

THORACIC & LUMBAR

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Slump Test 1 (ST1)

Cervical Spine: Flexion

Thoracic & Lumbar Spine: Flexion (slump)

Hip: Flexion ($90^{\circ}+$)

Knee: Extension

Ankle: Dorsiflexion

Foot: ---

Toes: ---

Nerve Bias: Spinal Cord, Cervical and Lumbar Nerve
Roots, Sciatic Nerve

Slump Test 2 (ST2)

Cervical Spine: Flexion

Thoracic & Lumbar Spine: Flexion (slump)

Hip: Flexion ($90^{\circ}+$), Abduction

Knee: Extension

Ankle: Dorsiflexion

Foot: ---

Toes: ---

Nerve Bias: Obturator Nerve

Side Lying Slump Test (ST3)

Cervical Spine: Flexion

Thoracic & Lumbar Spine: Flexion (slump)

Hip: Flexion (20°)

Knee: Flexion

Ankle: Plantar flexion

Foot: ---

Toes: ---

Nerve Bias: Femoral Nerve

Long Sitting Slump Test (ST4)

Cervical Spine: Flexion, Rotation

Thoracic & Lumbar Spine: Flexion (slump)

Hip: Flexion ($90^{\circ}+$)

Knee: Extension

Ankle: Dorsiflexion

Foot: ---

Toes: ---

Nerve Bias: Spinal Cord, Cervical and Lumbar Nerve
Roots, Sciatic Nerve

Straight Leg Raising Test (SLR Basic)

Hip: Flexion + Adduction

Knee: Extension

Ankle: Dorsiflexion

Foot: ---

Toes: ---

Nerve Bias: Sciatic Nerve and Tibial Nerve

Other Name: Lasegue's Test

Straight Leg Raising Test 2 (SLR2)

Hip: Flexion

Knee: Extension

Ankle: Dorsiflexion

Foot: Eversion

Toes: Extension

Nerve Bias: Tibial Nerve

Straight Leg Raising Test 3 (SLR3)

Hip: Flexion

Knee: Extension

Ankle: Dorsiflexion

Foot: Inversion

Toes: ---

Nerve Bias: Sural Nerve

Straight Leg Raising Test 4 (SLR4)

Hip: Flexion and Medial Rotation

Knee: Extension

Ankle: Plantar Flexion

Foot: Inversion

Toes: ---

Nerve Bias: Common Peroneal Nerve

Cross Straight Leg Raising Test (SLR5)

Hip: Flexion

Knee: Extension

Ankle: Dorsiflexion

Foot: ---

Toes: ---

Nerve Bias: Nerve Root (disc prolapse)

Basic Prone Knee Bending Test (PKB1)

Cervical Spine: Ipsilateral Rotation

Thoracic & Lumbar Spine: Neutral

Hip: Neutral

Knee: Flexion

Ankle: ---

Foot: ---

Toes: ---

Nerve Bias: Femoral Nerve, L2-L4 nerve roots

Prone Knee Bending Test (PKB2)

Cervical Spine: Ipsilateral Rotation

Thoracic & Lumbar Spine: Neutral

Hip: Extension, Adduction

Knee: Flexion

Ankle: ---

Foot: ---

Toes: ---

Nerve Bias: Lateral Femoral Cutaneous Nerve

Other Name: Nachlas Test

Prone Knee Extension Test (PKE)

Cervical Spine: ---

Thoracic & Lumbar Spine: Neutral

Hip: Extension, Abduction, Lateral Rotation

Knee: Extended

Ankle: Dorsiflexion

Foot: Eversion

Toes: ---

Nerve Bias: Saphenous Nerve

Sitting Root Test

Px: Short sitting, neck flexed

(+) sign: Arch back, pain on the buttock, posterior thigh, and calf.

Significance: Tension on Sciatic Nerve, True Sciatic pain

Procedure:

Passively extend the knee

* a modification of Slump Test

Bechterewis Test

Px: Flex neck, extend knee

(+) sign: Pain in the back or leg

Significance: Sciatica

Procedure:

Ask the patient to extend the knee one at a time, and then both.

* A modification of Sitting Root Test

Bowstring Test

Px: Supine or Sitting

(+) sign: Radicular pain (sciatic tension test or Deyerle's Sign)

Significance: Sciatica

Procedure:

Flex the hip at pain range, then flex the knee at 20°, apply pressure on the popliteal area.

Other Name: Cram Test, Popliteal Pressure Sign.

Compression Test

Px: Supine; hip flex (100°); knee flex

(+) sign: Radicular Pain on Posterior Leg

Significance: Disc Herniation

Procedure:

Apply axial compression to the spine by applying direct pressure on the patient's feet or buttocks.

Flip Sign

Px: sitting, then supine

(+) sign: Pain (on both tests)

Significance: Sciatic

Procedure:

Px in sitting: extend knee

Px in supine: unilateral straight leg raising test

Babinski Test

Px:

(+) sign: Extension of big toe and abduction of the other toes.

Significance: Upper Motor Neuron Lesion

Procedure:

Run a pointed object along the plantar aspect of the px's foot.

Oppenheim Test

Px:

(+) sign: Extension of big toe and abduction of the other toes

Significance: Upper Motor Neuron Lesion

Procedure:

Run a fingernail along the crest of the tibia

Gluteal Skyline Test

Px: Prone; head straight; arms at the side

(+) sign: Flat gluteus muscle=atrophied | less contraction

Significance: damage to the Inferior Gluteal nerve,
pressure on L5, S1 or S2 nerve roots.

