General Introduction to Anatomy

Anatomy

RHS 241

Lecture 1

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Definition

- **Anatomy** = the study of the *structure* & *function* of the body

- ***Antome*** (Greek word) = cutting up or taking part (dissect)

- 1st studied formally in Egypt (500 BC)

“The nature of the body is the beginning of medical science”

Hippocrates

History

- Earliest description on papyrus (3000-2500 BC)
- ***Hippocrates*** (Greece 460-377 BC)
- ***Aristotle*** (384-322 BC)

- ***Fabricius*** (1537-1619) discovered the valves of the veins
- ***Harvey*** (1628) discovered the circulation of blood
- 17th century: human dissections formal practice in European Med schools

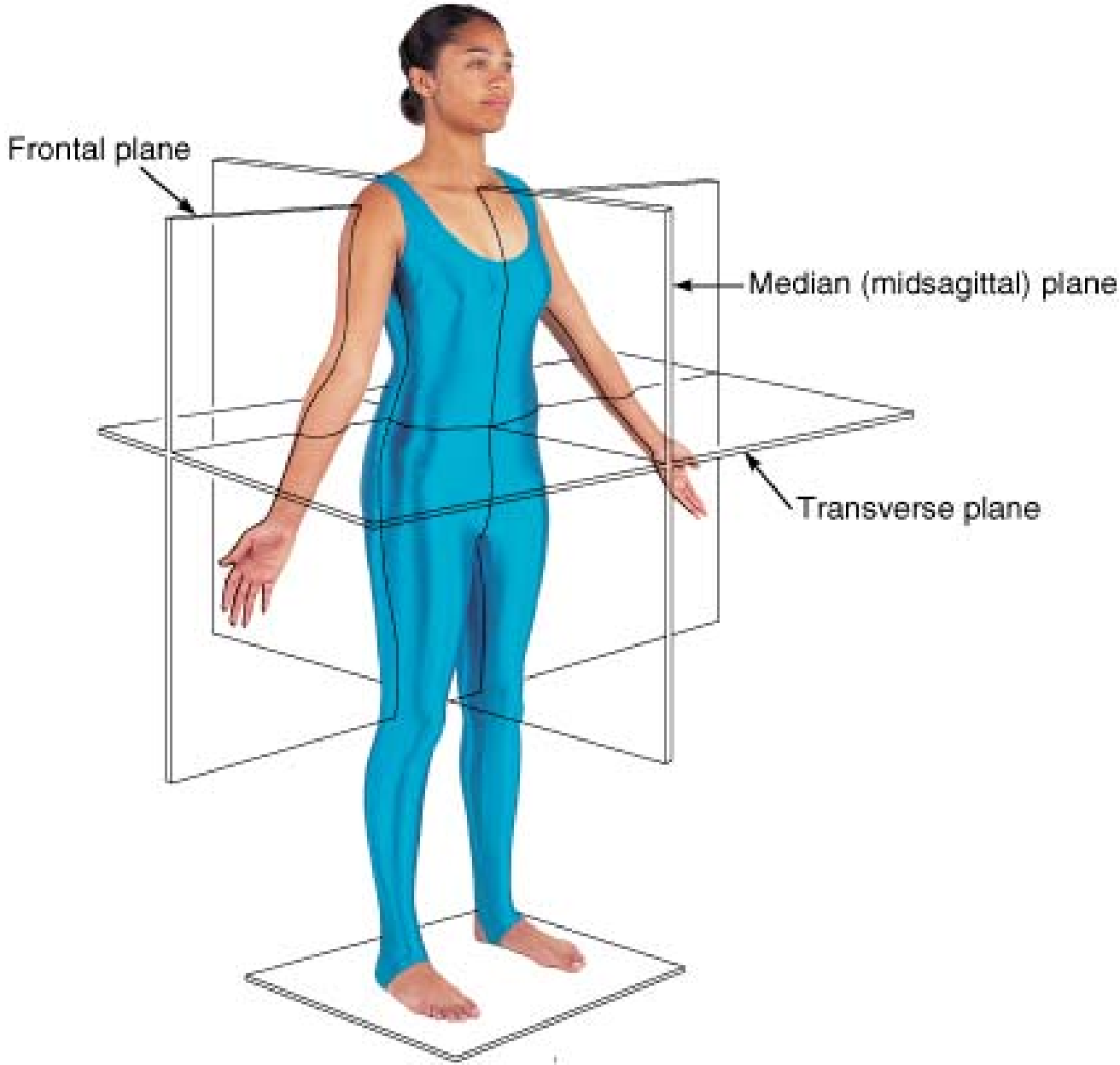
Anatomical terms

- ***Dorsal*** = posterior (back)
- ***Ventral*** = anterior (belly)

- ***Cranium*** = skull
- ***Cephalon*** = head
- ***Cranial*** = ***cephalic*** = toward the head
- ***Caudal*** = toward the tail

Anatomical Position

- = person standing upright, facing straight ahead, feet parallel and close, and palms facing forward.



