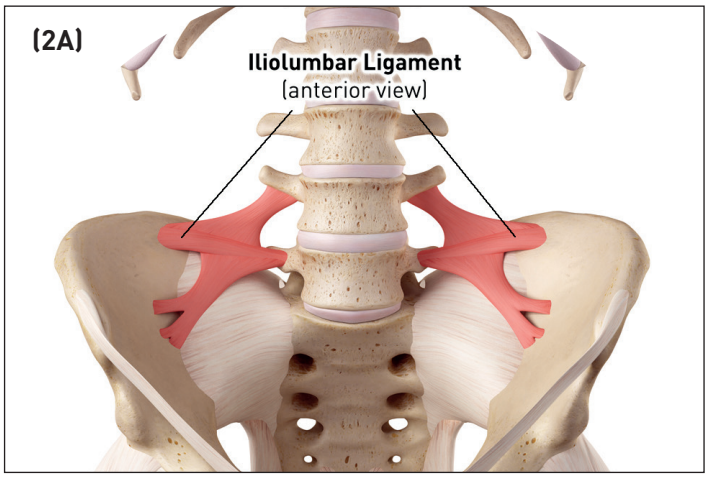
JING'S ANATOMY
PALPATION OF MUSCLES INVOLVED IN HIP AND PELVIS PAIN

This section shows you how you can palpate the muscles we will be treating so that you can be sure about their location. Palpation is a great way to learn your anatomy three-dimensionally, and we highly recommend that you locate these muscles on yourself or a partner before you view the technique section.



QUADRATUS LUMBORUM (1A + 1B)

- Client prone: In forward tai chi stance locate the 12th rib and iliac crest. Lay your fingertips along the lateral edge of this square, pressing underneath the erector spinae.
- Use slow firm pressure to sink into the edge of the quadratus lumborum.
- Muscle action: ask your partner to elevate the hip to the shoulder to feel its contraction (hip hiking or "salsa dancing").

ILIOLUMBAR LIGAMENT (2A + 2B)

- The iliolumbar ligament is located between the transverse processes of L4 and L5 and the posterior iliac crest. It is deep to the thoracolumbar fascia, Q.L and multifidi.
- In forward Tai chi stance from the head of the table, find the iliac crest (top of the bony hip bone) and follow around until you find the small bony knob known as the PSIS. This is often close to the dimples in the low back. Come superiorly slightly towards L5 and you will feel the iliolumbar ligament.

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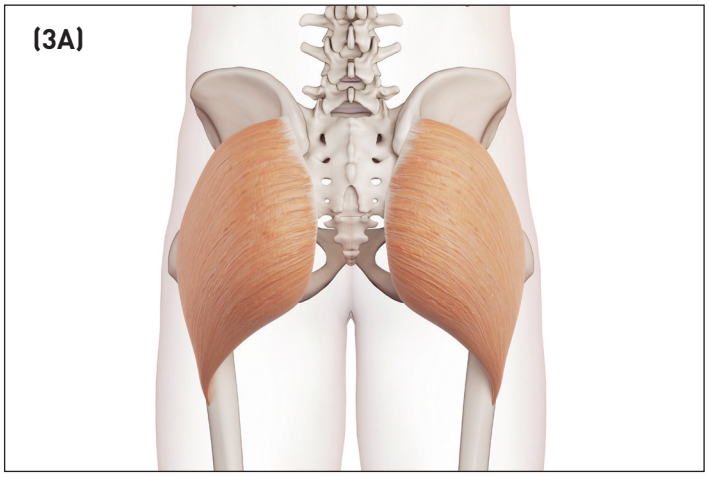

