
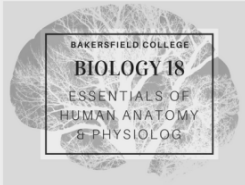



Lecture #4: Skeletal System 2: Axial

Chapter 5

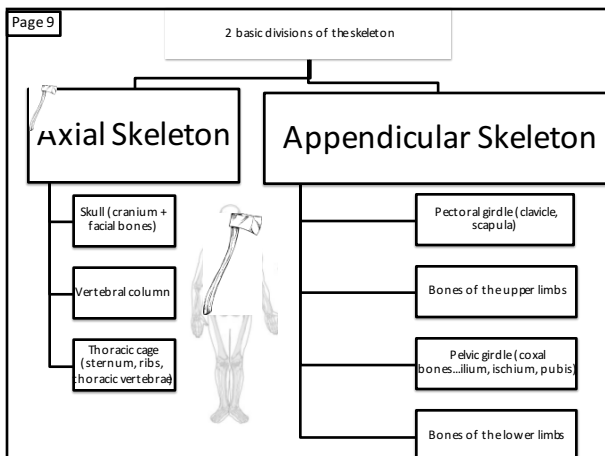


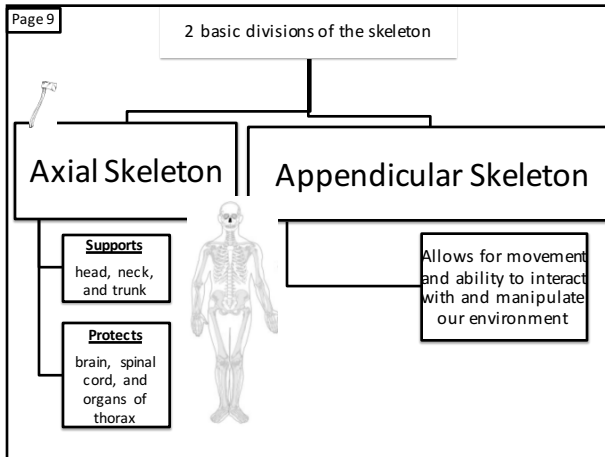
Marieb, 2018. *Essentials of
Human Anatomy & Physiology*
(12th Ed.)
ISBN 978-0134395326

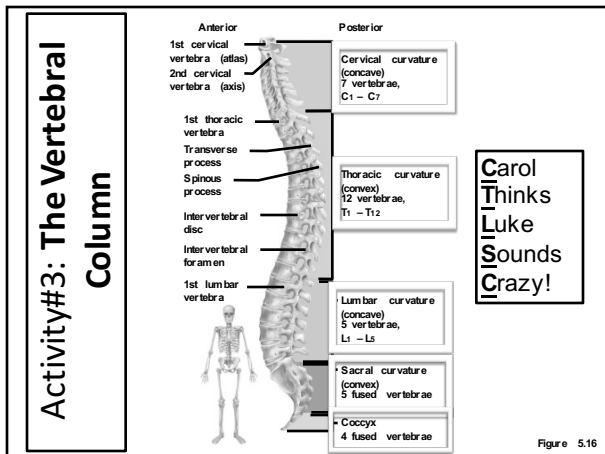
Objectives

- Describe the 2 basic divisions of the human skeleton.
- Name and identify the bones of the skull and their important markings.
- Name and identify the bones of the vertebral column and their important markings.
- Name and identify the bones of the bony thorax and their important markings.
- Name and identify the bones of the pectoral girdle and upper extremities and their important markings.
- Name and identify the bones of the pelvic girdle and lower extremities and their important markings.





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Lab Manual
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Page 47 Lab

Vertebral Areas

- Cervical vertebrae C1-C7 (observe from anterior, posterior and lateral views) 7 Breakfast
- Thoracic vertebrae T1-T12 12 Lunch
- Lumbar vertebrae L1-L5 5 Dinner
- The sacrum (5 fused vertebrae) 5
- The coccyx (4 fused vertebrae) 4

Page 13

Figure 7.21a Posterolateral views of articulated vertebrae.