Procedure:

Stand on the px's feet and observe the buttock. Then ask the px to contract the buttocks

H & I Stability Test

Px: Standing

(+) sign: pain on at least 2 segments on the same quadrant | Pain on 1 segment only and 1 quadrant

Significance: Hypomobile | Instability

Procedure:

Stabilize the pelvis and other hand in shoulder.

“H”: side-flex, forward flex then extend, neutral, repeat with other side.

“I”: Forward flex, side bending, neutral, repeat with extension.

Specific Lumbar Spine Torsion Test

(example: left L5-S1)

Px: Right Side-Lying with slight extension of lumbar spine

(+) sign: minimal movement is felt, right capsular tissue stretch

Significance: Stress on the Specific Levels

Procedure:

Grasp the left arm then pull upward/forward (45°) then stabilize L5 spinous process by holding the left shoulder back with the PT's elbow while rotating the pelvis and sacrum forward until S1 starts to move with the opposite hand.

Farfan Torsion Test

Px: Prone

(+) sign: Reproduction of Symptoms

Significance: Stress the facet jt.. Jt. Capsule, Interspine/supraspine ligament, neural arch, longitudinal lig. and disc.

Procedure:

Stabilize the ribs and spine (T12), then the other hand is placed on the anterior aspect of ilium

Pheasant Test

Px: Prone

(+) sign: Pain

Significance: Lumbar Spine Instability

Procedure:

Apply pressure on the lumbar spine, then passively flex the knee until the heel touches the buttocks.

One Leg Standing Lumbar Extension Test

Px: One leg stand

(+) sign: Pain

Significance: Spondylolisthesis

Procedure:

Instruct px to extend the spine while balancing on one leg.

*If rotation is combined with extension = Facet Joint pathology on which the rotation occurs.

Other Name: Stork Standing Test

Quadrant Test

Px: Standing

(+) sign: Pain or Reproduction of Symptoms

Significance: Facet Joint Pathology

Procedure:

Extend the px's spine, apply overpressure. Px side flexes and rotates to the affected side.

Shober's Test

Px: Standing

(+) sign: difference between the two measurements

Significance: Lumbar Spine Mobility

Procedure:

Mark the following points:

- a. S2 – Point of reference
- b. 5cm/2inches below
- c. 10cm/4inches above

measure the distance between the 3 points. Ask px to forward flex (fingers touching his toes), then measure the distance.

Yeoman's Test

Px: Prone

(+) sign: Pain

Significance: Sacroiliac Joint Dysfunction

Procedure:

Stabilize the pelvis then extend the hip, with knee flexed and extended

Milgram's Test

Px: Supine

(+) sign: Cannot hold the position or Reproduction of Symptoms

Significance: Sacroiliac Joint Dysfunction

Procedure:

Instruct px to lift his legs from the table ~ 2-4in (5-10cm) and hold the position for 30 secs.

Beevor's Sign

Px: Supine, hands behind the head

(+) sign: The umbilicus does not remain in a straight line

Significance: Abdominal Muscle Paralysis

Procedure:

Px flexes the head against resistance, coughs, or attempts to sit up.

Stoop Test

Px: Sitting or Standing

(+) sign: Relief of Pain

Significance: Neurogenic Intermittent Claudication

Procedure:

After brisk walking, px feels pain in the buttock and lower limb. Px flexes forward

Treadmill Test

Px: on the treadmill

(+) sign: severe symptoms

Significance: Intermittent Claudication

Procedure:

Two trials are conducted:

- a. 1.2mph
- b. Preferred walking speed

Px walks upright on the treadmill for 15mins/onset of symptoms.

Time to 1st symptoms, total ambulatory time, and precipitating symptoms are recorded

Hoover's Test

Px: Supine

(+) sign: If the opposite hand doesn't feel any pressure

Significance: Malingering

Procedure:

Place 1 hand under each calcaneus and ask the px to lift one leg off of the table

Burn's Test

Px: Kneeling on the chair

(+) sign: Unable to do / overbalances

Significance: Malingering

Procedure:

Bend forward to touch the floor with the fingers

Sign of the Buttock

Px: Supine

(+) sign: Hip flexion doesn't increase

Significance: Pathology in the buttock (tumor, bursitis, abscess)

Procedure:

Perform passive unilateral straight leg raising test until restriction. Then Flex the px's knee

PELVIS

- Straight Leg Raising Test
- Prone Knee Bending Test
- Flamingo Test
- Gaenslen's Test
- Gillet's Test
- Yeoman's Test
- Leg Length Test
- Functional Limb Length Test
- Sign Of The Buttock
- Trendelenburg's Test

Straight Leg Raising Test

Px: Supine

(+) sign: Pain $>70^{\circ}$ | $> 120^{\circ}$ (hypermobile)

Significance: Sacroiliac Joint Pathology

Procedure:

Flex the px's hip with the knee extended

Other Name: Lasègue's Test

Prone Knee Bending Test

Px: Prone

(+) sign: Pain in:

- a. Front of the Thigh
- b. Lumbar Spine
- c. $< 90^{\circ}$

Significance:

- a. Rectus Femoris Tightness
- b. L3 nerve root lesion
- c. Sacroiliac Jt. Pathology

Procedure:

Flex the knee until the heel touches the buttocks

Other Name: Nachlas Test

Flamingo Test

Px: One Leg Standing

(+) sign: Pain on Pubic Symphysis or SI joint

Significance: Lesion on the Structure

Procedure:

Ask the px to do a one leg stand.