Anatomical terms

- **Superior** = toward the head
- **Inferior** = toward the feet

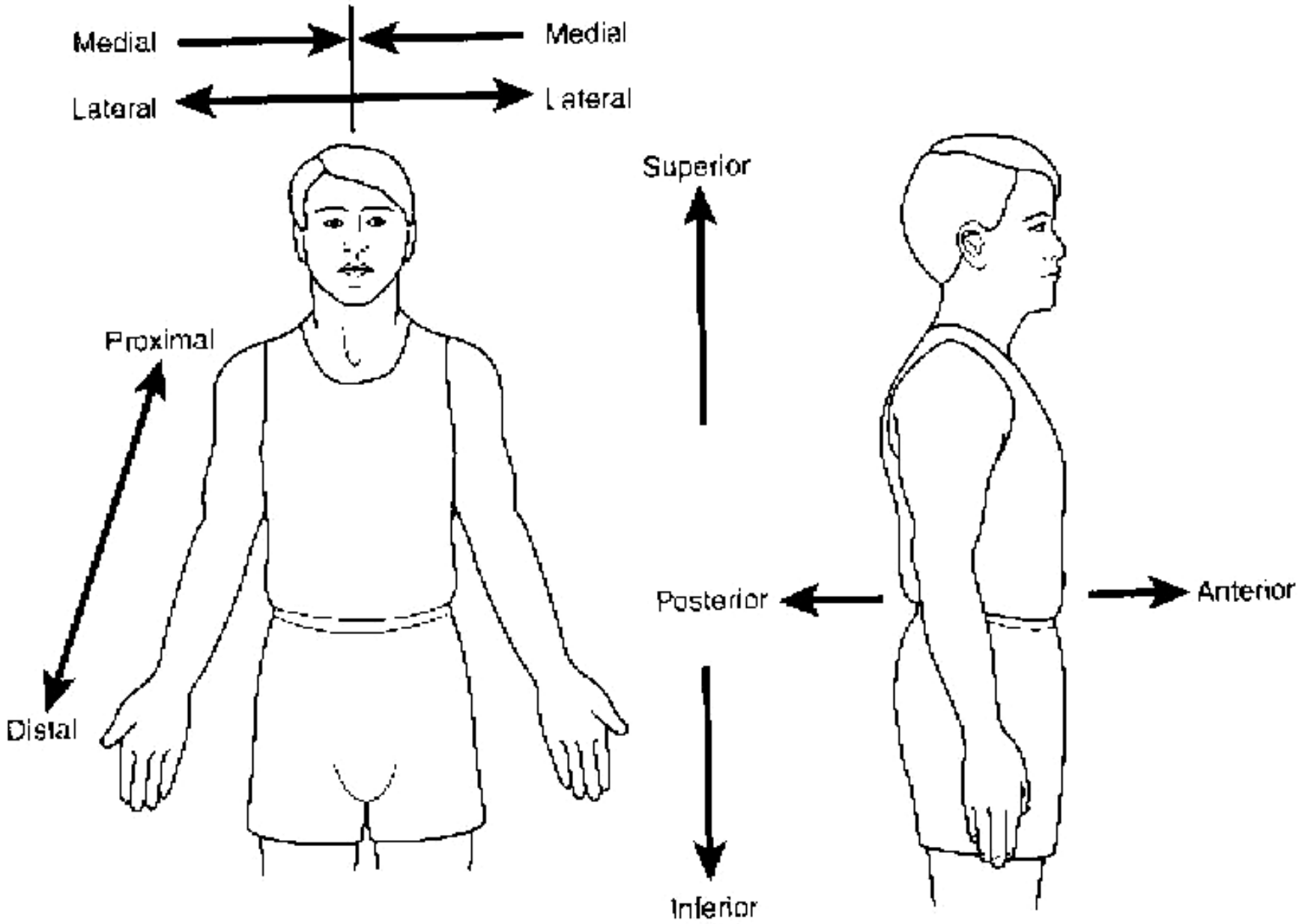
- **Anterior (ventral)** = toward the front
- **Posterior (dorsal)** = toward the back

- **Medial** = closer to the midline
- **Lateral** = farther from the midline

Anatomical terms

- **Proximal** = closer to the trunk
- **Distal** = farther from the trunk

- **Superficial** = closer to the surface
- **Deep** = farther from the surface


Medial
Medial
Lateral
Lateral
Proximal
Distal
Superior
Posterior
Anterior
Inferior

