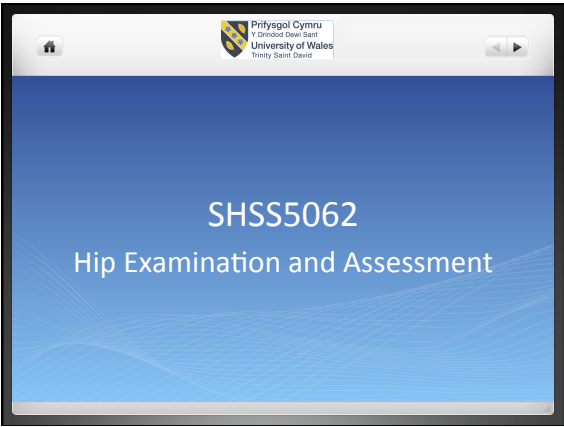
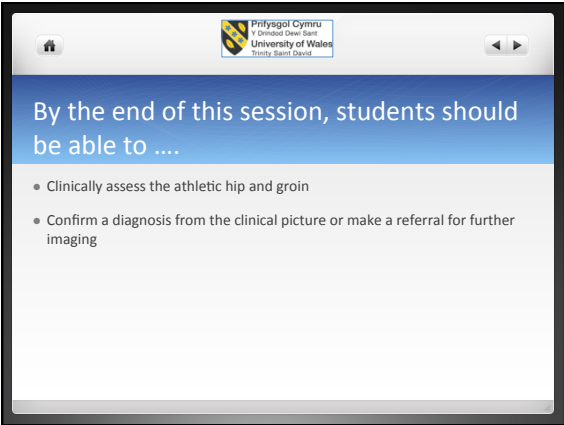
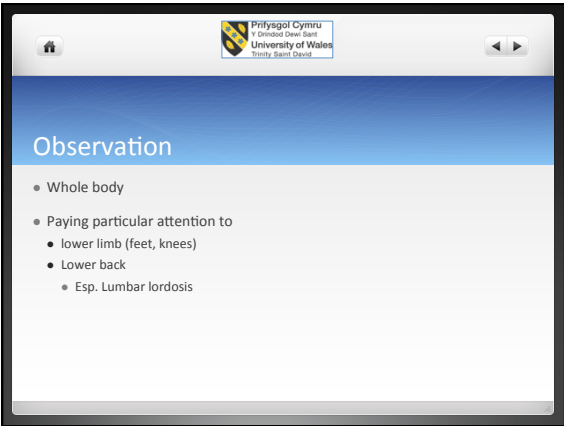










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Quick touch

- Back of hand
- Bilateral comparison
- Over symptomatic area



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Range of Movement

- AROM
 - In supine
 - Flexion
 - Abduction
 - Adduction (?)
 - Medial Rotation
 - Lateral Rotation
 - In prone
 - Extension
- Difficult to always assess the full extent/full range in a symptomatic patient (AROM Flex and Ext would require 6 changes of position!)



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Range of Movement

- PROM
- Passive Overpressure
- End feel
- In supine
 - Flexion (soft)
 - Abduction (springy)
 - Adduction (?)
 - Medial Rotation (springy)
 - Lateral Rotation (springy)
- In prone
 - Extension (may be springy OR bony Lx)



Range of Movement

- RROM
- Passive overpressure that is resisted by Pt EoR
- Can the joint protect itself from excessive ranges?

