

How to perform special tests for the musculoskeletal system

SHOULDER:

Jobe empty can sign-

Position: Thumb pointing down with the shoulder in the plane of the scapula; elevation of the extremity to approximately 85-90°

Action: Resistance against elevation

Positive exam: Pain and or weakness that indicates involvement of the supraspinatus muscle/tendon. - tendinitis, impingement syndrome-

Drop arm test-

Position: Extremity in neutral rotation and in the plane of scapula

Action: passively elevate arm to 90-100° and asked the patient to eccentrically lower arm

Positive exam: Inability to slowly lower arm, will drop, indication of rotator cuff pathology-tear

Neer impingement sign-

Position: Stabilize scapula, maximally forward flex the shoulder with the arm in maximal internal rotation

Action: Pain in anterior shoulder, which is indicative of impingement of the supraspinatus and/or subacromial bursa. This pain is often secondary to a decrease/dysfunction of the subacromial space

Hawkins impingement sign-

Position: Upper extremity in the plane of the scapula, at 90° elevation, elbow bent

Action: Using the forearm as a fulcrum we internally rotate the shoulder.

Positive exam: Pain in anterior shoulder, is indicative of impingement of the supraspinatus and/or subacromial bursa. This pain is often secondary to a decrease/dysfunction of the subacromial space

Crossover sign-

Action: Forward flexion of the shoulder to 90 degrees, then horizontally adduct the shoulder while the arm is in internal rotation

Positive exam: Pain and/or crepitus at the a.c. joint, indicative of a.c. joint pathology

A/C distraction/sulcus sign-

Position: patient either seated or lying supine

Action: With the arm at neutral at patient's side, apply distraction to the arm

Positive exam: Pain/separation at the a.c. joint is suggestive of a.c. separation. Visual sulcus or concavity inferior to the acromion is suggestive of capsular instability

Springboard sign-

Action: Place 2 fingers at the distal aspect of the clavicle, at the region of the a.c. joint, and apply a repetitive inferior force

Positive exam: inferior migration of the clavicle, back to its anatomical position, indication of a.c. joint separation

O'Brien sign-

Position: Shoulder at 90° of flexion, about 35-45° of horizontal adduction and maximal internal rotation

Action: Resist against flexion and adduction

Positive exam: Pain and or popping which are indicative of a labral tear (SLAP lesion)

Clunk Test-

Position: Patient supine on table. Place hand on posterior aspect of the humeral head, and your other hand about the elbow.

Action: Passively abduct and externally rotate patient's arm overhead while applying an anterior force to the humeral head. Once overhead circumduct the humeral head and the glenoid cavity

Positive exam: Grinding or clunking sensation, which may indicate a labral tear

Apprehension sign-

Position: Patient supine, arm abducted to 90° with elbow bent

Action: Stabilizing the shoulder, beginning to externally rotate shoulder

Positive exam: Patient will experience pain or become nervous with increased external rotation. Indicates anterior capsular instability

ELBOW:

Cozen's sign/tennis elbow test-

Position: forearm supported on table in neutral position

Action: Resistance against wrist extension/radial deviation

Positive exam: Pain and weakness at the lateral epicondyles indicating lateral tendinitis/epicondylitis

Golfer's elbow test-

Position: forearm supported on table in neutral position

Action: Resistance against wrist flexion

Positive exam: Pain and weakness at the medial epicondyle indicating medial tendinitis/epicondylitis

Ulnar Tinel's-

Position: Elbow flexed 20-30°

Action: Tap the ulnar nerve at the ulnar groove with index finger

Positive exam: Radicular pain along the ulnar nerve

WRIST/HAND:

Finkelstein test-

Position: Patient forms fist around thumb

Action: Stabilize forearm and ulnar deviation wrist

Positive exam: Pain at or along the 1st extensor compartment of the wrist (1st compartment houses the abductor pollicis longus and extensor pollicis brevis) pain is indicative of tenosynovitis (deQuervain's)

Phalen sign-

Action: Patient places dorsal aspect of wrist together with maximal wrist flexion. Patient holds that position for 1-2 minutes

Positive exam: patient experiences numbness tingling in the median nerve distribution indicating carpal tunnel syndrome

Tinel's sign-

Action: Tap the volar aspect of the wrist at the region of the carpal tunnel (at the site of the palmaris longus) with your index and middle fingers

Positive exam: patient experiences numbness tingling in the median nerve distribution indicating carpal tunnel syndrome

Carpal compression-

Action: Apply direct digital pressure over the carpal tunnel(at the site of the palmaris longus) for 30-60 seconds

Positive exam: patient experiences numbness tingling in the median nerve distribution indicating carpal tunnel syndrome

KNEE:

Effusion grading-

Position: Patient supine with knee in extension-relaxed-

Major-patella is ballotable without compression of the suprapatellar pouch

Minor-patella is ballotable with compression of the suprapatellar pouch

Patellar apprehension-

Position: Patient supine, knee full extension

Action: Push patella laterally

Positive exam: Patient complains of apprehension/pain reflex quadriceps contraction indicating patellar subluxation or dislocation