Directional Terms

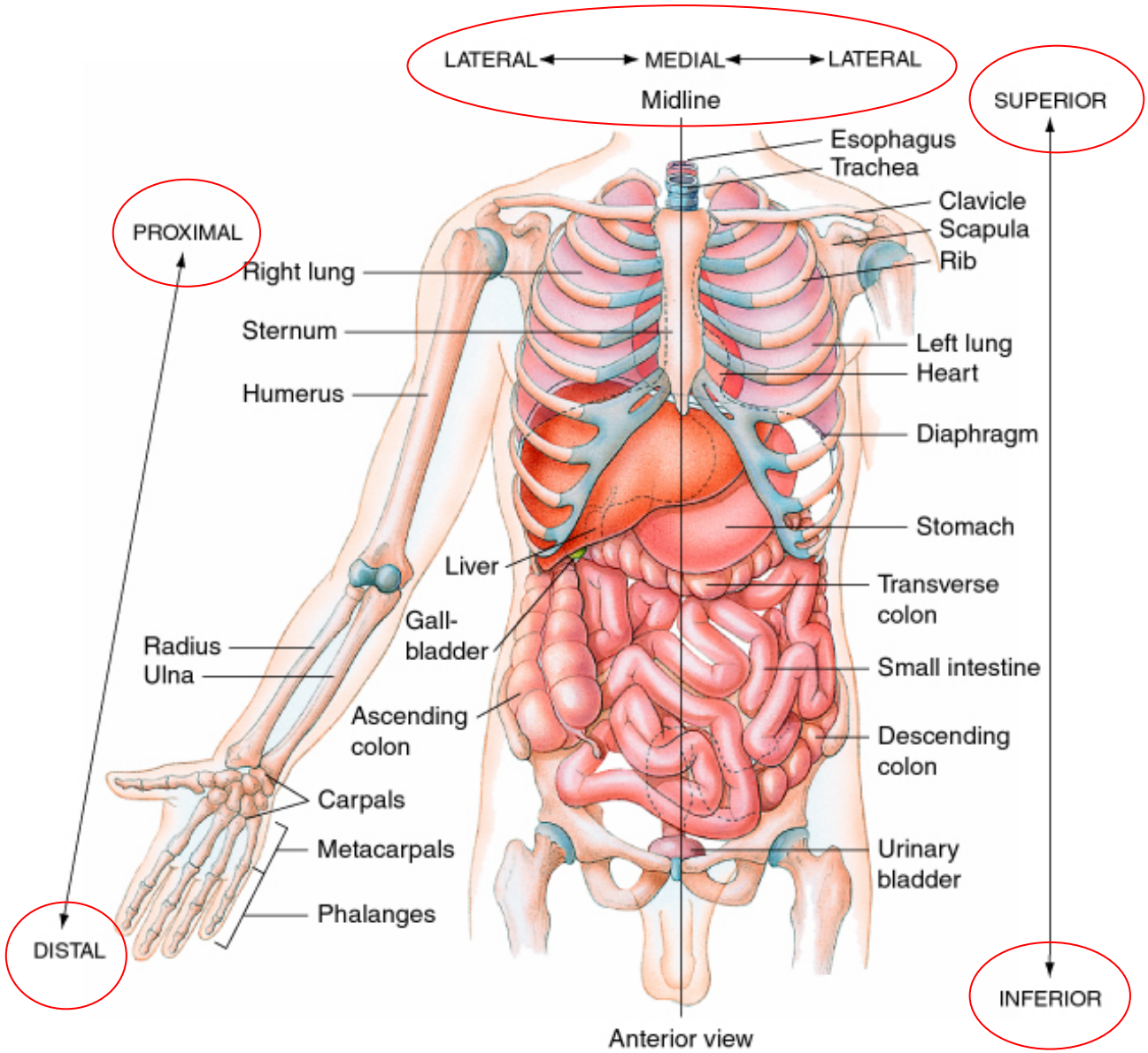


Table 1.1 Orientation and Directional Terms

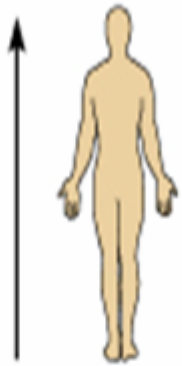
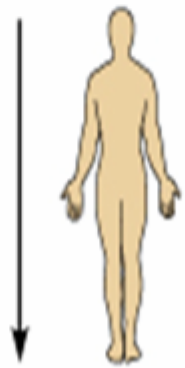
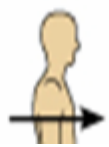
Term	Definition		Example
Superior (cranial)	Toward the head end or upper part of a structure or the body: above		The head is superior to the abdomen
Inferior (caudal)	Away from the head end or toward the lower part of a structure or the body; below		The navel is inferior to the chin
Anterior (ventral)*	Toward or at the front of the body; in front of		The breastbone is anterior to the spine

Table 1.1 Orientation and Directional Terms

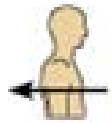
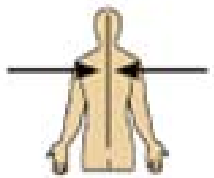
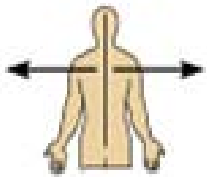
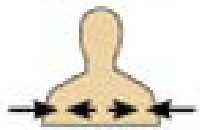
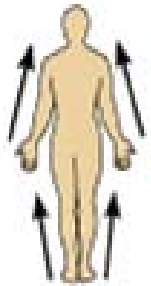
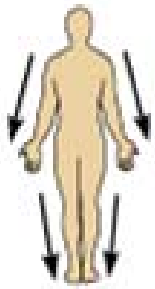
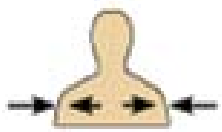
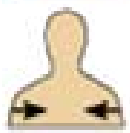
Term	Definition		Example
Posterior (dorsal)*	Toward or at the back of the body; behind		The heart is posterior to the breastbone
Medial	Toward or at the midline of the body; on the inner side of		The heart is medial to the arm
Lateral	Away from the midline of the body; on the outer side of		The arms are lateral to the chest
Intermediate	Between a more medial and a more lateral structure		The collarbone is intermediate between the breastbone and shoulder

Table 1.1 Orientation and Directional Terms

Term	Definition		Example
Proximal	Closer to the origin of the body part or the point of attachment of a limb to the body trunk		The elbow is proximal to the wrist
Distal	Farther from the origin of a body part or the point of attachment of a limb to the body trunk		The knee is distal to the thigh
Superficial (external)	Toward or at the body surface		The skin is superficial to the skeletal muscles
Deep (internal)	Away from the body surface; more internal		The lungs are deep to the skin

Planes of the body

- Anatomical descriptions are based on three imaginary planes that pass through the body in the anatomical position

Plane	Divides the body into:
Frontal (coronal)	Front & back halves
Transverse (horizontal)	Superior & inferior halves
Sagittal (median)	Right & left halves

Terms of movement

- **Flexion** (bending) = approximate two parts (decrease the angle between two parts)
- **Extension** = straighten out a bent part

- **Abduction** = moving away from the midline
- **Adduction** = moving toward the midline

