

# Anatomy and Physiology Kinesiology Practical – Hip MMTs

# Recap

- ROM Assessment
  - Flexion
  - Extension
  - Adduction
  - Abduction
  - Medial Rotation
  - Lateral Rotation
- Bony Landmarks

# Manual Muscle Testing

- Put the muscle in to its action (contraction)
- Aim to take it out of its action
- Ask the patient to match your force
  - ‘Don’t let me move you’
  - ‘Hold this position and resist’
- We are testing mid range strength here...

# Manual Muscle Testing

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



# Manual Muscle Testing

- **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



# Manual Muscle Testing

- **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



# Manual Muscle Testing

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



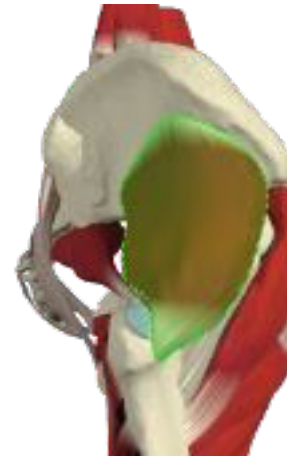
# Manual Muscle Testing

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



# Manual Muscle Testing

- **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



# Manual Muscle Testing

- **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)



# Manual Muscle Testing

- **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 (roughened ridge) of femur and Iliotibial Tract
  - A: Extends, Laterally Rotates Hip, assists in abduction of hip.



# Manual Muscle Testing

- **Semimembranous**
  - Origin
    - Superio-lateral aspect of ischial tuberosity
  - Insertion
    - Posterior aspect of medial tibial condyle
- Action
  - Knee flexion and assists hip extension



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# Manual Muscle Testing

- **Semitendinosus**
  - Origin
    - Superio-medial aspect of ischial tuberosity
  - Insertion
    - Upper part of medial aspect of tibial shaft (Pes anserinus)
  - Action
    - Knee flexion and assists hip extension



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# Manual Muscle Testing

- **Biceps Femoris**

- Origin

- Long head - superio-medial aspect of ischial tuberosity
    - Short head – Lateral lip of linea aspera

- Insertion

- Upper part of fibular head

- Action

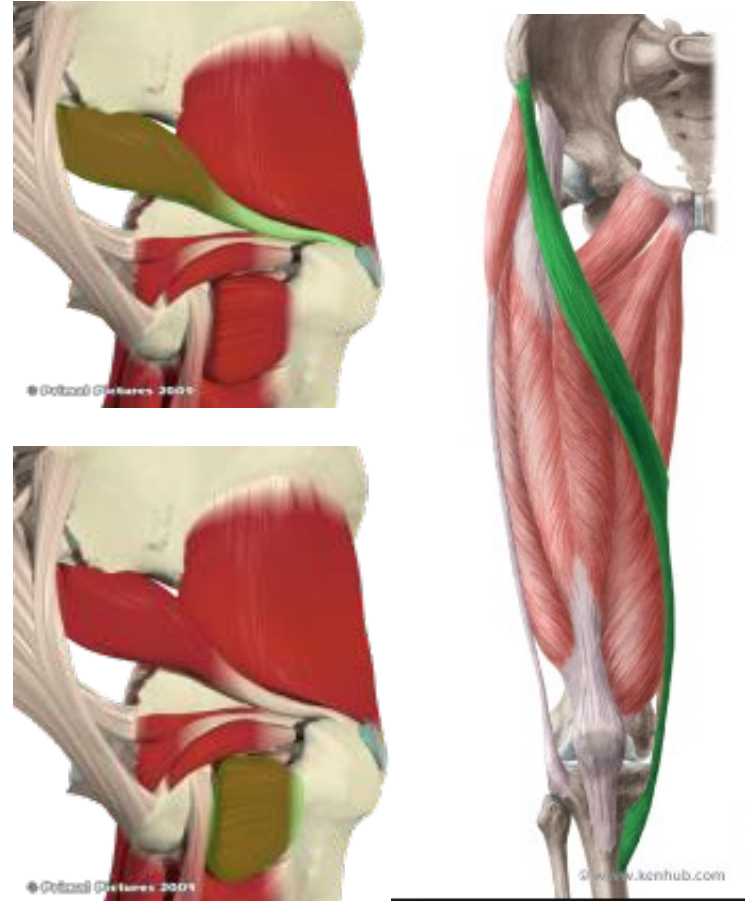
- Knee flexion and assists hip extension



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# Manual Muscle Testing

- Other muscles worth a mention (though tough to isolate and test)
  - Piriformis
    - Sacrum, gluteal surface of ilium and sacrotuberous lig TO superiomedial aspect of greater trochanter.
    - Lateral Rotator and Abductor of Hip (Sciatic nerve)
  - Quadratus Femoris
    - Ischial tuberosity TO quadrate tubercle on intertrochanteric crest.
    - Lateral Rotator
  - Sartorius
  - Obturators (internus and externus)
  - Gemelli ( superior and inferior)
  - Pectineus & Gracilis