(a) 7 Cervical vertebrae

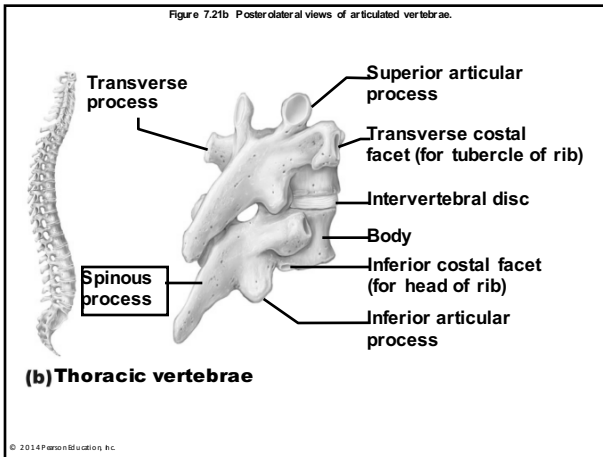
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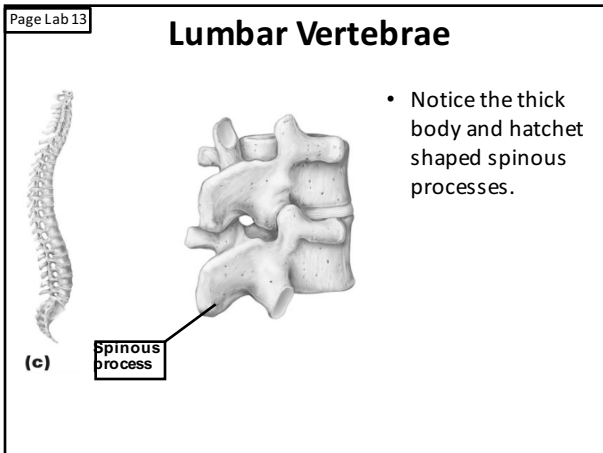
Page Lab 13

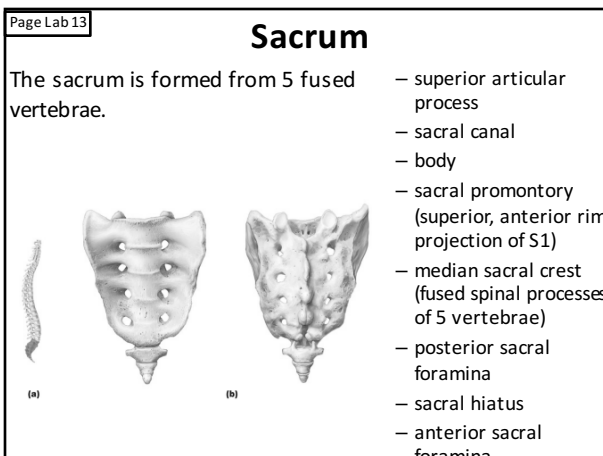
Thoracic Vertebrae

- Go to a skeleton and view where the 12 pair of ribs articulate with the 12 thoracic vertebrae.

(b) Notice the downward pointing **spinous process** of thoracic vertebrae.







Activity#3: The Vertebral Column

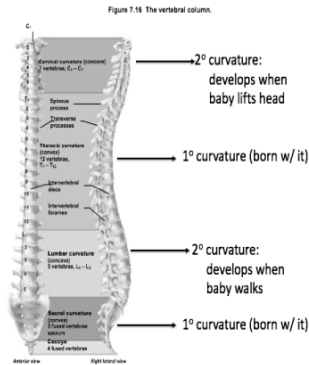
- Spinal curvatures
(observe from a lateral view)
 - cervical curvature
 - thoracic curvature
 - lumbar curvature
 - sacral curvature

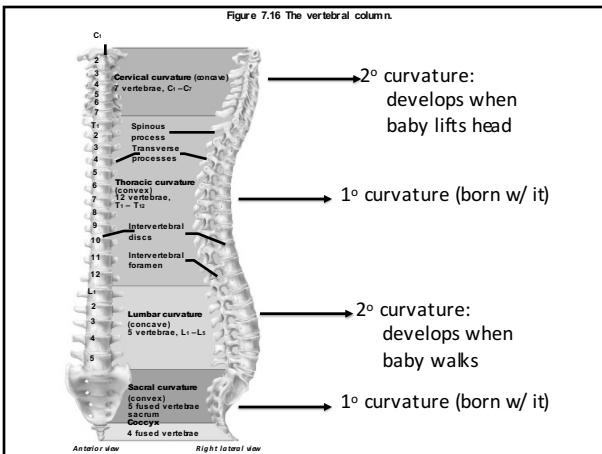
Page 13

Spinal curvatures

(observe from a lateral view)

- The cervical curvature
- The thoracic curvature
- The lumbar curvature
- The sacral curvature





Activity#3: The Vertebral Column

• Abnormal curves

- kyphosis: An exaggerated thoracic curve. Sometimes from the anterior collapse of thoracic vertebral bodies. Hunchback.
- lordosis: An exaggerated lumbar curve. Ethnicity could be a factor. Swayback.
- scoliosis: A "S" shaped lateral curvature. Most common in teenage females. Needs correction early.

