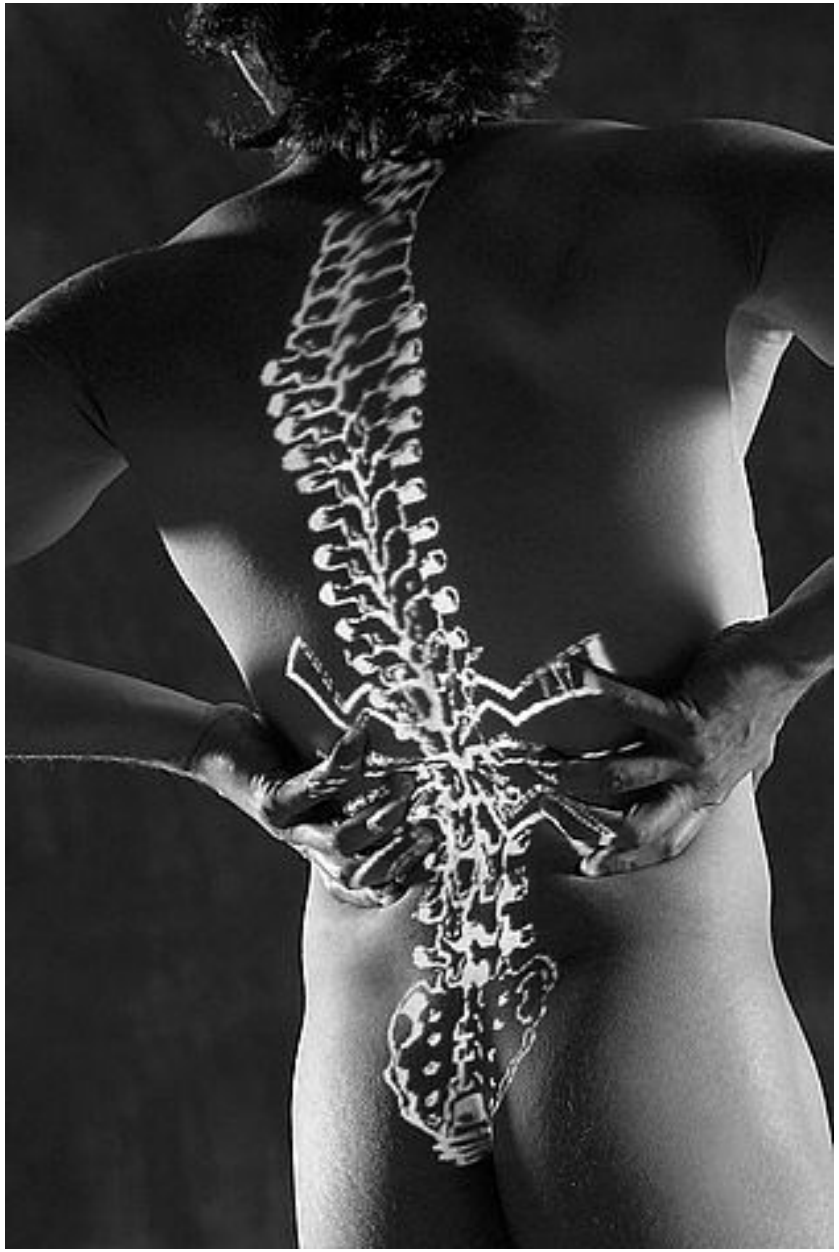
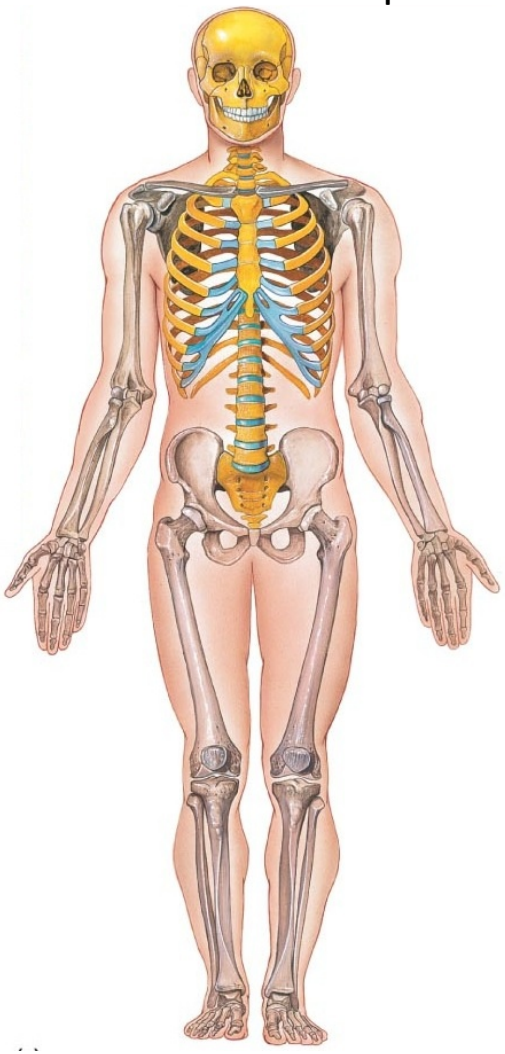
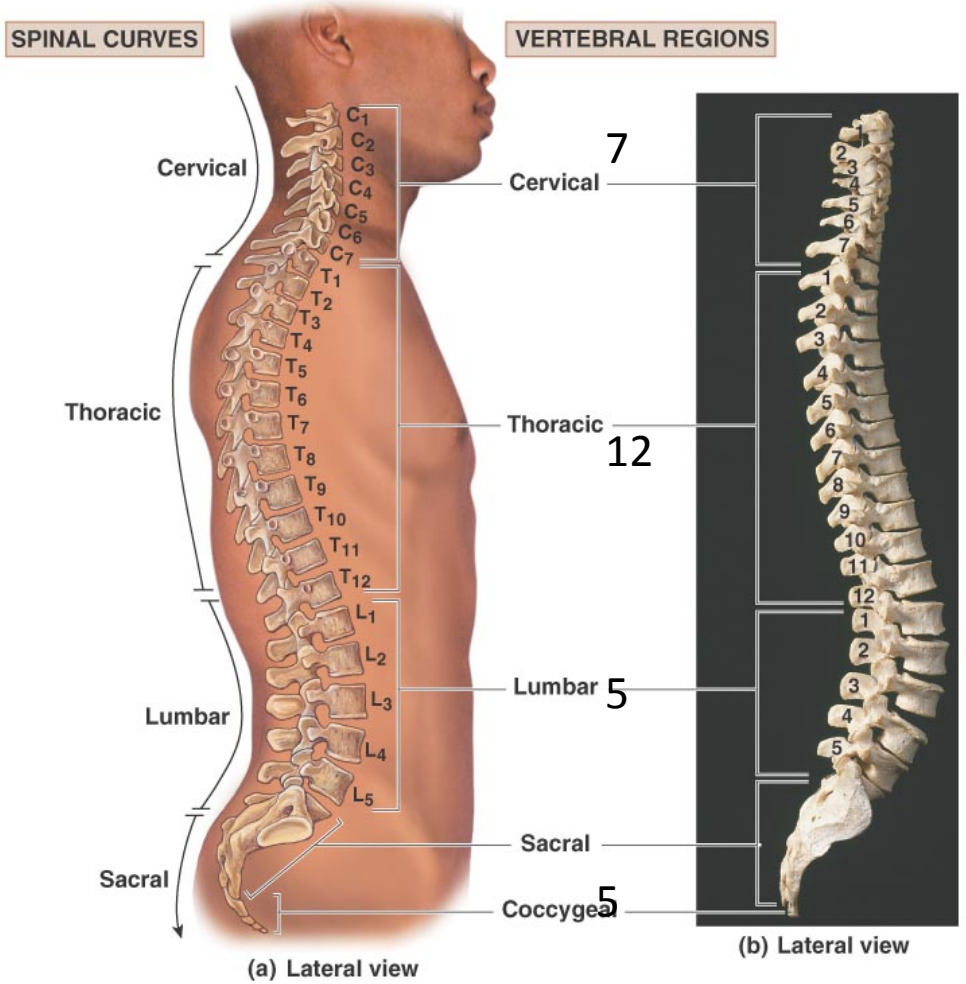


Bio 230
Dr. Carla Sweet

The Vertebral Column and Thoracic Cage

Axial Skeleton: protects the brain, spinal cord, and visceral organs of the chest

