**Midterm Lab Assignment**

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**Topic: Write brief note on the joints of upperlimb**

**Upper limb joints**

The **upper limb** has a wide range of precise movements associated with it to allow us to effectively interact with our environment, the 6 main **joints** covered here (from proximal to distal) are the sternoclavicular, acromioclavicular, shoulder, elbow, radioulnar, and wrist **joints**.

***Sternoclavicular Joint***

**Articulation:** This occurs between the sternal end of theclavicle, the manubrium sterni, and the 1st costal cartilage .Type: Synovial double-plane joint

**Capsule** This surrounds the joint and is attached to themargins of the articular surfaces.Ligaments: The capsule is reinforced in front of andbehind the joint by the strong **sternoclavicular ligaMent**

**Articular disc**: This flat fibrocartilaginous disc lies within the joint and divides the joint’s interior into twocompartments Its circumference is attach

To the interior of the capsule, but it is also strongly attached to the superior margin of the articular sur-face of the clavicle above and to the first costal cartilage below.

 ***Accessory Ligament*** The costoclavicular ligament is astrong ligament that runs from the junction of the 1strib with the 1st costal cartilage to the inferior surface of the

Sternal end of the clavicle.

**Synovial membrane**

This lines the capsule and isattached to the

 margins of the cartilage covering the articular surfaces.Nerve supply: The supraclavicular nerve and the nerveto the subclavius muscle.

**Acromicroclavicular*****joint***

**Articulation**: This occurs between the acromion of thescapula and the lateral end of the clavicle .

**Type**: Synovial plane joint

**Capsule**: This surrounds the joint and is attached to the margins of the articular surfaces.

**Ligaments**: Superior and inferior acromioclavicular ligaments reinforce the capsule; from the capsule, awedge-shaped fibrocartilaginous disc projects into thejoint cavity from above

**Accessory ligament**: The very strong coracoclavicu-lar ligament extends from the coracoid process to theundersurface of the clavicle . It is largelyresponsible for suspending the weight of the scapula and the upper limb from the clavicle.

**Synovial membrane**: This lines the capsule and isattached to the margins of the cartilage covering thearticular surfaces.

**Nerve supply**: The suprascapular nerve **Movements:**

A gliding movement takes place when the scapula rotates orwhen the clavicle is elevated or depressed

I**mportant Relations:-**

**Anteriorly: The deltoid the muscle**

**Posteriorly: The tra**pezius **muscle**

**Superiorly**: The skin

 ***Glenohumeral joint*** is the one most people think of as the shoulder joint. It is formed where a ball (head) at the top of the humerus fits into a shallow cuplike **socket (glenoid)** in the scapula, allowing a wide range of movement. The surfaces of the bones where the ball and socket meet are covered with smooth, elastic cartilage that absorbs shock and allows the joint to move easily.

Because the socket of the shoulder is shallow, the joint relies on surrounding soft tissues to support it and hold the components in place. Many of these soft tissues surround the joint to form a protective capsule, which is lined with a thin membrane called the**synovium**. The synovium produces a fluid (synovial fluid) to cushion and lubricate the joint.

Other key structures of the shoulder include:

**Labrum**, a fibrous ring of cartilage that surrounds the glenoid, or shoulder socket, to create a deeper socket for the ball to stabilize the joint

**Rotator cuff**, a network of muscles and tendons that cover the top of the humerus, or upper arm bone, to hold it place and enable the arm to rotate

**Deltoid**, the largest and strongest muscle of the shoulder, the deltoid muscle provides the strength to lift the arm.

**Biceps tendon**, originating at the top of the shoulder socket, this tendon attaches to the biceps muscle, which allows the elbow to bend and the forearm to humerus.

**Elbow joint**

ElboThe elbow is where the two bones of the forearm – the radius on the thumb side of the arm and the ulna on the pinky finger side – meet the bone of the upper arm – the humerus.