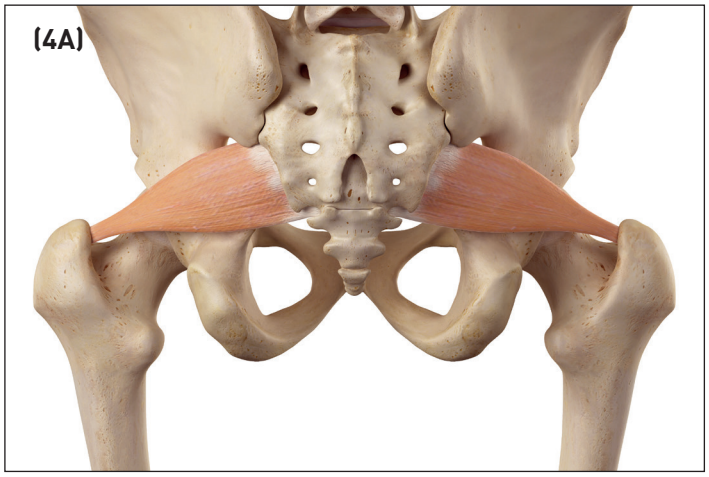

GLUTEUS MAXIMUS (3A + 3B)

- Client prone: In forward tai chi stance lay the flat of your hand on the 'meat' of the buttocks. Ask your partner to extend the hip ("raise your leg to the ceiling with the knee straight")
- Palpate the fibres which run from the iliac crest and edge of the sacrum to the femur. Note the textural differences between the adipose tissue of the buttock and the muscle fibres of the maximus. The adipose is superficial and has a soft gel like consistency.

PIRIFORMIS (4A + 4B)

- Prone: Locate the superior and inferior end of the sacrum and the greater trochanter (bony bump on the side of the femur). Together these landmarks form a "T". The piriformis is located along the base of the "T"
- Bend the knee to 90 degrees and with a soft fist sink donw through the meaty glutues maximus to feel the piriformis (it can feel a bit like a "speed bump").
- Wiggle the leg back and forth and you will feel the piriformis move under your hand.
- The action of the piriformis is external rotation which from a prone position is your client taking their leg towards the midline. Demonstrate the movement for your client first by passively taking their leg towards the midline. If your partner laterally rotates the leg against your resistance ("Take your leg towards the midline") you will feel the muscle contract.

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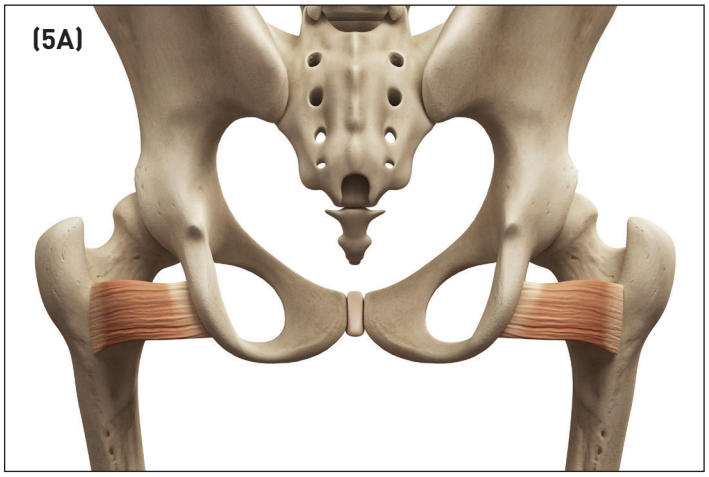

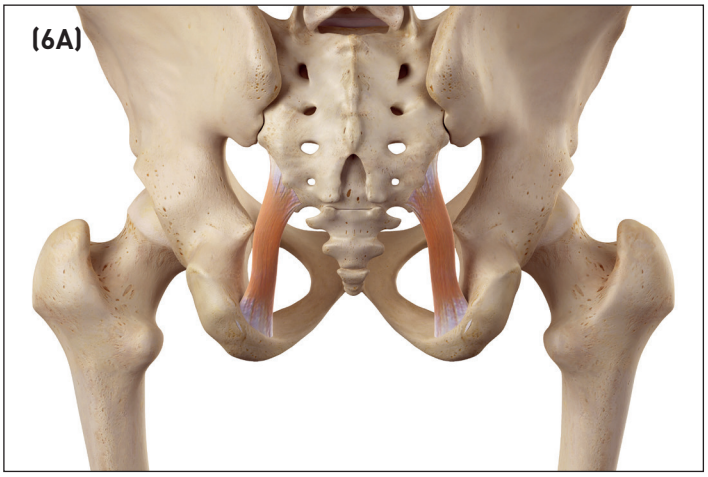

QUADRATUS FEMORIS (5A + 5B)

