

# Types of Joints

## Joint Classification

### Fibrous Joints

- Found where bones have close contact with each other.
- Connective tissue found between the joint
- Little to no movement
- Ex. Sutures of the skull

The diagram shows two types of fibrous joints. Part (a) shows sutures in the skull, where bones are joined by fibrous connective tissue. Part (b) shows a fibrous joint between two bones, with a layer of connective tissue between them.

### Cartilaginous joints

- Found where shock absorption occurs.
- Hyaline cartilage or fibrocartilage found between the joint.
- Limited movement, twisting and bending.
- Found between the vertebrae.

The diagram shows the human spine with labels for different curvatures: Cervical, Thoracic, Lumbar, and Pelvic. It also labels the Vertebra prominens, Rib facet, Intervertebral discs, Intervertebral foramina, Sacrum, and Coccyx.

### Synovial Joints

- Most of the joints in the skeletal system are synovial joints which allow free movement.
- Includes hyaline cartilage, connective tissue, synovial membrane and fluid and bursae.
- Classified into six categories.

The diagram shows a cross-section of a synovial joint. Labels include: Spongy bone, Joint capsule, Articular cartilage, Synovial membrane, Joint cavity filled with synovial fluid.

### 1. Ball-and-Socket joint

- Ball shaped head of one bone connects to cup-shaped cavity of another.
- Allows motion in all planes.
- Hip and shoulder

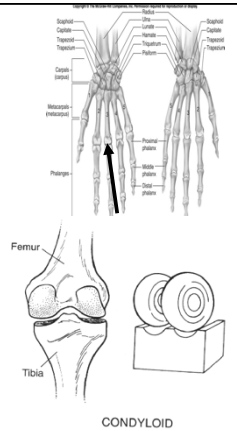
The diagram shows a ball-and-socket joint (shoulder) with labels: Clavicle, Acromion process, Subdeltoid bursa, Synovial membrane, Joint capsule, Joint cavity, Humerus, Articular cartilage, Scapula.

## Broken Femur = Worst Pain

The image shows an X-ray of a broken femur (thigh bone) and a photo of a man holding his leg in pain, illustrating the severity of a broken femur.

2. Condylar joint

- Oval shaped condyle fits into an elliptical cavity of another.
- Variety of movements in different planes but *not rotational (twisting)*
- Ex: Knees and Metacarpals connection with the phalanges.

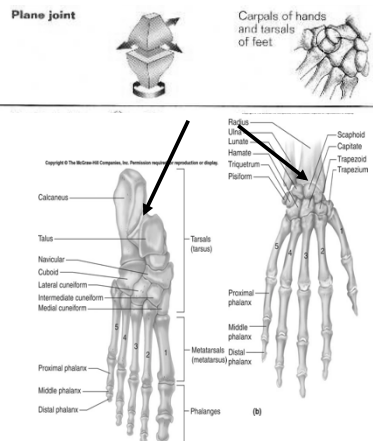


Exam Question:

- Why can knees not twist?

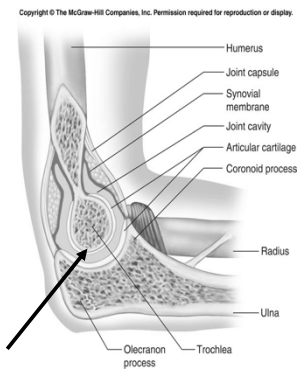
Plane Joints

- Flat and curved surfaces connect.
- Allow sliding and twisting.
- Bones of wrist and ankle.



Hinge Joint

- Convex surface of one bone connects to concave surface of another.
- Movement in one plane. (like a door)
- Elbow and phalanges.



Pivot joint

- Cylindrical surface of one bone rotates within a ring formed of bone and ligament.
- Movement around a central axis-rotation.
- Atlas (the Greek god who supported the world on his shoulders) and axis in cervical vertebrae.



Saddle joint

- Connect bones with convex and concave surfaces.
- Movement include a variety.
- Bones at carpal and metacarpal of thumb.