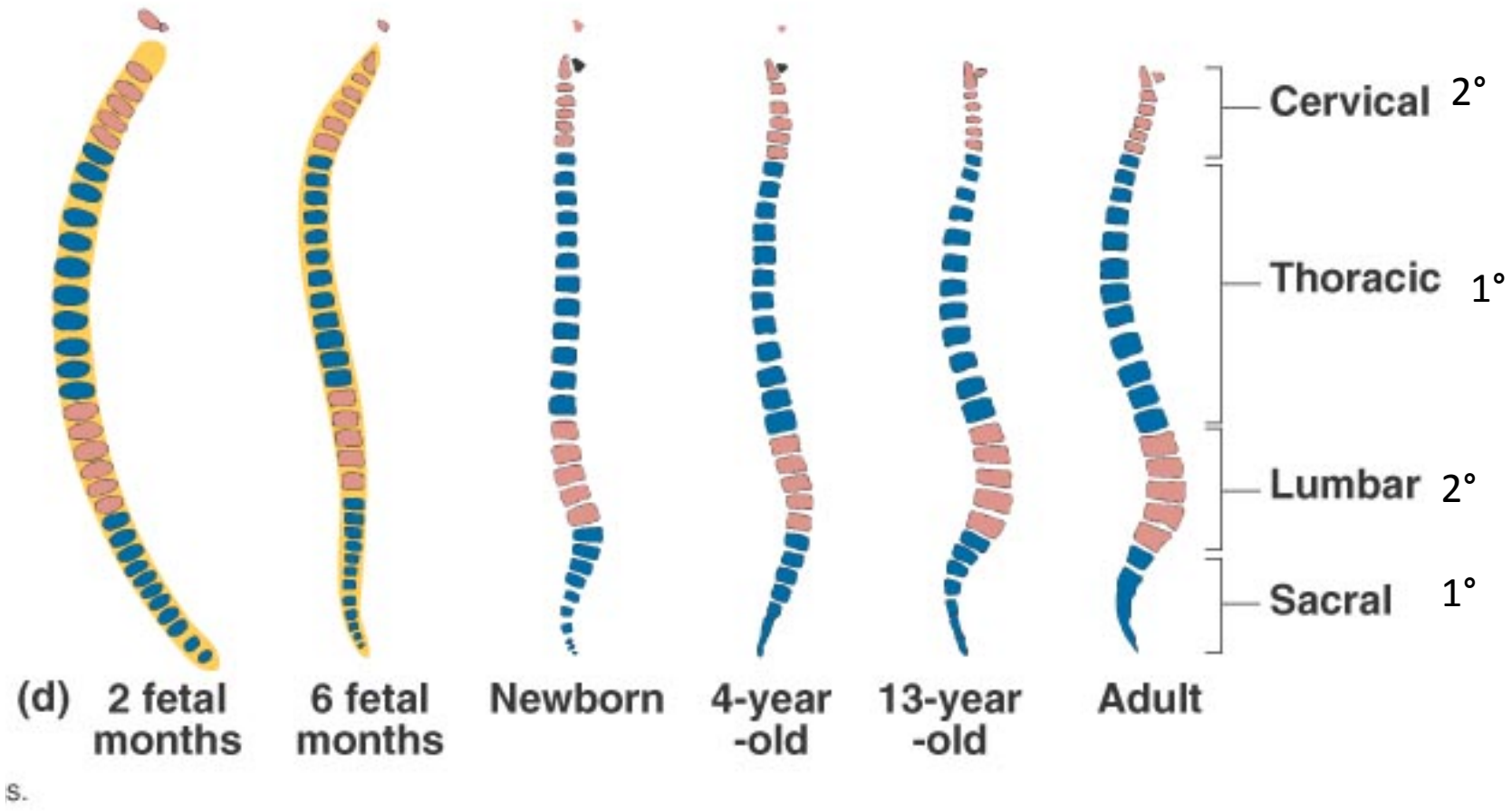




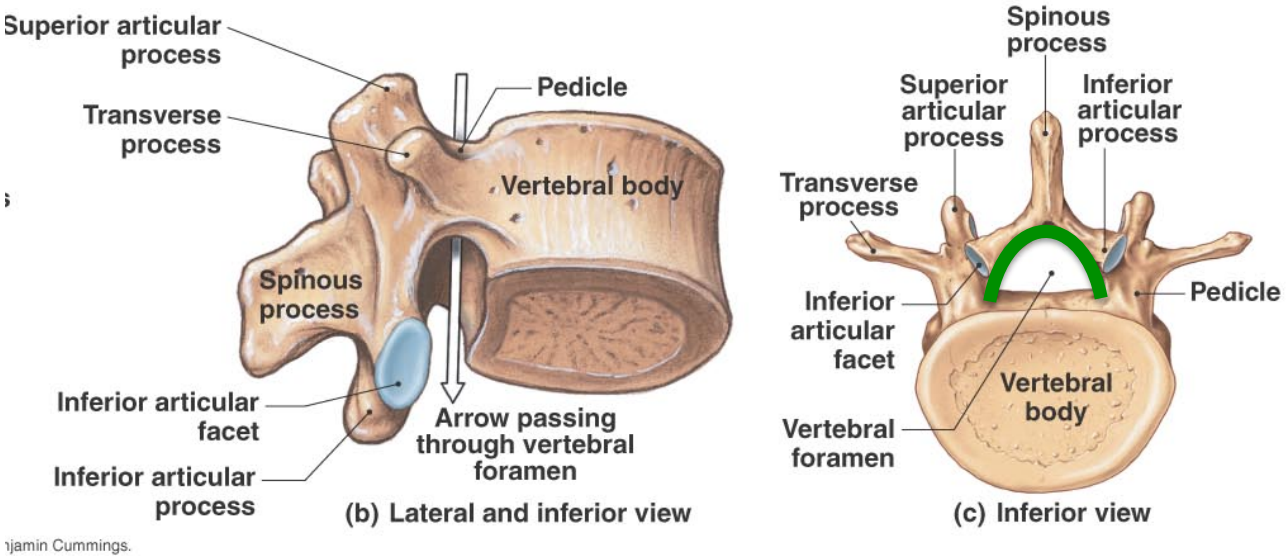
4

Vertebrae: conduct body weight to the lower limbs
Lower vertebrae are larger and stronger:
because they bear more weight

4 Vertebral Curvatures seen in the adult



General Characteristics of a Typical Vertebra



The vertebral body :

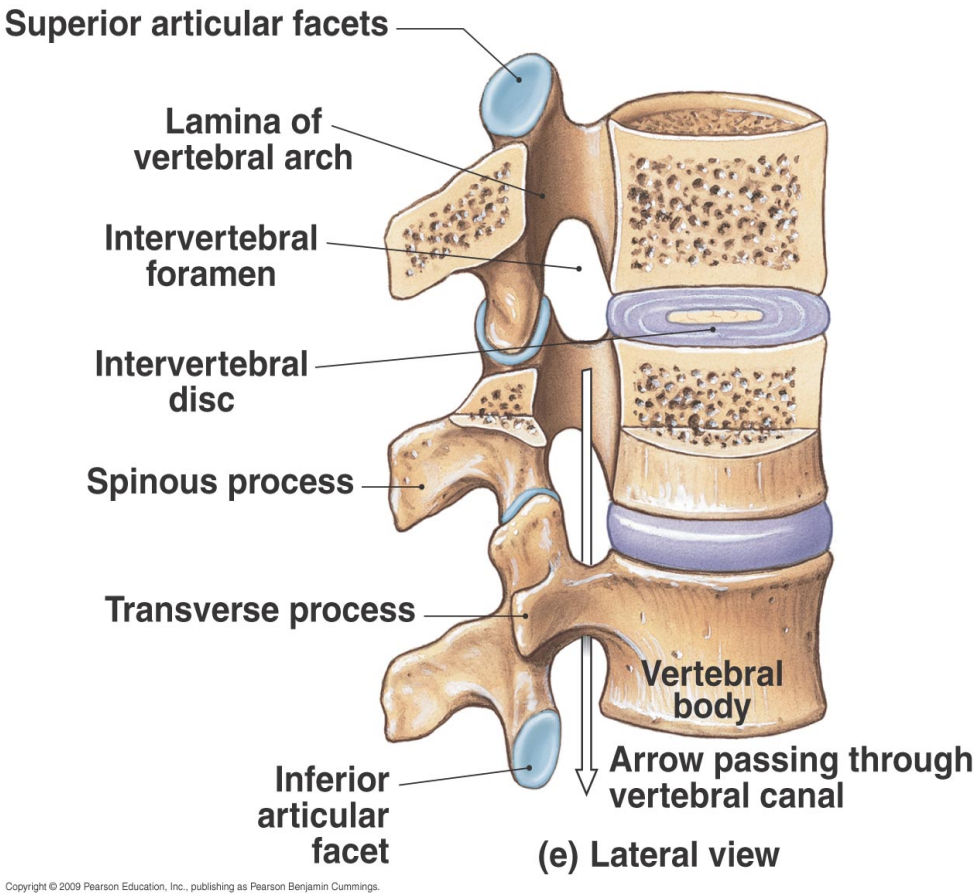
transfers weight along the spine

The vertebral arch:

posterior margin of vertebral foramen **Green in diagram**.

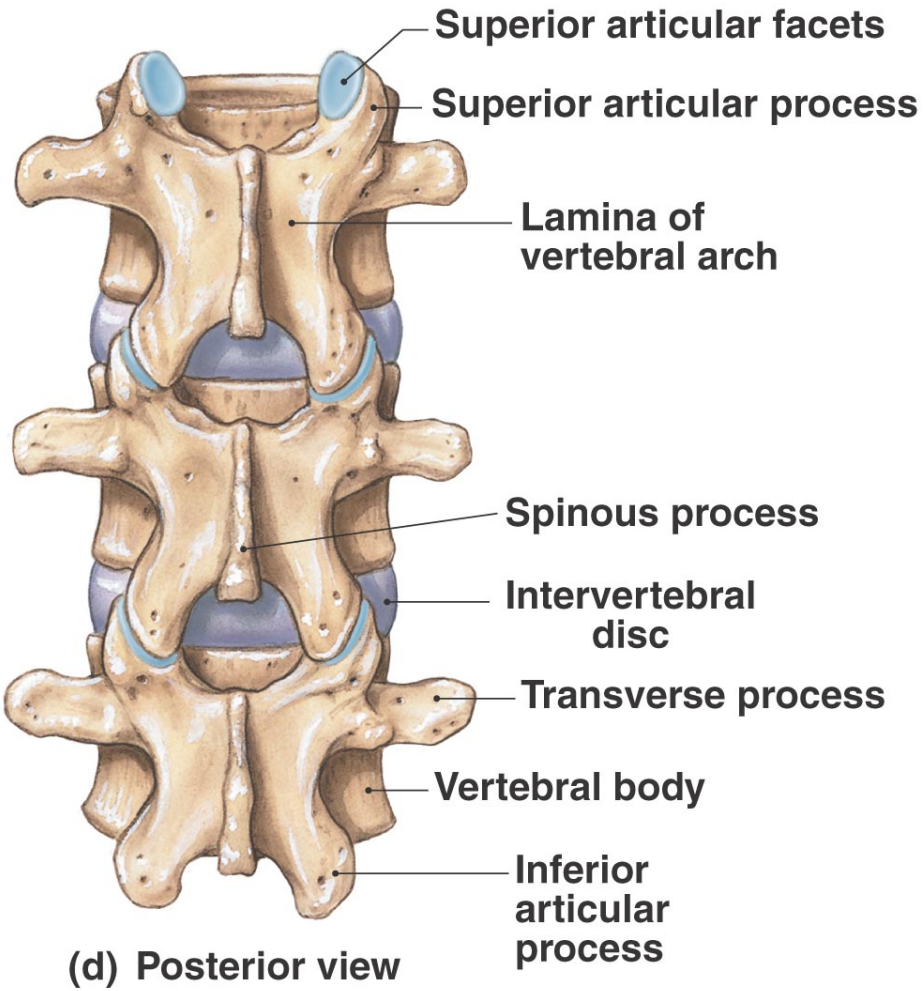
The articular processes:

lateral projections between laminae and pedicles



Be sure to understand the difference between:

1. vertebral foramen
2. intervertebral foramen
3. vertebral canal



Articulated vertebrae

Vertebral Regions-Vertebrae are numbered:by region, from top to bottom

C_1 articulates with skull, L_5 with sacrum

Vertebrae of each region:

have characteristics determined by functions

General Regional Characteristics of Vertebrae

Cervicle 7- (typical)

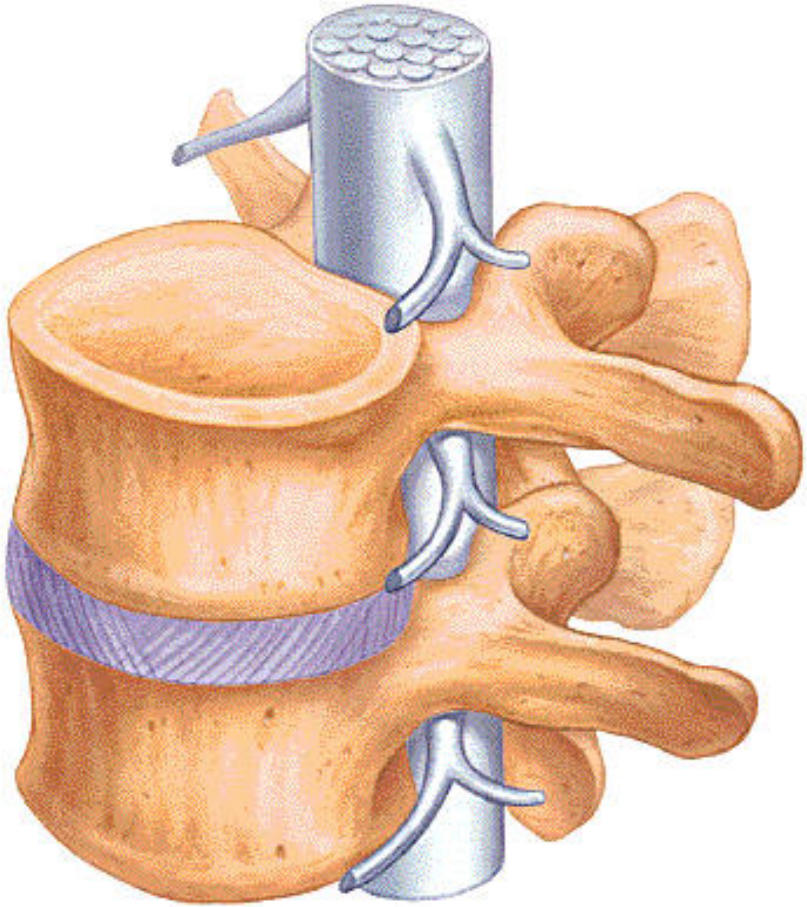
-have a transverse foramen
In each transverse process
-the spinous process of C3-6
Are short & bifed

Thoracic -12-

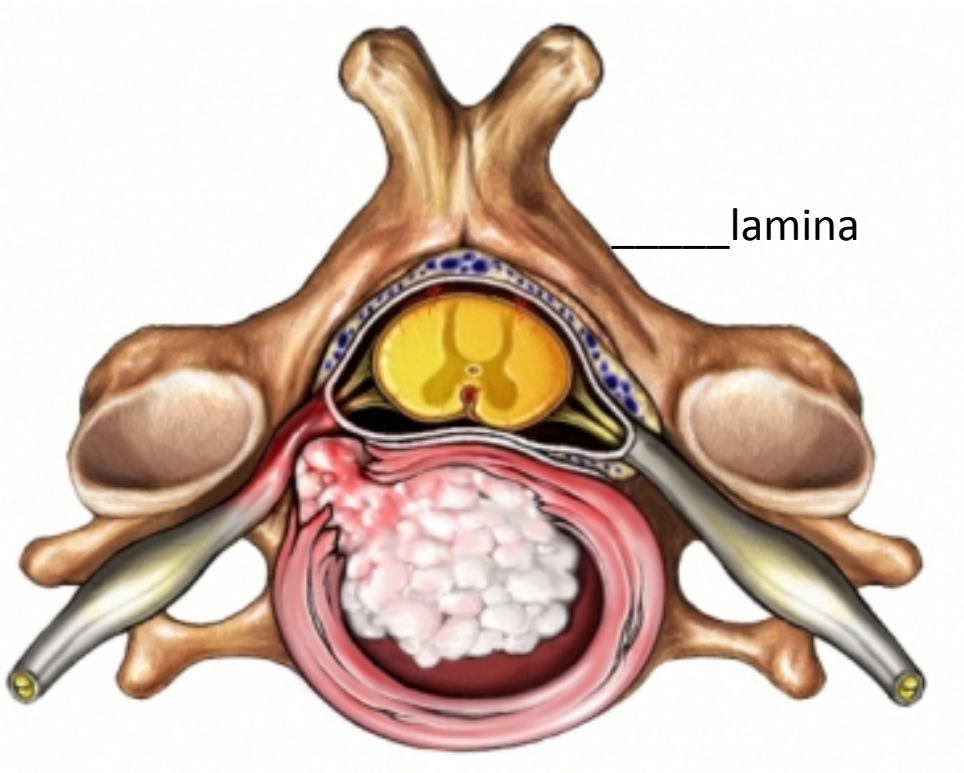
-have articular facets for
ribs (bingo!)
-the spinious processes
tend to be long, slender
& point downward

Lumbar -5-

-have large bodies
-thick blunt spinious processes



Nerve roots off the spinal cord
leaving the intervertebral foramen



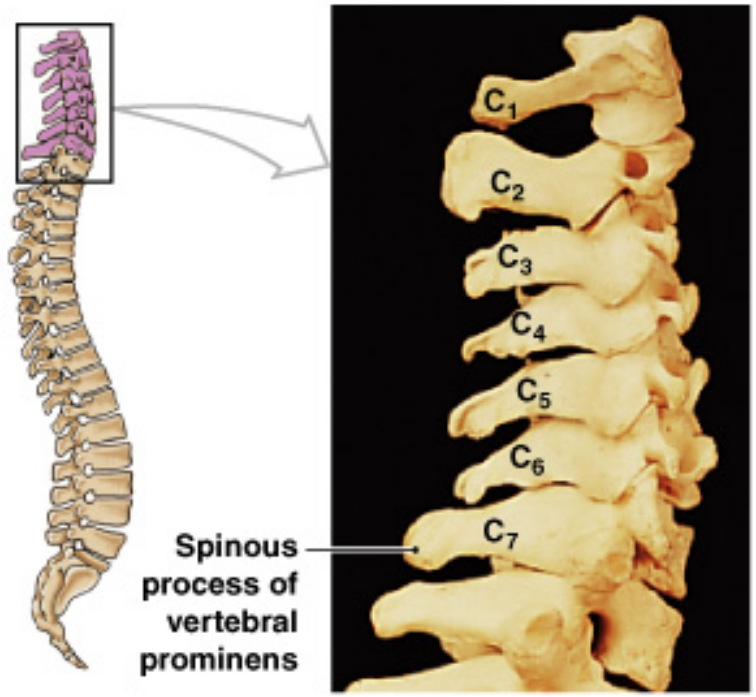
Intervertebral Discs

-Are pads of fibrocartilage
-Separate the vertebral bodies
-Absorb shocks

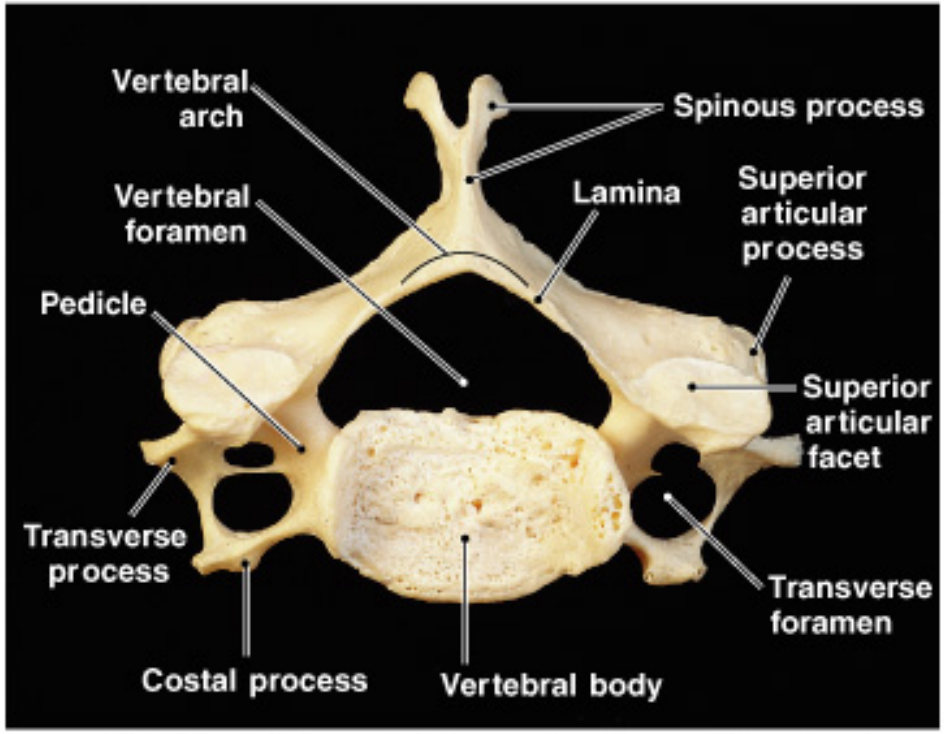
Herniated disc, compressing on nerve!
What region is this from? Look at vertebra

The Cervical Vertebrae (C1-C7)