Patellar grind-

- Position:** Patient supine with knee extended. Examiner places the 1st webspace across superior border of the patella
- Action:** Patient is asked to contract quadriceps while examiner applied posterior and inferior pressure on the patella
- Positive exam:** Retropatellar pain with contraction; indicating patellofemoral changes

McMurray test-

- Position:** Patient is supine. Examiner grasps heel with one hand and stabilizes the limb at the knee while palpating the joint line
- Action:** Flex the knee, beginning to externally rotate the tibia as you apply a varus force at the joint and bring the knee into extension-medial compartment-
Internal rotation with valgus force - lateral compartment-
- Positive exam:** You should get a reproducible click indicating meniscal tear. However this test is difficult to perform and a click does not need to be appreciated for a positive test

Appley compression test-

- Position:** Patient prone with knee flexed to 90°
- Action:** Apply a downward force on the tibia and internally/externally rotate the tibia on a compressed joint
- Positive exam:** Pain, click or grinding is indication of meniscal pathology

Valgus stress test (0°/30°)-

- Position:** Patient is supine. A Examiner places distal hand at the ankle and proximal hand at the lateral aspect of the knee at the joint line
- Action:** Stabilize the ankle and apply a valgus force at the knee with proximal hand. Perform at 0° and 30°
- Positive exam:** medial knee pain at the region of the MCL and/or increased valgus movement with decreased endpoint- MCL injury

Varus stress test (0°/30°)-

- Position:** Patient is supine. A Examiner places distal hand at the ankle and proximal hand at the knee aspect of the knee at the joint line
- Action:** Stabilize the ankle and apply a varus force at the knee with proximal hand. Perform at 0° and 30°
- Positive exam:** Lateral knee pain at the region of the LCL and/or increased varus movement with decreased endpoint-LCL injury

Lachman test-

- Position:** Patient is supine with knee flexed to 20-30°. Examiner grasps distal femur laterally and proximal tibia medially
- Action:** Apply an anterior force on the tibia while stabilizing the femur
- Positive exam:** Excessive anterior translation of the tibia in relation to the femur and decreased or absent endpoint indicates ACL tear

Anterior drawer-

- Position:** Patient supine with hip flexed to 45°, knee flexed to 90° and the foot in neutral position. Examiner sits on patient's foot with both hands behind proximal tibia and thumbs and tibial plateau.
- Action:** Apply an anterior force on the tibia
- Positive exam:** Excessive anterior translation of the tibia in relation to the femur with a decreased or absent endpoint indicates ACL tear

Posterior sag-

- Position:** Patient supine with hip flexed at 90° and knee at 90°
- Action:** Stabilize hip and support foot and ankle to maintain 90/90 position. Access the position of the tibial tubercle in relation to patella
- Positive exam:** Posterior positioning of the tibial tubercle in relationship to the contralateral side may indicate PCL laxity

Squat test-

- Action:** Have patient squat and report their subjective complaints
- Positive exam:** Subjective complaints of the medial or lateral joint pain is often an indicator of meniscal pathology.

Duck walk-

- Action:** Have patient squat and walk in the squatted position (duck walk)
- Positive exam:** Subjective complaints of the medial or lateral joint pain or inability to perform maneuver is often an indicator of meniscal pathology.

Lateral Tracker-lateral J.-

- Position:** Patient supine with knee extended
- Action:** Have patient perform an active quadriceps contraction. Observe patellar motion
- Positive exam:** Excessive lateral movement of the patella in the groove (50% of its width or greater) may be indication of lateral tracking syndrome

Ober test-

- Position: Patient is lying with involved side up. examiner is behind patient. Proximal hand stabilizes pelvis at iliac crest. The distal hand supports lower leg
- Action: Stabilize pelvis, abduct and extend the hip. This positions the ITB behind the greater trochanter. Slowly lower (adduct) the leg.
- Positive exam: Inability to abduct leg to touch the table as well as a spring board tension is indicative of ITB/TFL (tensor fascia latae) tightness

ANKLE/FOOT:

Anterior drawer-

- Position: Patient is seated on a table with knee flexed over the edge. Examiner grasps the calcaneus with one hand and stabilizes the tibia with the other
- Action: Stabilize the tibia and apply an anterior force to the calcaneus and talus
- Positive exam: Anterior translation of the talus away from the ankle mortise with or without pain and with decreased endpoint is indicative for injury to anterior talofibular ligament

Talar tilt test-

- Position: Patient is side lying on uninvolved side with knee flexed to 90° to reduce tension of the gastrocnemius. The Examiner stabilizes the tibia with one hand and grasps the talus with the other
- Action: Place the foot in neutral and then tilt the talus into an adducted position
- Positive exam: Excessive abduction as compared to opposite ankle indicates injury to the calcaneofibular ligament

Thompson squeeze test-

- Position: Patient is prone with feet supported over edge of table
- Action: Squeeze the belly of the gastrocnemius-soleus muscle complex
- Positive exam: Absence of normal plantar flexion motion of ankle indicates Achilles tendon rupture