Ligaments

The joint capsule is reinforced by two main **collateral ligaments**:

- **Radial collateral ligament** – extends from the lateral epicondyle of the humerus and blends with the annular ligament of the radius, which encircles the radial head.
- **Ulnar collateral ligament** – arises from the medial epicondyle and attaches to both the coronoid process and olecranon of the ulna.

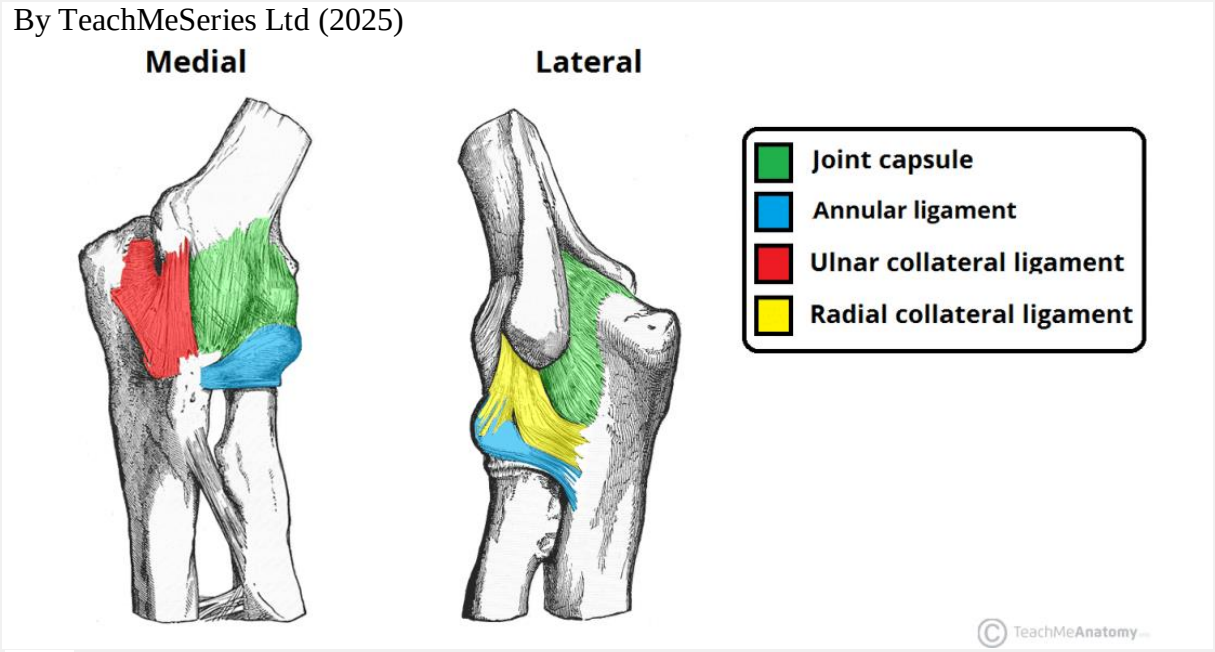

Fig 2
Ligaments of the elbow joint.

Blood Supply

The elbow receives a rich **arterial network** formed by anastomoses between branches of the brachial, radial, and ulnar arteries around the joint.

Innervation

The elbow joint is supplied by branches of the musculocutaneous, radial, ulnar, and median nerves.

Movements

The orientation of the articulating surfaces of the elbow joint create a **hinge-type** synovial joint, allowing the following movements:

- **Flexion** – produced by the **brachialis**, **biceps brachii**, and **brachioradialis**
- **Extension** – produced by the **triceps brachii** and **anconeus**

Clinical Relevance

Injuries to the Elbow Joint

Bursitis

Bursitis refers to inflammation of a bursa — a small sac containing a thin film of synovial fluid that reduces friction between moving structures such as tendons, bones, and skin. When inflamed, the bursa fills with excess fluid, causing pain and swelling.

The most common form affecting the elbow is **subcutaneous olecranon bursitis**. This occurs due to repeated friction or pressure over the posterior aspect of the elbow (for example, leaning on hard surfaces). Because this bursa lies just beneath the skin, it can also become infected after minor trauma or a superficial laceration.

Dislocation

An elbow dislocation usually occurs when a young child falls on a hand with the elbow flexed. The distal end of the humerus is driven through the weakest part of the joint capsule, which is the anterior side. The ulnar collateral ligament is usually torn and there can also be ulnar nerve involvement

Most elbow dislocations are posterior, and it is important to note that elbow dislocations are named by the position of the ulna and radius, not the humerus.

Fig 3
X-ray of a posterior dislocation of the elbow.

Epicondylitis (Tennis elbow or Golfer's elbow)

The forearm flexor and extensor muscles share common origins on the medial and lateral **epicondyles** respectively. Overuse of these tendons can lead to pain and inflammation at the affected epicondyle:

- **Tennis elbow (lateral epicondylitis)** – Overuse of the common extensor origin.
- **Golfer's elbow (medial epicondylitis)** – Overuse of the common flexor origin.

A useful mnemonic: Golfers aim for the "middle" of the fairway, tennis players aim for the "lateral" line of the court.

Supracondylar Fracture

A **supracondylar fracture** occurs most often in children after a fall onto an outstretched hand with the elbow extended. The fracture line runs transversely between the two epicondyles in the relatively weak region between the olecranon and coronoid fossae.

This injury may compromise the brachial artery, leading to forearm ischaemia and, if untreated, **Volkmann's ischaemic contracture** — a fixed flexion deformity of the hand caused by fibrosis of the forearm flexors. The median, ulnar, or radial nerves may also be injured.

A thorough **neurovascular assessment** and documentation are essential in all cases. Acute vascular compromise presents as a pale, pulseless limb and requires urgent surgical intervention.

……