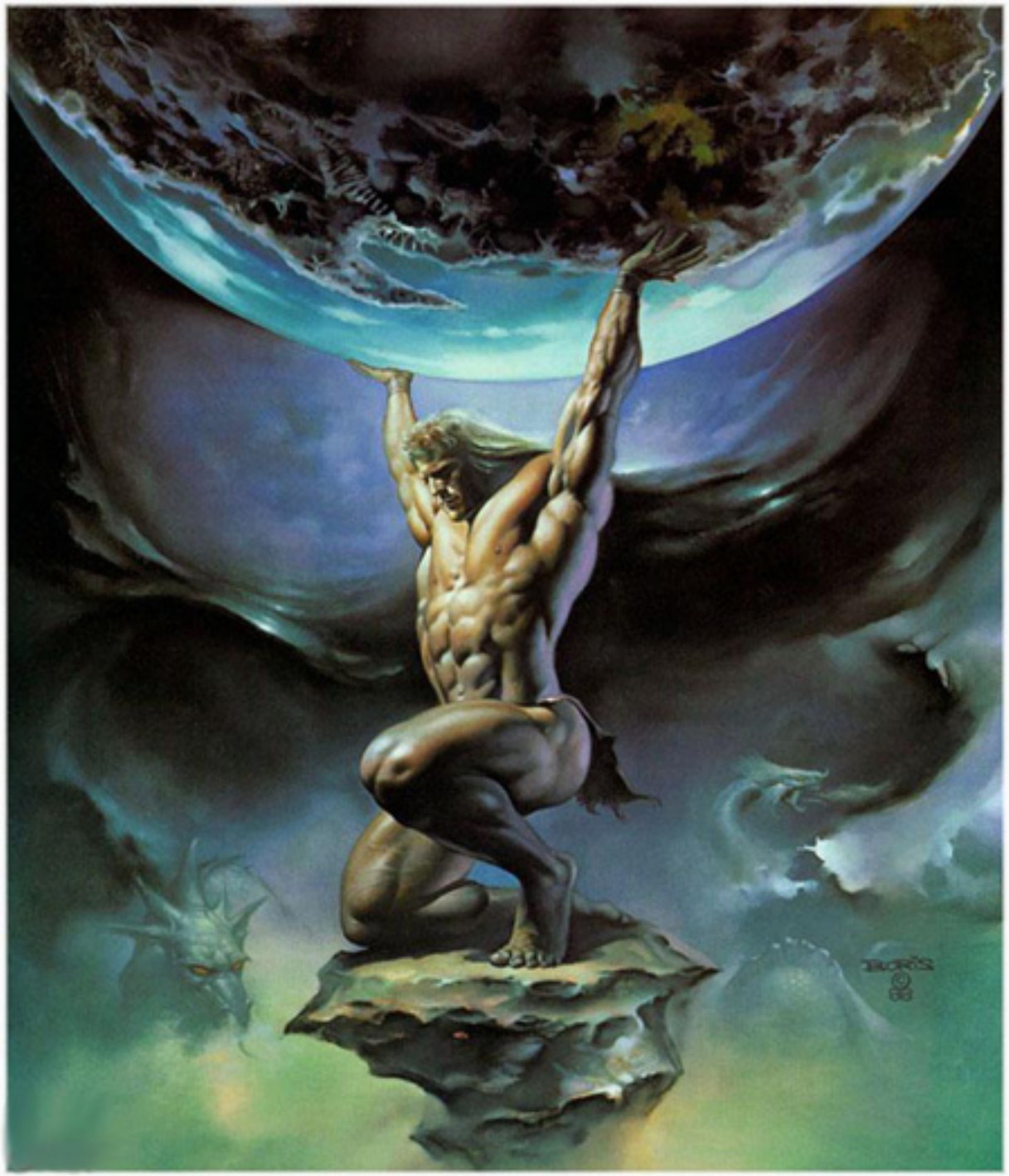
- C_1 (atlas) has no body or spinous process
- small bodies on the rest of cervical vertebrae (support only head)



(a) Cervical vertebrae



(b) Typical cervical vertebra (superior view)



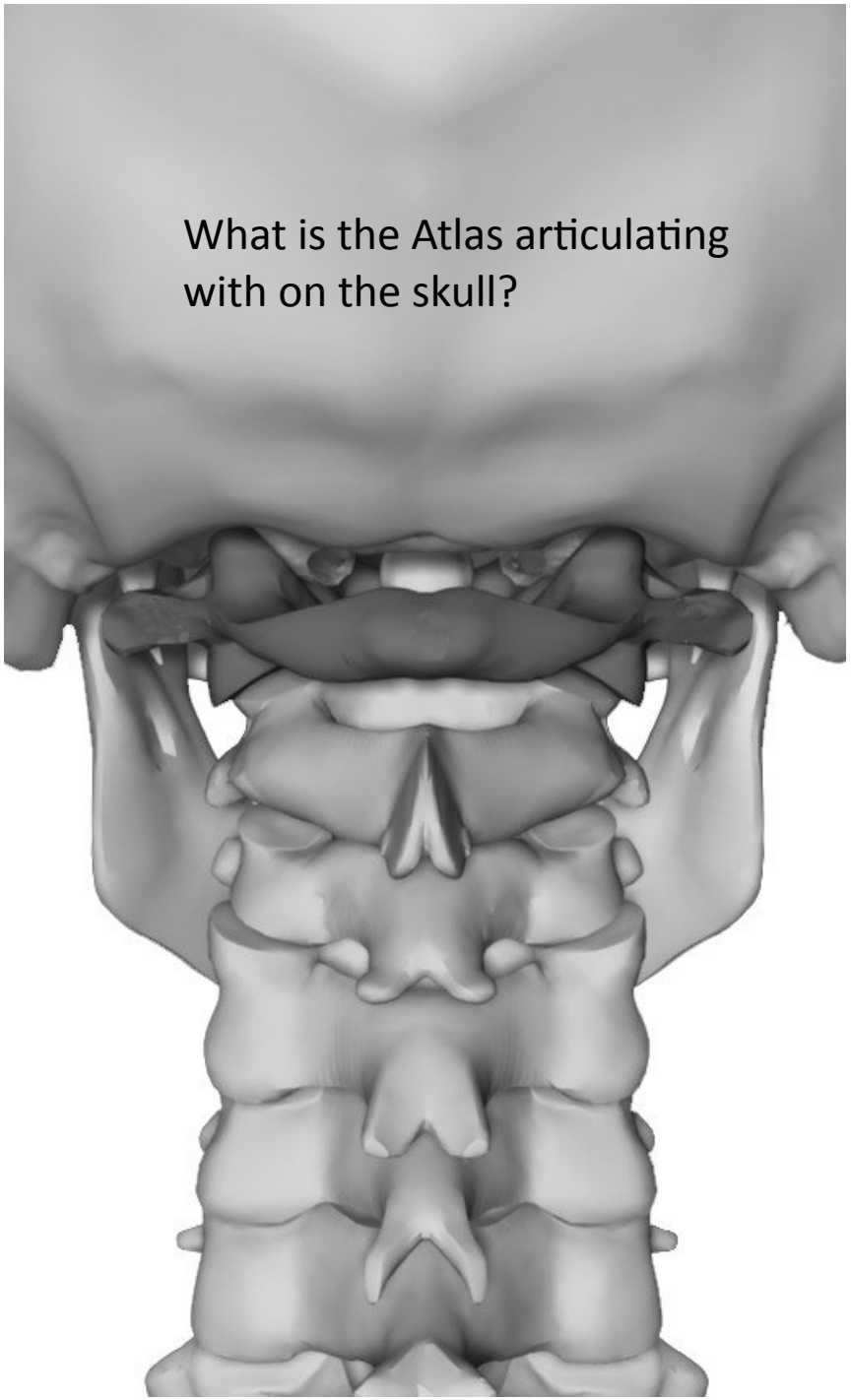
Who is this man?
And why is he included In this study of the Vertebral Column?

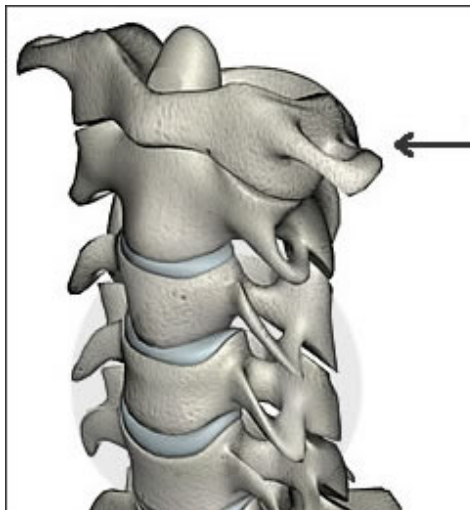
He is ATLAS the Greek God who supported the world!

We each have our own Atlas
That supports us everyday.

Meet C-1…….. AKA …….ATLAS

What is the Atlas articulating with on the skull?



