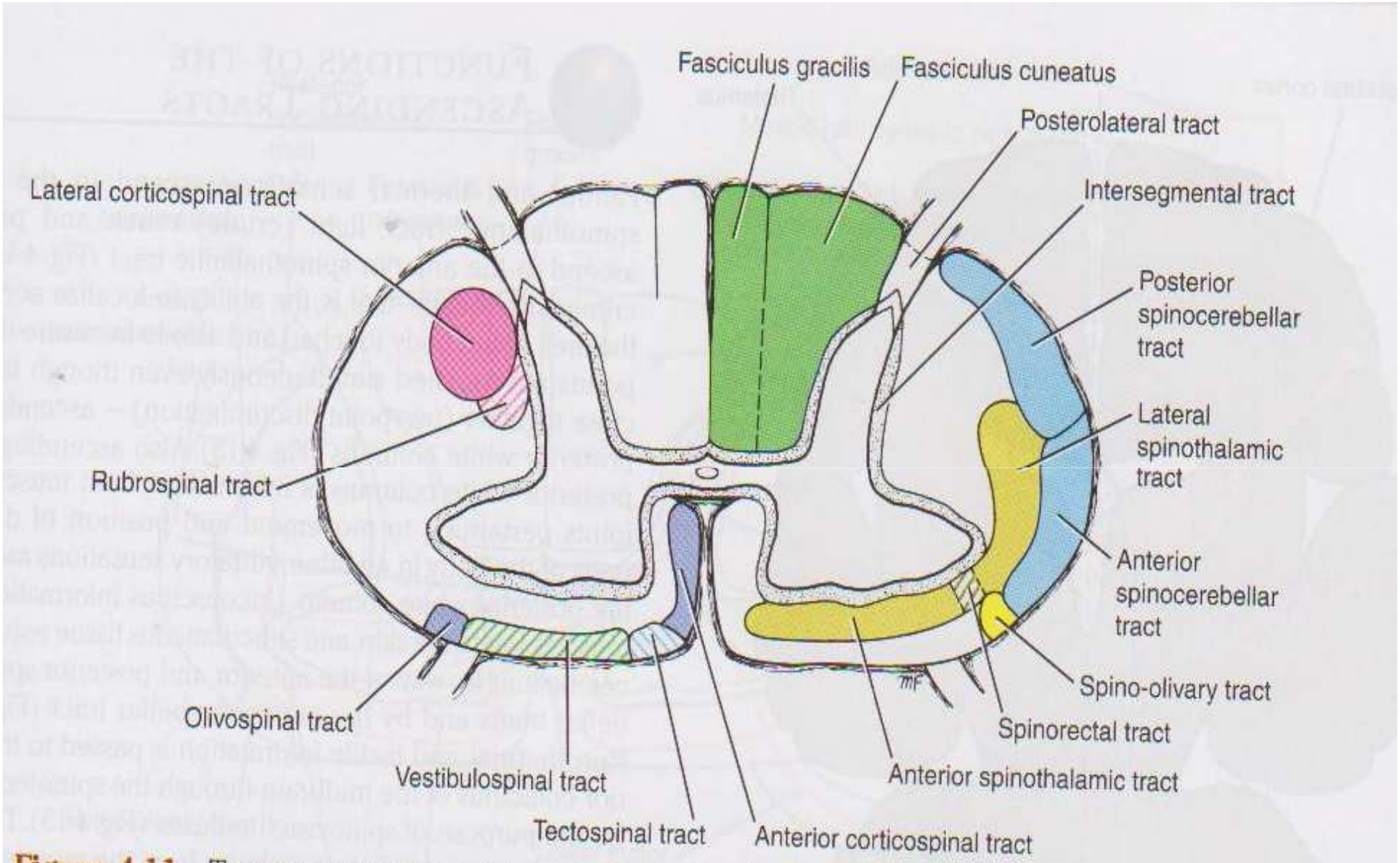


Figure 4-11 Transverse section of the spinal cord at the midcervical level showing the general arrangement of the ascending tracts on the right and the descending tracts on the left.

