

SPOTLIGHT Series

Ю

Orthopedic Special Tests: They May Be "Special" but Let's Not Go Crazy!

Presented by Holly Daniel, PT

Objectives

- Explain the NPTE content outline categories for orthopedic special tests
- Review commonly performed special tests by diagnosis
- Discuss methods of active learning to improve retention of commonly used orthopedic special tests
- Discuss the difference between sensitivity and specificity of clinical tests

Habit 3: "Put First Things First"

- The 7 Habits of Highly Effective People
- First published in 1989
- Written by Stephen Covey
- New York Times Bestseller for 5 years



The "duck test"

"If it looks like a duck, walks like a duck, swims like a duck, and quacks like a duck, it must be a duck."

NPTE Content Outline

Physical Therapy Examination (PT Blueprint):

- Question range = 44-57 (out of the 200 scored, across ALL systems)
- Question range specific to Musculoskeletal examination = 18-21
- Average = 51 (All systems); 20 (Musculoskeletal system)

Physical Therapy Data Collection (PTA Blueprint):

- Question range = 29-37 questions (out of the 150 scored, across all systems)
- Question range specific to Musculoskeletal data collection = 12-14 questions
- Average = 33 (All systems); 13 (Musculoskeletal system)

Physical Therapy Examination (PT) or Data Collection (PTA)

Tests and Measures (EBP):

- Goniometry
- Muscle testing
- Standardized tests or Outcome measures (e.g., DASH, Oswestry, Harris Hip Score, KOOS)
- Pain scales (e.g., numeric rating, VAS, Faces, McGill)
- Special tests = focus of today's webinar



- Hawkins-Kennedy impingement test
- Jobe (empty can) test
- Drop arm test



Hawkins-Kennedy Impingement Test

For: Shoulder impingement - typically involving the supraspinatus tendonPatient position: Sitting or standing

Test: Examiner passively flexes the patient's shoulder to 90 degrees, then medially rotates the shoulder

Positive: Reproduction of shoulder pain

*Note: Hawkins-Kennedy test considered to have higher **sensitivity** (true positive rate)





For: Shoulder impingement (supraspinatus tendon)

Patient position: Sitting or standing

Test: Examiner elevates the patient's shoulder to 90 degrees of abduction (in the scapular plane) with the elbow extended and internal (medial) rotation of the shoulder, then applies resistance in a downward direction (patient attempts to hold position)

Positive: Reproduction of shoulder pain



For: Rotator cuff tear (most commonly supraspinatus)

Patient position: Sitting or standing

Test: Examiner passively abducts the shoulder to 90 degrees and asks the patient to slowly lower the arm back down to their side

Positive: Inability to slowly lower the arm or presence of severe pain

*Note: The larger the rotator cuff tear, the more sensitive the test is



- Neer impingement test (for supraspinatus lesion) considered to have higher specificity (true negative rate)
- Lift off sign (for subscapularis lesion)
- Lateral rotation lag sign (for infraspinatus lesion)



- Speed's test
- Yergason's test
- Ludington's test



Speed's Test

For: Bicipital tendonitis

Patient position: Sitting or standing with the elbow extended and the forearm supinated

Test: Examiner places one hand over the bicipital groove and the other hand on the volar surface of the forearm and resists active shoulder flexion

Positive: Pain or tenderness in the bicipital groove region





For: Bicipital tendonitis

Patient position: Sitting with 90 degrees of elbow flexion, the forearm pronated, and humerus stabilized against patient's thorax

Test: Examiner places one hand on the patient's forearm and the other hand over the bicipital groove. The patient is directed to actively supinate and laterally rotate against resistance.

Positive: Pain or tenderness in the bicipital groove (reproducible clicking sensation may indicate **damage to transverse humeral ligament**)



For: Rupture of the long head of the biceps

Patient position: Sitting or supine and patient is asked to clasp both hands behind the head with the fingers interlocked

Test: Examiner palpates the biceps tendon and instructs the patient to alternately contract and relax the biceps muscles

Positive: Absence of movement in the bicep tendon on the involved side



- Apprehension test for anterior dislocation
- Apprehension test for posterior dislocation
- Sulcus sign (inferior instability)

Apprehension Test (Anterior Dislocation)

For: Anterior shoulder dislocation

Patient position: Supine with the shoulder in 90 degrees of abduction and 90 degrees of elbow flexion

Test: Examiner laterally rotates the patient's shoulder

Positive: A look of apprehension or a facial grimace prior to reaching an end point



Apprehension Test (Posterior Dislocation)

For: Posterior shoulder dislocation

Patient position: Supine with the shoulder in 90 degrees of flexion with medial rotation and the elbow in 90 degrees of flexion

Test: Examiner places one hand underneath the scapula for stabilization and applies a posterior force through the long axis of the humerus

Positive: A look of apprehension or a facial grimace prior to reaching an end point



For: Inferior shoulder instability

Patient position: Standing or sitting with the arm supported in 20-50 degrees of abduction

Test: Examiner grasps the patient's elbow and pulls the arm inferiorly

Positive: Depression seen between the acromion and humeral head (graded by measuring the vertical length of the depression: 1+ = < 1 cm, 2+ = 1-2 cm, and 3+ = > 2 cm)



- Adson maneuver
- Roos test



For: Thoracic outlet syndrome

Patient position: Sitting or standing with arms placed at 15 degrees of abduction

Test: Examiner monitors the radial pulse and asks the patient to rotate their head to face the test shoulder. The patient is asked to extend their head while the therapist laterally rotates and extends the patient's shoulder.