*px may hop, increasing the stress on pubic symphysis = Stress X-ray

Gaenslen's Test

Px: Side-lying or Supine

(+) sign: Pain

Significance: Ipsilateral Sacroiliac joint lesion, Hip Pathology,
L4 nerve root lesion

Procedure:

Px holds the lower leg flexed against the chest. Stabilize the hip while hyper extension on the upper leg.

Gillet's Test

Px: Standing

(+) sign: SI jt moves minimally or up

Significance: Hypomobile

Procedure:

Palpate PSIS and ask px to stand on one leg while pulling the opposite knee towards the chest

Other Name: Sacral Fixation Test

Yeoman's Test

Px: Prone

(+) sign: Pain on SI jt. | Lumbar Pain | Ant. Thigh
Paresthesia

Significance: Anterior SI lig. | Lumbar Pathology |
Femoral Nerve Stretch (L2-L4)

Procedure:

Flex the knee to 90° , then extend the hip

Leg Length Test

Px: Supine

(+) sign: >1-1.3cm (0.5-1in)

Significance: Leg Length Discrepancy

Procedure:

True Leg Length = measure the ASIS to Lateral Malleolus

ALL = measure umbilicus to Medial Malleolus

Functional Limb Length Test

Px: Standing

(+) sign: asymmetry is corrected by correct positioning

Significance: Functional Leg Length Discrepancy

Procedure:

Palpate for the ASIS and PSIS and px is placed in “correct” stance (subtalar joints neutral, knees fully extended, and toes facing straight ahead)

Sign of the Buttock

Px: Supine

(+) sign: Hip flexion does not increase

Significance: Pathology in the Buttock (tumor, bursitis, abscess)

Procedure:

Passive unilateral SLR until restriction, then flex the knee

Trendelenburg's Test

Px: One leg Stance

(+) sign: pelvis falls on the non stance stand

Significance: weakness of the gluteus medius muscle,
superior gluteal nerve lesion, L4-S1 lesion

Procedure:

ask the px to do a one leg stance. Observe the px

HIP

- Ortalani's Sign
- Barlow's Test
- Galeazzi Sign
- Telescoping Sign
- Abduction Test
- Patrick's Test
- Anterior Labral Tear Test
- Craig's Test
- Torque Test
- Nelaton's Line
- Bryant's Triangle
- Rotational Deformities
- Thomas Test
- Rectus Femoris Contracture Test (Method 1)
- Ely's Test (Method 2)
- Ober's test
- Adduction Contracture Test
- Abduction Test Contracture Test
- Prone Lying Test for Iliotibial band contracture
- Noble compression test
- Piriformis test
- Hamstring contracture test (method 1)
- Tripod sign (method 2)
- 90-90 SLR test (method 3)
- Phelp's Test
- Fulcrum Test

Ortolani's Sign

Px: Supine

(+) sign: feels clunk, clink or jerk

Significance: Congenital Hip Dislocation

Procedure:

Grasp the thigh and leg with the thumb on the medial knee and the fingers alongside the thigh and hip. Flex the hip to 90° , then abduct while lifting it forward

*up to 12wks–6mos.

Barlow's Test

Px: Supine

(+) sign: feels clunk, clink or jerk

Significance: Congenital Hip Dislocation

Procedure:

Grasp the thigh and leg with the thumb on the medial knee and the fingers alongside the thigh and hip. Flex the hip to 90° , then abduct then adduct while pushing downward

*up to 12wks–6mos.

Galeazzi Sign

Px: Supine

(+) sign: One knee is Higher

Significance: Unilateral Congenital Hip Dislocation

Procedure:

Hip and knee is flexed to 90° with feet flat on the table

Other Name: Allis Test

*up to 3–18mos.

Telescoping Sign

Px: Supine; Hip and knee flexed to 90°

(+) sign: Excessive mov't upon lifting up
(pistoning/telescoping)

Significance: Congenital Hip Dislocation

Procedure:

Femur is pushed down onto the table. Femur and leg is then lifted up and away the from the table

Other Name: Piston Test, Dupuytren's Test

Abduction Test

Px: Supine

(+) sign: Asymmetry or Limitation of Movement

Significance: Congenital Hip Dislocation

Procedure:

Hip and knee is flexed to 90° , then abducted

Other Name: Hart's Sign

Patrick's Test

Px: Supine

(+) sign: Test leg's knee remains above the opposite straight leg

Significance: Hip jt. Pathology, Iliopsoas spasm, SI jt. pathology

Procedure:

Place the test leg on top of the other leg (FABER). Slowly lower the knee of the test leg.

Other Name: Faber Test, Figure-Four Test, Jansen's Test

Anterior Labral Tear Test

Px: supine

(+) sign: Pain with or without click

Significance: Hip Joint Pathology

Procedure:

Place hip into full FABER, then to EADIR

Other Name: FADDIR Test

Craig's Test

Px: Prone with knee flexed 90°

(+) sign: > 15°

Significance: Anteversion of Hip

Procedure:

Palpate greater trochanter then medially and laterally rotate the hip until the greater trochanter is parallel to the examining table or it reaches it's most lateral position.

Other Name: Ryder Method

Torque Test

Px: Supine, with the test leg over the edge of the table

(+) sign: Yield

Significance: Hip Jt. Pathology

Procedure:

Extend the leg until the pelvis moves. Medially rotate up to end range while applying a slow posterolateral pressure along the line of the neck of the femur for 20secs.

Nelaton's Line

Px: Supine

(+) sign: Greater trochanter is palpated above the line

Significance: Hip Dislocation or Coxa Vara

Procedure:

draw an imaginary line from the ischial tuberosity of the pelvis to the ASIS of the pelvis on the same side.