- Meg's new favourite muscle! The quadratus femoris feels like a small mound or pillow. You can find it just above the gluteal fold running from the ischial tuberosity to the greater trochanter.
- Ask your client to do external rotation of the hip to feel the muscle contract ("take your leg toward the midline").

SACROTUBEROUS LIGAMENT (6A + 6B)

- In forward tai chi stance, find the edge of the sacrum and the ischial tuberosity (in the centre of the gluteal fold).
- Draw a line between these 2 bony landmarks to find the location of the broad solid sacrotuberous ligament (it can feel like bone).
- With supported fingers sink down through the gluteus maximus to feel the ligament.

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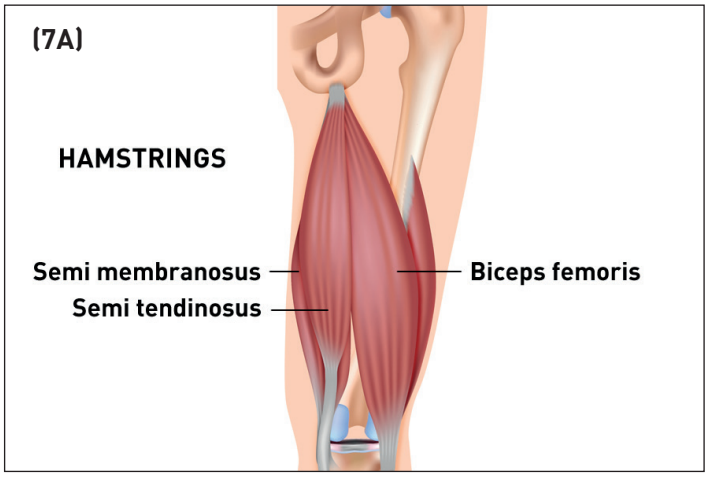

