Level 5 Diploma in Massage Therapy for Sports

The Hip - Complex Assessment

RQF

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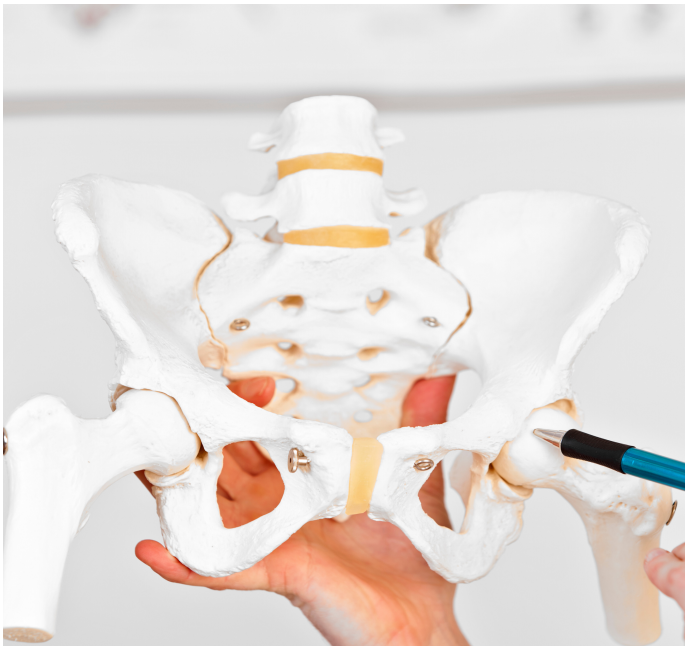
The Hip Joint

A ball and socket joint, formed by the articulation of the acetabulum of the pelvis with the head of the femur. Subjected to the forces from the strong muscles of the leg and hip, it allows us to walk, run and jump. A hugely vital joint as it plays such a huge art in locomotion.

Designed to be a stable and weight bearing joint, musculature either flexes (iliacus, psoas, rectus femoris) or extends (gluteus maximus and hamstrings), abducts (piriformis and tensor fascia latae; gluteus medius or minimus) or adducts (adductor longus, brevis, or magnus; pectineus and gracilis).

The hip joint opts for stability over mobility, whilst the opposite is true of the shoulder joint, therefore (despite being the same 'type' of joint) the shoulder is more prone to dislocation than the hip.

All of the various components of the hip mechanism assist in the mobility of the joint. Any kind of damage to any aspect of the joint or structure can have a negative affect upon an individual's range of motion and ability to bear weight on the joint. Also due to its wide range of movement and the fact is weight bares, the hip is a very common area that clients have complaints.



Movement and Muscles of the Hip

The hip joint has a number of muscles that produce a varied range of movement. The movements available at the Hip are:

- Flexion
- Extension
- Abduction & Adduction
- Internal and External Rotation
- Rotation

Gluteus Maximus

The largest and heaviest muscle in the body. The Gluteus Maximus can generate a lot of force. The largest of three 'Glute' muscles.

Actions- Extends and abducts the hip. Also, laterally rotates.

Origins – Lower part of the Sacrum, coccyx and iliac crest.

Insertion -IT Band and Gluteal Tuberosity.

Gluteus Medius

A highly functional muscle that sits superiorly above the Gluteus maximus. Located at the posterior of the hip. A large fan shaped muscle.

Actions- The anterior fibres will abduct's and flexes the hip. The posterior fibres extend and will laterally rotate the hip.

Origins – The Illiac Crest

Insertion -Lateral aspect of the Greater Trochanter

Gluteus Minimus

A small muscle shaped like a triangle. Located in the posterior aspect of the hip, a deep lying muscle. Mainly helping to stabilise the hip in abduction.

Actions- It Abducts, medially rotates and flexes the hip joint.

Origins – From the external surface of the Ilium.

Insertion -Anterior surface of the greater trochanter.

Piriformis

The largest and heaviest muscle in the body. The Gluteus Maximus can generate a lot of force. The largest of three 'Glute' muscles.

Actions- Extends and abducts the hip. Also, laterally rotates.