Bryant's Triangle

Px: Supine

(+) sign: Difference in measurement

Significance: Congenital Dislocation of Hip or Coxa Vara

Procedure:

Draw imaginary lines:

1st – perpendicular from the ASIS to the PSIS

2nd – tip of greater trochanter to ASIS

Rotational Deformities

Px: Supine

(+) sign: Face in | face up, out, away

Significance: Internal Rotation of femur or tibia |
External Rotation of femur or tibia

Procedure:

Observe the patella

Thomas Test

Px: supine

(+) sign: knee of the other leg rises off the table | abduction of the other leg (“J” sign or Stroke)

Significance: Iliopsoas muscle contracture | Tight Iliotibial Band

Procedure:

Flex hip bringing the knee to the chest.

Kendall's Test

Px: Supine with knee bent over the edge of the table

(+) sign: slight extension of the other leg

Significance: Rectus Femoris muscle contracture

Procedure:

Px flexes one knee (90°) onto the chest and holds it

Other: Rectus Femoris Contracture Test (Method 1)

Ely's Test

Px: Prone

(+) sign: Spontaneous ipsilateral hip flexion

Significance: Rectus Femoris Muscle Tightness

Procedure:

Passively flex the px's knee

Other Name: Tight Rectus Femoris Test (Method 2)

Ober's Test

Px: Side-lying with lower leg flexed

(+) sign:

- a. Leg remain abducted (with knee extended)
- b. Pain radiated (with knee flexed)
- c. Localized pain

Significance:

- a. Tenson Fascia Latae / Iliotibial Band Contracture
- b. Femoral Nerve Involvement
- c. Trochanteric Bursitis

Procedure:

Abduct and extend the upper leg with the knee flexed (90°) or extended, then slowly lower the upper leg.

Adduction Contracture Test

Px: Supine

(+) sign: ASIS forms an angle $< 90^\circ$, and Pelvis shifts up on affected side

Significance: Adductor Muscles contracture (adductor longus, brevis and magnus, pectineus, and gracilis)

Procedure:

Check for the assymetry of ASIS and balance the pelvis

Abduction Contracture Test

Px: Supine

(+) sign: ASIS forms and angle $> 90^{\circ}$, and Pelvis shifts down on the affected side

Significance: Abductor Muscles Contracture (Gluteus Medius and Minimus)

Procedure:

Check for the asymmetry of ASIS and balance the pelvis

Prone Lying Test for ITB Contracture

Px: Prone

(+) sign: Firm End-feel

Significance: Iliotibial and Contracture

Procedure:

Stand on the opposite side. With one hand, hold the ankle and maximally abduct while applying pressure to the buttock with the other hand. Knee is flexed 90°, adduct the hip.

Noble Compression Test

Px: Supine; Knee flexed 90°; Hip flexed 90°

(+) sign: Localized pain at 30° knee flexion

Significance: Iliotibial Band Friction Syndrome

Procedure:

Apply pressure to the lateral femoral epicondyle or 1-2cm proximal to it while the px slowly extends the knee

Piriformis Test

Px: Side-lying; upper leg in 60° hip flexion; flex knee

(+) sign: Pain in groin | Pain in buttock

Significance: Piriformis muscle tightness | piriformis syndrome

Procedure:

Stabilize pelvis with one hand and the other applies downward pressure to the knee

90-90 SLR Test

Px: Supine; hip and knee 90° flexion

(+) sign: 20°- 0° knee extend

Significance: Hamstrings muscle contracture, or sciatica

Procedure:

Px Alternately extends the knee

Other Name: Hamstring Contracture Test (Method 1)

Hamstring Contracture Test (Method 2)

Px: Long-sitting; 1 knee flexed against the chest

(+) sign: Unable to reach the toes

Significance: Tight Hamstrings muscle

Procedure:

Flex the trunk and touch the toes of the extended lower limb.

Tripod Sign

Px: Short-sitting

(+) sign: Extension of the trunk

Significance: Hamstring muscles are tight, Sciatica

Procedure:

Passively extend the knee

Other Name: Hamstring Contracture Method 3

Phelp's Test

Px: Prone

(+) sign: Abduction increases with knee extension

Significance: Gracilis muscle contracture

Procedure:

Passively abduct both leg as far as possible. Then flex knees 90° and try to abduct further.

Fulcrum Test

Px: Short-sitting

(+) sign: Sharp Pain and Apprehension

Significance: Femoral Shaft Stress, Fracture

Procedure:

Place an arm under px's thigh to act as a fulcrum, then apply pressure to distal femur.

KNEE

- Abduction Test
- Adduction Test
- Lachman Test
- Drawer Sign
- Posterior Sag Sign
- Reverse Lachman Test
- Godfrey Test
- Slocum Test
- Jerk Test Of Hughston
- Cross Over Test Of Arnold
- Hughston's Posteromedial And Posterolateral Drawer Sign
- Loomer's Test
- McMurray Tests
- Apley's Test
- Bounce Home Test
- O'donohue's Test
- Modified Helfet Test
- Test Retreating Or Retracting Meniscus
- Payr's Test
- Bohler's Sign
- Bragard's Sign
- Childress Sign
- Cabot's Popliteal Sign
- Mediopatellar Plica Test
- Plica "Stutter" Test
- Hughston's Plica Test
- Brush, Stroke, Or Bulge Test
- Fluctuation Test
- Patellar Tap Test
- Clarke's Sign
- Waldron Test
- Zohler's Sign
- Furnd's Sign
- Q-angle
- Willson Test
- Fairbank's Apprehension Test
- Noble Compression Test

a. Abduction Test

Px: Short sitting

(+) sign: excessive gapping of the tibia and femur (medial condyle)