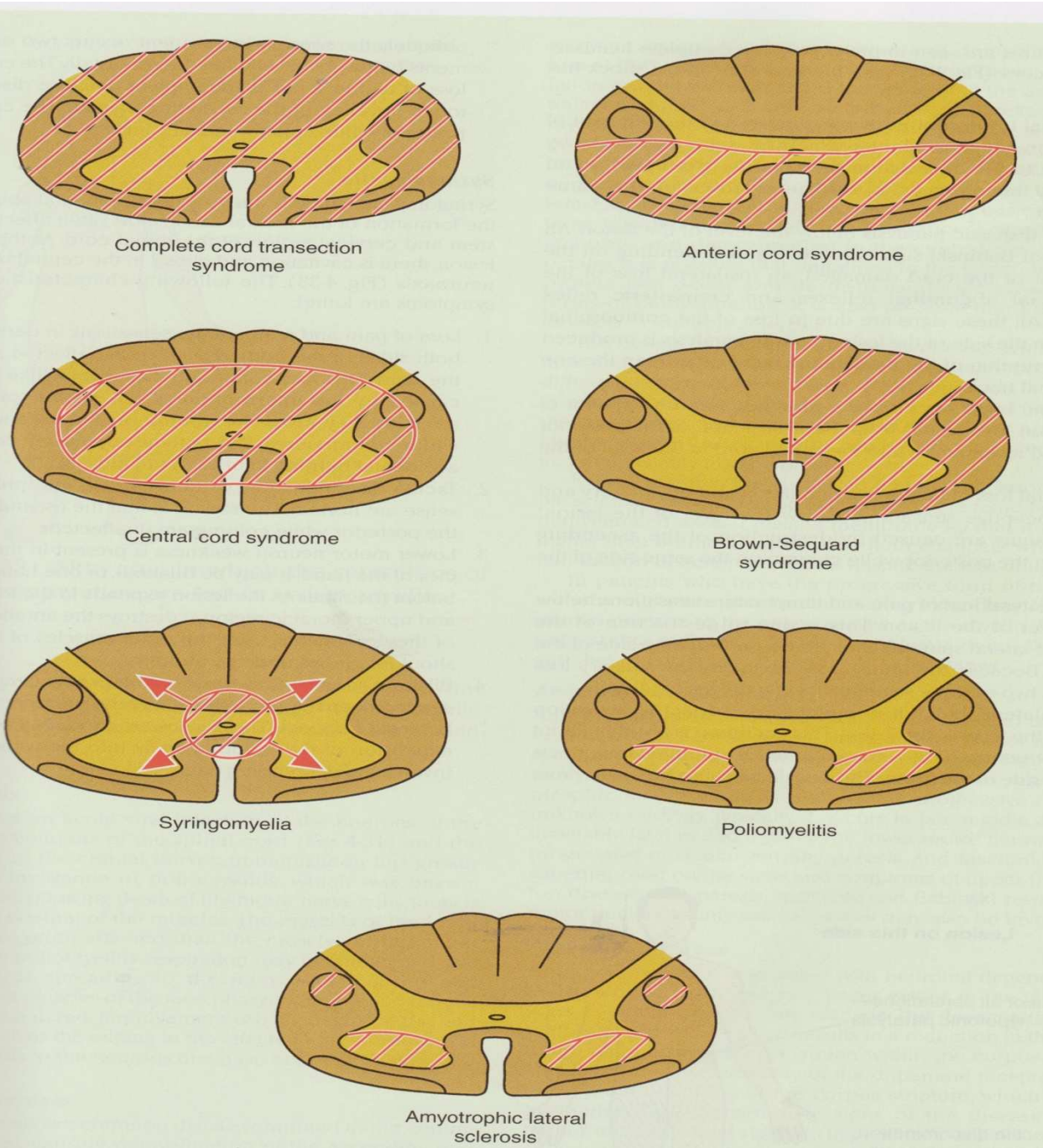


Figure 4-31 Spinal cord syndromes.

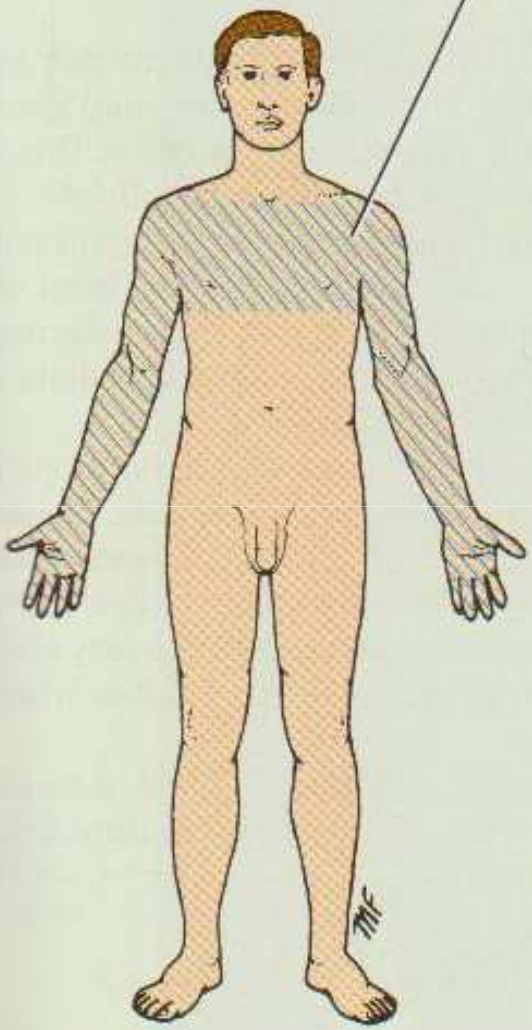


Figure 4-33 Skin area in which the sensations of pain and temperature are lost in syringomyelia.