Origins – Anterior aspect of the Sacrum

Insertion -Superior aspect of the greater trochanter.

Injuries and conditions of the pelvic-hip complex

Introduction

Any pain or dysfunction within the pelvis or hip joint can occur due to restrictions or any form of instability. This can be in the lumbar spine region or any changes or adaptations musculature. Problems at the hip are frequently reflected in other joints, the knee being a prime example, with a well-researched and documented relationship. Within this manual we look at some of the most common injuries and conditions which occur to the pelvis and hip region that could be presented to a sports massage therapist.

General groin pain – Although the possibility of bone a bone or cartilage injury should not be ignored. Although the vast majority of general groin pain is caused by a muscle (s) strains. The eccentric (lengthened state) of the muscles during any complex and co-ordinated movements can often cause a strain injury to some of the following:

- Adductors
- Hamstrings (Bicep Femoris due to its more active role in hip movement.).
- Hip Flexors
- Deep Lying Hip rotators
- Rectus Abdominis

Any of these muscles mentioned could refer pain in and around the groin area. Biaxial muscles commonly develop hypertonicity and in the event of sudden loading can rupture or initiate a protective spasm.

Groin pain can be due to local tissue injury, with pain being experienced in and around the pubis and inguinal area. However, groin pain of a client may also be a secondary condition due to the dysfunction distal of the pelvis.

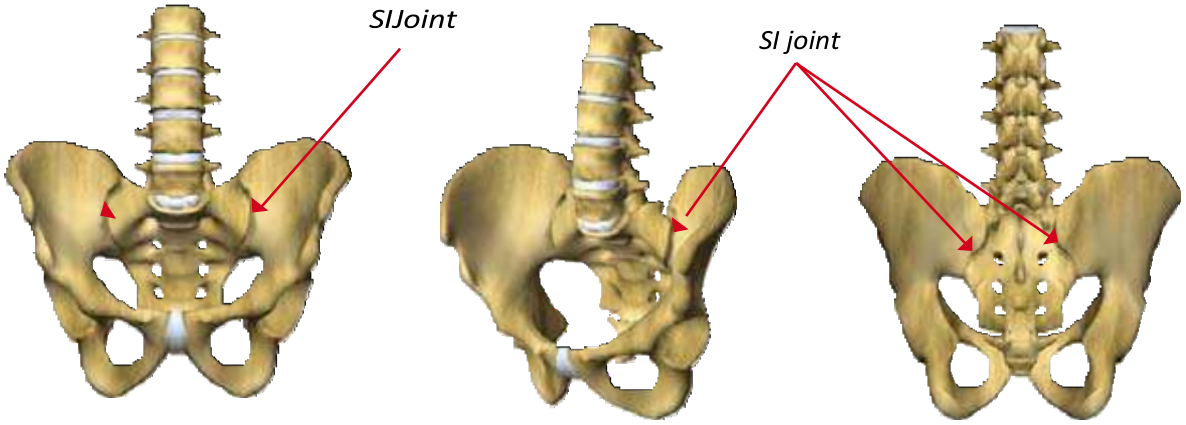
Presentation (subjective / objective findings):

- Localised pain, usually specific to the involved musculature
- reduced ROM
- Gait alterations
- Tenderness on palpation

Practitioner's aims/actions:

- Treat any inflammation using PRICE and its principles.
- Support soft tissue repair, ensuring post-treatment care principles are followed.
- Try to determine cause and give preventative advice or treatment.
- Identify any secondary conditions which may become clear and present.
- Lengthen any shortened muscles
- Strengthen inhibited muscles
- Ensure the client has sufficient ROM, strength and proprioceptive abilities to conduct ADLs in their daily lives, without the need to develop any compensatory movement patterns.
- Educate the client and give corrective exercise.

Sacroiliac (SI) joint dysfunction – The SI Joint functions as a shock absorber , providing a cartilaginous junction between the axial and lower appendicular skeleton in conjunction with the pubis symphysis it also allows a small amount of rotary movement which facilitates spinal movement and the efficient transfer of energy. Should this joints movement become restricted by adaptive changes to the supporting musculature, any leg 'stresses' (e.g. impact, torsional loading) are transmitted directly to the spine (L5/S1), putting a strain upon the lower back.