# Hip Ligamentous Complex

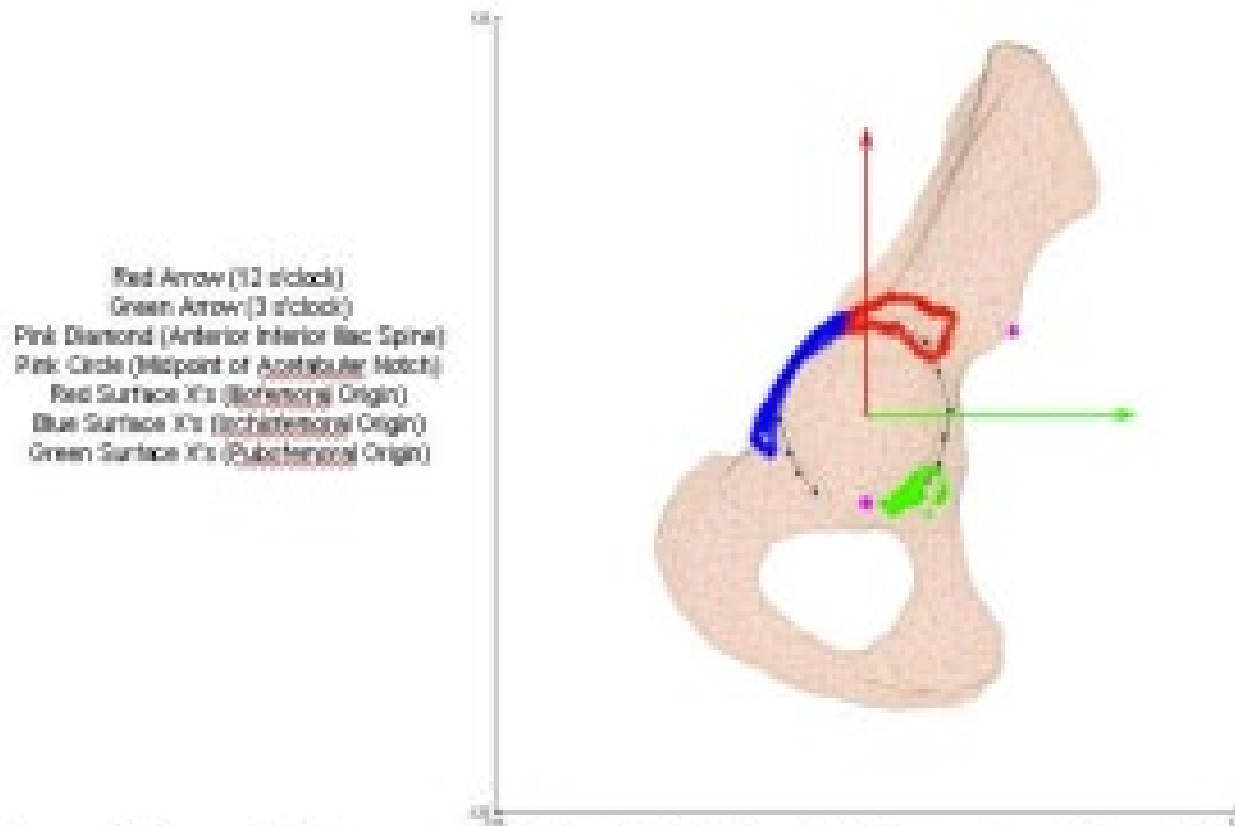
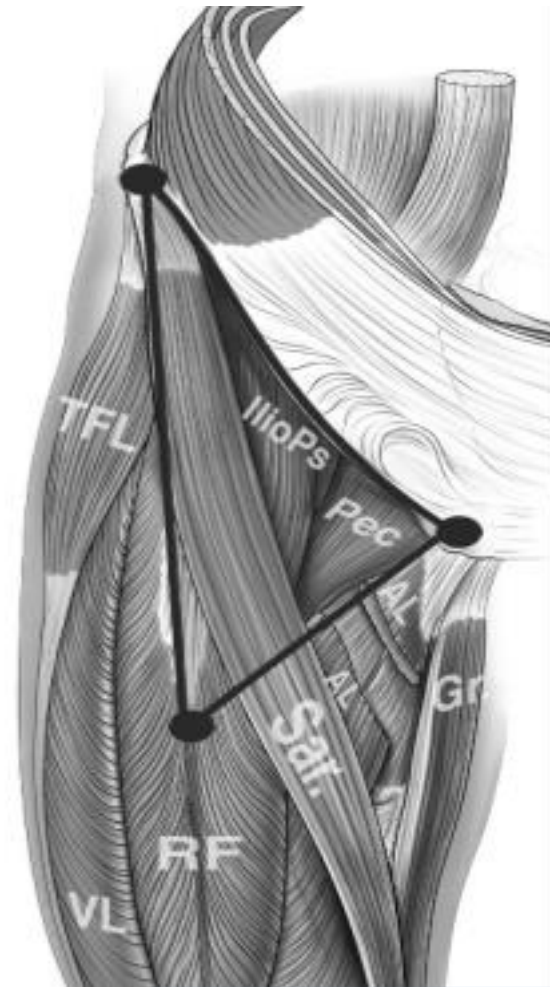


Figure 2: Example of image created after digitization of the ligament origins and AIIS, with the axes of the clockface superimposed.

# Groin Triangle

- Anterior hip pain patients often report a very specific location to their pain

The **groin triangle**: a patho-anatomical approach to the diagnosis of chronic **groin** pain in athletes



# Task

- Review all anatomy and tests for the hip with your classmates.
- Document all components in your Lower Limb Anatomy Workbook
- Submit to TurnItIn