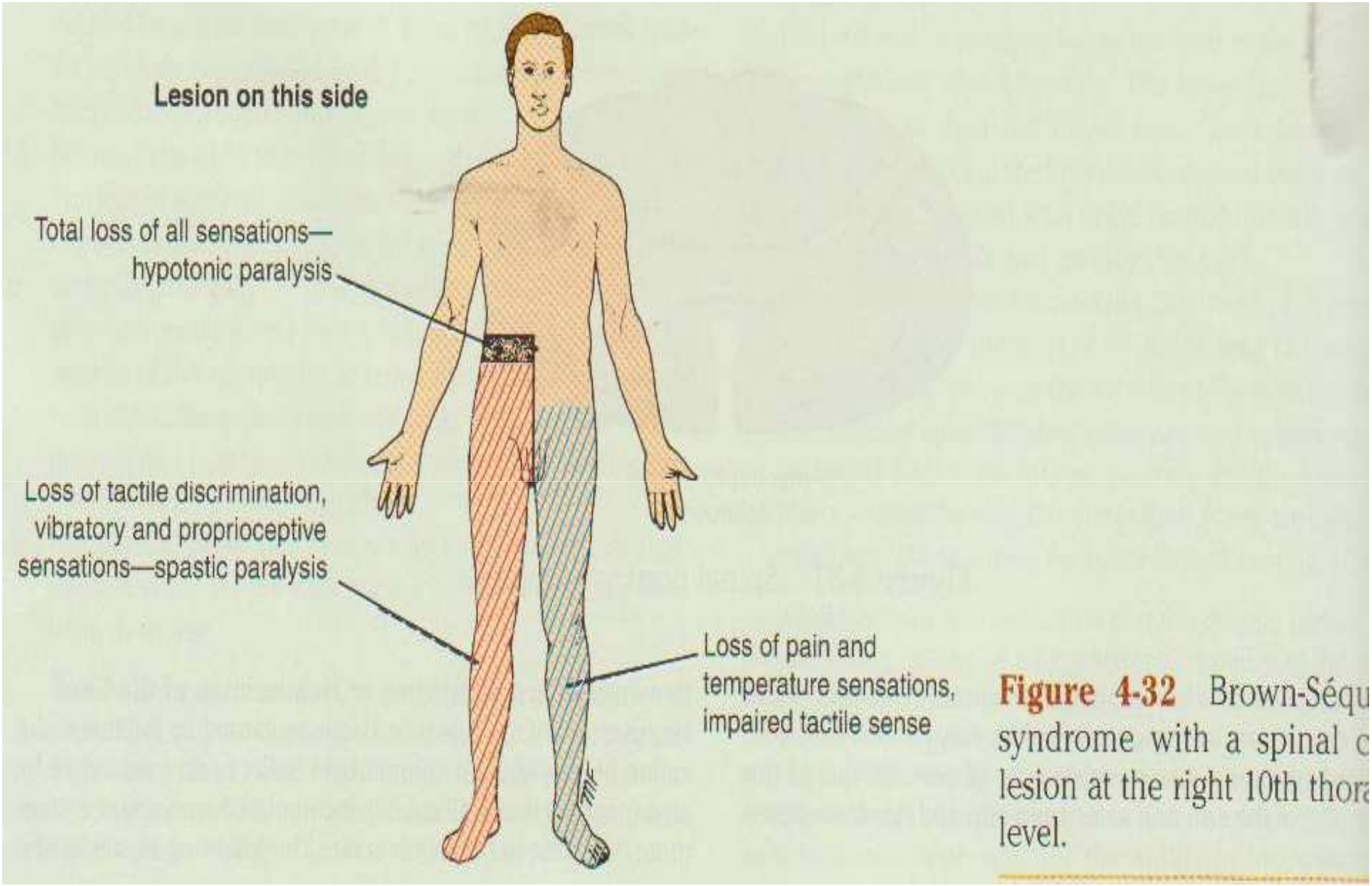
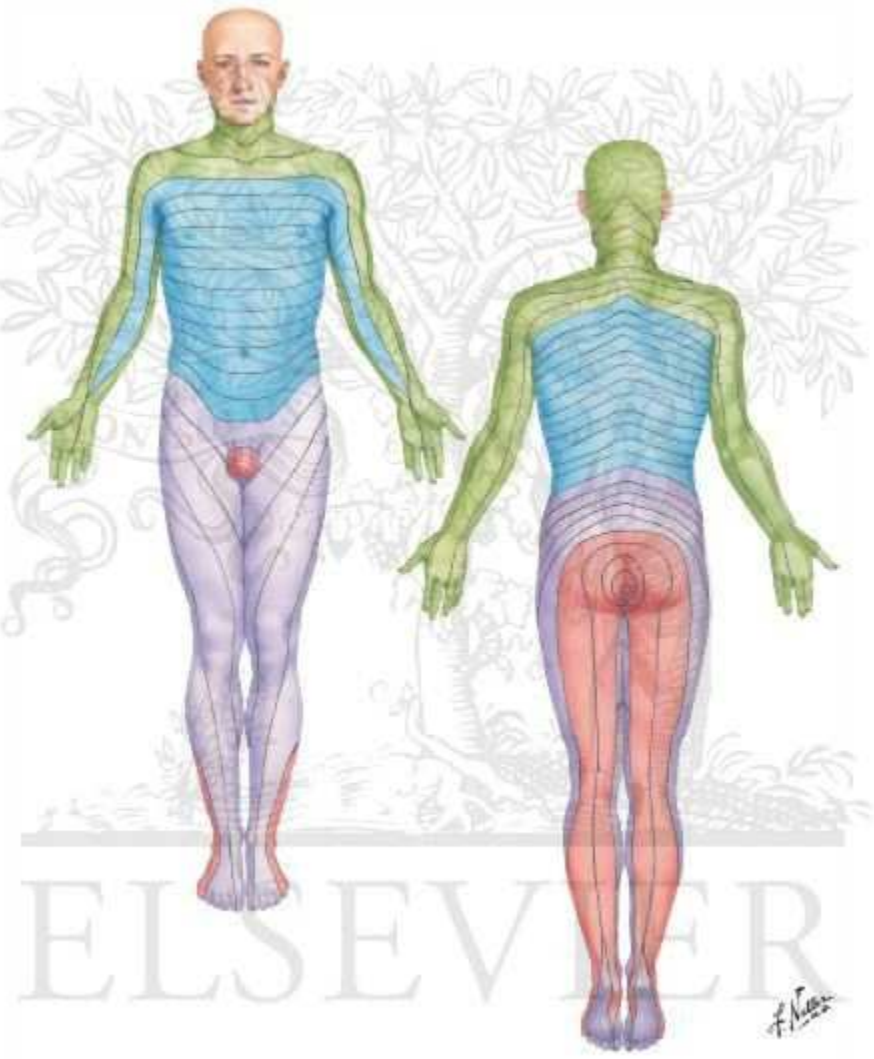