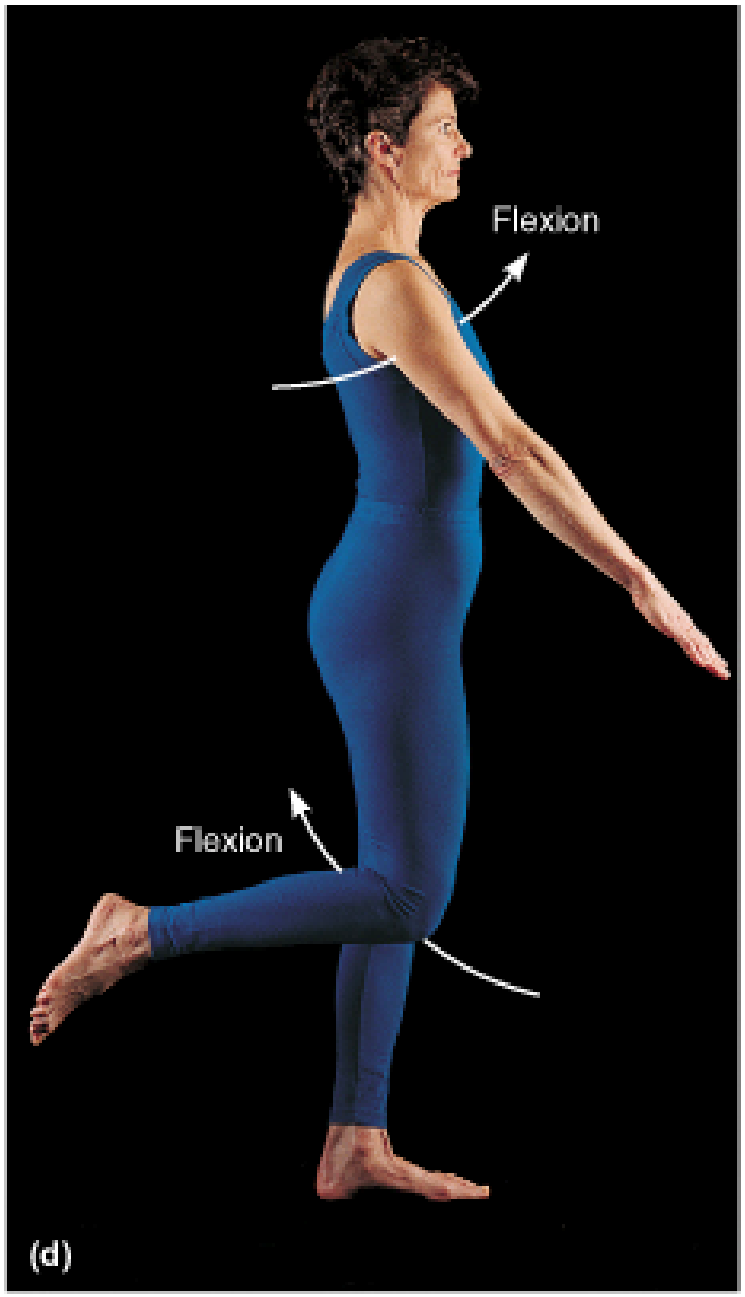
Terms of movement

- **Protraction** = moving a part forward
- **Retraction** = moving a part back

- **Elevation** = moving a part superiorly
- **Depression** = moving a part inferiorly

- **Rotation** = twisting

Flexion = movement away from the anatomical position



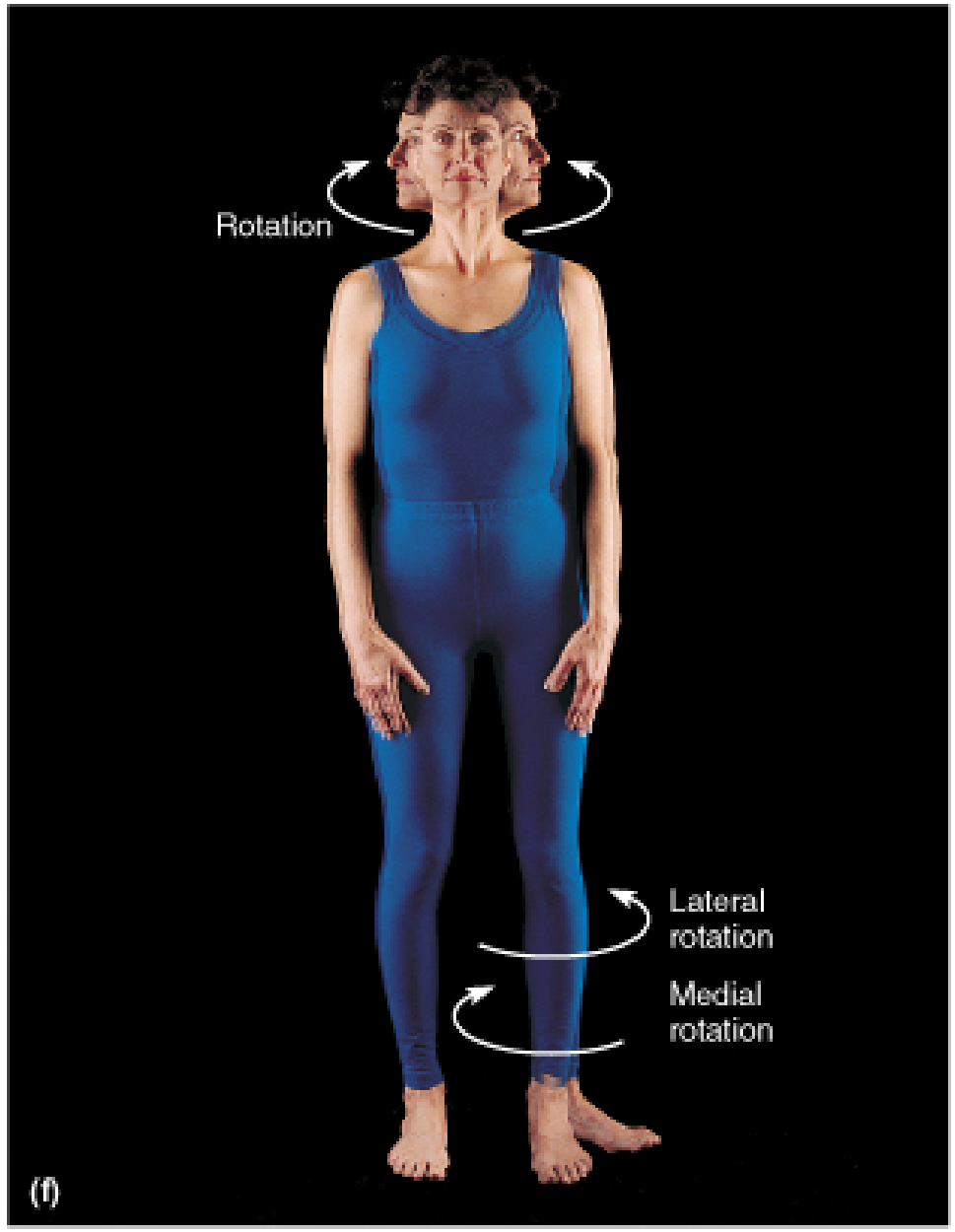
<u>Extension</u> = bringing the body part back to the anatomical position and beyond

