

Upper Extremity Special Tests

Cervical Tests

- **Vertebral Artery Test:** used to test for vertebral artery occlusion or insufficiency. The subject lies supine on the plinth with the examiner seated behind with both hands cupping and supporting the patient's head. The examiner slowly extends, rotates and laterally flexes the subject's head to each side holding each positing for 15 – 30 seconds. The examiner questions and observes the patient for dizziness, blurred vision, nystagmus, slurred speech, or loss of consciousness, which would indicate a positive finding. This test should be performed prior to performing any other provocative cervical special tests to ensure vertebral artery patency.
- **Spurling Foraminal Compression Test:** this test is used to rule out cervical nerve root compression. The patient is seated. The examiner places the palms of their hands with their fingers interlocked over the top of the patient's head. The examiner applies a gentle downward pressure. Variations of the test include the same compressive force combined with quadrant testing (the addition of lateral flexion, rotation and flexion or extension). In the presence of a disk protrusion or compromised intervertebral foramen, compression of the cervical spine tends to exacerbate the patient's symptoms while in ligamentous injuries or irritation of facet joint capsules will cause relief of or decrease in symptoms. In compression tests which involve a combined quadrant position of lateral flexion or rotation will refer symptoms toward the side of motion. A positive finding may also be indicated by the patient reporting pain into the upper extremity toward the same side that the head is laterally flexed or rotated toward.
- **Distraction Test:** a test used to rule out cervical disc protrusion, intervertebral foraminal compromise, ligamentous injuries, or facet joint capsule irritation. The examiner contacts the patient's mastoid processes with the base of the palms and gentle lifts with weight of the subject's head. In the presence of a disk protrusion or compromised intervertebral foramen, distraction of the cervical spine tends to relieve the patient's symptoms while in ligamentous injuries or irritation of facet joint capsules will cause exacerbation of symptoms. Caution must be used in patient's with TMJ dysfunction so that the distraction force is not placed through the mandible.
- **Alar Ligament Test:** a test to detect a rupture of the alar ligament. The patient lies supine on the plinth. The examiner cups the patient's head and palpates C2 spinous process. The examiner gently rotates the patient's head and feels if the C2 spinous process follows the rotation or lags behind. If a lag is felt, the alar ligament is ruptured.

TMJ Dysfunction

- **Retrodiscal Fat Pad Sign:** place pinky fingers inside patient's ear and draw fingers forward as they close their jaw. If pain presents it may be attributed to the fat pad being pinched between the examiner's finger tips and the patient's mandibular condyles.

Glenohumeral Stability Tests

- **Inferior sulcus sign:** this tests for inferior instability of the gleno-humeral joint by assessing the integrity of the coracohumeral and superior glenohumeral ligaments. The examiner stands beside the patient with the patient's arm hanging at his side. The examiner then gives inferiority directed traction to the shoulder (pulls down on the elbow) a positive test would be one where there is a noticeable inferior slide of the humeral head or where there is a marked increase in the space between the humeral head and the acromion. The scale is below used to grade the sulcus:.
 - ♦ .5 – 1 cm = + 1 sulcus
 - ♦ 1 – 2 cm = + 2 sulcus
 - ♦ 2 – 3 cm = + 3 sulcus
- **Feagin Test:** another test for inferior glenohumeral instability. The patient's arm is abducted to 90° with their distal forearm resting on the examiner's shoulder. The examiner cups or clasps their hands together on the top of the subject's proximal humerus approximately at the level of the belly of the biceps and exerts an anterior-inferior directed force. Pain or apprehension is a positive test.
- **Apprehension (Crank) test for anterior shoulder dislocation:** a test designed to determine whether a patient has a history of anterior dislocations. With the patient supine, the examiner slowly abducts and externally rotates the patient's arm. The test is positive if the patient becomes apprehensive and resists (muscle guards) against further motion. No translation should be expected in the normal shoulder because this test is performed in a position where the anterior ligaments are placed under tension.
- **Jobe Relocation Sign:** performed in conjunction with the crank test. A posterior directed force is applied to the test extremity resulting in the disappearance of patient's apprehension or muscle guarding.
- **Apprehension test for posterior shoulder dislocation:** a test designed to determine whether a patient has a history of posterior dislocations. With the patient supine, the examiner slowly flexes the patient's arm to 90° and the patient's elbow to 90°. The examiner then internally rotates the patient's arm. An axial load is then applied to the patient's elbow. The test is positive if the patient becomes apprehensive and resists (muscle guards) against further motion.
- **Jerk Test:** another test for posterior glenohumeral instability. With the patient lying supine and a pillow resting under the scapula of the test side, the test extremity is axially loaded through the elbow and taken into horizontal adduction. (forward flexed and internally rotated to 90°) The feeling of a sudden 'jerk' caused by the subluxing of the humeral head off the back of the glenoid is indicative of a positive test for posterior glenohumeral instability. Reduce by removing axial load and taking test extremity into ABD and ER allowing an anterior roll and glide of the humeral head. As the arm is returned to the original position of 90-degree abduction, a second jerk may be observed, that of the humeral head returning to the glenoid.

