Pelvis & Thigh
Bones of the Pelvis and Thigh

- Sacroiliac joint
- Sacrum
- Coccyx
- Coxal (hip) joint
- Femur
- Ilium
- Pubis
- Ischium

6.7 Anterior/lateral view of the pelvis and femur
6.8 Lateral view, bones of the hip
Bony Landmarks - Anterior/Lateral

Lumbar vertebrae

Umbilicus

Iliac crest

Iliac fossa

Anterior superior iliac spine (ASIS)

Anterior inferior iliac spine (AIIS)

Pubic crest

Superior ramus of the pubis

Acetabulum

Pubic tubercles

6.9 Anterior/lateral view, right femur removed
Bony Landmarks - Posterior

Bony Landmarks

- Sacrum
- Fifth lumbar vertebra
- Gluteal surface of ilium
- Posterior superior iliac spine (PSIS)
- Lateral sacral crest
- Trochanteric fossa
- Intertrochanteric crest
- Obturator foramen
- Coccyx
  - Ischial tuberosity
  - Shaft of the femur
  - Adductor tubercle

- Femur
- Medial lip of linea aspera
- Lateral lip of linea aspera
- Condyles of the femur

6.10 Posterior view
Bony Landmarks - Sacrum & Coccyx

**Bony Landmarks**

- Base of sacrum
- Lumbosacral articular surface
- Sacrum
- Promontory
- Transverse ridges
- Apex of sacrum
- Sacral foramen
- Transverse process of coccyx
- Coccyx

*6.16 Anterior view*
Bony Landmarks

- Anterior View of Femur

- Greater trochanter
- Fovea of head
- Neck
- Lesser trochanter
- Intertrochanteric line
- Shaft
- Patellar surface
- Adductor tubercle
- Lateral epicondyle
- Medial epicondyle
- Lateral condyle
- Medial condyle
Bony Landmarks - Posterior View of Femur

6.18 Posterior view of right femur

- Trochanteric fossa
- Greater trochanter
- Head
- Neck
- Intertrochanteric crest
- Lesser trochanter
- Pectineal line
- Gluteal tuberosity
- Medial lip of linea aspera
- Lateral lip of linea aspera
- Medial supracondylar line
- Lateral supracondylar line
- Adductor tubercle
- Intercondylar fossa
- Medial epicondyle
- Lateral epicondyle
- Medial condyle
- Lateral condyle
Trail 1 “Solo Pass”
Anterior Superior Iliac Spine (ASIS)

Iliac Crest

6.19 Anterior view, palpating your ASISs

6.20 Lateral view of pelvis showing the muscles which surround the iliac crest

6.21 Posterior view, sliding your fingers along your iliac crest
Posterior Superior Iliac Spine (PSIS)

Pubic Crest

6.22 Posterior view, locating your PSIS

6.23 Anterior view, accessing your pubic crest
Ischial Tuberosity

Text

Greater Trochanter of the Femur

Text

6.24 Posterior view, palpating your ischial tuberosity

6.25 Lateral view, rotating your hip to feel the movement of the greater trochanter
Trail 2 “Iliac Avenue”
Anterior Superior Iliac Spine (ASIS)

Text

Anterior Inferior Iliac Spine (AIIS)

Text
Iliac Crest

Iliac Fossa

Posterior Superior Iliac Spine (PSIS)

6.28 Partner side lying, sculpting out the iliac crest

6.29 Partner supine, curling your fingers into the iliac fossa

6.30 Posterior view, isolating the PSIS
Trail 3 “Tailbone Trail”
Sacrum

Median Sacral Crest
Edge of the Sacrum

Text

6.31 Posterior view, using the PSISs as guides to locate the median sacral crest of the sacrum

6.32 Posterior/lateral view, partner prone, exploring the edge of the sacrum
Chapter 3 - Coccyx & Sacroiliac Joint

Coccyx

Text

Sacroiliac Joint

6.33 Posterior/lateral view, partner prone, palpating the coccyx

6.34 Partner prone, medially rotating the hip

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Trail 4 “Hip Hike”
Greater Trochanter

Gluteal Tuberosity

6.35 Partner prone, rotating the hip to feel the movement of the greater trochanter

6.36 Posterior view of pelvis, showing the gluteal tuberosity’s relationship to the surrounding muscles
Muscles of the Pelvis and Thigh - Posterior