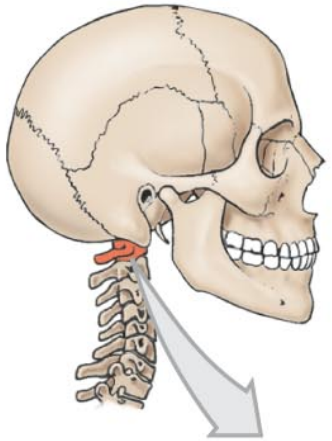


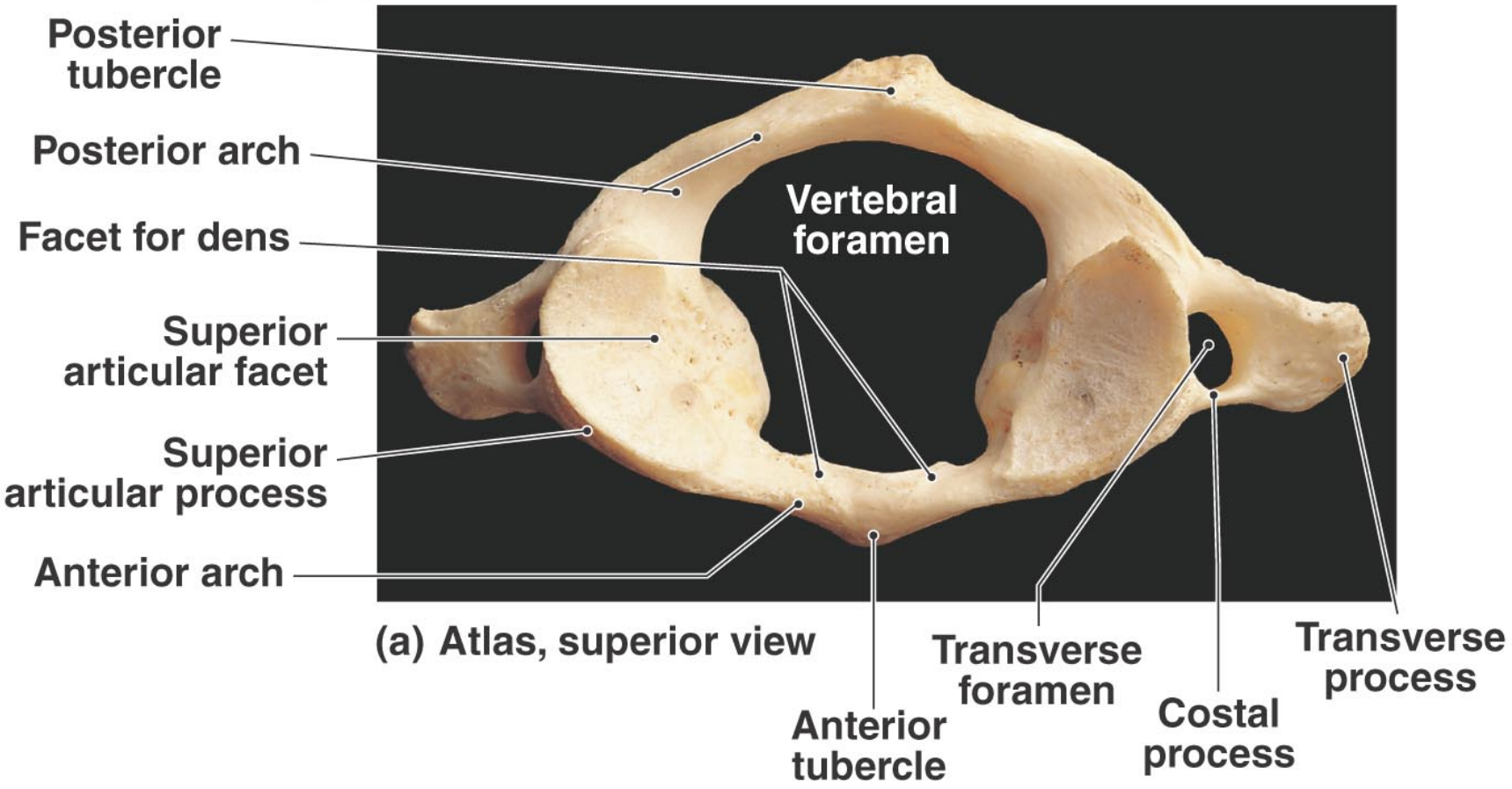
Your head sits
On your own Atlas!
Give thanks to this
Mighty vertebra
C-1 ROCKS!

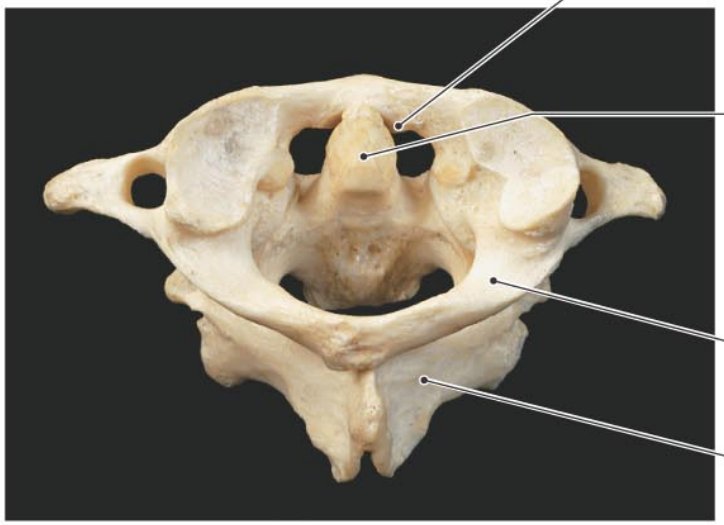
C-1 the Atlas

The superior articulating facets
receive the occipital condyles
To form the Atlanto-Occipital Joint

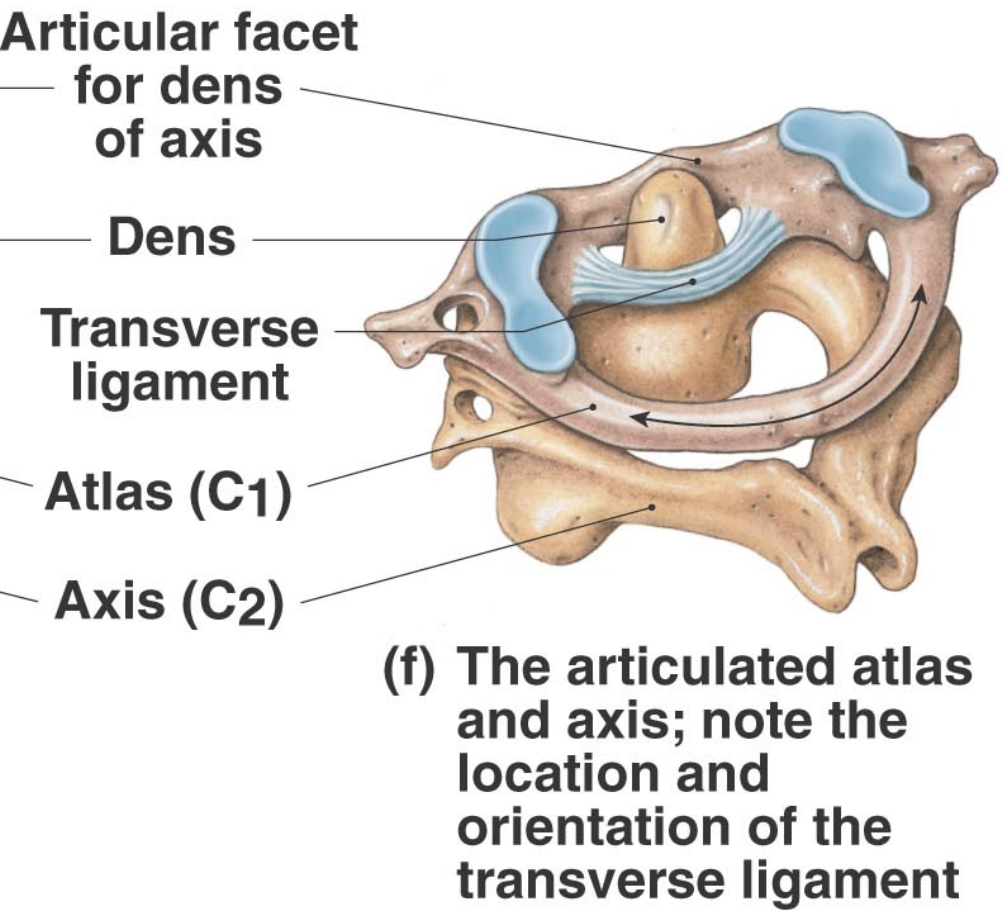
-the Atlas has no spinous process
-has no body (who needs a body
when you support the world!)







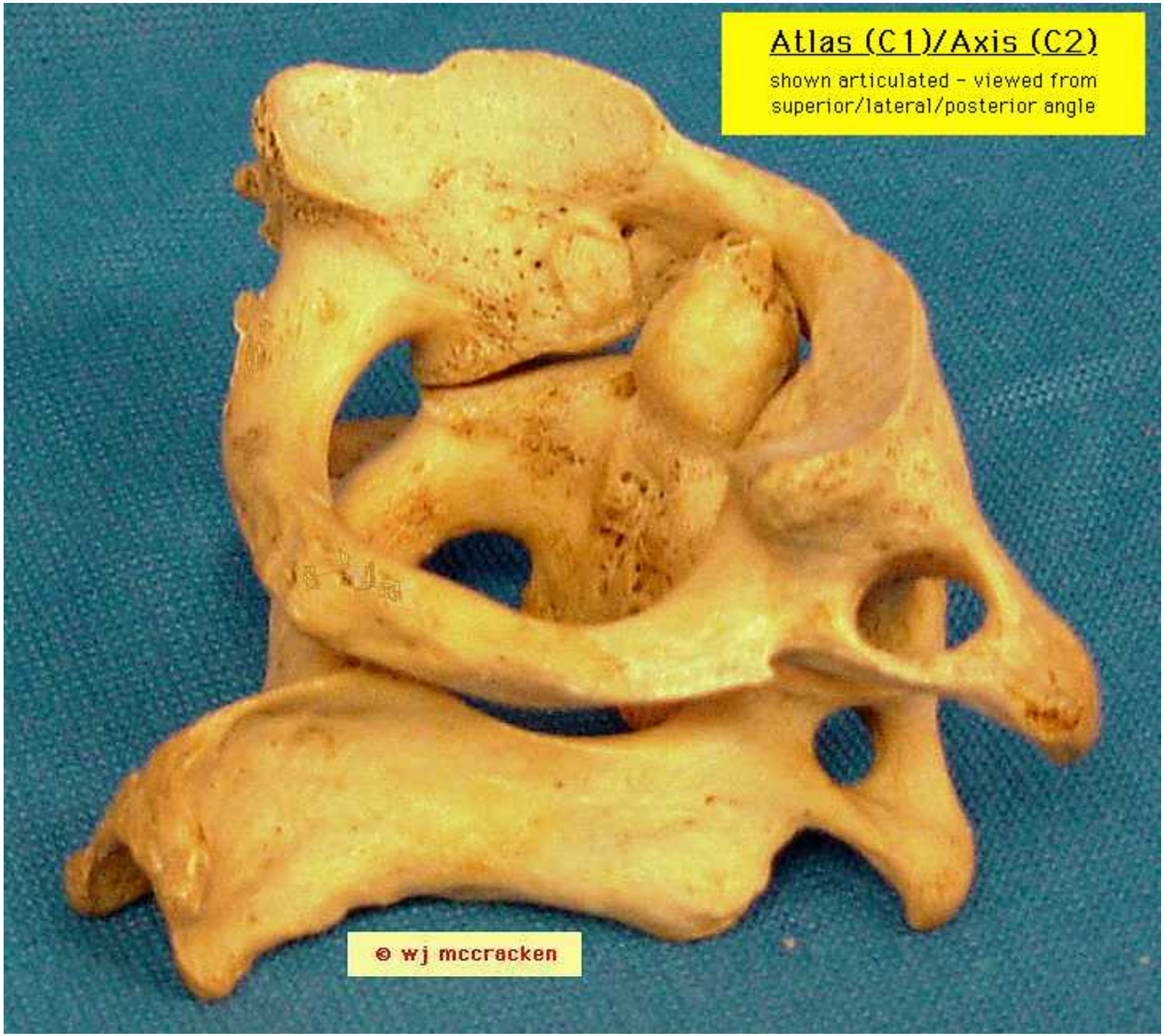
(e) Articulated atlas and axis, superior and posterior view