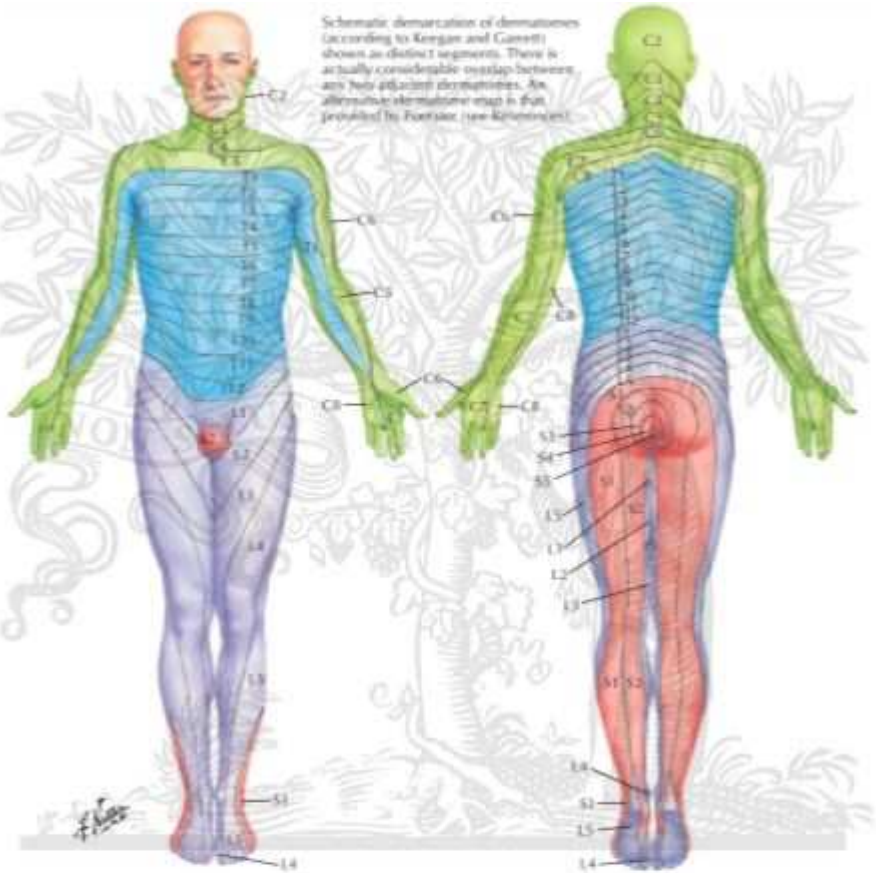