6.45 Posterior view of right hip and thigh
Muscles of the Pelvis and Thigh - Lateral

6.46 Lateral view of right hip and thigh
Muscles of the Pelvis and Thigh – Lateral, Deep

Muscles of the Pelvis and Thigh

- Psoas major
- Iliac crest
- ASIS
- Psoas major
- Sacrum
- Piriformis
- Gemellus superior
- Obturator internus
- Gemellus inferior
- Quadratus femoris

6.50 Lateral view
Synergists – Muscles Working Together

Coxal

(hip joint)

**Flexion**

*(antagonists on extension)*

- Psoas major
- Iliacus
- Tensor fasciae latae
- Sartorius
- Rectus femoris
- Gluteus medius (anterior fibers)
- Gluteus minimus
- Adductor longus (assists)
- Pectineus (assists)
- Adductor brevis (assists)
- Adductor magnus (assists)

*Anterior/lateral view, psoas major and iliacus shown on opposite side*

*Anterior/medial view*
Coxal
*(hip joint)*

**Extension**
*(antagonists on flexion)*
Gluteus maximus (all fibers)
Biceps femoris (long head)
Semitendinosus
Semimembranosus
Adductor magnus (posterior fibers)
Gluteus medius (posterior fibers)
Synergists - Coxal, Medial Rotation

Coxal
(*hip joint*)

**Medial Rotation (internal rotation)**
*(antagonists on lateral rotation)*
- Gluteus medius (anterior fibers)
- Gluteus minimus
- Tensor fasciae latae
- Adductor magnus
- Adductor longus

- Adductor brevis
- Pectineus
- Gracilis
- Semitendinosus (assists)
- Semimembranosus (assists)

*Posterior/medial view*  
*Anterior view*  
*Anterior/lateral view*
Coxal
*(hip joint)*

**Lateral Rotation (external rotation)**
*(antagonists on medial rotation)*
- Gluteus maximus (all fibers)
- Piriformis
- Quadratus femoris
- Obturator internus
- Obturator externus
- Gemellus superior
- Gemellus inferior
- Gluteus medius (posterior fibers)
- Psoas major
- Iliacus
- Sartorius
- Biceps femoris (assists, long head)
Coxal
*(hip joint)*

**Abduction**
*(agonists on adduction)*
Gluteus maximus (all fibers)
Gluteus medius (all fibers)
Gluteus minimus
Tensor fasciae latae
Sartorius
Piriformis (when the hip is flexed)*

*Posterior/lateral view*  
*Anterior/lateral view*
Coxal
(hip joint)

Adduction
(antagonists on abduction)
Adductor magnus
Adductor longus
Adductor brevis
Pectineus
Gracilis
Gluteus maximus (lower fibers)
Synergists - Knee, Flexion & Extension

**Knee**
*(tibiofemoral joint)*

**Flexion**
*(antagonists on extension)*
- Biceps femoris
- Semitendinosus
- Semimembranosus
- Gracilis
- Sartorius
- Gastrocnemius
- Popliteus
- Plantaris (weak)*

**Extension**
*(antagonists on flexion)*
- Rectus femoris
- Vastus lateralis
- Vastus medialis
- Vastus intermedius*

*Posterior/lateral view*

*Medial view*

*Anterior view*
Knee
(tibiofemoral joint)

Medial view

**Medial Rotation of Flexed Knee**
* (antagonists on lateral rotation)
Semitendinosus
Semimembranosus
Gracilis
Sartorius
Popliteus*

Lateral view

**Lateral Rotation of Flexed Knee**
* (antagonist on medial rotation)
Biceps femoris

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TGB, p. 305
Quadriceps Femoris Group

6.55 Anterior view of right hip and thigh

6.56 Anterior view of right hip and thigh
Quadriceps Femoris Group - O and I

**Quadriceps Femoris Group**

6.60 Anterior view of right hip and thigh showing origins and insertions

6.61 Posterior view of right hip and femur showing origins

- Rectus femoris
- Vastus intermedius
- Vastus lateralis
- Vastus medialis
- Vastus intermedius
- All quadriceps
Vastus Medialis

Text

Vastus Lateralis

Text

6.65 Partner supine, anterior/medial view of right thigh

6.66 Partner side lying, palpating the vastus lateralis deep to the iliotibial tract
Hamstrings, Anatomy/O and I

Hamstrings

6.68 Posterior view of right thigh showing superficial hamstrings

6.73 Origins and insertions

Biceps femoris (long head)
Semitendinosus
Semimembranosus
Biceps femoris (short head)