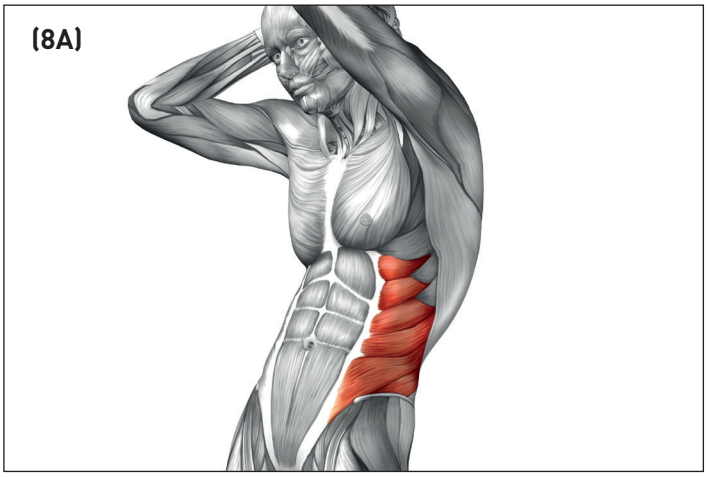

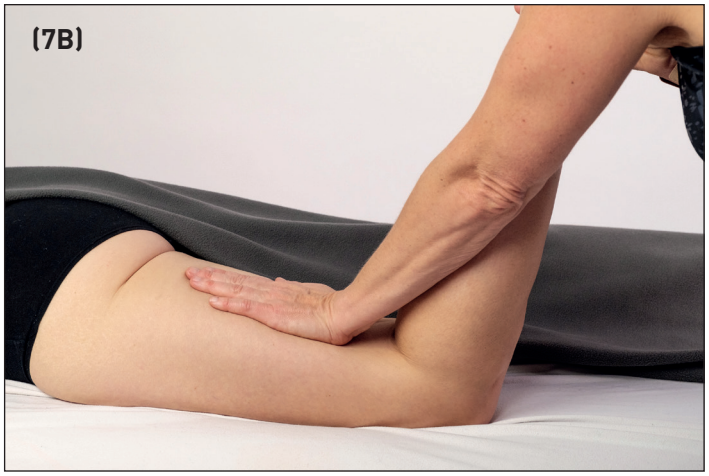

HAMSTRINGS: BICEPS FEMORIS; SEMI TENDINOSUS, SEMI MEMBRANOSUS (7A + 7B)

- All 3 hamstrings have a common origin at the ischial tuberosity.
- Memory aid: semi-Membranosus inserts on medial side of knee with its rhyming family member semi-tendinosus, whilst biceps femoris inserts on the lateral side of the knee
- Palpation of hamstrings as a group: With your client prone, place your hand on the posterior thigh between the buttocks and the knee.
- Ask your partner to flex their knee against your resistance to outline the muscle (bring the knee to the buttocks). You will see the tendons at the knee pop up strongly like cables.
- Palpate the hamstrings from the large solid tendon at the ischial tuberosity to the stringy tendons at the posterior knee.

ABDOMINALS: EXTERNAL AND INTERAL OBLIQUES (8A + 8B)

- Client supine with hips and knees flexed: In forward tai chi stance, place your flat hands on the right external oblique abdominal muscles (just below the ribcage).
- Ask your client to do a stomach crunch to the opposite side (taking their right elbow to their left knee). This will cause the right external oblique to contract.
- Remember the internal and external obliques work together so as the right external oblique is contracting to take the trunk to the opposite side, the left INTERNAL oblique is also working to take the trunk to the same side.

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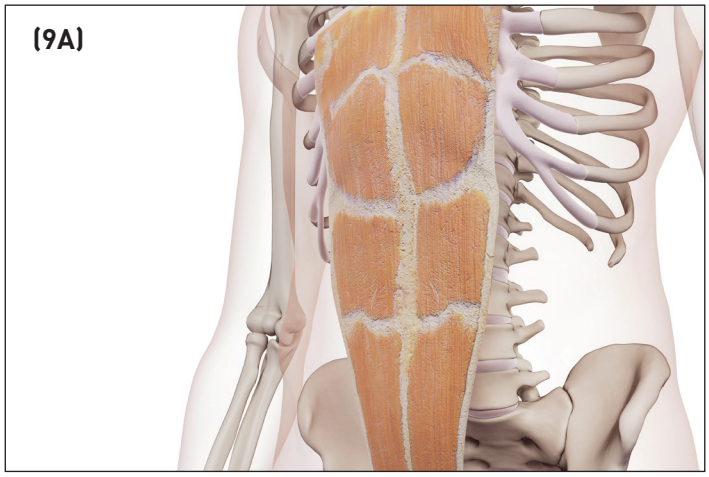
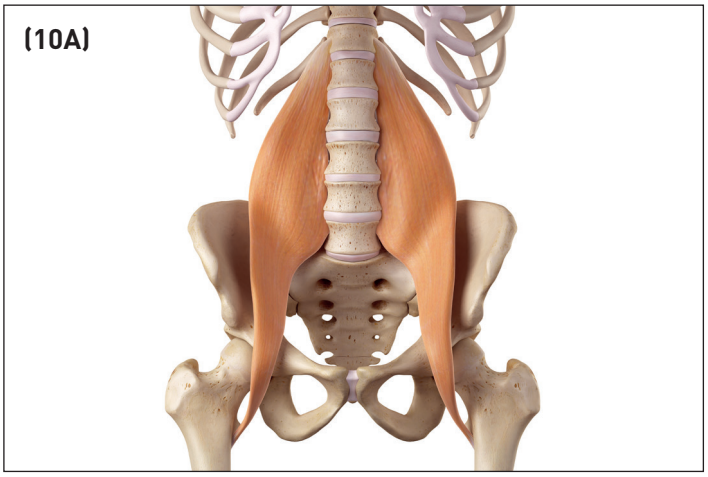