- In supine
 - Flexion (hip extensors)
 - Abduction (adductors)
 - Adduction (abductors)
 - Medial Rotation (LR)
 - Lateral Rotation (MR)
- In prone
 - Extension (hip flexors)



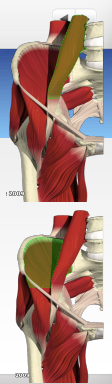
Manual Muscle Tests



- Rectus Femoris
 - O: straight head – AIIS
 - Reflected head – above the acetabulum
 - I: base of the patella, via the patella ligament (tendon) to tibial tuberosity
 - A: Extends Knee, Flexes Hip



Manual Muscle Tests



Iliopsoas

- Psoas Major
 - O: bodies of T12-L5 and anterior aspect of all Lx Transverse processes
 - I: lesser trochanter of femur
 - A: flexes hip and flexes/laterally flexes trunk
- Iliacus
 - O: iliac fossa, sacrum and anterior sacroiliac ligament
 - I: lesser trochanter
 - A: Hip Flexion



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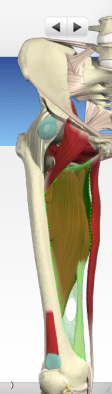


Manual Muscle Tests

- Adductor Brevis
 - O: body and inferior ramus of pubis
 - I: upper half of linea aspera of femur
 - A: Adducts Hip



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Manual Muscle Tests

- Adductor Magnus
 - O: femoral surface of ischiopubic ramus and inferior surface of ischial tuberosity
 - I: linea aspera and medial supracondylar ridge, and adductor tubercle
 - A: Adducts and Extends Hip



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Manual Muscle Tests

- Adductor Longus
 - O: anterior aspect body of pubis
 - I: Middle half of linea aspera of femur
 - A: Adducts Hip



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Manual Muscle Tests

Gluteus Medius and Minimus

- Glute Med
 - O: gluteal surface of ilium and covering fascia
 - I: superolateral surface of greater trochanter
 - A: Abducts and Medially Rotates Hip
- Glute Min
 - O: Deep to gluteus medius
 - I: Anterosuperior aspect of greater trochanter
 - A: Abducts and Medially Rotates Hip



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Manual Muscle Tests

- Tensor Fascia Latae
 - O: ASIS to iliac crest
 - I: iliotibial band (ITB) to lateral tibial condyle (Gerdy's)
 - A: Abducts and Medially Rotates Femur (weak extensions of knee)



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Manual Muscle Tests

Hamstrings (over the hip)

- O: Ischial Tuberosity
 - Semi membranosus
 - Upper lateral facet
 - Biceps Femoris
 - Long head lower medial facet
 - Semi Tendinosus
 - Lower medial facet
- I: as per knee!
- A: Extend hip (flexors of knee)

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Manual Muscle Tests

- **Gluteus Maximus**
 - **O:** gluteal surface and border of ilium, iliac crest, posterior aspect of sacrum, coccyx, sacrotuberous ligament, and erector spinae fascia
 - **I:** gluteal tuberosity of femur and Iliotibial Tract
 - **A:** Extends, Laterally Rotates Hip, assists in abduction of hip.

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Other muscles worth a mention (though tough to isolate and test)

- **Piriformis**
 - Sacrum, gluteal surface of ilium and sacrotuberous lig TO superomedial aspect of greater trochanter.
 - Lateral Rotator and Abductor of Hip. (Sciatic nerve)
- **Quadratus Femoris**
 - Ischial tuberosity TO quadrate tubercle on intertrochanteric crest.
 - Lateral Rotator
- **Obturator** (internus and externus)
- **Gemelli** (superior and inferior)
- **Pectineus & Gracilis**

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Hip Capsuloligamentous complex

Ischio Femoral Ligament attachment
262-353o on clockface
Spans 90o

Vertical (12 O'clock)

Iliofemoral Ligament
17-69o
Strongest ligament

AIIS

Horizontal 3 O'Clock

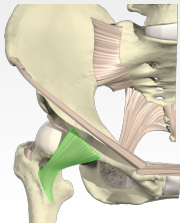
Pubofemoral Ligament
Smallest ligament,
121-163o