Posterior and anterior views

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Hamstrings as a Group

6.74 Partner prone, grasping the hamstrings group

6.75 Partner prone, isolating the hamstrings tendon at the ischial tuberosity
Individual Bellies and Distal Tendons

6.77 Partner prone, posterior/lateral view of right knee

6.78 Partner prone, posterior/lateral view of right knee
Gluteals

Gluteus Minimus

A: Abduct the hip (coxal joint)

Medially rotate the hip (coxal joint)

Flex the hip (coxal joint)

O: Gluteal surface of the ilium between the anterior and inferior gluteal lines

I: Anterior aspect of greater trochanter

N: Superior gluteal L4, 5, S1

6.81 Posterior/lateral view of right buttock

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Gluteals - O and I

6.82 Posterior view showing origins and insertions

6.83 Anterior view showing insertion of gluteus minimus

Maximus (upper fibers attaching onto the IT tract)

Maximus (lower fibers)
Gluteus Medius and Minimus - Palpate

**Gluteus Medius and Minimus**

Tensor fasciae latae (cut)

6.86 Partner side lying, Isolating the borders of the gluteus medius: **a)** PSIS, **b)** iliac crest, **c)** greater trochanter

6.87 Isolating the gluteus medius with partner side lying, abducting the hip
Adductor Group

- Pectineus
- Adductor brevis
- Adductor longus
- Gracilis
- Adductor magnus

6.88 Anterior view of right hip and thigh
6.89 Medial view of right hip and thigh
Tensor Fasciae Latae

Distal End of the Iliotibial Tract

Text

6.104 Partner supine, feeling the TFL contract as your partner medially rotates his hip

6.105 Partner side lying, palpating the distal end of the iliotibial tract and TFL as your partner abducts his hip
Sartorius

A Flex the hip (coxal joint)
   Laterally rotate the hip (coxal joint)
   Abduct the hip (coxal joint)
   Flex the knee (tibiofemoral joint)
   Medially rotate the flexed knee (T/F joint)

O Anterior superior iliac spine (ASIS)

I Proximal, medial shaft of the tibia at pes anserinus tendon

N Femoral L2, 3, (4)

6.106

6.107 Anterior/medial view of right hip and thigh

6.108 Origin and insertion

6.109 Partner supine
Tendons of the Posterior Knee

Lateral tendons

Medial tendons

6.110 Posterior view of right thigh with partner prone; fingers on the posterior knee showing location of distal tendons

6.111 Partner side lying, lateral view of right knee, isolating the biceps femoris and iliotibial tract

6.112 Partner supine, medial view of right knee, isolating the medial tendons
Lateral Rotators of the Hip

Piriformis
Gemellus superior
Gemellus inferior
Quadratus femoris
Obturator internus
Sciatic nerve

6.113 Posterior view of right hip with gluteals removed
Lateral Rotators of the Hip

**Piriformis**

A. Laterally rotate the hip (coxal joint)

O. Anterior surface of sacrum

I. Superior aspect of greater trochanter

N. Sacral plexus L(5), S1, 2

**Quadratus Femoris**

A. Laterally rotate the hip (coxal joint)

O. Lateral border of ischial tuberosity

I. Intertrochanteric crest, between the greater and lesser trochanters

N. Sacral plexus L4, 5, S1, (2)
6.122 Posterior/lateral view, partner prone, isolating the piriformis by forming a “T,” a) coccyx, b) PSIS, c) greater trochanter

6.123 Posterior/lateral view, partner prone, rolling over piriformis

6.124 Prone, feel the piriformis contract by asking your partner to laterally rotate his hip against your resistance
Quadratus Femoris

6.125 Prone, sense the quadratus femoris contract by asking your partner to laterally rotate his hip against your resistance.
Iliopsoas
Psoas Major
Iliacus

Umbilicus
Psoas minor
Psoas major
Iliacus

Lesser trochanter (deep)

6.126 Anterior view of spine and right hip
6.129 Anterior view of spine and right hip showing origins and insertions
6.132 Partner side lying with hips flexed, curling your fingers into the abdomen

6.131 Partner supine, accessing the psoas while your partner flexes his hip
Iliacus - Palpate

6.133 Anterior/inferior view, partner supine, curling your fingers around the iliac crest to access the iliacus

6.134 Partner side lying with hips flexed, curling your fingers into the abdomen

6.135 Palpating with your partner side lying
Ligaments of the Pelvis - Anterior & Posterior

Text

6.138 Posterior view of pelvis

6.139 Anterior view of right hip

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