THE TRUNK and SPINAL COLUMN

Chapter 12
33 bones, 24 are flexible
A. Cervical - 7
B. Thoracic - 12
C. Lumbar - 5
D. Sacrum - 5 (false vertebrae - fused together)
E. Coccyx - 4 (false vertebrae - fused together)

• LINK
Curves of the Spine

- Cervical - concave posteriorly
- Thoracic - concave anteriorly
- Lumbar - concave posteriorly
Markings of the Vertebrae
1. **Spinous process**

3. **Transverse process** - tubercle of rib articulates

5. **Body**

6. **Vertebral foramen**
General Markings

- Vertebral notch
  - Superior
  - Inferior
General Markings

- Intervertebral foramen
Cervical Vertebrae
Cervical Vertebrae

- First 7 vertebrae
- Identified as C1 – C7
- C1 = Atlas
- C2 = Axis
- C7 is the large protrusion at the posterior base of the neck
Atlas (C1)

Large vertebral foramen

Transverse ligament
Axis (C2)

**Dens** or odontoid process
(a) Cervical vertebrae

- Dens of axis
- Transverse ligament of atlas
- C₁ (atlas)
- C₂ (axis)
- C₃
- Inferior articular process
- Bifid spinous process
- Transverse processes
- C₇ (vertebra prominens)
Thoracic (T1-T12)

Superior aspect of vertebra
Thoracic (T1-T12)
Lumbar (L1-L5)

Superior aspect of vertebra
Lumbar (L1-L5)
Note the differences:
1. Transverse process
2. Spinous process
3. Body
Note the differences:
1. Transverse process
2. Spinous process
3. Body
Sacrum
Intervertebral Disks
Intervertebral Disks

Annulus fibrosus - fibrous, outer portion
Nucleus pulposus - soft, inner portion
Thorax Bones

- 12 ribs and the sternum
Ribs

- 12 pairs
- 7 pair are ‘true’ ribs
- 5 pair are ‘false’ ribs
  - 3 pair attach indirectly to the sternum
  - 2 pair are ‘floating ribs’ that don’t attach to the sternum
- All ribs attach posteriorly to thoracic vertebra
Sternum
Joints of the Spinal Column
Articulation between the head and neck

- i. Atlas (C1)
- ii. Occipital bone

Acts as a hinge joint; flexion and extension

No rotation at this joint
• Articulation between C1 and C2
  • a. pivot joint - Rotation
  • b. the dens or odontoid process fits into the inner, anterior portion of the vertebral foramen
• with the help of the transverse ligament.
Facet Joints

Synovial joint between two vertebrae
Intervertebral Disks

- Intervertebral disks attached to cell bodies
- Allow limited motion in all three planes
Actions of the Spinal Column

- Flexion (neck or trunk)
- Extension
- Lateral Flexion
- Rotation
  - Same side
  - Opposite side
Flexion

Cervical flexion

NECK FLEXION, DORSAL (A), VENTRAL (B)

Lumbar flexion
Extension

Cervical extension

Lumbar extension
Lateral flexion

Cervical lateral flexion

Lumbar lateral flexion
Rotation

Cervical rotation

Lumbar rotation
Defects of the Spine

- Kyphosis
- Lordosis
- Scoliosis
Kyphosis - hunchback

- Increase anterior concavity (or curvature) of the thoracic curve
Lordosis - swayback

- Increase posterior concavity of the lumbar region.
Scoliosis

- Lateral curvatures or sideward deviations of the spine.
- Mastoid bone and mastoid process
- Occipital bone
- Ligamentum nuchae
• Inguinal ligament
• Linea alba