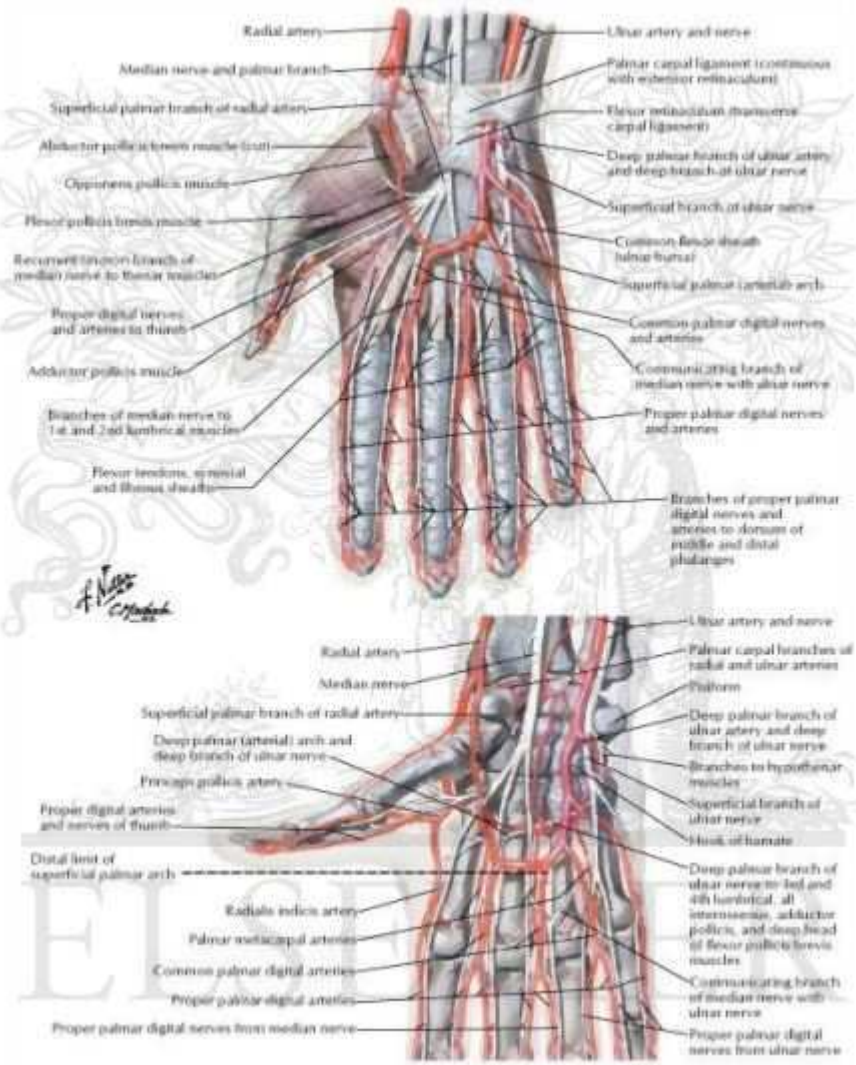
Figure 4-32 Brown-Séqu
syndrome with a spinal c
lesion at the right 10th thora
level.