<u>Abduction</u> = away from the midline

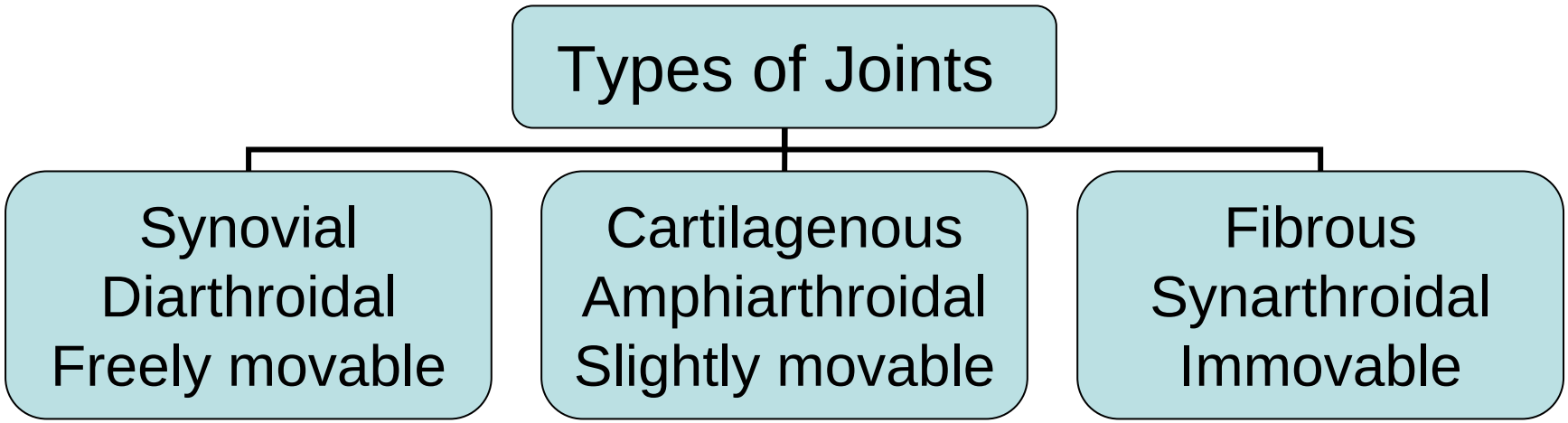
<u>Adduction</u> = toward the midline

Lateral (external) rotation = when the bone rotates away from the midline

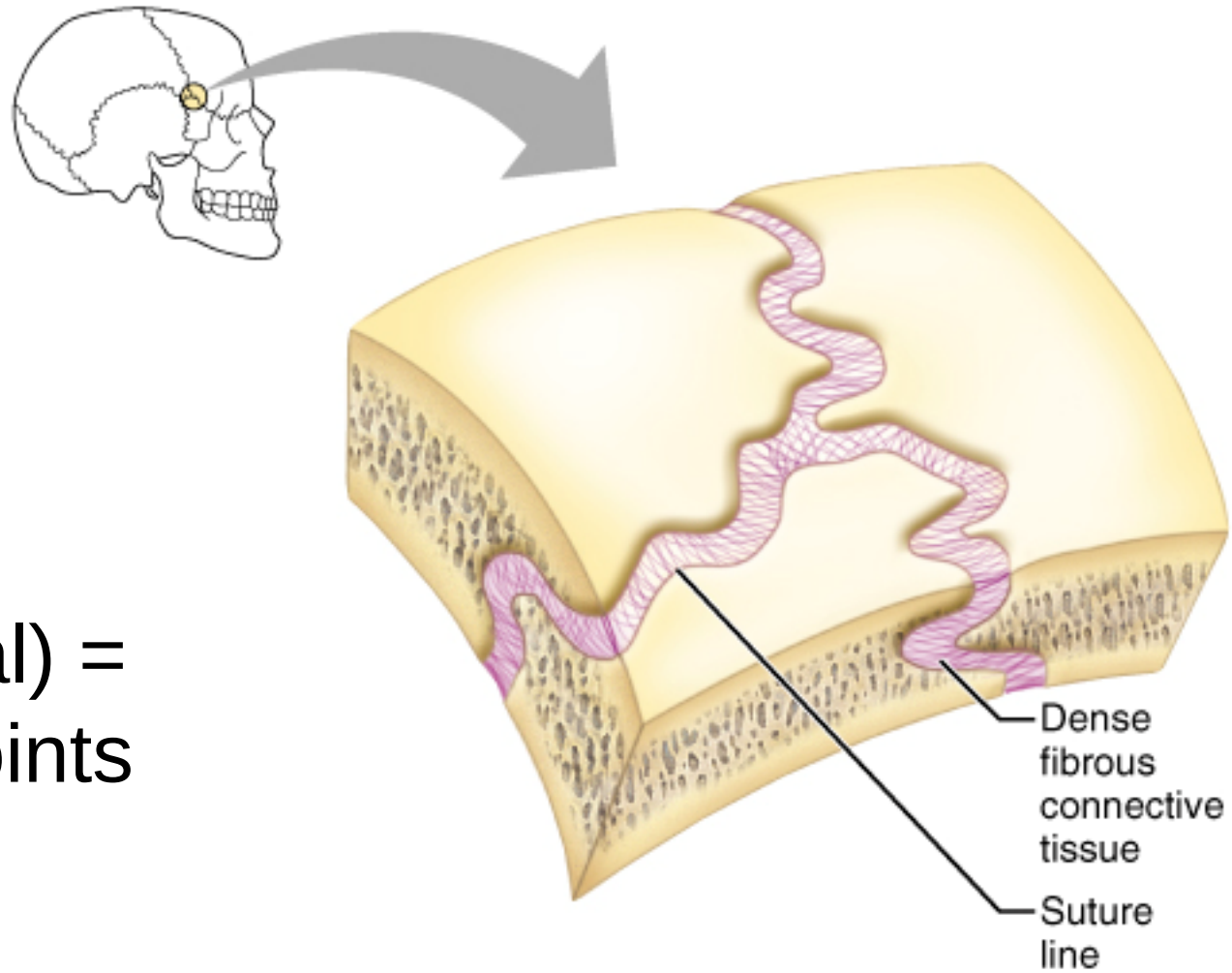
Medial (internal) rotation = when the bone rotates towards the midline