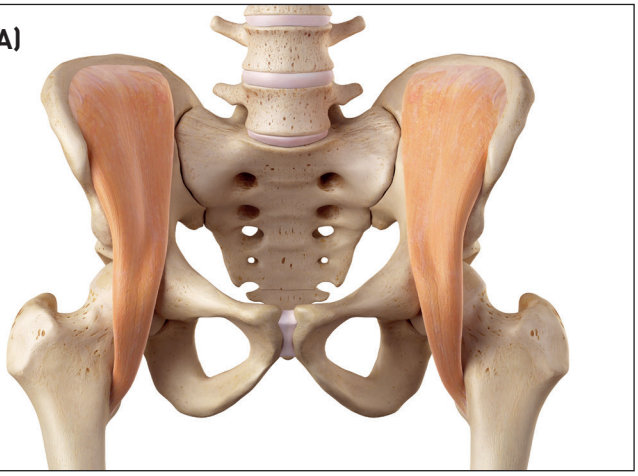
RECTUS ABDOMINIS (9A + 9B)

- Client supine with hips and knees flexed: In forward tai chi stance, palpate between the rib cage and the pubic bone to find the "6 pack"! (we all have them – honest!)
- Ask your client to flex the spine (ie: do a small stomach crunch) to feel the muscles contract.

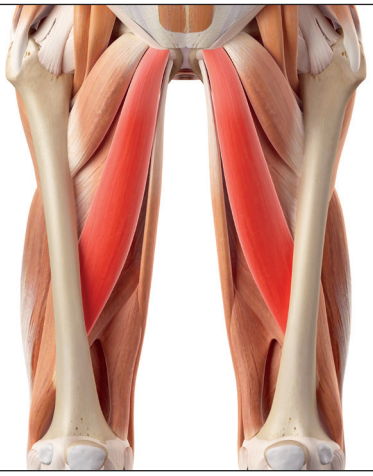
PSOAS (10A + 10B)

- Client supine with hip and knees flexed. Place your fingertips just lateral to the abdominal muscles and between the ASIS and the navel. Slowly compress your fingerpads into the abdomen using a clockwise rotational movement to displace the intestines out of the way. Keep your fingertips at a 45 degree angle.
- When you contact the psoas ask your partner to flex the hip slightly (bring your thigh toward the ceiling) to feel the muscle contract.
- Take care to proceed with "listening touch" as the psoas can be tender. If you feel a pulsing underneath your fingers, move laterally as this is the abdominal aorta.

(11A)



(12A)



(11B)

(12B)

(11C)

ILIACUS (11A, 11B + 11C)

- The psoas blends into the iliacus and they are often collectively known as the iliopsoas
- With soft fingertips curl around the inside of the hip bone (ilium). Press back against the bone to feel the iliacus.
- Client action is hip flexion as with the psoas slightly (bring your thigh toward the ceiling).

ADDUCTOR GROUP (SUPINE): ADDUCTOR MAGNUS; ADDUCTOR BREVIS; ADDUCTOR LONGUS; GRACILIS; PECTINEUS (12A + 12B)

- Client supine: hip is flexed and laterally rotated. Place your hand along the medial thigh and ask your partner to adduct the hip against your resistance to feel the muscles contract strongly.
- The most prominent tendon that pops up is the adductor longus which slowly angles into the medial thigh.