Figure 5.15: Abnormal spinal curvatures

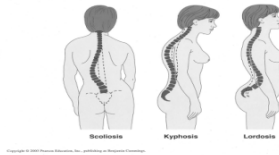
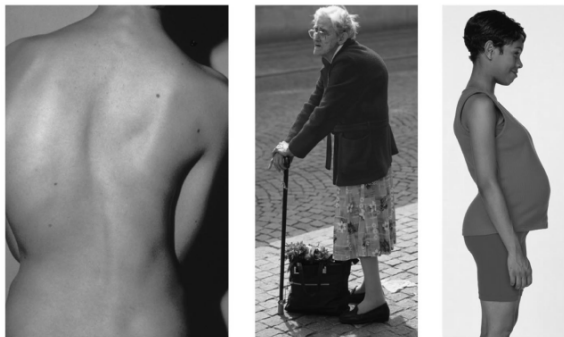


Figure 7.17 Abnormal spinal curvatures.



(a) **Scoliosis**

(b) **Kyphosis**

(c) **Lordosis**

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Page 48

Abnormal Curves of Spine



Kyphosis



(b) **Kyphosis**


Kyphosis

- An exaggerated thoracic curve. Sometimes from the anterior
- Collapse of thoracic vertebral bodies.

Hunchback

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Abnormal Curves of Spine




Lordosis
An exaggerated lumbar curve.

Swayback

Lordosis (c) Lordosis

Page 48

Abnormal Curves of Spine



Scoliosis:

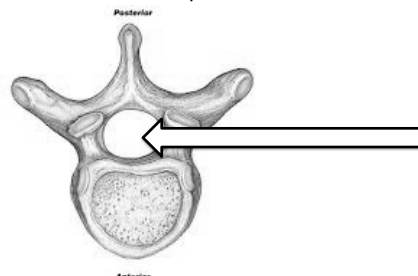
- Most common in teenage females.
- Needs correction early.

S Shape

Scoliosis

Activity#3: Intervertebral foramina

- Openings formed by two adjoining vertebrae for nerves to enter and leave the spinal column



Posterior

Anterior

ThingsLink

Page 13

Vertebrae

What do they have in common?

Intervertebral foramina

Pinterest

Activity#3: Intervertebral discs

– fibrocartilage pad between vertebrae.

- herniated (ruptured) disc. See if the model you are viewing has a bulging mass (sometimes tinged pink) of inner disc material (nucleus pulposus) which has herniated through the annular ring (annulus fibrosus). Note this mass would push on the spinal nerve in the intervertebral foramen and cause the patient great discomfort.

— Intervertebral disc

Activity#4: Structure of Individual Vertebrae

- Learn List:
 - body
 - vertebral arch
 - vertebral foramen
 - transverse process
 - spinous process
 - superior and inferior articular processes

Activity#4: Structure of Individual Vertebrae

Learn List:

- body
- vertebral arch
- vertebral foramen
- transverse process
- spinous process
- superior and inferior articular processes

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Special Structures

(a)

- **C1 the Atlas:** The superior articular facets are larger to receive the occipital condyles. Nod your head up and down as in "yes". Articulation is occurring between C1 and the occipital bone during this movement.