<u>Circumduction</u> = flexion, abduction, extension, & adduction

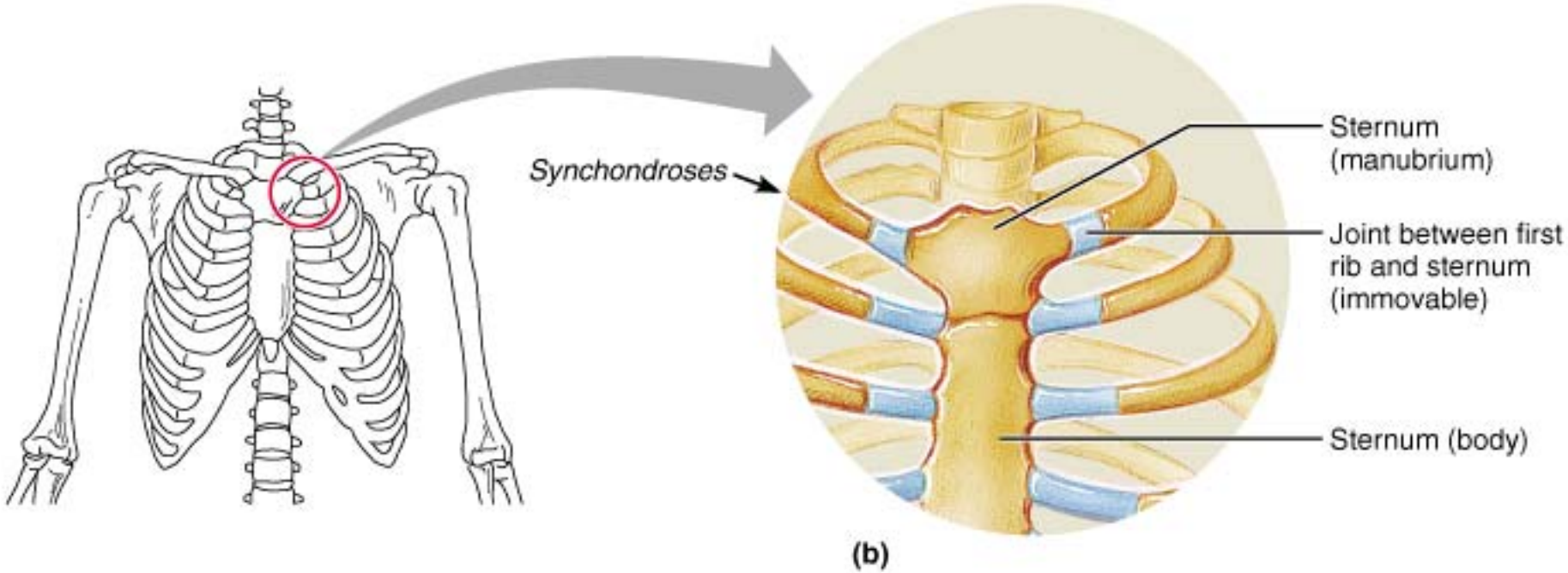

Types of Joints
Synovial
Diarthroidal
Freely movable
Cartilagenous
Amphiarthroidal
Slightly movable
Fibrous
Synarthroidal
Immovable