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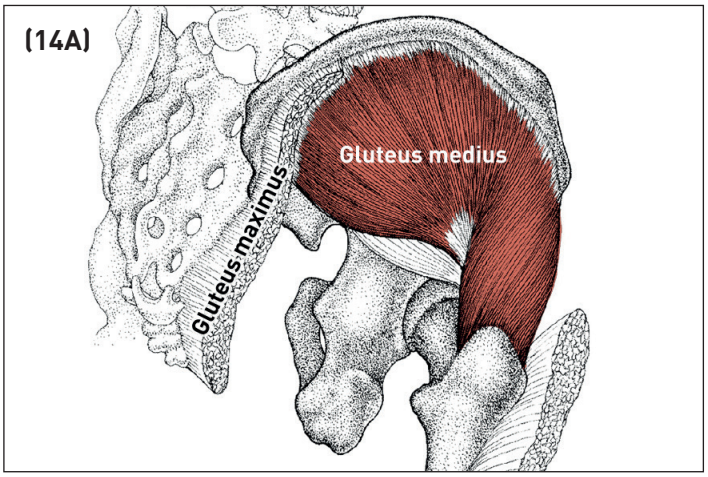
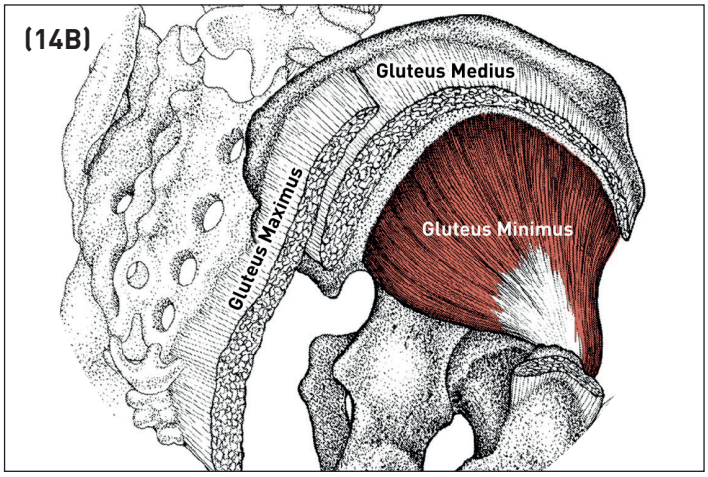
ADDUCTOR GROUP (SIDELYING) (13A)

- Client lies on left side in a "figure 4" position (bottom leg straight and upper leg flexed) so the medial side of the left leg is exposed.
- Place your left hand palm down on the inner thigh.
- You can remember the names and approximate position of the adductors with the following mnemonic "SALGAM HAM".

• Thumb:	**S** = Sartorius
• Forefinger:	**AL** = Adductor Longus
• Middle finger:	**G** = Gracilis
• Ring finger:	**AM** = Adductor Magnus
• Little finger:	**HAM** = Hamstrings





GLUTEUS MEDIUS AND MINIMUS (14A,14B + 14C)

- These muscles both lie on the side of the hip. Gluteus minimus is deep to gluteus medius
- Client sidelying: Lay the webbing of your hand along the iliac crest while the other hand locates the greater trochanter (bump on outside of femur). Your hands will form the pie shaped outline of the gluteus medius.
- Place your flat hands in this area and ask your partner to slightly abduct the thigh ("bring your leg to the ceiling") to feel the gluteus medius contracting.
- Remember that gluteus minimus is in the same area but lies more deep.

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(15A)

(16A)

(15B)

(16B)

TENSOR FASCIA LATAE (TFL) (15A + 15B)

- Client supine. Find the ASIS and palpate just posteriorly.
- Client action is internal rotation (rotating the thigh towards the midline).

ILIOTIBIAL BAND (16A + 16B)

- Client supine: Explore the tough superficial fibres of the IT band on the lateral side of the leg.
- Ask your partner to alternately abduct and relax hip.