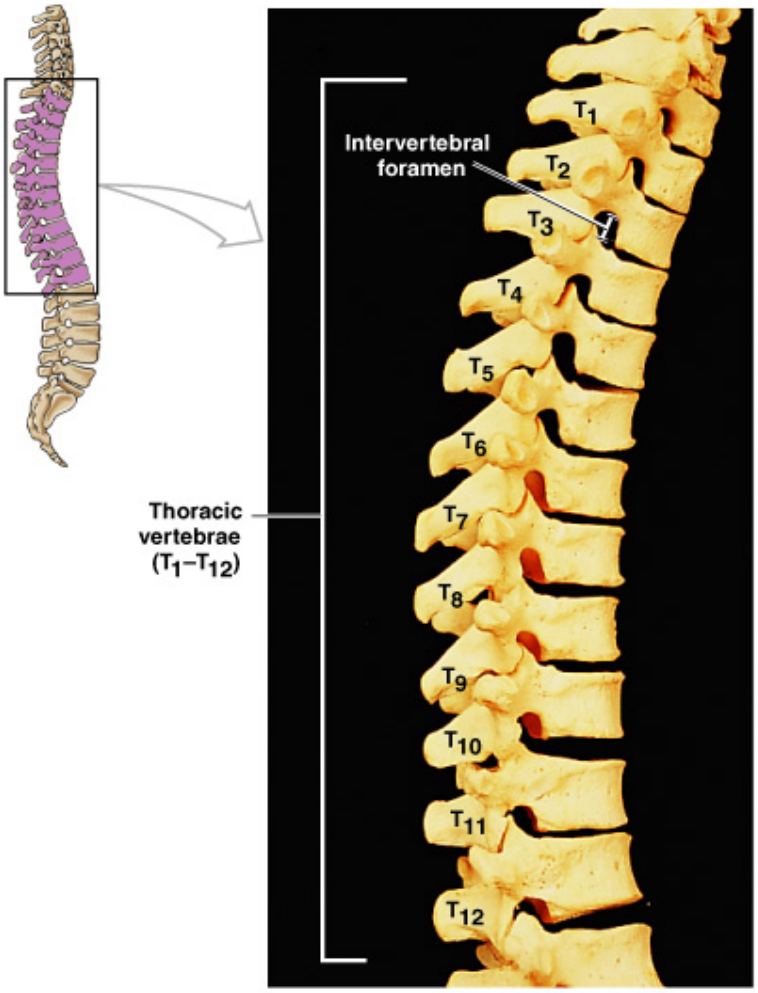
(f) The articulated atlas and axis; note the location and orientation of the transverse ligament

C1(Atlas) meets C2 (Axis) and now we can rotate our heads!

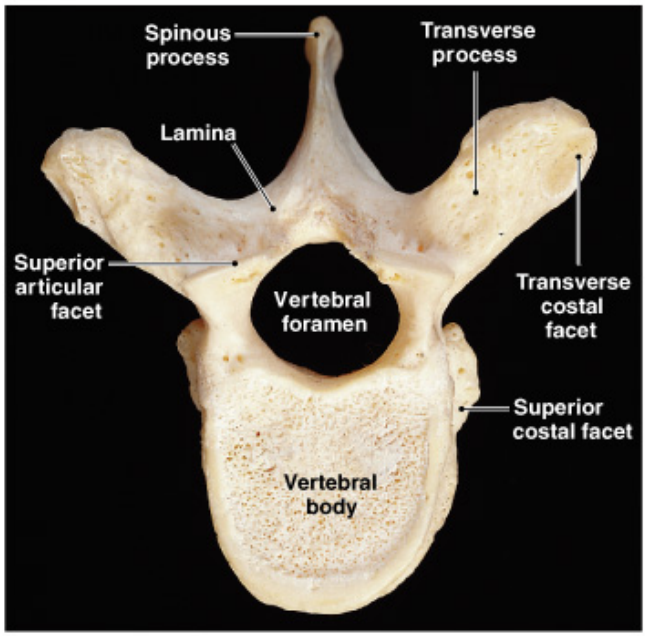
Dens is Greek for “Tooth”- the Dens looks like a tooth (Dentist)


Atlas (C1)/Axis (C2)
shown articulated - viewed from
superior/lateral/posterior angle
© wj mccracken

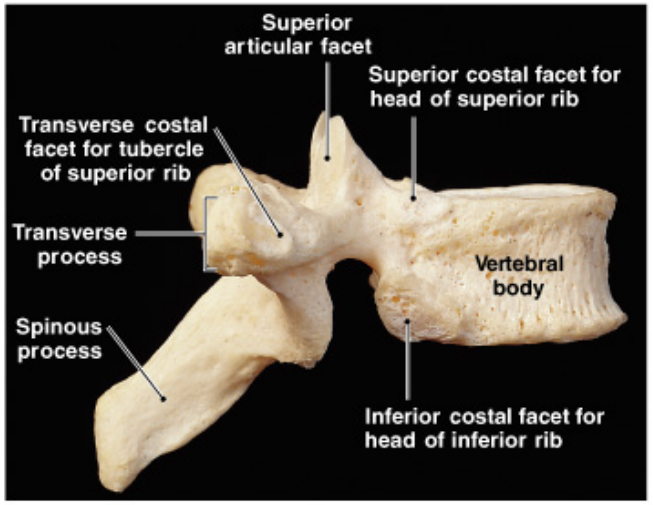
The Thoracic Vertebrae (12) all articulate with the ribs



(a) Thoracic vertebrae, lateral view

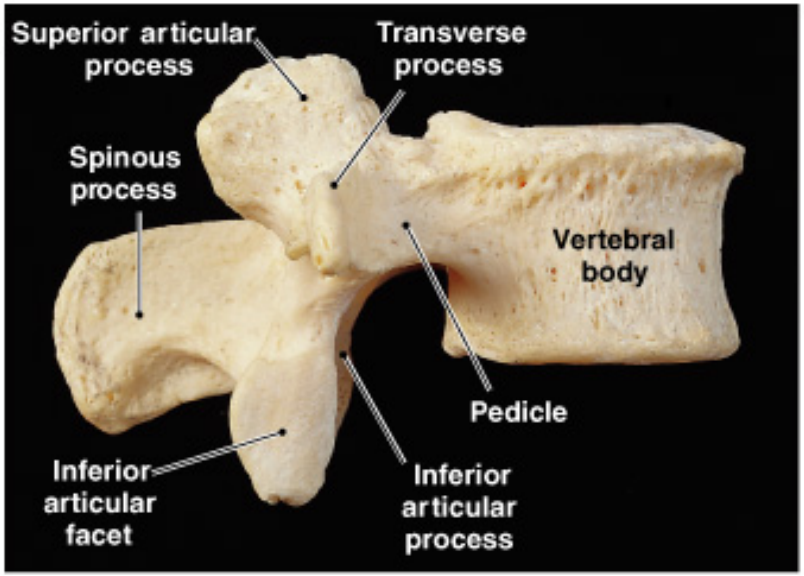


(b) Thoracic vertebra, superior view

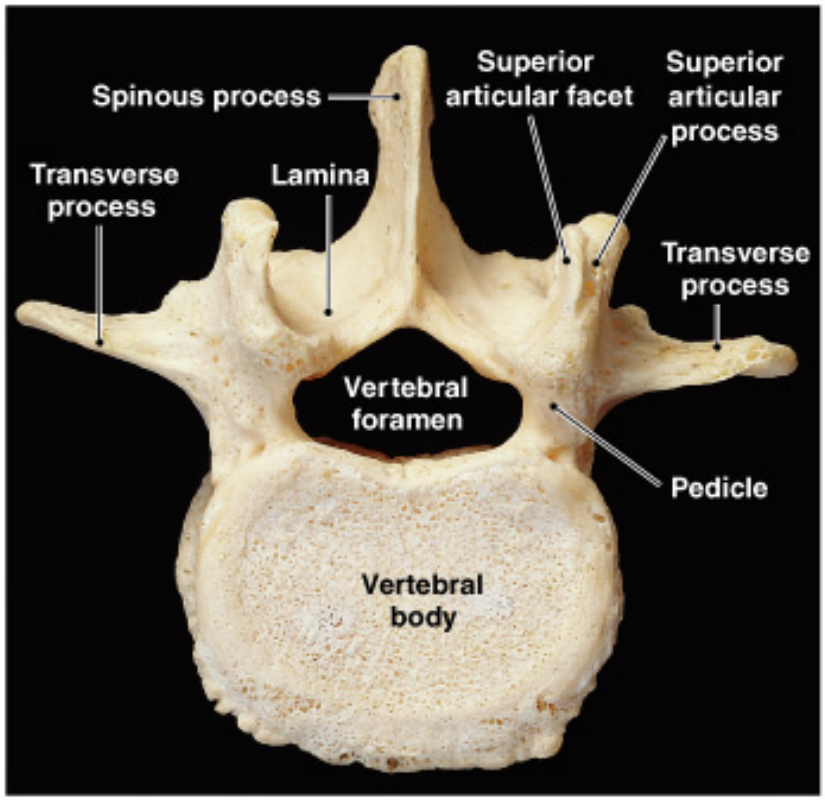


(c) Thoracic vertebra, lateral view

The Lumbar Vertebrae (5)



(b) Lateral view



(c) Superior view

1. largest vertebrae
2. oval-shaped, large bodies (support rest of vertebral column)