Significance: with knee extension, injury to these structures:

- a. Medial collateral ligament
- b. Posterior oblique ligament
- c. Posteromedial capsule
- d. Anterior cruciate ligament
- e. Posterior cruciate ligament
- f. Medial quadriceps expansion
- g. Semimembranosus muscle

Procedure:

Fully extend the knee then apply valgus stress

b. Abduction Test

Px: Supine or Long sitting with the test leg over the edge of the table

(+) sign: excessive gapping of the tibia and femur (medial condyle)

Significance: knee flexed to 20°- 30°, injury to these structures:

- a. Medial collateral ligament
- b. Posterior oblique ligament
- c. Posteromedial capsule

Procedure: anterior cruciate ligament

Fully extend the knee then place in 20°- 30° flexion. Laterally rotate the knee (lock knee) and then apply valgus stress

Stress X-ray:

Gr.1: 5mm opening

Gr.2: 10mm opening

Gr.3: >10mm opening

c. Abduction Test

Px: Supine/Long sitting with the test leg over the edge of the table

(+) sign: excessive gapping of the tibia and femur (medial condyle)

Significance: knee flexed to 20°- 30°, injury to these structures:

a. Medial collateral ligament

b. Posterior oblique ligament

c. Posteromedial capsule

Procedure:
d. Posterior cruciate ligament

Fully extend the knee then place in 20°- 30° flexion. Grasp the big toe (lock knee) and then apply valgus stress

Stress X-ray:

Gr.1: 5mm opening

Gr.2: 10mm opening

Gr.3: >10mm opening

a. Adduction Test

Px: short sitting

(+) sign: excessive gapping of the tibia and femur (Lateral condyle)

Significance: Knee extension, injury to these structures:

- a. Fibular/Lateral collateral ligament
- b. Posterolateral capsule
- c. Arcuate-popliteus complex
- d. Biceps femoris tendon
- e. Posterior cruciate ligament
- f. Anterior cruciate ligament
- g. Lateral gastrocnemius muscle
- h. Iliotibial band

Procedure: Fully extend the knee then apply a varus stress

b. Adduction Test

Px: Supine or long sitting with the test leg over the edge of the table

(+) sign: excessive gapping of the tibia and femur (Lateral condyle)

Significance: Knee in 20°- 30° flexion, injury to these structures:

a. Fibular/Lateral collateral ligament

b. Posterolateral capsule

c. Arcuate-popliteus complex

d. Biceps femoris tendon

e. Iliotibial band

Stress X-ray:

Gr.1: 5mm opening

Gr.2: 8mm opening

Gr.3: >8mm opening

Procedure:

Fully extend the knee then place in 20°- 30° flexion. Apply varus stress on the knee

Lachman Test

Px: Supine

(+) sign: Mushy or Soft End Feel

Significance: Injury to these structures:

- a. Anterior Cruciate Ligament (posterolateral bundle)
- b. Posterior Oblique Ligament
- c. Arcuate-Popliteus Complex

Procedure:

Stabilize the anterior distal thigh and the posteromedial aspect of the proximal leg. Fully extend the knee, then flex to 20°- 30°, laterally rotate the leg and apply anterior tibial translation.

Lachman Test

Modification 1: Short-sitting

Modification 2: Supine with the test knee rests on PT's knee (for small hands)

Modification 3: Supine with the test leg between the arm and thorax (not sufficient)

Modification 4: Supine, eye is level with the knee

Modification 5: Prone (difficult to determine the quality of the end feel)

Modification 6 (active/no touch): Supine with PT's arm under px's knee the ask to extend the knee.

Other Name: Ritchie Test, Trillat Test, Lachman Trillat Test

Drawer Sign

Px: Supine; hip flexed to 45°; knee flexed to 90°

(+) sign: Tibia Moves forward (>6mm on the femur)

Significance: Injury to these structures:

- a. ACL
- b. Posterolateral Capsule
- c. Medial Collateral Ligament
- d. Iliotibial Band
- e. Posterior Oblique Ligament
- f. Arcuate-Popliteus complex injury

Procedure:

Sit on px's foot with both hands clasp around the tibia, then translate it anteriorly.

Posterior Sag Sign

Px: Supine

(+) sign: Step-off sign, thumb sign

Significance: Injury to these structures:

- a. Posterior Cruciate Ligament
- b. Arcuate-Popliteus Complex
- c. Posterior Oblique Ligament
- d. Anterior Cruciate Ligament

Procedure:

Place the px in supine with the hips flexed to 45° and knee flexed to 90°

Reverse Lachman Test

Px: Prone

(+) sign: Mushy or Soft End feel

Significance: Posterior Cruciate Ligament Injury

Procedure:

Stabilize the anterior distal thigh and the anterior proximal leg. Place the knee in full extension the 20^o- 30^o flexion

Godfrey Test

Px: Supine

(+) sign: Posterior Sag of the tibia

Significance: Posterior Cruciate Ligament

Procedure:

Flex the hip and knee to 90°

a. Slocum Test

Px: Supine

(+) sign: Tibia moves forward (Anterolat. Translation)

Significance: Injury to these structures:

- a. Anterior Cruciate Ligament
 - b. Posterolat. Capsule
 - c. Arcuate popliteus complex
 - d. Lateral collateral ligament
 - e. Posterior cruciate ligament
 - f. Iliotibial band injury
- Procedure:
Flex the knee to 80°- 90° with 45° knee flexion, 30° Medial rotation.
Sit on the px's foot then draw the tibia forward

b. Slocum Test

Px: Supine

(+) sign: Tibia moves forward (Anteromedial translation)