Glenoid Labrum Tear

- **Clunk (Labral) Test:** a test used to determine if there is a tear of the glenoid labrum. The examiner is standing at the head of the patient who is lying supine. The examiner places one hand under the posterior portion of the shoulder while the other holds the arm just proximal to the elbow. The examiner takes the test extremity and fully abducts it over the patient's head. The test may also cause apprehension if anterior instability is present.

Rotator Cuff Tests

- **Empty-Can (Supraspinatus) test:** a test designed to identify a tear in the supraspinatus tendon. The patient is either seated or standing. The patient's upper limbs are positioned horizontally at 30° anterior to the frontal plane, abducted to 90° and internally rotated. (empty-can position) The examiner applies a downward force on the patient's limbs. The test is positive if pain and weakness are present.
- **Drop-arm (Codman's) test:** a test designed to determine presence of a torn rotator cuff. With the patient seated, the examiner abducts the patient's shoulder to 90°. The patient is then asked to slowly lower the test extremity to their side. The test is positive if the patient is unable to lower the arm slowly to their side in the same arc of movement or has severe pain when attempting to do so. This is a highly provocative test because it requires eccentric contraction of the supraspinatus.
- **Gerber Lift-Off Sign:** a test used to rule out a rupture of the subscapularis tendon. The patient is seated or standing with the test arm behind their back; hand resting on their flank. The examiner stabilizes the patient's scapula while moving the resting arm away from the body. Apprehension, muscle guarding or pain localized to the anterior shoulder may indicate rupture.

SLAP Lesions

- **Anterior slide:** Patient stands with hands on hips. One of the examiner's hands is placed over the shoulder and the other hand behind the elbow. A force is then applied anteriorly and superiorly, and the patient is asked to push back against the force. The test is positive if pain is localized to the antero-superior aspect of the shoulder, if there is a pop or a click in that region, or if the maneuver reproduces that patient's symptoms.
- **O'Brien test:** The patient's shoulder is held in 90° of forward flexion, 30 to 45° of horizontal adduction and maximal internal rotation. The examiner grabs the patient's wrist and resists the patient's attempt to horizontally adduct and forward flex the shoulder.
- **Crank test:** The patient's shoulder is abducted 90° and slowly internally rotated while a gentle axial load is applied through the glenohumeral joint. The test is considered positive if the patient reports pain, catching, or grinding in the shoulder.

Impingement Tests

- **Neer test:** a test to identify impingement of the supraspinatus tendon or long head of the biceps in the coraco-acromial arch. While stabilizing the scapula, the examiner internally rotates the shoulder and then brings the shoulder into flexion. Pain reproduced over the coraco-acromial arch indicates a positive test.
- **Kennedy – Hawkin's test:** The examiner brings the patient's arm into 90° of flexion with the elbow bent to 90°. The arm is then forced into internal rotation. Pain over the coraco-acromial arch would indicate a positive test for impingement.
- **Cross-Over Impingement (Horizontal adduction) test:** a test designed to identify inflammation of tissues within the subacromial space. The patient's test extremity is moved into internal rotation and horizontal flexion (a.k.a. horizontal adduction) by the examiner. This maneuver is thought to decrease the space between the head of the humerus and acromion process. The test is positive if the patient reports pain, indicating impingement of long head of the biceps or supraspinatus tendon.
- **Painful Arc:** used to assess the potential pinching of structures between the acromial arch and the coracoacromial ligament. Pain would present between 60 and 120° of abduction.