Fibrous (Synarthroidal) = Immovable joints

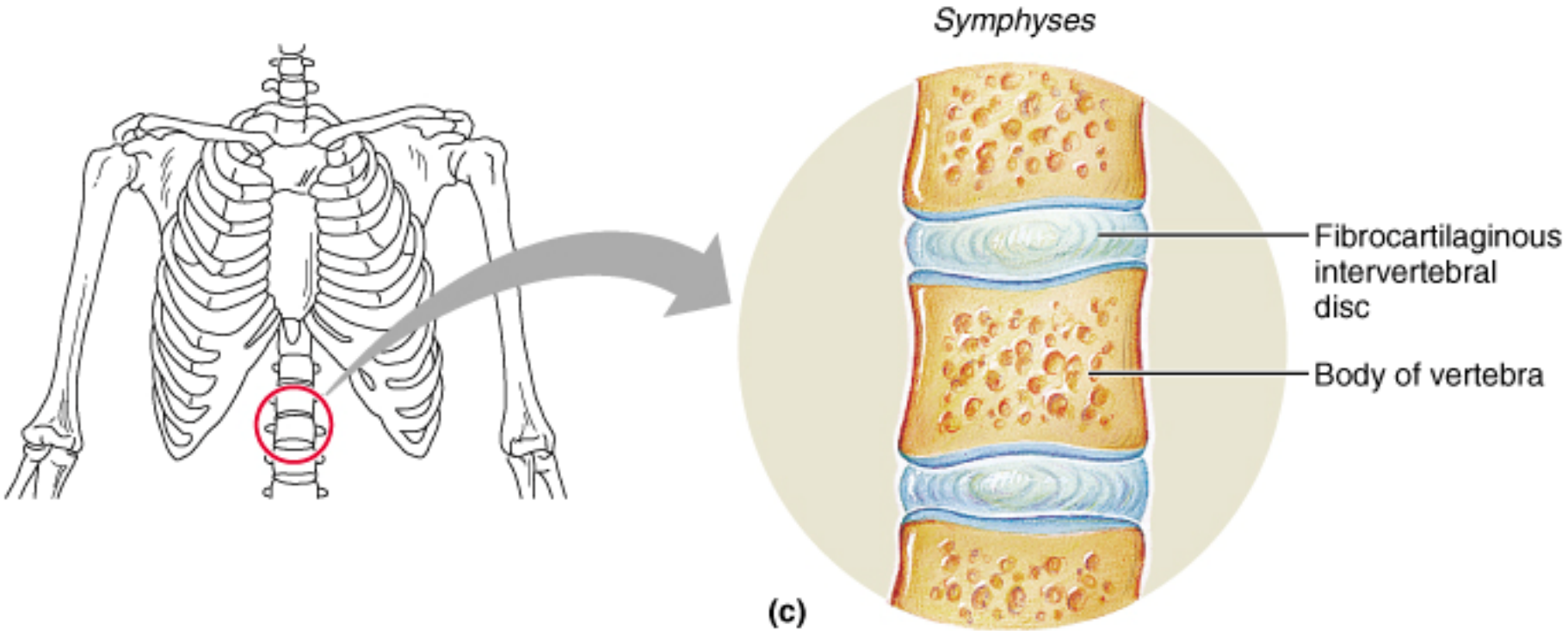


(a) Suture

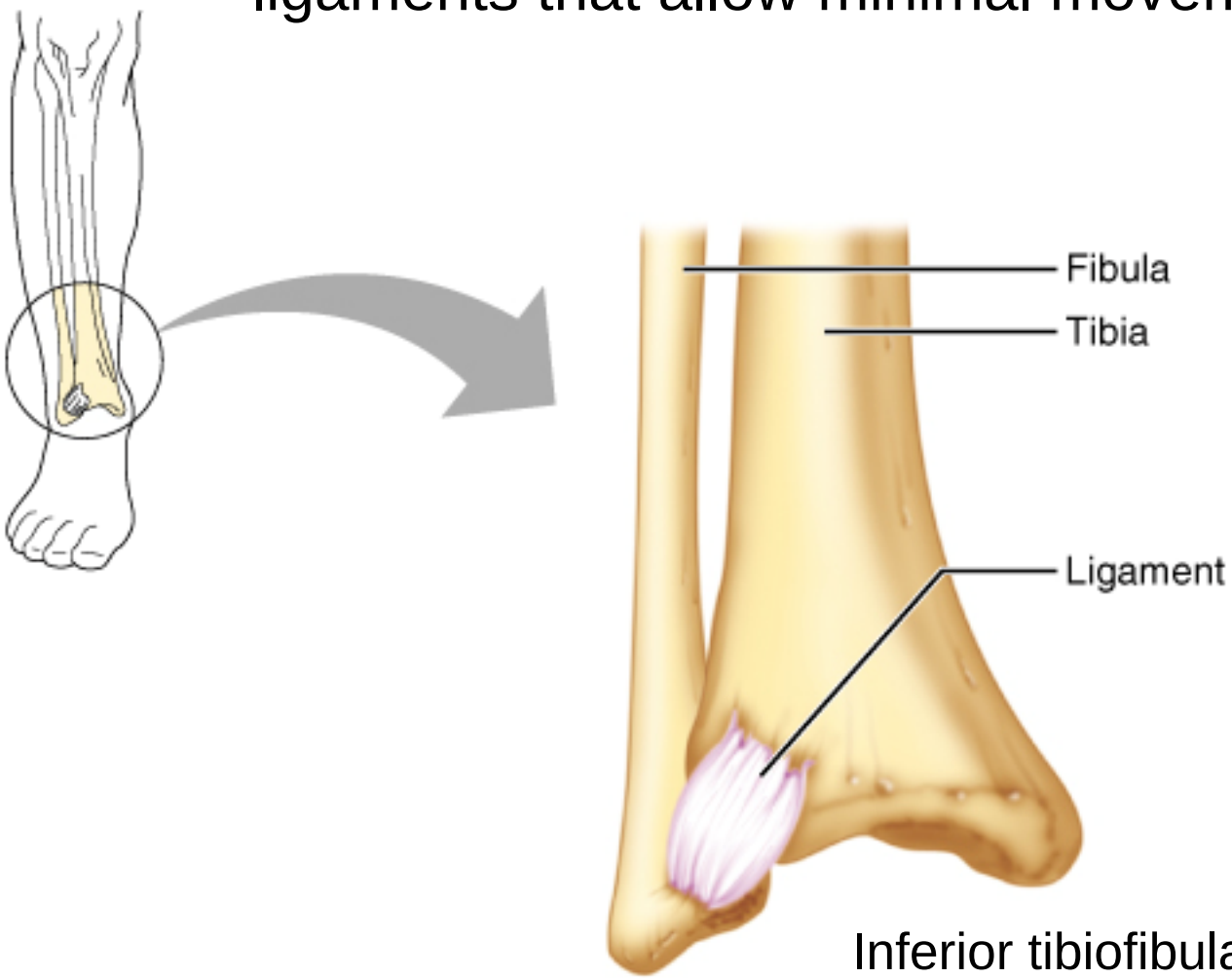
Synchodroses =
Fibrocatilagenous joint that
allows very slight movement