Significance: Injury to these structures:

- a. Medial Collateral Ligament
- b. Posterior Oblique Ligament
- c. Posteromedial Capsule
- d. Anterior Cruciate Ligament

Procedure:

Flex the knee to 80° - 90° with 45° knee flexion, 15° Lateral rotation. Sit on the px's foot then draw the tibia forward

Jerk Test of Hughston

Px: Supine

(+) sign: Clunk or jerk at 20°- 30° of knee flexion

Significance: Injury to these structures:

- a. ACL
- b. Posterolateral capsule
- c. Arcuate popliteus complex
- d. Lat. Collateral ligament
- e. PCL
- f. Iliotibial Band

Procedure:

Flex the hip to 45° and knee to 90° then extend while maintaining medial rotation and a valgus stress

Cross Over Test of Arnold

Px: Standing

(+) sign: "Giving Way"

Significance: Injury to these structures:

- a. ACL
- b. Posterolateral capsule
- c. Arcuate popliteus complex
- d. Lat. Collateral ligament
- e. PCL
- f. Iliotibial Band

Procedure:

Instruct px to cross the uninvolved leg in front of the test leg. Step on the involved leg. Asked the px to rotate the upper torso away from the uninvolved leg then is asked to contract the quadriceps muscle.

Hughston's Posteromedial and Posterolateral Drawer Sign

Px: Supine; hip flexed to 45°; knee flexed to 80°- 90°

(+) sign: moves/rotates posteriorly on the medial aspect | moves/rotates posteriorly on the lateral aspect

Significance: Injury to these structures:

- | | |
|--------------------------|------------------------------|
| a. PCL | a. PCL |
| b. POL | b. Arcuate-popliteus complex |
| c. MCL | c. LCL |
| d. Semimembranosus mm | d. Biceps fem tendon |
| e. Posteromedial capsule | e. Posterolat. Capsule |

Procedure:

Sit on the px's foot with both hands clasps around the tibia (slight medial rotation | slight lateral rotation) then translate posteriorly.

Loomer's Test

Px: Supine

(+) sign: excess lateral rotation and posterior sag

Significance: Injury to these structures:

- a. PCL
- b. Arcuate-popliteus complex
- c. LCL
- d. Biceps Fem tendon
- e. Posterolateral capsule
- f. ACL

Procedure:

Flex the hip and knee to 90° , then maximally laterally rotate both tibias.

Mcmurray Test

Px: Supine; knee fully flexed

(+) sign: snap/click with pain

Significance: Meniscus Injury

Procedure:

Medially Rotate the tibia – for lateral meniscus

Laterally Rotate the tibia – for medial meniscus

*modification:

same procedure but with knee extension.

Apley's Test

Px: Prone; knee 90° flexed

(+) sign: pain

Significance:

- a. Ligamentous injury
- b. Meniscus Injury

Procedure:

Stabilize thigh with PT's knee.

- a. Medially/laterally rotate the tibia with distraction
- b. Medially/laterally rotate the tibia with compression

Bounce Home Test

Px: Supine; knee 90° flexed

(+) sign: Rubbery end-feel, pain upon extension on jt.
line

Significance: Torn Meniscus

Procedure:

Cup the heel and allow it to extend passively

O'Donohue's Test

Px: Supine

(+) sign: increase pain on rotation in either or both positions

Significance: Capsular irritation | Meniscus Tear

Procedure:

Flex hip and knee to 90°, medially/laterally rotate the tibia twice, and then fully flex and rotate it both ways again.

Modified Helfet Test

Px: Short Sitting

(+) sign: (-) patella goes laterally when standing

Significance: Cruciate injury | Quadriceps weakness

Procedure:

Examine the patella in sitting and standing positions.

Test For Retreating or Retracting Meniscus

Px: Supine

(+) sign: (-) appear/disappearing meniscus

Significance: Torn meniscus

Procedure:

Flex hip and knee to 90° then medially and laterally rotate the tibia.

Medial Rotation: Appearing

Lateral Rotation: Disappearing

Payr's Test

Px: Supine

(+) sign: pain on the medial jt. line

Significance: Medial/posterior aspect of meniscus
lesion

Procedure:

Position test leg in figure-4 position

Bohler's Sign

Px: Supine

(+) sign: pain

Significance: Meniscus Pathology

Procedure:

Apply valgus/varus stress on the knee

Bragard's Sign

Px: Supine

(+) sign: increase/decrease pain upon doing the procedure

Significance: Meniscus Pathology

Procedure:

Place the px's knee in flexion. Then laterally rotate the tibia and extend the knee = pain and tenderness.

Medially rotate the tibia and flex the knee = decrease pain.

Childress Sign

Px: Standing

(+) sign: Pain, clicking, snapping

Significance: Posterior lesion of meniscus

Procedure:

Instruct px to squat and do the “duck waddle”

Cabot's Popliteal Sign

Px: Supine; Figure-4 position

(+) sign: Pain

Significance: Meniscus Pathology

Procedure:

Ask the px to isometrically straighten the knee while applying resistance.