Positive: Absent or diminished radial pulse; patient may report reproduction of paresthesia



For: Thoracic outlet syndrome

Patient position: Sitting or standing with the arms positioned in 90 degrees of abduction, lateral rotation, and elbow flexion

Test: The patient is asked to open and close their hands for 3 min

Positive: Inability to maintain the test position, weakness of the arms, sensory loss or ischemic pain



- Allen test (head rotated away from test arm)
- Costoclavicular test (military brace test)
- Wright test (hyperabduction test)

*Note: Radial pulse is monitored for all of the above tests

Miscellaneous Shoulder Special Tests

Glenoid labral tests:

- ✓ Clunk test traditional glenoid labrum tear test
- ✓ Crank test axial loading applied to humerus with rotation
- ✓ Jerk test identifies **posterior** labral lesion
- ✓ O'Brien (active compression test) two-part test with downward force applied in IR (increases pain), then ER (decreases pain) may indicate superior labral tear (SLAP lesion)
- Upper limb tension tests neural provocation maneuvers



- Valgus stress test
- Varus stress test



For: Medial (ulnar) collateral ligament sprain

Patient position: Sitting with the elbow in 20-30 degrees of flexion

Test: Examiner places one hand on the elbow and the other hand proximal to the patient's wrist and applies a valgus force (**ulna abduction**) while palpating the medial joint line

Positive: Increased laxity in the MCL, apprehension or pain



For: Lateral (radial) collateral ligament sprain

Patient position: Sitting with the elbow in 20-30 degrees of flexion

Test: Examiner places one hand on the elbow and the other hand proximal to the patient's wrist and applies a varus force (**ulna adduction**) while palpating the lateral joint line

Positive: Increased laxity in the LCL, apprehension or pain



- Cozen's test (good sensitivity)
- Maudsley or lateral epicondylitis test (good sensitivity)
- Mill's test (poor sensitivity, but high specificity)
- Medial epicondylitis test



For: Lateral epicondylitis/epicondylalgia (tennis elbow)

Patient position: Sitting with the elbow in slight flexion

Test: Examiner places their thumb on the patient's lateral epicondyle while stabilizing the elbow joint. The patient is asked to make a fist, pronate the forearm, radially deviate, and extend the wrist against resistance

Positive: Pain in the lateral epicondyle region or muscle weakness



- **For:** Lateral epicondylitis/epicondylalgia (tennis elbow)
- Patient position: Sitting with the elbow in flexion
- **Test:** Examiner palpates the lateral epicondyle, pronates the patient's forearm, flexes the wrist, and extends the elbow
- **Positive:** Reproduction of pain in the lateral epicondyle region



- **For:** Lateral epicondylitis/epicondylalgia (tennis elbow)
- Patient position: Sitting with the elbow in flexion
- **Test:** Examiner stabilizes the elbow with one hand and places the other hand on the dorsal aspect of the patient's hand distal to the PIP joint. The patient is asked to extend the **third digit** against resistance.
- **Positive:** Reproduction of pain in the lateral epicondyle region



For: Medial epicondylitis/epicondylalgia (golfer's elbow)

Patient position: Sitting

Test: Examiner palpates the medial epicondyle and supinates the patient's forearm, extends the wrist, and extends the elbow

Positive: Reproduction of pain in the medial epicondyle region



- Elbow flexion test (cubital tunnel syndrome)
- Pinch grip test (anterior interosseous nerve = motor branch of median nerve)
- Tinel's sign (ulnar nerve compression)



- Ligamentous instability tests
- Vascular insufficiency (e.g., Allen test)
- Neurological dysfunction (e.g., Phalen's test, Tinel's sign, Froment's sign)
- Miscellaneous (e.g., Finkelstein test, grind test, Murphy sign)

Contracture/Tightness (Muscle Length Tests LE)

- Ely's test (rectus femoris)
- Ober's test (TFL/ITB)
- Thomas test (iliopsoas)
- Tripod sign and 90-90 SLR (hamstrings)

Muscle Length Tests (Hip)



Pediatric Tests for Hip Instability (Congenital Hip Dysplasia)

- Barlow's test (clunk felt due to hip dislocating)
- Ortolani's test (clunk felt due to reduction of dislocation)