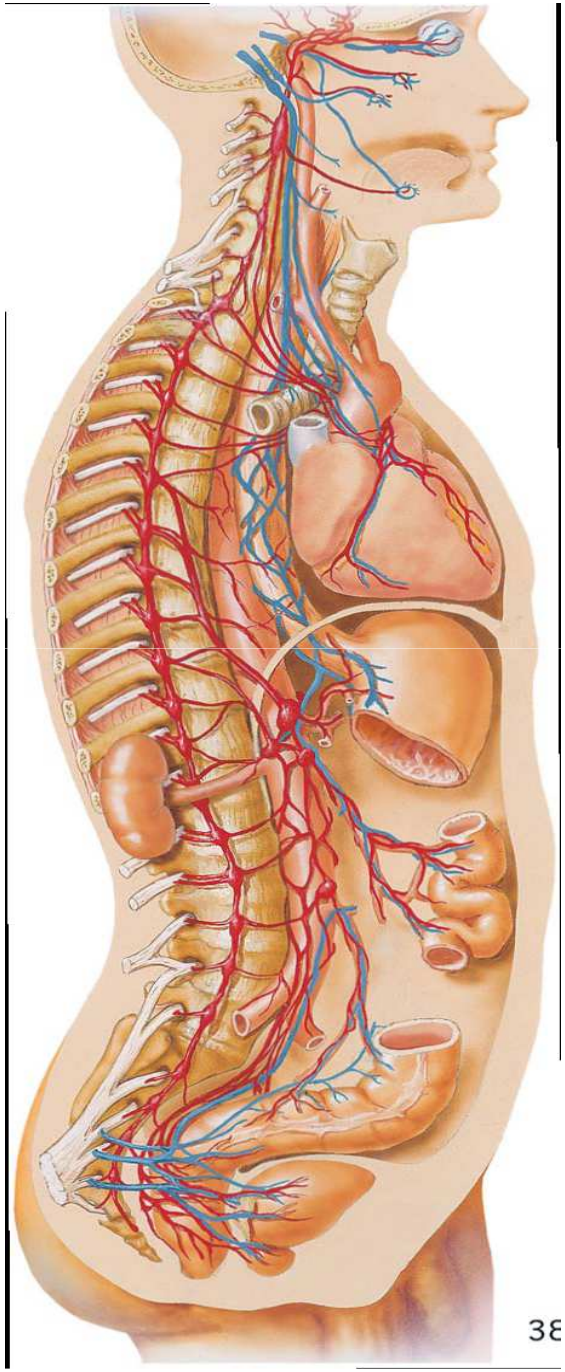




Levels of principal dermatomes

C5	Clavicles
C5, 6, 7	Lateral parts of upper limbs
C8, T1	Medial sides of upper limbs
C6	Thumb
C6, 7, 8	Hand
C8	Ring and little fingers
T4	Level of nipples
T10	Level of umbilicus
L1	Inguinal or groin regions
L1, 2, 3, 4	Anterior and inner surfaces of lower limbs
L4, 5, S1	Foot
L4	Medial side of great toe
S1, 2, L5	Posterior and outer surfaces of lower limbs
S1	Lateral margin of foot and little toe
S2, 3, 4	Perineum