Mediopatellar Plica Test

Px: Supine

(+) sign: Pain

Significance: Pinching of the edge of the plica b/n the medial femoral condyle and the patella

Procedure:

Flex the knee 30° then push the patella medially with the thumb

Other Name: Mital-Hayden Test

Plica “Stutter” Test

Px: Short-sitting

(+) sign: patella stutters or jumps b/n 60° and 45° of flexion

Significance: Plica Syndrome

Procedure:

Place one finger over one patella and then ask the px to slowly extend the knee

Hughston Test

Px: Supine

(+) sign: Popping of the plica band

Significance: Plica Syndrome

Procedure:

Flex the knee and medially rotate the tibia while pressing the patella medially with the heel of the same hand on the medial condyle. Passively flex and extend the knee

Brush, Stroke or Bulge Test

Px: Supine

(+) sign: Fluid wave bulge on the medial side of the patella

Significance: Swelling (4-8ml extra synovial fluid)

Procedure:

stroke medial side (upwards) of the patella with 1 hand and the other hand on the lateral side (downward)

Other Name: Wipe Test

Fluctuation Test

Px: Supine

(+) sign: Synovial Fluids Fluctuate

Significance: Significant Effusion

Procedure:

place 1 hand above the patella (suprapatellar pouch) and the other hand below the patella. Press down with one hand and then the other hand.

Patellar Tap Test

Px: Supine

(+) sign: Dancing patella

Significance: Swelling

Procedure:

tap on the patella

Other Name: Ballotable Patella

Clarke's Sign

Px: Supine

(+) sign: retropatellar pain / cannot hold the contraction

Significance: Patellofemoral Dysfunction

Procedure:

Press down slightly proximal to the upper pole or the base of the patella. Ask the px to contract the quadriceps muscle while pressing down.

Waldron Test

Px: Standing

(+) sign: count the crepitus with pain (note the amount, location and the ROM)

Significance: Patellofemoral Dysfunction

Procedure:

Palpate the patella and then instruct the patient to perform slow, deep knee bends.

Zohler's Sign

Px: Supine

(+) sign: Pain

Significance: Chondromalacia Patellae

Procedure:

pulls the patella distally and ask the pt to contract quadriceps muscle.

Frund's Test

Px: Short Slitting

(+) sign: Pain

Significance: Chondromalacia Patellae

Procedure:

taps the patella in various knee flexion

Q-angle Test

Px: Supine

(+) sign: a. $< 13^\circ$ | b. $> 18^\circ$

Significance: a. Chondromalacia patellae / patella alta | b. Chondromalacia / subluxing patella, increase femoral anterversion, genu valgum, lateral displacement of tibial tubercle, or increase lateral tibial torsion

Procedure:

Imaginary lines are drawn:

1st line – from ASIS to midpoint of patella

2nd line – from tibial tubercle to midpoint of patella

Other Name: Patellofemoral angle

Wilson Test

Px: Short Sitting

(+) sign: pain lessened/diminished

Significance: Osteochondritis Dissecans of the medial femoral condyle

Procedure:

Px extends the knee with internal rotation of the leg. At 30° of flexion, pain increases and the px is asked to stop the movement and rotate the leg laterally.

Fairbank's Apprehension Test

Px: Supine; knee flexed to 30°

(+) sign: quadriceps muscle contract to bring patella
“into line”

Significance: Patellar dislocation

Procedure:

Carefully and slowly push the patella laterally and
distally

Noble Compression Test

Px: Supine

(+) sign: pain at 30° of knee flexion

Significance: Iliotibial Band Syndrome

Procedure:

Flex the knee up to 90° then press the lateral femoral epicondyle with the thumb then extend the knee.

ANKLE AND FOOT

- Neutral Position Of Talus (Weight Bearing Position)
- Neutral Position Of Talus (Prone)
- Leg Heel Alignment
- Coleman Block Test
- Too Many Toes Sign
- Tibial Torsion (Sitting)
- Tibial Torsion (Supine)
- Tibial Torsion (Prone)
- Anterior Drawer Test Of The Ankle
- Prone Anterior Drawer Test
- Talar Tilt
- Squeeze Test Of The Leg
- Kleiger Test
- Thompson's Test
- Test For Peroneal Tendon Dislocation
- Feiss Line
- Hoffa's Test
- Tinel's Sign At The Ankle
- Duchenne Test
- Morton's Test
- Homan's Sign
- Buerger's Test

Neutral Position Of Talus (Weight Bearing Position)

Px: Standing

(+) sign: Bulging

Significance: Affectation of the Talus

Procedure:

Palpate for the talus (dorsal aspect) then ask the px to rotate the trunk to the right and left

Tibia rotates medially and laterally

Talus pronates and supinates

Neutral Position of Talus (Prone)

Px: Prone with foot dangled over the edge of the table

(+) sign: Talar head bulges Laterally (Supination) /
Medially (Pronation)

Significance: Affectation of the Talus

Procedure:

Grasp over the 4th and 5th metatarsal heads. Palpate for the talus (dorsal aspect) the passively Dorsiflex the foot. Alternately move the foot to supination then pronation.

Leg Heel Alignment

Px: Prone with foot dangled over the edge of the table

(+) sign: $> 8^{\circ}$ of inversion of heel | Eversion of heel

Significance: Hindfoot varus | Hindfoot valgus

Procedure:

1st line - mark the midline of calcaneus

2nd line – 1cm distal to the 1st mark

3rd line – lower third midline of the leg

Coleman Block Test

Px: Standing

(+) sign: Heel is in neutral position | heel is still not in neutral position

Significance: mobile hindfoot | fixed hindfoot inversion

Procedure:

Place 2cm wooden block on the floor and ask the px to stand with their heel and the lateral side of their forefoot on the block

Too Many Toes Sign

Px: Standing

(+) sign: More toes can be seen on the affected side

Significance: Valgus deformity, Forefoot abducted,
increase lateral rotation of tibia

Procedure:

View the px from behind

Tibial Torsion (Sitting)