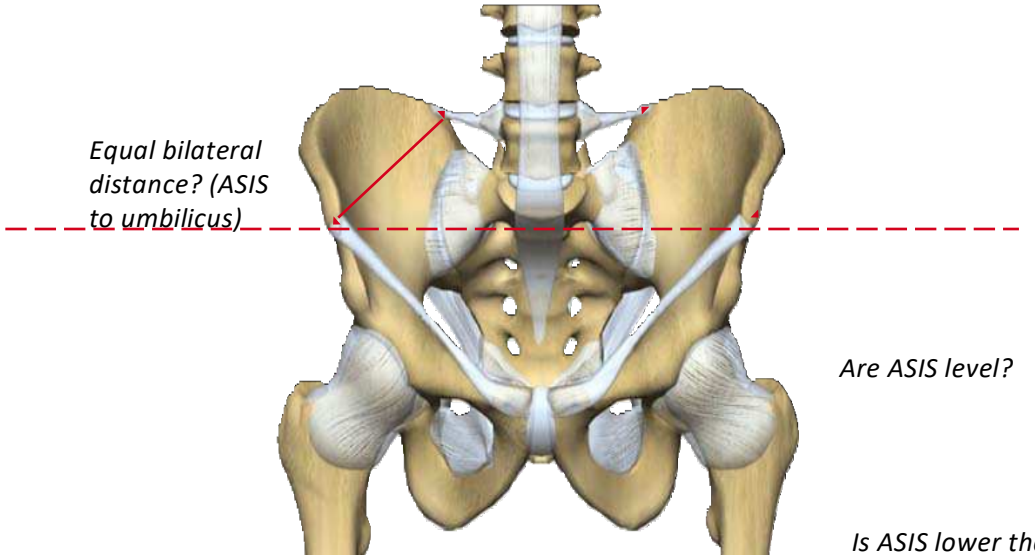
Anterior *Anterolateral* *Posterior*

Presentation subjective:

- pain around L5
- there may be a history of fall or trauma to area
- pregnancy? Relaxin will make the SI joints hypermobile and increase (predispose) the risk of injury

Presentation objective:

- excessive anterior tilt of the pelvis, either unilaterally or bilaterally



Note: since this condition could lead to extensive adaptation / compensatory movement patterns, a detailed ARTS examination should also be conducted to help identify any secondary conditions.

Practitioner's aims/actions:

- lengthen short muscles
- strengthen inhibited muscles
- identify any secondary conditions which may be apparent
- Ensure the client has sufficient ROM, strength and proprioceptive abilities to carry out ADLs without the need to develop compensatory movement patterns
- educate the client and give corrective exercise

Piriformis syndrome - The piriformis is a lateral rotator muscle found in the hip which is prone to tightness. This could be due to:

- poor posture, for a period of time
- inhibited recruitment or strength of gluteus maximus
- incorrect movement patterns causing excessive stress
- postural adaptation, external factors such as an increase in weight
- poor stability or movement control

Since the sciatic nerve passes underneath or through the piriformis muscle there are significant secondary implications of it becoming tight, since the shorter it gets, the greater its diameter becomes.

As the available space (sciatic notch) lessens the nerve may become 'pinched'.

Presentation subjective

Symptoms are almost identical to a prolapsed disc since they too result from an impingement of the sciatic nerve. However, since the shortening of piriformis happens over time, unlike a 'slipped disc' there will seldom be a sudden onset of pain. It is more like a consistent ache. Although it has nothing to do with the lower back.

Presentation Objective:

Examination will normally reveal some of the following if not all:

- laterally rotated hip(s)
- limited medial rotation of hip(s)
- reduced strength in affected leg
- tenderness in glutes
- negative special tests used to negate possibility of disc injury (e.g. slump test)

Note: In common with all *'patterns of dysfunction'* this condition could lead to or have been caused by adaptation / compensatory movement patterns. A detailed ARTS examination should therefore be conducted to establish if any further symptoms exist.