Nam et al (2011). HSS Journal, 7(3), 239-243



Ligament Stress Tests

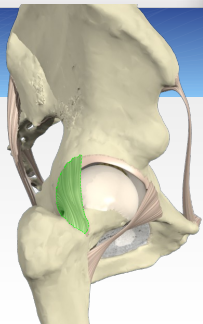
- Blend continuously with capsule
- Rarely injured in isolation
- Can be 'wound up' in certain positions
- Pubofemoral
 - Passive hip flexion





Ligament Stress Tests

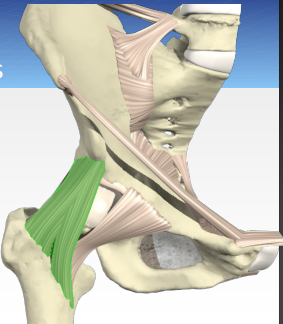
- Ischiofemoral Ligament
- Specific order:
 - Hip flexion
 - Add
 - Adduction
 - Add
 - Medial Rotation





Ligament Stress Tests

- Iliofemoral Ligament
 - Patient in Prone
 - Specific Order
 - Knee Flexion
 - Add
 - Abduction
 - Add
 - Hip Extension





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Palpation

- Compare symmetry of the following bony landmarks & note any discomfort
 - ASIS
 - AIIS
 - PSIS
 - Ischial Tuberosity
 - Greater trochanter
 - Iliac crest
- DO NOT PALPATE DIRECTLY
 - Pubic Symphysis
 - Patient locates under instruction, keeps their fingers ON and you palpate over the top!

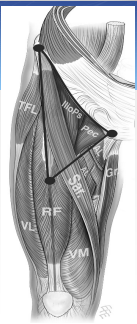


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Palpation: Groin Triangle

- Anterior hip pain patients often report a very specific location to their pain
- TFL
- Sartorius
- Iliopsoas
- Pectineus
- Add Longus
- Gracilis



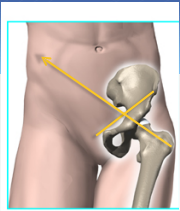


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Palpation

- Joint line
 - ASIS to Pubic Symphysis
 - Intersect from Greater Trochanter
- Soft Tissue structures
 - TFL, Iliopsoas, Rec fem, Adductors, Glute med, piriformis, glute max, proximal hamstring tendons





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Joints Above and Below

- Knee
 - AROM Flexion, Extension, Medial and Lateral Tibial Rotation
- Lumbar Spine
 - Flexion, Extension, Lateral Side Flexion and Rotation



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Special Tests

- Pelvic Stability/Gluteus Medius
- Muscle Length Tests
- Joint Surface Integrity Tests
- Other Tests
 - Leg Length Discrepancy Tests
 - Noble Compression Test



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Special Tests: Pelvic Stability

- Trendelenburg Test
 - Test functional strength of Hip abductors (Gluteus Medius and Minimus)
 - Hardcastle and Nade (1985) variation of test
 - 30 sec hold
 - Should be able to maintain pelvic height of NWB or elevate it above FWB hip if Glute med/min are functional
 - Positive test if unable to maintain hip height (over 30secs)
 - CAUTION: watch for NWB Quadratus Lumborum influence!





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Special Tests: Muscle Length Tests

- Thomas Test
- Ober's Test
- SLR

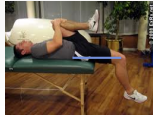


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Special Tests: Muscle Length

- (Modified) Thomas Test
 - Tests for muscle length of
 - Rectus Femoris (Knee flexed to 90o or more?)
 - Iliopsoas (femur parallel to floor or below?)
 - Tensor Fascia Latae (hip, knee or ankle in alignment in sagittal plane?)
 - Pain in hip region (not LBP), reproduction of symptoms or reduced range
 - Be cautious getting patient in to test position





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Special Tests: Muscle Length Tests

- (Modified) Ober's Test
 - Contracture of Tensor Fascia Latae and extensibility of IlioTibial Band
 - Positive test
 - Reproduction of symptoms
 - Reduced range of movement
 - Knee should drop to height of plinth (10o adduction)