**Humeroradial joint** – the joint formed where the radius and humerus meet. The joint not only allows you to bend and straighten your arms, it also is involved in supination and pronation, the motion of turning the hand over so the palm faces up or down.

**Proximal radioulnar joint** – the joint where the radius and ulna meet. While the joint is not involved in bending the arm, it allows you to rotate the lower

**Ligaments**

Tough bands of connective tissue called ligaments hold the bones of the elbow together. The two main ligaments connecting the humerus and ulna are:

**Ulnar-collateral ligament**, also called the medial collateral ligament, which runs along the inside of the elbow

**Lateral collateral ligament**, also called the radial collateral ligament, which runs along the outside of the elbow.

**Muscle**

The main muscles of the elbow involved in wrist and finger movement are:

**Flexors**, which attach to the inside of the elbow and enable you to bend your wrists and fingers

**Extensors**, which attach to the outside of the elbow and enable you to extend or straighten your wrists and fingers.

**Tendons**

Several tendons connect the muscles and bones of the elbow. The primary tendons are:

**Biceps tendon**, which attaches the biceps on the front of the arm to the radius, enabling you to forcefully bend your bend your elbow

**Triceps tendon**, which attaches the triceps to the ulna, enabling you to forcefully straighten your elbow
 **wrist and hand joints**

The wrist is formed where the two bones of the forearm – the radius (the larger bone on the thumb side of the arm) and the ulna (the smaller bone on the pinky side) – meet the carpus. Rather than a single joint, the wrist is actually made up of multiple joints where the bones of the arm and hand meet to allow movement

The **carpus** is formed from eight small bones collectively referred to as the carpal bones.

The**phalanges** (singular phalanx) – the 14 narrow bones that make up the fingers of each hand. Each finger has three phalanges (the distal, middle, and proximal); the thumb has two.

Joints are formed wherever two or more of these bones meet. Each of the fingers has three joints:

**Metacarpophalangeal joint (MCP)** \_ the joint at the base of the finger

**Proximal interphalangeal joint (PIP)** –  the joint in the middle of the finger

**Distal interphalangeal joint (DIP)**  – the joint closest to the fingertip.

Each thumb has two joints.

The surfaces of the bones where they meet to form joints are covered with a layer of cartilage, which allows them to glide smoothly against one another as they move. The joints are enclosed by a fibrous capsule that is lined with a thin membrane called the synovium, which secretes a fluid to lubricate the joints.

**Ligaments and Tendon**

**collateral ligaments**– strong ligaments on either side of the finger and thumb joints, which prevent sideways movement of the joint

**volar plate**– a ligament that connects the proximal phalanx to the middle phalanx on the palm side of the joint. As the joint in the finger is straightened, this ligament tightens to keep the PIP joint from bending backward.

**radial and ulnar collateral ligaments** – a pair of ligaments which bind the bones of the wrist and provide stability

**volar radiocarpal ligaments** – a complex web of ligaments that support the palm side of the wrist

**dorsal radiocarpal ligaments** – ligaments that support the back of the wrist

**ulnocarpal and radioulnar ligaments** – two sets of ligaments that provide the main support for the wrist.

**The main tendons of the hand are:**

**superficialis tendons**, which pass through the palm side of the wrist and hand, and attach at the bases of the middle phalanges. They act with the profundus tendons to flex the wrist and MCP and PIP joints.

**profundus tendons**, which pass through the palm side of the wrist and hand, and attach at the bases of the distal phalanges. They act with the superficialis tendons to flex the wrist and MCP and PIP joints. They also flex the DP joints.

**extensor tendons** of the fingers, which attach to the middle and distal phalanges and extend the wrist, MCP, PIP and DP joints.

**flexor tendons**, nine long tendons which pass from the forearm through the carpal tunnel of the wrist. They diverge in the palm, where two go to each finger (one attaches at the DP and one at the MCP) and one goes to the thumb.

**extensor pollicis brevis** and abductor **pollicis longus**, which run from the muscles in the top of the forearm and enable movement of the thumb

* **Diagrams are below in next page**