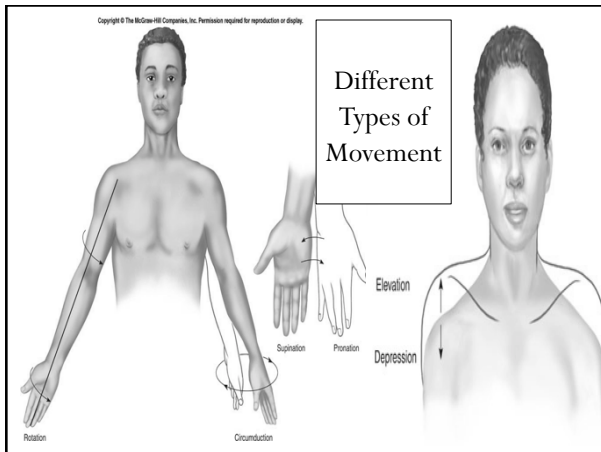
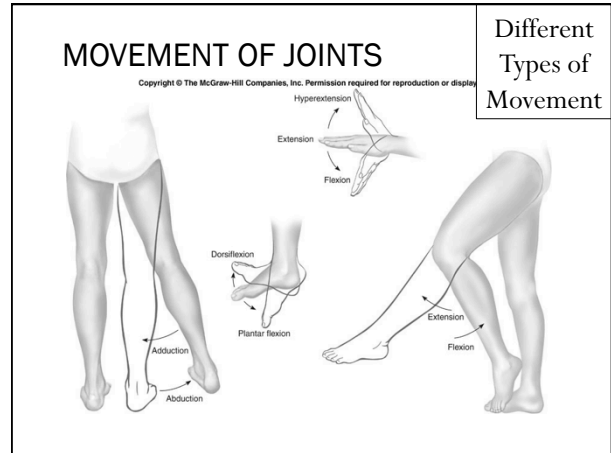


Name	Type of Movement	Examples
<b>Ball-and-socket joint</b>		Shoulders and hips
<b>Pivot joint</b>		Elbows
<b>Plane joint</b>		Carpals of hands and tarsals of feet
<b>Saddle joint</b>		Thumbs

### Self Test – Joint Type





Joint Type: _____ Ex: _____ How form Fits Function: _____	Joint Type: _____ Ex: _____ How form Fits Function: _____	Joint Type: _____ Ex: _____ How form Fits Function: _____	Joint Type: _____ Ex: _____ How form Fits Function: _____	Joint Type: _____ Ex: _____ How form Fits Function: _____
Joint Type: _____ Ex: _____ How form Fits Function: _____	Joint Type: _____ Ex: _____ How form Fits Function: _____	Joint Type: _____ Ex: _____ How form Fits Function: _____	Joint Type: _____ Ex: _____ How form Fits Function: _____	

Joint Type	Form	Function	How does form fit function
<b>Fibrous joints</b> Ex: _____			
<b>Cartilaginous joints</b> Ex: _____			
<b>Synovial joints</b> Ex: _____			
<b>1. Ball-and-Socket joint</b> Ex: _____			
<b>2. Condylar joint</b> Ex: _____			
<b>Plane joint</b> Ex: _____			
<b>Hinge joint</b> Ex: _____			
<b>Pivot joint</b> Ex: _____			
<b>Saddle joint</b> Ex: _____			



Movement type	Form	Joint that allows this movement
<b>Adduction</b> Ex: _____		
<b>Abduction</b> Ex: _____		
<b>Dorsiflexion</b> Ex: _____		
<b>Plantar flexion</b> Ex: _____		
<b>Hyperextension</b> Ex: _____		
<b>Extension</b> Ex: _____		
<b>Flexion</b> Ex: _____		
<b>Rotation Vs Circular</b> Ex: _____		
<b>Elevation v. Depression</b> Ex: _____		

What is the significance of the wide variety of movement demonstrated by hands?

Self Test – Movement Type				
<b>Adduction</b>	Movement Type: _____	<b>Extension</b>	<b>Flexion</b>	Movement Type: _____
Draw:	Draw: 	Draw:	Draw:	Draw: 
Ex of joint that produces this movement:	Ex of joint that produces this movement:	Ex of joint that produces this movement:	Ex of joint that produces this movement:	Ex of joint that produces this movement:
<b>Plantar flexion</b>	Movement Type: _____	Movement Type: _____	<b>Circular</b>	
Draw:	Draw: 	Draw: 	Draw:	
Ex of joint that produces this movement:	Ex of joint that produces this movement:	Ex of joint that produces this movement:	Ex of joint that produces this movement:	