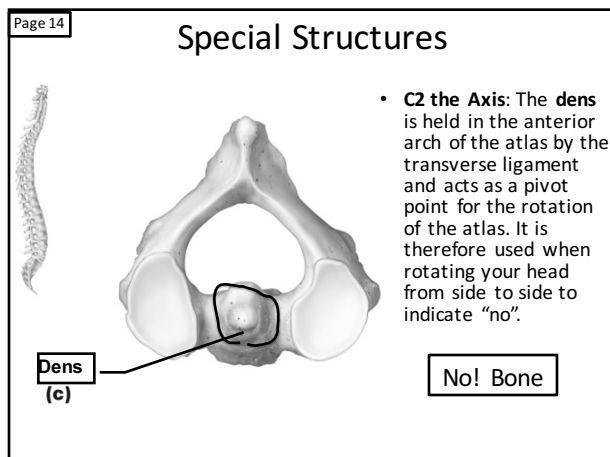
Yes! Bone

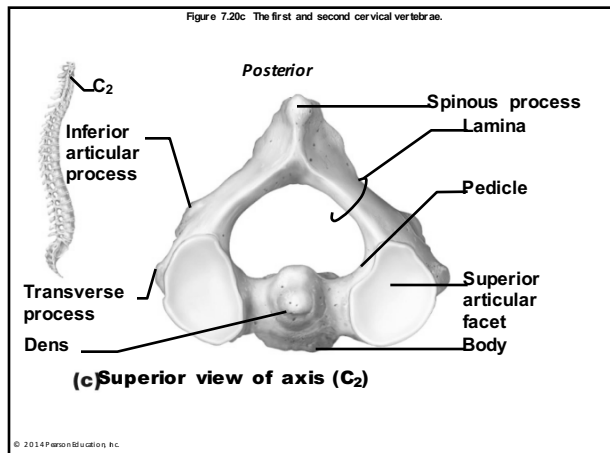
Figure 7.20a The first and second cervical vertebrae.

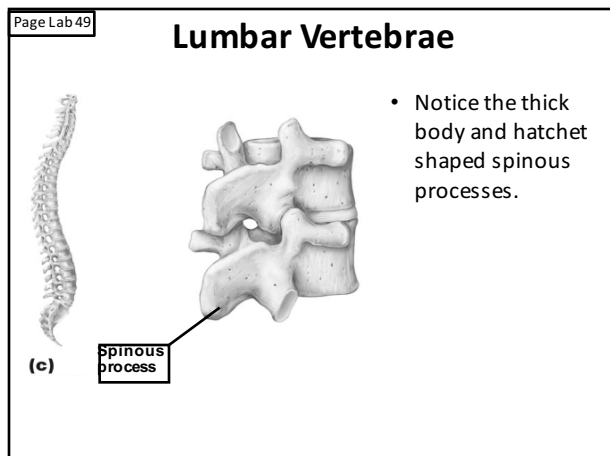
C₁

(a) Superior view of atlas (C₁)

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Activity#5: Structure of the Bony Thorax

- The sternum (site for bone marrow collection)
 - manubrium
 - jugular notch
 - clavicular notches
 - body
 - The sternal angle is the bend where the body meets the manubrium. Practice palpating this line on your own body. This marks the level of 2nd rib.
 - xiphoid process

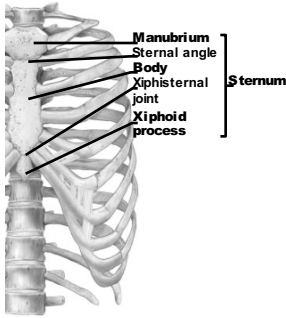
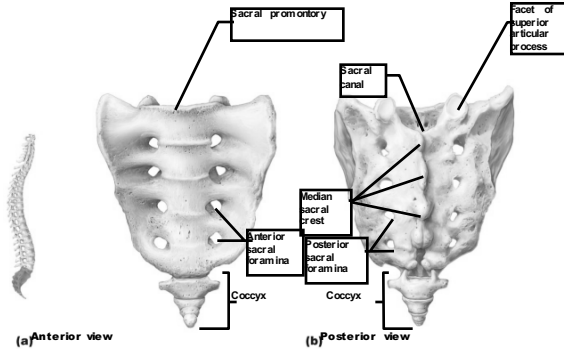
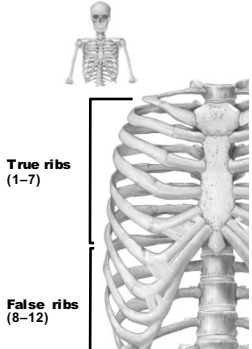


Figure 7.22 The sacrum and coccyx.



<ul style="list-style-type: none"> • superior articular process • sacral canal 	<ul style="list-style-type: none"> • anterior sacral foramina 	<ul style="list-style-type: none"> • median sacral crest (fused spinal processes of 5 vert.) • posterior sacral foramina
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Activity#5: Structure of the Bony Thorax



- The ribs
 - true ribs (first 7 pair)
 - false ribs (lower 5 pair)
 - floating ribs (pair 11 & 12)
 - They are called floating ribs because they have no sternal attachment at all.