Fibrocartilagenous joint



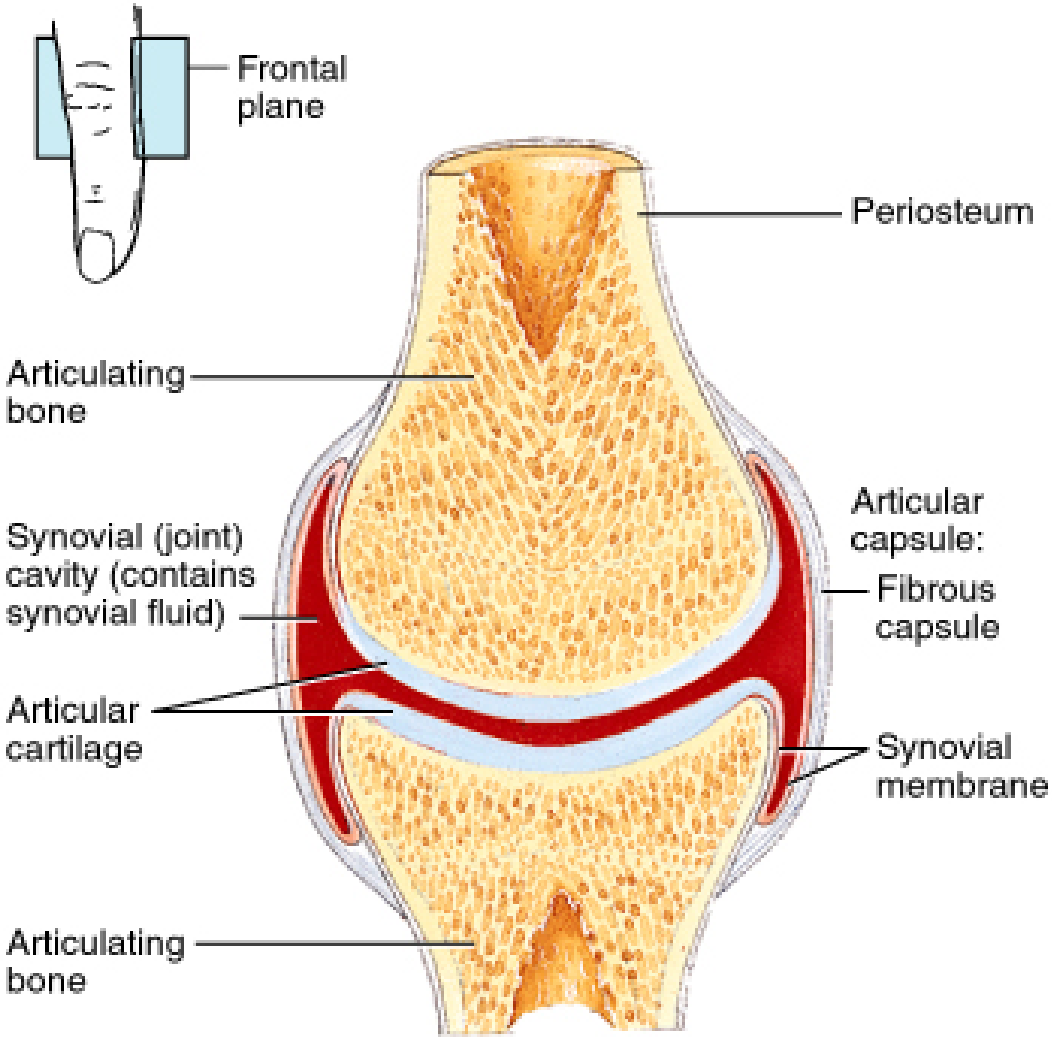
Syndesmosis = bones held together by strong ligaments that allow minimal movement



Inferior tibiofibular joint

(b) Syndesmosis

Synovial joint =
Freely movable



(a) Diagram of frontal section of a typical synovial joint