

ELBOW PAIN

The joint between the humerus and ulna bones is called the elbow. While this is technically true, the joint is also commonly assumed to include the joint between the proximal head of the radius and the ulna and the other structures that cross the joint. These structures include the muscles and tendons that provide voluntary movement, the blood vessels and lymphatic tracts, and the various nerves that provide necessary innervation.

The muscles (or their tendons) that cross the elbow include the biceps brachii, brachialis, flexor carpi radialis, flexor carpi ulnaris, brachioradialis, triceps, anconeus, extensor carpi radialis longus, extensor carpi radialis brevis, extensor carpi ulnaris, supinator, and pronator quadratus. The brachial artery and median nerve run alongside one another across the anterior aspect of the elbow while the radial and ulnar nerves progress across the lateral and medial aspects, respectively.

From a functional point of view, the elbow is a hinge joint with a range of motion of from 0 to 140° of flexion, and from 0 to 10° of hyperextension that is limited by the ulnar olecranon process seating into the humeral olecranon fossa (the degree of "seat" causes the range to be highly variable). Pronation and supination of the elbow are made possible by rotation of the head of the radius on the capitulum of the humerus. Elbow stability is maintained by muscular and tendinous support that allows the fitting of the trochlea of the humerus deeply into the trochlear notch of the ulna. It is further supported by collateral ligaments. Stability of the radiohumeral joint is provided by the annular ligament that holds the proximal radial head in approximation with the radial notch of the ulna.

The elbow's wide range of motion makes the structures in the elbow susceptible to strains and sprains. The elbow is also in an exposed position, with a large dependency on tendon strength, which makes it liable to external trauma and attacks of bursitis. Because of the proximity of blood vessels and nerves to its anterior aspect, elbow injuries may occasionally lead to severe circulatory and neurological complications.

The sources of *elbow pain* are varied. They include joint strains and sprains, olecranon bursitis, inflammation of the olecranon fossa, radiohumeral bursitis, lateral epicondylitis, and radiohumeral subluxation (*nursemaid's elbow*, usually seen in children two to five years of age). Pain may come from posterior dislocation of the radius and ulna on the humerus and fractures (olecranon process, supracondylar fractures of the humerus and proximal necks of the radius and ulna). Additionally, traumatic myositis ossificans, any disease process that causes inflammation or swelling of the joints (including the *radial or ulnar channel*), and referred pain from structures outside the elbow area may also cause pain. Such sources may include visceral organs, interspinous ligaments, compressed nerves or nerve roots, or trigger points.

Treatment

Elbow pain that has its origin from the inflammation of associated tendons, nerve channels, or joint components has been shown to be treatable with soft tissue manipulation or mobilization, phonophoresis of anti-inflammatories, and circulation enhancement with electrical stimulation (refer to Electrical Stimulation, Circulation Enhancement).

Trigger Points

The following trigger point formations may, singly or in combination, refer pain into the elbow area: Scalenus, Scalenus (minimus), Infraspinatus, Coracobrachialis, Supraspinatus (muscle), Upper latissimus dorsi, Serratus posterior superior, Serratus anterior, Subclavius, Subscapularis, Pectoralis major (sternal portion), Pectoralis minor, Sternalis, Medial triceps (deep fibers), Medial triceps (lateral fibers), Triceps (long head), Distal medial triceps, Anconeus, Biceps brachii, Brachialis, Supinator, Fourth finger extensor, Brachioradialis, Pronator teres, and Extensor carpi radialis longus.