



Articulations

- Did you turn in your pre-lab?
- Did you submit your post-lab from last week and take the terminology Canvas quiz?

Articulations

- Case Study: “The Case of the Wobbly Gymnast” (in pairs)
- Activity 1: Classification of Joints (as a table, 20 minutes times at each station)
- Activity 2: Body in Motion (as a table)
- Putting it all Together

Case Study: “The Wobbly Gymnast”

Case Study: “The Case of the Wobbly Gymnast”

You are a pediatrician for a sports medicine practice. Your next patient is a 12-year-old gymnast. When she dismounted the balance beam during practice, she landed and inverted her right ankle. She has bruising around the lateral aspect of her right ankle, swelling and acute pain around her lateral malleolus, and limited range of motion. She is concerned that she has fractured her ankle and asks you about some common ankle injuries (**Figure 1**).

You tell her that these symptoms may suggest a sprain, a strain, or a fracture. Sprains and strains involve the stretching of the ligaments, tendons and muscles supporting a joint. A fracture involves the breaking of a bone (usually) at the joint. A less common injury is a high ankle sprain, also referred to as syndesmotic injury. A syndesmosis is a fibrous joint that unites the tibia and fibula by a sheet of connective tissue called the interosseous membrane. In a high ankle sprain, the interosseous membrane is overstretched which causes pain and instability between the tibia and fibula. You explain that ankle injuries are quite common and can range from mild to severe. Moreover, inversion injuries (rolling the ankle outward) are much more common than eversion injuries (rolling the ankle inward) because the medial side of the ankle is more stable due to the large deltoid ligament and the presence of the bony



Figure 1: Surface image of patient’s bruised right ankle.

Activity 1: Classification of Joints

You will be moving around 6 different stations today in lab and answering questions. We will all be moving together. I will time each round to no more than 20 minutes. If you finish your station early, practice labelling the muscle models at that station. Here is an example we will go through together.

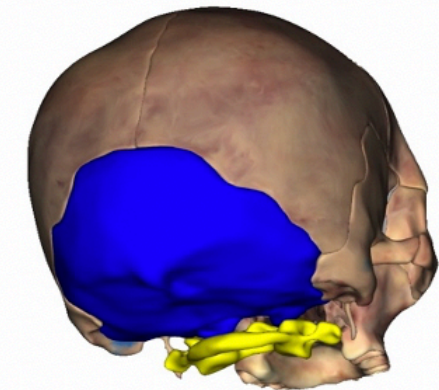
Activity 1: Classification of Joints

Here is an example we will go through together.

Bone articulations: Atlas: superior articular facets Occipital bone: occipital condyles

Structural classification of joint: Condylar

Motion	Description of movement	Muscle(s) responsible
A1	Flexion	Sternocleidomastoid
A2	Extension	
A3	Lateral Flexion	



Posterior skull

Activity 1: Classification of Joints

Articulations

Station 3A: Elbow

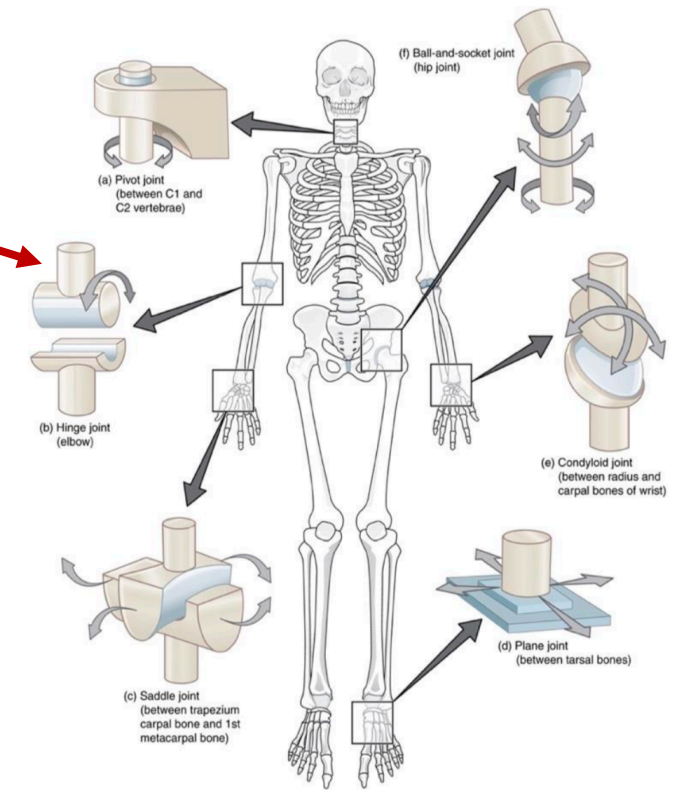
Bone articulations: *Humerus: Olecranon fossa, coronoid fossa, trochlea, *Ulna: Olecranon process, trochlear notch, and coronoid process

Structural classification of joint: Hinge (see image at station)

of axis: 1



Elbow Joint



Motion	Description of movement	Muscle(s) responsible
A1		a.
		b.
		c.
A2		d.