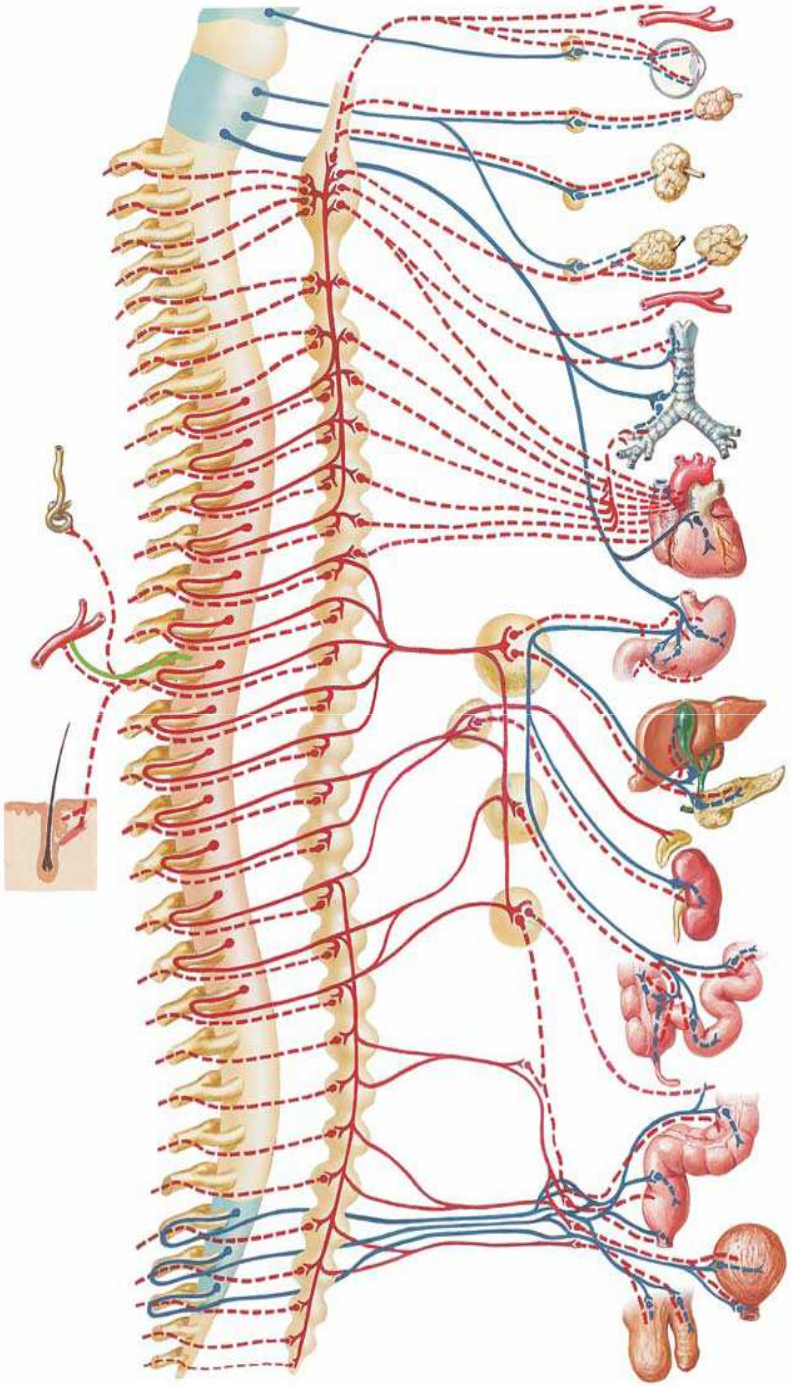


Figure 14-7 This man is making good use of the sympathetic part of his autonomic nervous system.

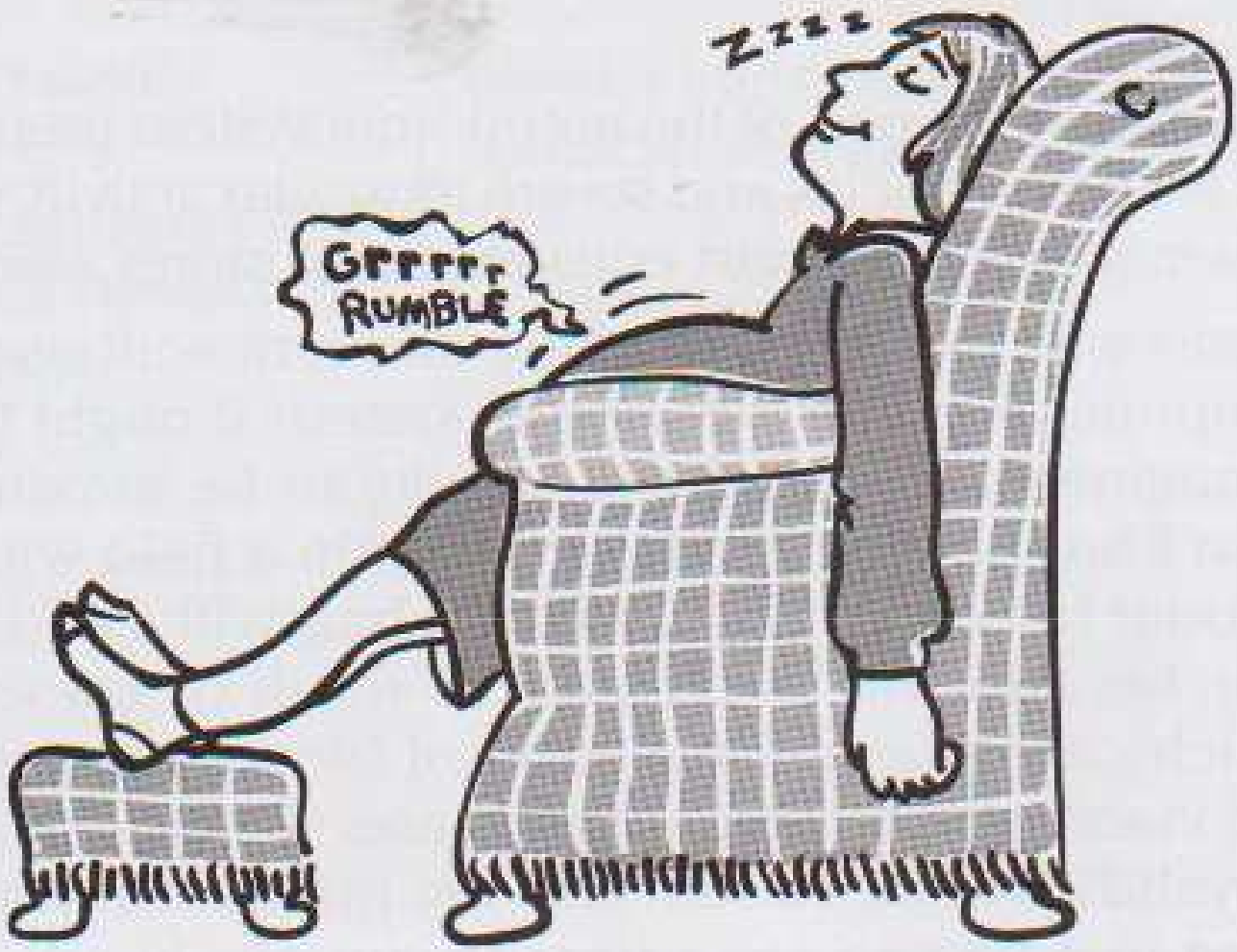


Figure 14-8 There is nothing like a good, large meal and a comfortable armchair to facilitate the activities of the parasympathetic part of the autonomic nervous system.

