Upper Limb Bones - Ulna and Radius

The ulna and radius are the two distal bones of the arm. While the ulna sits medially, the radius is named for its lateral positioning when the body is prone. Important landmarks of the ulna include the olecranon process, coronoid process, trochlear notch, radial notch, styloid process and ulnar head. Meanwhile, important radius landmarks include the radial head and neck, the radial tuberosity, the styloid process, the ulnar notch, and Lister's tubercle.



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Characteristics

Ulna
Underwear
The more medial of the two long bones of the forearm is called the ulna. It is an important site for muscle attachment, and can be palpated along the entire posterior aspect of the forearm.

Olecranon Process
Old-Conan
The olecranon is a curved projection on the proximal aspect of the ulna that forms what we know as the “elbow.” It serves as the insertion of the triceps brachii muscle, a muscle responsible for forearm extension.

Coronoid Process
Corona
The coronoid process is a projection of the proximal ulna (near the elbow) on the anterior side. It is the attachment site for the brachialis muscle.

Trochlear Notch
Truck-pulley in Notch
The distal humerus meets the proximal ulna at a bony landmark called the trochlear notch. It is uniquely shaped to exactly fit the trochlea of the distal humerus, which contributes to the stability of the humeroulnar joint.

Radial Notch
Radio in Notch
The radial notch refers to an indentation on the lateral surface of the ulna. This is the location where the radial head meets the proximal ulna, creating the proximal radioulnar joint. This unique ellipsoid joint is responsible for the ability to pronate and supinate the forearm.

Styloid Process of Ulna
Stylus with Underwear
On the distal aspect of the ulna (near the wrist) there is a small bony projection called the ulnar styloid process. It can be palpated at the medial aspect of the wrist. It is an attachment site for the ulnar collateral ligament, which plays an important role in the stabilization of the wrist joint.

Head of the Ulna
Underwear Head
The head of the ulna is located distally on the bone, and is a rounded, articulating surface. The ulnar head is recieved by the ulnar notch of the radius, helping to form the radioulnar joint.

Radius
Radio
The more lateral of the two long bones of the forearm is called the radius. It is able to rotate around the ulna due to their unique attachments at the proximal and distal radioulnar joints. The radius serves as an attachment site for many muscles that act on the forearm and hand.

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Radial Head

Radio Head

The head of the radius is a round structure that articulates with both the proximal ulna and the capitulum of the distal humerus. Collectively, the three joints between the humerus, ulna, and radius comprise the elbow joint.

Neck

Neck

The neck of the radius refers to the narrow area just distal to the head. The annular ligament originates and inserts on the coronoid process of the ulna, encircling the head of the radius as it narrows to the neck. This acts to prevent dislocation of the proximal radioulnar joint after a forceful upward pull, a condition common in children known as nursemaid’s elbow.

Radial Tuberosity

Radio Tubes

The radial tuberosity is a rough area on the proximal radius that serves as the insertion point for the biceps brachii muscle. This attachment site is important for understanding the muscle’s action. The biceps brachii is a much stronger arm/forearm flexor when the forearm is supinated due to its attachment on the radius.

Styloid Process

Stylus

The radial styloid process is a bony projection on the distal aspect of the radius. It can be palpated at the lateral wrist, just proximal to the anatomic snuff box.

Ulnar notch

Underwear in Notch

At the distal end of the radius there is an indentation known as the ulnar notch. Laying on the medial aspect of the radius, it accommodates the ulnar head, producing the distal radioulnar joint. While the proximal radioulnar joint’s function is to allow spinning of the radial head in place, the distal radioulnar joint allows the entire radius to rotate around the ulna.

Listers (aka Dorsal) Tubercle

List with Tube

On the dorsal aspect of the distal radius, there is a small, yet important, projection called Lister’s Tubercle. This bony landmark serves as a pulley around which the tendon of the extensor pollicis longus wraps. This pulley system increases the strength of this muscle, producing extension of the thumb.

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