The Sacrum and Coccyx

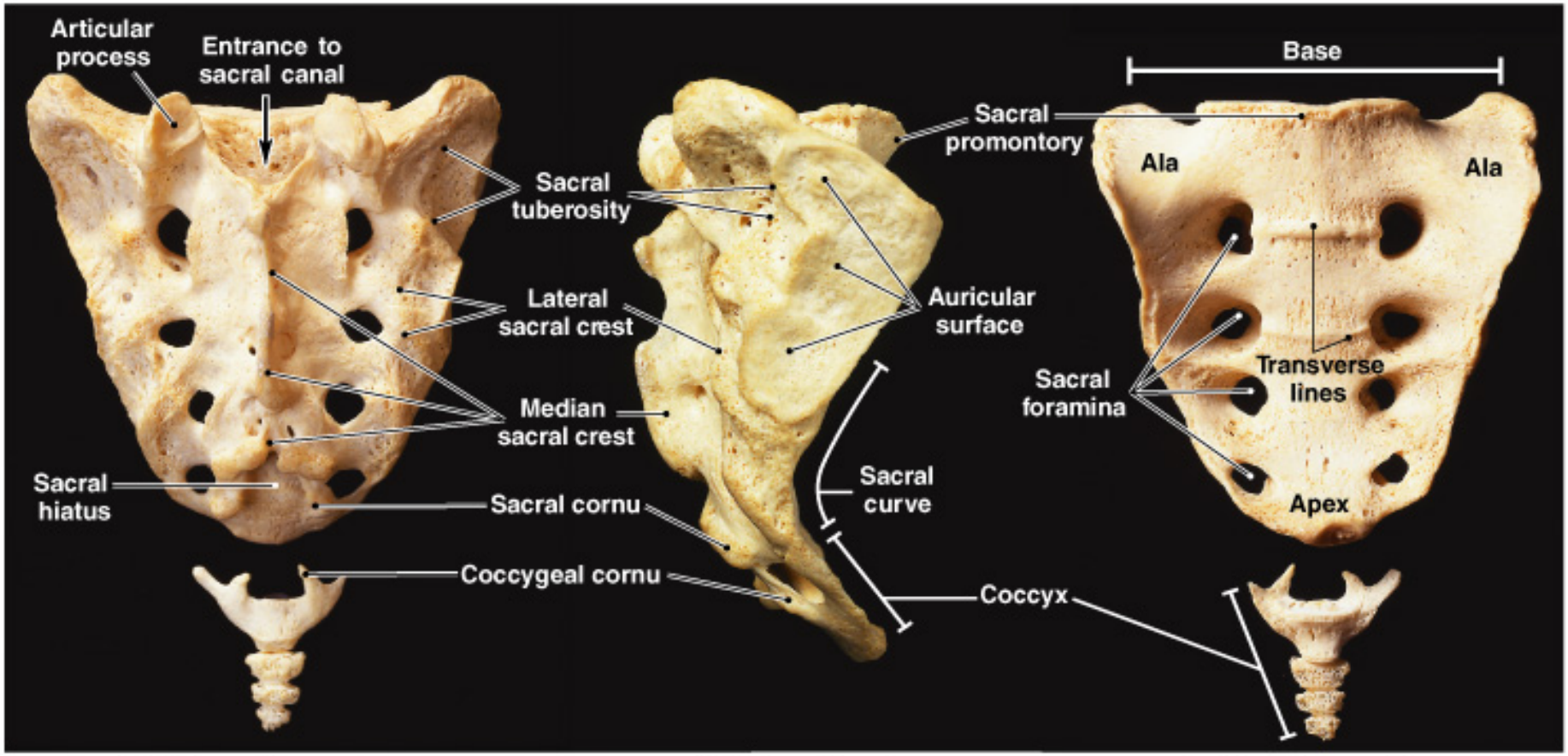


Figure 7-21

Ribcage= sternum + ribs

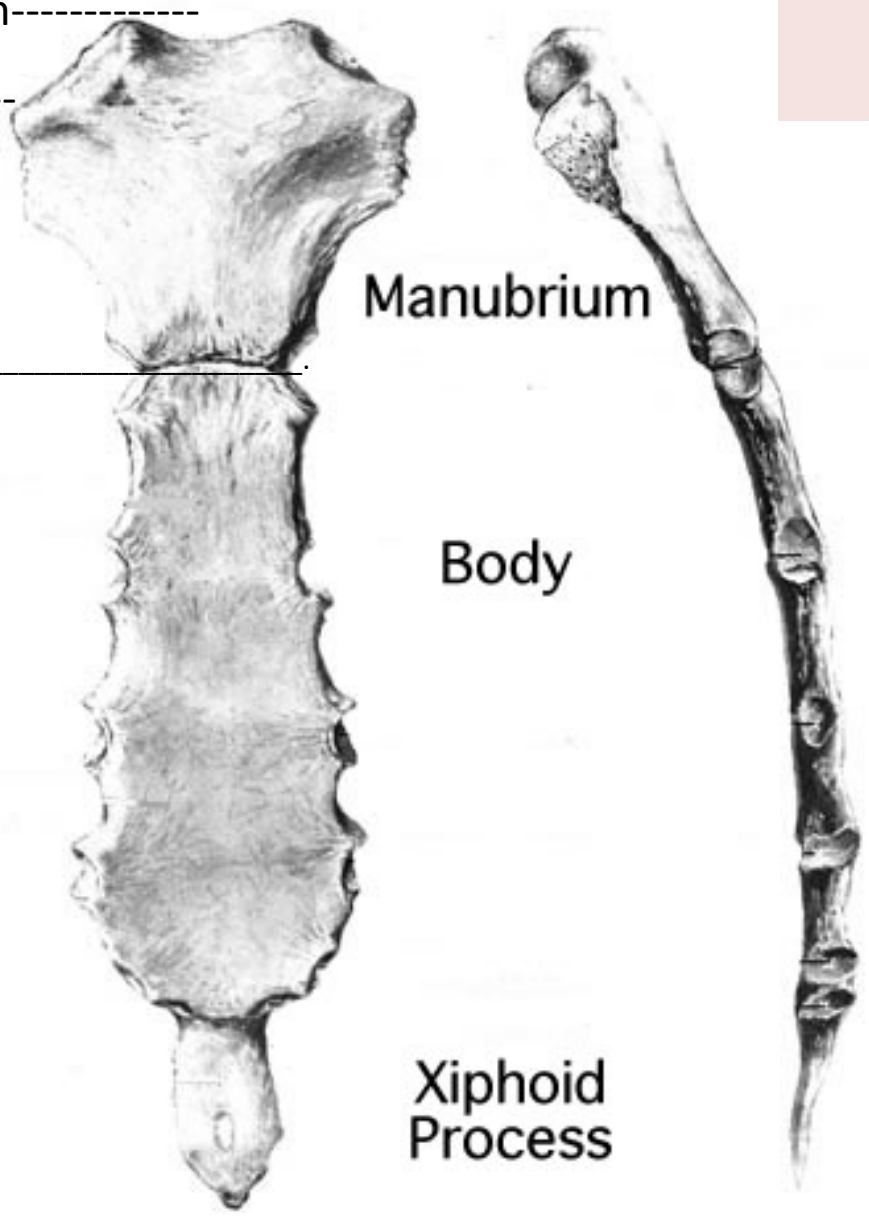
Sternum

Sternum= the fusion of 3 bones
1. manubrium
2. body
3. xyphoid process

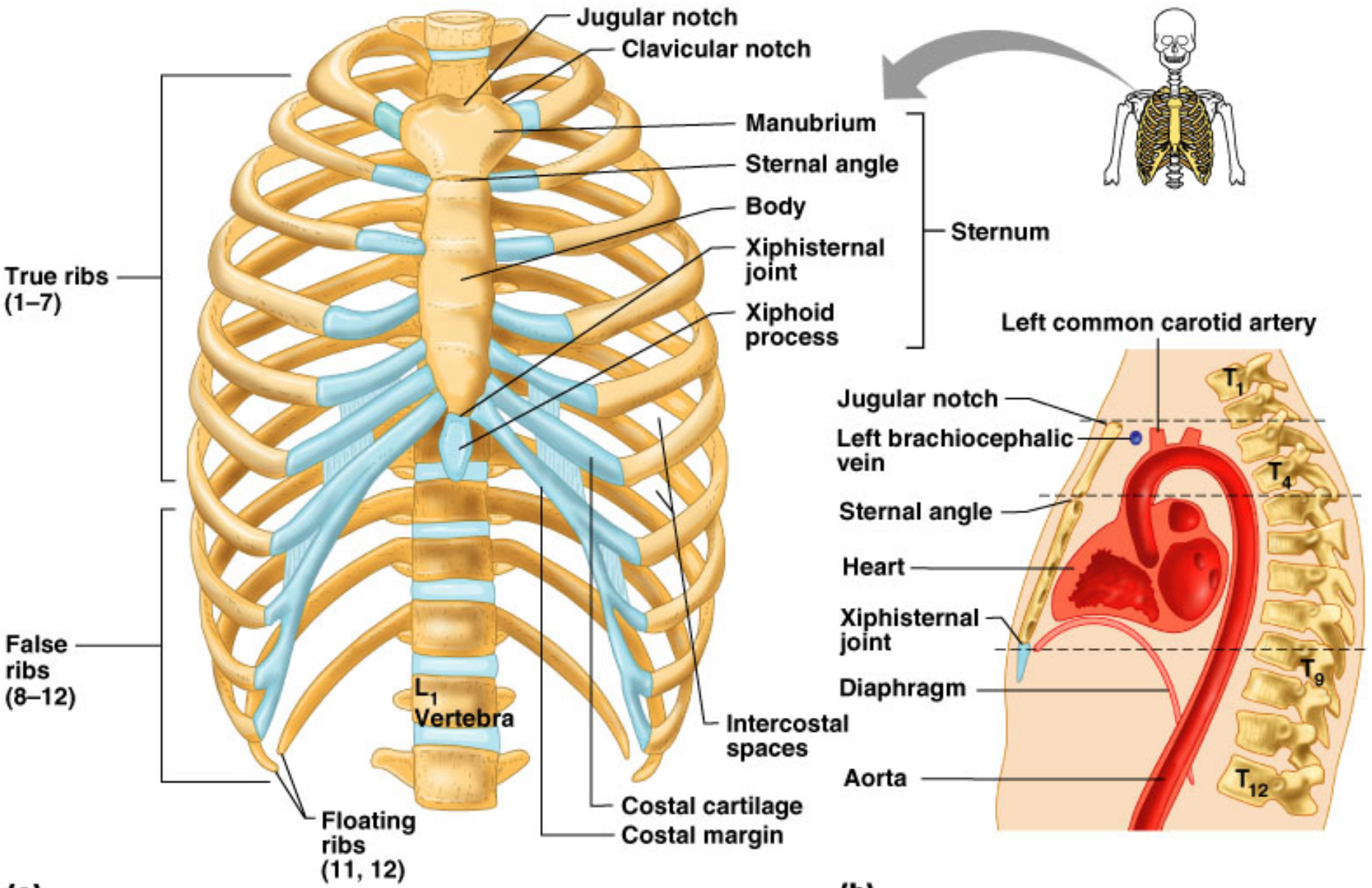
Jugular notch----------

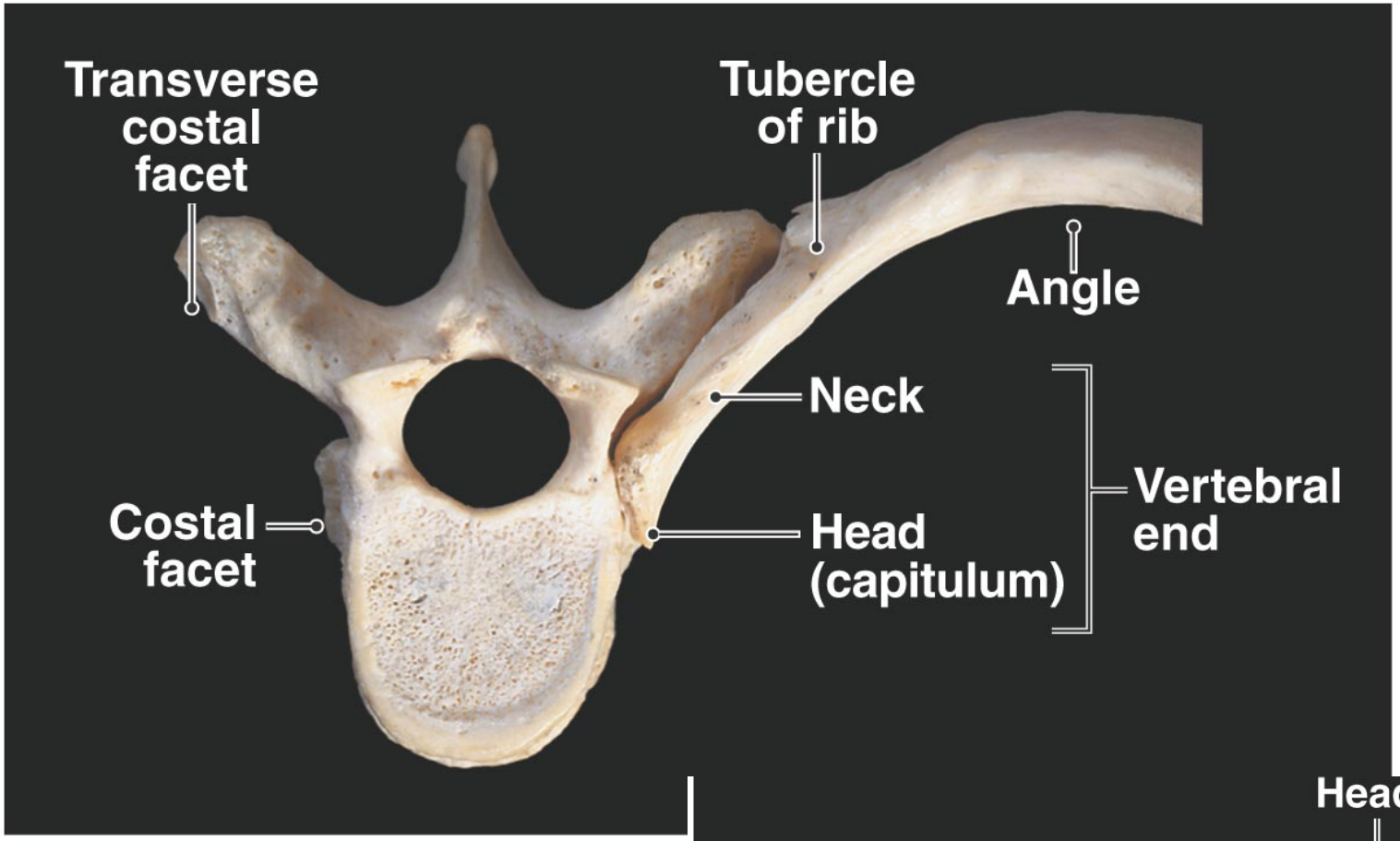