Special Tests: Muscle Length Tests

- Straight Leg Raise (SLR)
 - Test for lots of things!
 - Neural test, hamstring contracture test, hip flexor integrity test, disc pathology, intra-articular hip pain...
 - SLR for hamstring range
 - Patient should be able to Actively SLR to 90o flexion for normal hamstring range
 - Positive sign is AROM below 90o
 - Clinical risk factor for hamstring strain in athletic populations



Special Tests: Joint Surface Integrity Tests

- FABER test (AKA Patrick Test)
 - Flexion, Abduction, External Rotation
 - Patient in supine in figure 4 position,
 - Foot on opposite knee
 - Actively allows knee to drop out,
 - At EoR passive overpressure applied
 - Positive sign: reproduction of symptoms or reduction ROM
 - Knee should fall to height of opposite knee or below
 - Also indicates SIJ, iliopsoas and Lx pathology





Special Tests: Joint Surface Integrity Tests

- Hip Quadrant AKA
 - FAIR test (Flexion Adduction Internal Rotation)
 - Scour or Grind test
- Patient in supine
 - Assess passive flexion (SRN)
 - Assess passive flexion with adduction- compress (SRN)
 - Assess passive flexion, adduction with medial/internal rotation
- Provocative test!
- Positive sign pain or apprehension
 - Impingement (iliopsoas tendon or burase), posterior labral tear, intrarticular pathology such as FAI, piriformis syndrome





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Special Tests: Other
Leg Length Discrepancy

- True leg length discrepancy
 - Measure from the anterior superior iliac spine to the medial malleolus.
- Apparent leg length discrepancy
 - Measure from the xiphisternum OR umbilicus to the medial malleolus.





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Special Tests: Other
Noble Compression Test

- Test for Iliotibial Friction Syndrome
- Pt in supine
- Hip and knee passively flexed to 90o
- Compress over lateral femoral condyle and hold whilst passively extending knee
- Positive Sign
 - Pain at 30o extension
 - Reproduction of symptoms
 - Crepitus





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SHSS 5062 Hip Assessment

1. Observation

- Need to be in shorts.
- T-shirt, shoes and socks off
- Observe from back, front & both sides.
- Should be whole body observation, but paying particular attention to lower limb, hip and Lx spine

2. Quick Touch

- Bilateral comparison
- Back of hand

3. Range of Movement

- Bilateral comparison
- AROM
- PROM (end range with O/P)
- RRROM (end range with O/P, client resists O/P)
 - Flexion/extension
 - Abduction/adduction
 - Medial/lateral rotation

4. Manual Muscle Tests

- Rectus Femoris
- Iliopsoas
- Adductor Brevis,
- Adductor Longus &
- Adductor Magnus
- Glute Med & Min
- TFL
- Hamstrings (as a group over hip)
- Gluteus maximus

5. Ligament Stress Tests

- Pubo-femoral (flex)
- Ischio-femoral (HF, Add, MR)
- Ilio-femoral (Prone, KF, Abd, HE)

6. Palpate

- Anterior superior iliac spine (ASIS),
- Pubis symphysis, inguinal ligament
- Greater trochanter, joint line,
- Anterior inferior iliac spine (AIIS)
- Posterior superior iliac spine (PSIS), iliac crest, All associated tendons / muscles

7. Joints above & below

- Bilateral comparison
- Active movements
 - Knee and Lx spine

8. Special Tests

- Pelvic stability/Glute med/min
- Trendelenburg test
- ROM hip flexors, rec fem, TFL
- Thomas' test
- TFL/ITB
- Obers test
- Joint surface integrity
- Faber (Patrick)
- Hip Quadrant
- ROM hamstrings
- Hamstring stretch (SLR)
- Leg length discrepancy
- Leg length measurement (true & apparent)

9. Functional

- Walk, jog, squat, jump, landing, kicking etc

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