Activity 1: Classification of Joints

Station 3A: Elbow

Bone articulations: *Humerus: Olecranon fossa, coronoid fossa, trochlea, *Ulna: Olecranon process, trochlear notch, and coronoid process

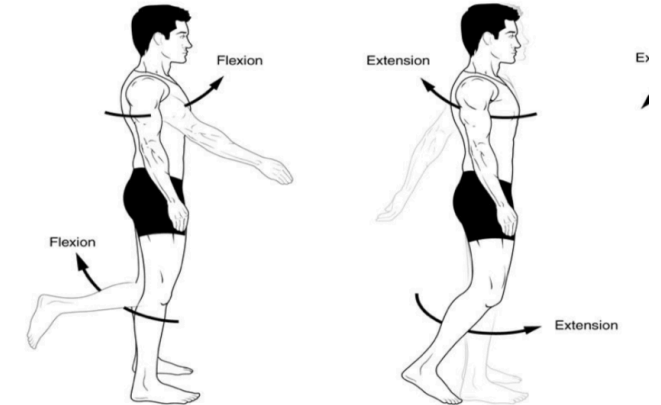


Elbow Joint

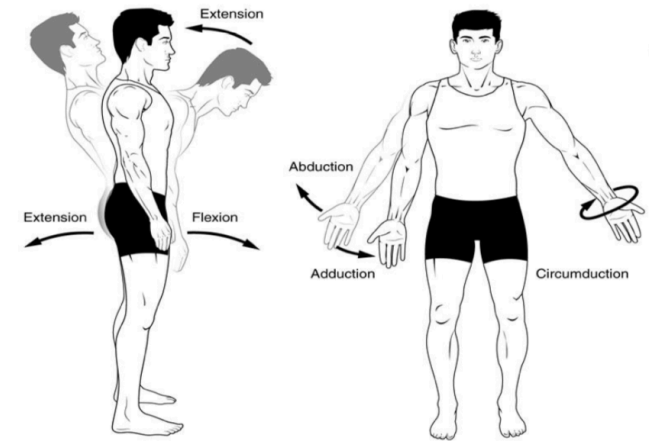
Structural classification of joint: **Hinge (see image at station)**

of axis: 1

Motion	Description of movement	Muscle(s) responsible
A1	Flexion	a.
		b.
		c.
A2	Extension	d.



(a) and (b) Angular movements: flexion and extension at the shoulder and knees



(d) Angular movements: flexion and extension of the vertebral column

(e) Angular movements: abduction, adduction, and circumduction of the upper limb at the shoulder

Activity 1: Classification of Joints

Station 3A: Elbow

Bone articulations: *Humerus: Olecranon fossa, coronoid fossa, trochlea, *Ulna: Olecranon process, trochlear notch, and coronoid process



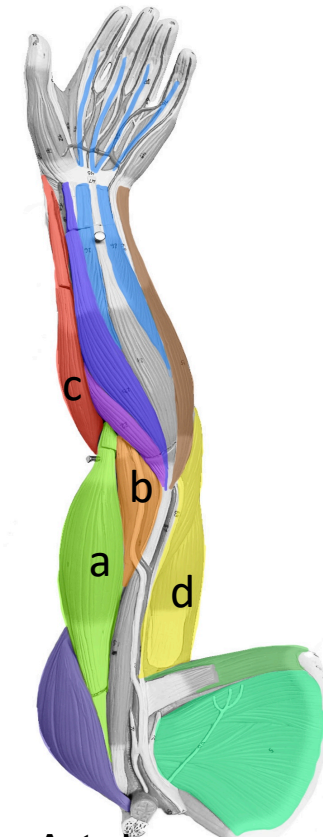
Elbow Joint

Structural classification of joint: _____

of axis: Flexion

Biceps brachii, brachialis, brachioradialis

Motion	Description of movement	Muscle(s) responsible
A1	Flexion	a. Biceps brachii
		b. brachialis
		c. brachioradialis
A2	Extension	d. Triceps brachii



Anterior arm muscles

View the video to go through one together!

Activity 2: Body in Motion

Articulations

Joint	Left Side of Body	Right Side of Body
Neck: Atlanto-occipital		
Neck: Atlantoaxial		
Spine: intervertebral		
Glenohumeral		
Elbow		
Radioulnar		
Hip (coaxal)		
Knee: Tibiofemoral joint/Patellofemoral		
Ankle (Talocrural)		
Metacarpophalangeal (knuckle)		
Carpo-metacarpal of digit I		