Miscellaneous Hip Tests

- Anterior labral tear or FADIR test (anterior labral tear or anterior-superior impingement)
- Craig's test (degree of femoral anteversion)
- Patrick's or FABER test (hip, iliopsoas or sacroiliac dysfunction)
- Quadrant scouring test (arthritis or avascular necrosis)
- Trendelenburg test (gluteus medius)





Trendelenburg Sign Drop of pelvis when lifting leg opposite to weak gluteus medius



Trendelenburg Sign vs. **Trendelenburg Gait**

- It will always be the gluteus medius of the stance limb that is weak!
- Contralateral (opposite) side) pelvic drop = Trendelenburg sign
- Lateral trunk lean toward weak stance limb = Trendelenburg gait



- Lachman test and anterior drawer test (ACL)
- Posterior drawer test and posterior sag sign (PCL)
- Valgus stress test (MCL)
- Varus stress test (LCL)

Ligamentous Instability (ACL)







- Apley's compression test (prone)
- McMurray test (supine)
- Thessaly test (standing)
- Joint line tenderness (adds to sensitivity of tests)



- Clarke's sign (patellofemoral dysfunction)
- Noble compression test (ITB friction syndrome)
- Patellar apprehension test (subluxation or dislocation)
- Patellar tap test/ballotable patella (joint effusion)



- Anterior drawer test (anterior talofibular ligament sprain)
- Talar tilt test (calcaneofibular ligament sprain)
- Lateral rotation stress (Kleiger) test (high ankle sprain or deltoid ligament sprain depending on location of pain)



- Thompson test (ruptured Achilles tendon)
- Tibial torsion test (normal lateral rotation of tibia = 12 to 18 degrees in an adult)
- Navicular drop test (quantifies amount of foot pronation)



- Cervical flexion rotation test (atlantoaxial dysfunction or provocative test for cervicogenic headache)
- Spurling or foraminal compression test (cervical radiculopathy)
- Distraction test (cervical radiculopathy)
- Vertebral artery test (vertebral artery insufficiency)



- Sacroiliac joint stress test (sacroiliac joint dysfunction)
- Sitting or standing flexion test (articular restriction of SIJ)
- Slump test (neural tension)
- Straight leg raise test (neural tension or disc herniation)

Conclusion



- Focus on "bigger ticket" items
 Utilize active learning techniques to assist in retention of these tests
- Make the association of special tests with their relevant clinical diagnoses





A physical therapist positions a patient to perform the drop arm test. Which of the following pathologies would **MOST** likely increase the sensitivity of this test?

- 1) Small rotator cuff tear
- 2) Large rotator cuff tear
- 3) Complete biceps tendon tear
- 4) Partial biceps tendon tear





A physical therapist examines a patient who sustained a shoulder injury. Which of the following tests would be the **MOST** sensitive for confirming a suspected labral tear?

- 1) Clunk test
- 2) Sulcus sign
- 3) Hawkins-Kennedy test
- 4) Speed's test



A physical therapist performs a special test on a patient who sustained a knee injury during a football game. Which of the following tests would be the **MOST** appropriate if the therapist wants to confirm a suspected isolated grade II sprain of the medial collateral ligament?

- 1) McMurray test performed with the knee fully flexed
- 2) McMurray test performed with the knee in full extension
- 3) Valgus stress test with the knee in full extension
- 4) Valgus stress test with the knee flexed to 20-30 degrees



A physical therapist prepares to examine a patient with a suspected grade III sprain of the anterior cruciate ligament. Which of the following special tests is considered the **MOST** appropriate for detecting this type of injury in the acute phase?

- 1) Anterior drawer
- 2) Pivot shift
- 3) Lachman
- 4) Posterior sag sign



A physical therapist assistant uses the positioning of a special test for lateral epicondylitis to perform static stretching to the wrist extensors. Which of the following special tests would the assistant utilize to **BEST** accomplish this objective?

- 1) Mill's test
- 2) Cozen's test
- 3) Maudsley test
- 4) Elbow flexion test



After performing several manual muscle tests of the hand, a physical therapist suspects a patient is experiencing an ulnar nerve palsy. Which of the following special tests would **BEST** confirm the therapist's hypothesis?

- 1) Finkelstein test
- 2) Tinel's sign
- 3) Froment's sign
- 4) Bunnel-Littler test





A physical therapist examines a patient with an ankle injury. Which of the following special tests would **BEST** confirm a suspected tear of the calcaneofibular ligament?

1) Ankle anterior drawer test

- 2) Talar tilt test
- 3) Kleiger test
- 4) Navicular drop test



Questions?





Feedback? Let Us Know!

We would love to get your general feedback on today's session and ideas for subject matter for future Spotlight Sessions!





Good Luck and Thanks for Tuning In!

Visit our website <u>www.scorebuilders.com</u> for more information on

our entire PT and PTA product line.