Clavicular notches----------
(articulate with clavicles)

Sternal angle- where manubrium articulates with body. Can feel this_____.
Clinically important, site of rib #2.

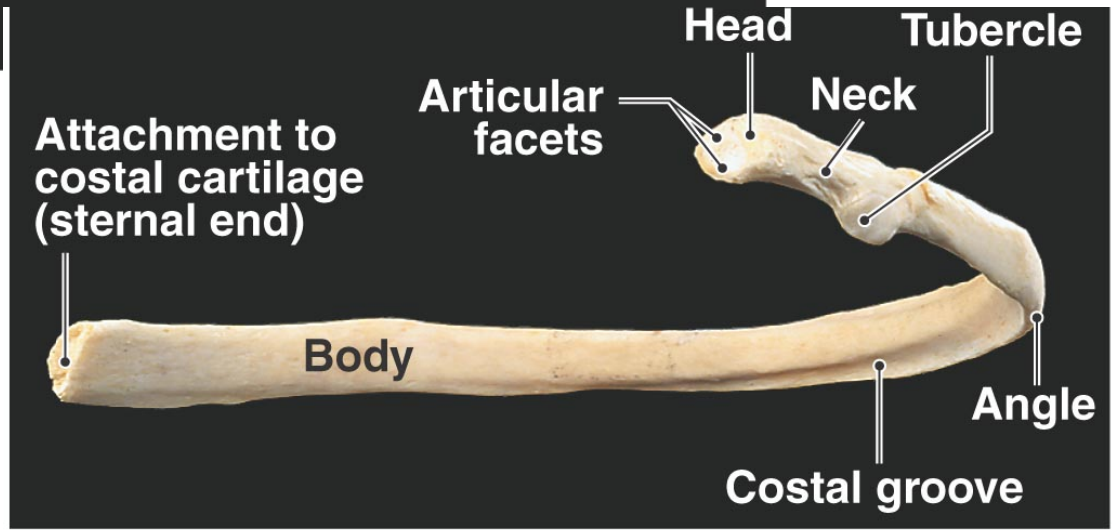


lateral view

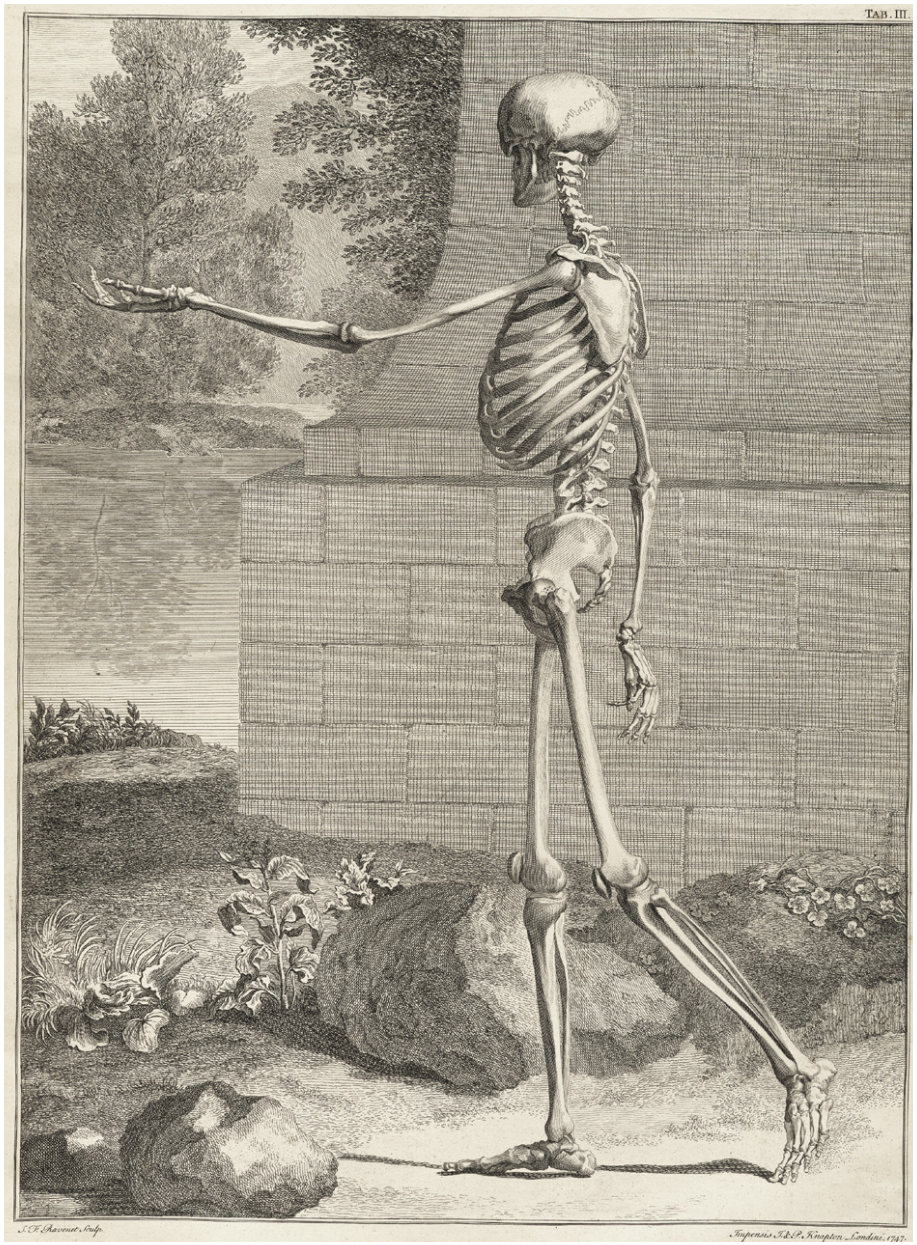




(b) Superior view



(d) Posterior view



Next…the appendicular skeleton!