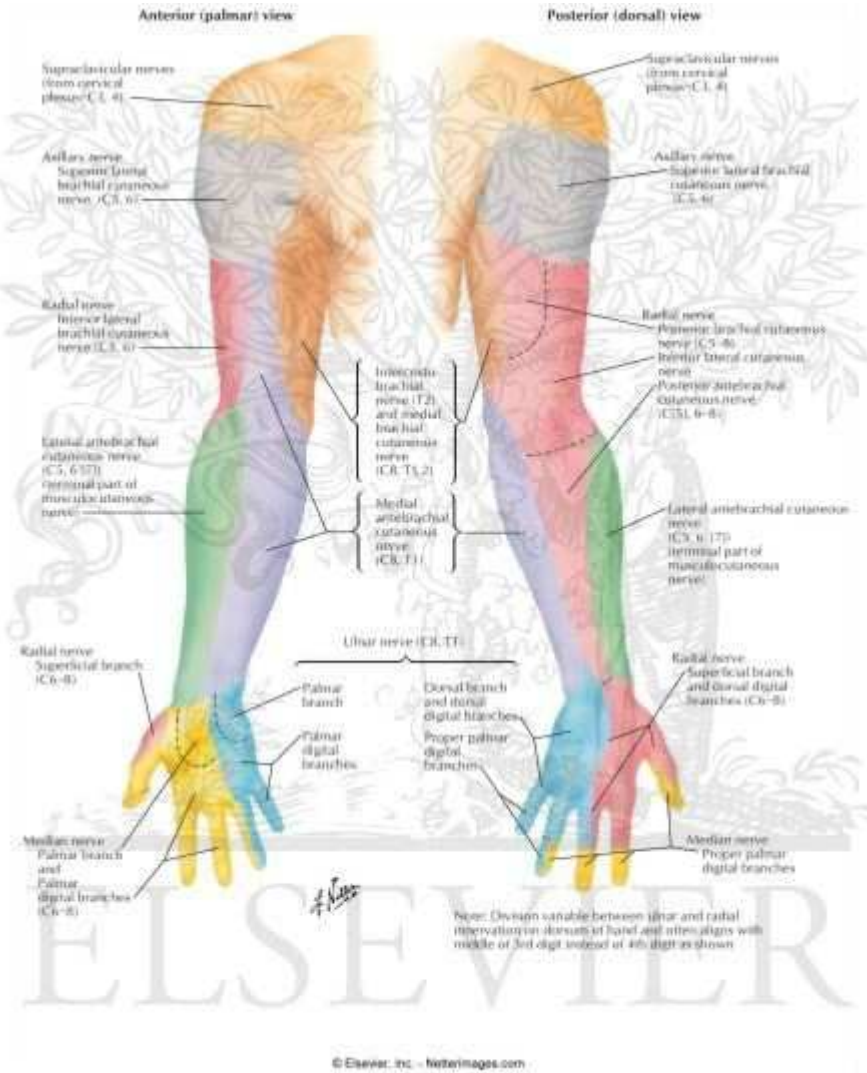


Table 3-4 Important Features Found in Cervical and Lumbosacral Root Syndromes

Root Injury	Dermatome Pain	Muscles Supplied	Movement Weakness	Reflex Involved
C5	Lateral side of upper part of arm	Deltoid and biceps brachii	Shoulder abduction, elbow flexion	Biceps
C6	Lateral side of forearm	Extensor carpi radialis longus and brevis	Wrist extensors	Brachioradialis
C7	Middle finger	Triceps and flexor carpi radialis	Extension of elbow and flexion of wrist	Triceps
C8	Medial side of forearm	Flexor digitorum superficialis and profundus	Finger flexion	None
L1	Groin	Iliopsoas	Hip flexion	Cremaster
L2	Anterior part of thigh	Iliopsoas, sartorius, hip adductors	Hip flexion, hip adduction	Cremaster
L3	Medial side of knee	Iliopsoas, sartorius, quadriceps, hip adductors	Hip flexion, knee extension, hip adduction	Patellar
L4	Medial side of calf	Tibialis anterior, quadriceps	Foot inversion, knee extension	Patellar
L5	Lateral side of lower leg and dorsum of foot	Extensor hallucis longus, extensor digitorum longus	Toe extension, ankle dorsiflexion	None
S1	Lateral edge of foot	Gastrocnemius, soleus	Ankle plantar flexion	Ankle jerk
S2	Posterior part of thigh	Flexor digitorum longus, flexor hallucis longus	Ankle plantar flexion, toe flexion	None

Causes of myelopathy:

1- congenital(chiari-malformatin,syringomyelia)
2- aquired (stenosis,traumatic,disc,)
3-neoplastic
4-vascular(hematoma,AVM)
5- infectious(TB,others)