Bicipital Tendonitis

- **Speed's test (biceps test):** a test designed to determine whether bicipital tendonitis is present. With the forearm supinated and elbow fully extended, the patient tries to flex the arm against resistance applied by the examiner. The test is positive if the patient reports increased pain in the area of the bicipital groove. Pain is due to biceps tendon attempting to slide or move inside the bicipital groove while inflamed.
- **Yergason's biceps tendonitis test:** a test designed to identify tendonitis of the long head of the biceps. The seated patient's arm is positioned at his or her side with the elbow flexed to 90°. Supination of the forearm against resistance produces pain in the biceps tendon in the area of the bicipital groove.

Subluxing Biceps Tendon

- **Transverse Humeral Ligament (Booth & Marvel) test:** this test indicates a rupture or stretching of the retinaculum or transverse humeral ligament holding the long head biceps tendon in the bicipital groove. The examiner bends the elbow to 90° with the shoulder relaxed. The examiner then pulls inferiorly on the elbow putting traction on the shoulder joint and then attempts to externally rotate the shoulder. The free hand should palpate over the biceps groove feeling for a subluxation of the tendon from the groove. Subluxation, pain, popping or clicking indicates a positive test.

Ruptured Biceps

- **Ludington's test:** a test designed for determining whether there has been a rupture of the long head of the biceps tendon. The patient is seated and clasps both hands on top of his or her head, supporting the weight of the upper limbs. The patient then alternately contracts and relaxes the biceps muscles. The test is positive if the examiner cannot palpate the long head of the biceps tendon of the affected arm during the contractions.

AC Joint Integrity

- **AC Shear Test:** a test used to assess the integrity of the acromioclavicular or coracoclavicular ligaments. The examiner cups their hands cup over the patient's shoulder (acromion + coracoid processes) and compresses. A positive test is indicated by pain due to tearing of the coracoid and trapezoid ligaments attaching to the clavicle. MOI is typically a fall on an outstretched hand causing the acromion to be forcefully jammed up under the clavicle. Since the Upper Trap + Deltoid normally create a tonic pull on the clavicle you see what is referred to as a "Step – Off Deformity"

Willingness To Move

- **Apley's Scratch Test:** a test used to assess a patient's willingness to move one or both upper extremities. There are two positions the test arm is placed in. First the patient is asked to reach above their head and behind their back attempting to 'scratch' or touch the inferior angle of the scapula. Second the patient is then asked to reach down and behind their back up towards the spine of their opposite scapula. Asymmetrical results from side to side are considered positive.

Thoracic Outlet Syndrome

- **1st Rib Spring Test:** a test used to detect compression of the neurovascular bundle (subclavian artery & brachial plexus). With the patient lying supine, examiner placed hand on 1st rib and applies a downward diagonally directed forced (towards opposite hip). The test is positive if the patient reports an alleviation or decrease in symptoms.
- **Hyperabduction Test (Wright's Maneuver):** a test used for thoracic outlet syndrome due to entrapment of the subclavian vessels and brachial plexus between the pectoralis minor tendon and the coracoid process. While palpating the radial pulse, the examiner takes the test limb into hyper-abduction. The test is positive if the pulse diminishes or disappears.
- **Scalene (Cramp) Contraction Test:** another TOS test used to R/O compression of the neurovascular bundle due to tightness of the scalene musculature. The patient's head is extended and rotated toward the test side. If there is no change in symptoms the examiner then performs a resisted isometric. A positive test is indicated by numbness or parasthesia in the test side arm.
- **Scalene Relief Test:** another TOS test. Patient takes the palm of their affected arm and places it on their head. A decrease in symptoms indicates a positive test.
- **Military Posture (Costoclavicular) Test:** a test for TOS to R/O compression of the neurovascular bundle between the 1st rib and clavicle. The patient stands and is asked to retract and then depress their shoulders for 15 – 30 seconds. A positive test is indicated by numbness or parasthesia in the test side arm.

Elbow

- **Varus Stress Test:** used to assess the stability and integrity of the radial collateral ligament. The examiner places the elbow of the patient's test extremity in slight flexion and supination. The examiner then places one hand on medial aspect of elbow and the other on the radial side, midway on distal forearm. The examiner then pushes the patient's forearm toward their body using the elbow as a fulcrum. Pain or a visible or palpable gap indicates a positive sign suggesting a tear or instability of the radial collateral ligament.
- **Valgus Stress Test:** used to assess the stability and integrity of the ulnar collateral ligament. The examiner places the elbow of the patient's test extremity in slight flexion and supination. The examiner then places one hand on lateral aspect of elbow and the other medially on the midway on distal forearm. The examiner then pulls the patient's forearm away from their body using the elbow as a fulcrum. Pain or a visible or palpable gap indicates a positive sign suggesting a tear or instability of the ulnar collateral ligament.