Px: Short-sitting

(+) sign: Lateral tibial torsion: $> 18^{\circ}$ | $< 13^{\circ}$

Significance: toe-out position | toe-in position

Procedure:

Draw imaginary Lines:

1st line – 2 epicondyles

2nd line – 2 malleoli

Tibial Torsion (Supine)

Px: Supine

(+) sign: Lateral tibial torsion: $> 18^{\circ}$ | $< 13^{\circ}$

Significance: toe-out position | toe-in position

Procedure:

Draw imaginary Lines:

1st line – 2 apices of malleoli

2nd line – heel parallel to the floor

Tibial Torsion (Prone)

Px: Prone; Knee flexed to 90°

(+) sign: Lateral tibial torsion: $> 18^{\circ}$ | $< 13^{\circ}$

Significance: toe-out position | toe-in position

Procedure:

Draw imaginary Lines:

1st line – heel parallel to the floor

2nd line – heel parallel to the thigh

a. Anterior Drawer Test Of the Ankle

Px: Supine; 20° plantar flexion

(+) sign: suction sign (over the anterior talofibular ligament) with minimal pain

Significance: Stress on anterior talofibular ligament injury

Procedure:

Stabilize just above the ankle and draw the talus forward

b. Anterior Drawer Test Of the Ankle

Px: Supine; 20° plantar flexion

(+) sign: greater anterior translation (on lateral die only) = medial rotation of the talus

Significance: Stress on anterior talofibular ligament injury and calcaneofibular ligament

Procedure:

Stabilize just above the ankle and draw the talus forward + inversion

c. Anterior Drawer Test Of the Ankle

Px: Supine; 20° plantar flexion

(+) sign: Greater Anterior Translation

Significance: Torn anterior talofibular ligament and
Calcaneofibular ligament

Procedure:

Stabilize just above the ankle and draw the talus
forward + dorsiflexion

Prone Anterior Drawer Test

Px: Prone with foot dangled over the edge of the table
(+) sign: Excessive anterior movement and “Sucking in”
at the Achilles Tendon

Significance: Ligamentous Instability (Anterior
Talofibular Ligament)

Procedure:

Push the heel steadily forward.

Talar Tilt

Px: Side-lying; knee flexed

(+) sign: Excessive Movement

Significance:

Adduction: stress on torn Calcaneofibular Ligament and/or Anterior Talofibular Ligament

Abduction: stress on Deltoid Ligament (tibionavicular, tibiocalcaneal, posterior tibiotalar ligament)

Procedure:

Tilt the talus from side to side (abduction and adduction)

Squeeze Test of The Leg

Px: Supine

(+) sign: Pain

Significance: Syndesmosis Injury/high ankle sprain

Procedure:

Grasp the lower leg at midcalf and squeeze the tibia and fibula together

Kleiger Test

Px: Short-sitting

(+) sign: Pain with talus displacement (medial) | pain over the anterior or posterior tibiofibular ligaments

Significance: Deltoid Ligament Tear | Syndesmosis

Procedure:

Apply passive lateral rotation to the foot.

Other Name: External Rotation Stress Test

Thompson's Test

Px: Prone / kneels with feet over the edge of the table

(+) sign: absence of plantar flexion

Significance: Ruptured Achilles Tendon

Procedure:

Squeeze the calf muscle

Other Name: Simmond's Test, Sign for Achilles Tendon Rupture)

Test or Peroneal Tendon Dislocation

Px: Prone; knee flexed to 90°

(+) sign: Tendon subluxes from behind the lateral malleolus

Significance: Peroneal Tendon Dislocation

Procedure:

Ask px to actively dorsiflex and plantar flex the ankle along with eversion against resistance.

Feiss Line

Px: Standing but with non-weight bearing

(+) sign: a. Falls 1/3rd

b. Falls 2/3rd

c. Rests on the floor

Significance: a. 1st degree Flat Foot

b. 2nd degree Flat Foot

c. 3rd degree Flat Foot

Procedure:

Mark the apex of Medial Malleolus to plantar aspect of 1st metatarsophalangeal jt. Then palpate the navicular tuberosity. (Normally lies on/close to the line b/n the 2 points)

Hoffa's Test

Px: Prone with feet over the edge of the table

(+) sign: feels less taut

Significance: Calcaneal Fracture

Procedure:

Palpate both the achilles tendon. Instruct px to plantar flex and dorsiflex

Tinel's Sign At The Ankle

Px:

(+) sign: Tingling Sensation

Significance: Peripheral Nerve Injury

Procedure:

Percuss at the anterior tibial branch of the Deep Peroneal Nerve in front of the ankle or the Posterior Tibial Nerve behind the medial malleolus.

Other Name: Percussion Sign

Duchenne Test

Px: Supine with legs straight

(+) sign: Only the Lateral Border plantar flexes

Significance: Lesion of the Superficial Peroneal Nerve,
L4-S1 nerve root

Procedure:

Push up on the head of the 1st metatarsal through the sole (dorsiflex). Px tries to plantarflex

Morton's Test

Px: Supine

(+) sign: Pain

Significance: Stress fracture or neuroma

Procedure:

Grasp the metatarsal heads and squeeze together

Homan's Sign

Px: Supine

(+) sign: Pain in the calf, PALLOR, swelling in the leg,
loss of the dorsalis pedis pulse

Significance: Deep Vein Thrombosis

Procedure:

Passively dorsiflex with the knee extended

Buerger's Test

Px: Supine and sitting

(+) sign: 1-2mins before the color comes back

Significance: Poor arterial blood supply

Procedure:

Elevate the leg at 45° for at least 3 minutes, foot
blanches.

Px is then placed in short-sitting.