Vascular Integrity of the Hand

- **Allen's Test:** used to assess vascular integrity of the radial and ulnar arteries. The patient is asked to open and close their test hand AQAP. The examiner then places pressure over arteries where they cross the wrist, the pt is asked to open hand one artery is released then the other. Initially hand should appear white or bluish as the arteries are released the flush color of the blood flow can be seen. Compare to other side. If there is absence or ↓ blood flow to the hand the hand will remain discolored for more than 5 sec.

Lateral Epicondylitis

- **Cozen Test:** a test used to detect lateral epicondylitis. The patient is asked to place their forearm at their side with their elbow bent to 90°. The examiner palpates the common extensor tendon then asks the patient to make a fist, pronate, radially deviate and extend the wrist. Pain indicates a positive test. Lateral epicondylitis can be further confirmed by palpation or maximal stretch of the common extensors.



Medial Epicondylitis

- **Golfer's Elbow Test:** a test used to detect medial epicondylitis. The patient sits with their test extremity in full extension. The examiner palpates the common flexor tendon then asks the patient to flex their wrist against the examiner's resistance. Pain indicates a positive test. Medial epicondylitis can be further confirmed by palpation or maximal stretch of the common flexors.

Carpal Tunnel Syndrome

- **Phalen's (wrist flexion) test:** a test designed to determine the presence of carpal tunnel syndrome. The patient is asked to place the dorsum of their hands against one another and hold this position for 30-60 sec. This position narrows the space between the radius and the transverse carpal ligament against the median nerve. The test is positive if paresthesia are present in the thumb, index finger, and the middle and lateral half of the ring finger.
- **Reverse Phalen's (Prayer/wrist extension) test:** also a test designed to determine the presence of carpal tunnel syndrome. The patient is asked to place the palms of their hands against one another as if praying and hold this position for 30-60 sec. The Modified Phalen test increases the pressure in the carpal canal to a greater extent than the original Phalen test.
- **Tinel's sign:** a test designed to detect carpal tunnel syndrome. The examiner taps over the carpal tunnel of the wrist. The test is positive if the patient reports tingling over the percussed site or paresthesia in the median nerve distribution of the wrist.
- **Finkelstein's test:** a test designed to detect De Quervain's stenosing tendovaginitis (stenosing tenosynovitis) This condition is a painful inflammation of the tendons in the first dorsal compartment, namely the extensor pollicis brevis and abductor pollicis longus tendons. To correctly perform Finkelstein's test, support the patient's forearm and grasp the hand while stabilizing the patient's thumb against the palmer surface. Now, ulnarly deviate the hand. If pain is elicited over the radial styloid process, the test is positive and suggests the presence of stenosing tendovaginitis of the first dorsal compartment.



Neurological Tests

- **Froment's Sign:** used to rule out ulnar nerve paralysis or involvement. The examiner asks the patient to attempt to grasp a piece of paper or index card etc., between their thumb and index finger. The examiner then attempts to pull the piece of paper out of the patient's grasp. A positive sign is indicated by flexion of the terminal phalanx of the test thumb due to weakness of the adductor pollicis muscle.

If at the same time, the MCP joint of the thumb hyper extends, this is noted as a positive **Jeanne's sign**.

Upper Limb Tension Tests

- Work proximal to distal
- With each movement ask does this change your symptoms?
 1. Start with neck side bend to symptomatic side and or rotation opposite symptomatic side
 2. Retract then depress scapula
 3. GH ABD + ER

Median Nerve

1. Extend elbow
2. Extend wrist
3. Extend fingers

Ulnar Nerve

1. Flex elbow
2. Extend wrist

Radial Nerve

1. Extend elbow
2. Flex wrist

Tendon Gliding

All performed first with the wrist in neutral, then flexion and extension

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|--------------------------------|---|
| ➤ (A) Straight hand | Starting position |
| ➤ (B) Hook fist | = max gliding between FDS + FDP & FDP and bone. |
| ➤ (C) Closed (full) fist | = max gliding between FDP, sheath and bone and over FDS tendon. |
| ➤ (D) Intrinsic plus fist | = max gliding of FDS |
| ➤ (E) Straight (sublimis) fist | = max gliding of FDS within sheath & over bone. |