Practitioner's aims/actions:

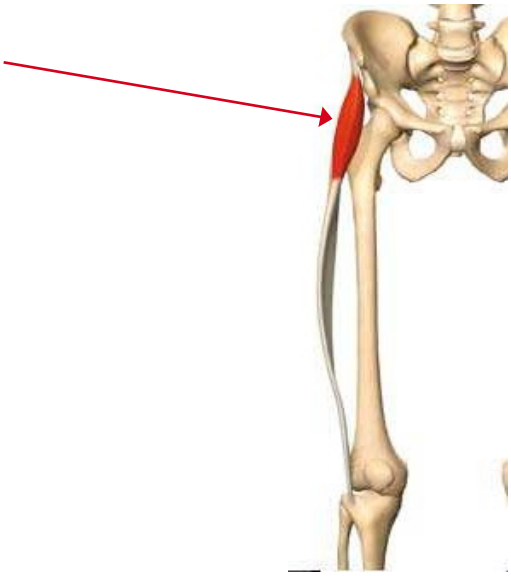
- lengthen short muscles (especially piriformis)
- strengthen inhibited muscles
- identify any secondary conditions which may be apparent
- Ensure the client has sufficient ROM, strength and proprioceptive abilities to carry out ADLs without the need to develop compensatory movement patterns
- educate the client and give corrective exercise

They are very similar in presentation, both piriformis syndrome and sciatica. Within PS, buttock and hip pain is more common than lower back pain. In sciatica, the leg pain is usually greater than lower back pain and the pain may radiate into your toes, in most cases a pins and needles feeling. The affected leg may also feel heavy in nature, like the onset of cramp.

Can PS call sciatica? In most people, the sciatic nerve travels past the piriformis, staying well clear of it on its path.

In some people (roughly 10% of the population according to recent studies), the sciatic nerve runs through the piriformis rather than past it. In these people, when the piriformis gets tight the sciatic nerve can become compressed, causing sciatica.

Snapping hip - A snapping hip can be due to several factors. When experienced on the lateral aspect of the hip, it is usually as a result of friction caused by the tensor fascia latae and iliotibial band complex moving across the greater trochanter of the femur.



Anterior aspect of the right hip.

The iliotibial band (IT Band) is prone to becoming very tight or adhered to the vastus lateralis muscle. Tensor fascia latae and gluteus maximus contribute to this tension as part of the dynamic stabilisation of the lateral aspect of the knee. Changes in tonicity or recruitment of these muscles will therefore, also have a direct affect.

When felt anteriorly on the hip, either the movement of the iliopsoas tendon across the iliopectineal bursa or the iliofemoral ligament across the femoral head can be responsible. The iliopsosas will be affected when posture changes occur and resultant increase of tension within the tendon, can irritate structures that it passes over. Equally repetitive movements can lead to inflammation of these structures and the increase in their size due to the swelling, thus impeding the movement of the tendon.

If the pain appears to originate intra-articularly, loose bodies or a tear to the labrum should be considered. This may become apparent during the subjective or objective stages of assessment or if the soft tissue treatment does not alleviate pain. In either of these cases the client should be referred to their GP.

Presentation:
- audible 'click' on movement, but not necessarily painful
- discomfort on palpation of involved tissues
- positive Ober's test (special test used during ARTS to determine tightness in ITB /TFL)

Practitioner's aims/actions:
- treat any inflammation using PRICE
- lengthen short muscles
- strengthen inhibited muscles
- Ensure the client has sufficient ROM, strength and proprioceptive abilities to carry out ADLs without the need to develop compensatory movement patterns
- try to determine the cause and give preventive advice or treatment
- identify any secondary conditions which may be apparent
- educate the client and give corrective exercise.

Hernia - A hernia is often defined by the following statement in a vast number of publications 'a protrusion of an organ or part of an organ through tissue that normally contains it'. Weakness in surrounding tissue combined (normally) with excessive exertion or pressure can lead to herniation. Common sites are:

- inguinal: between the pubis and ASIS, usually involving a protrusion of the small intestine and more common in males
- femoral: anterior to the femoral head usually related to changes during pregnancy

Presentation:
- pain especially on exertion such as coughing or sneezing
- lump on palpation

Practitioner's actions:
- refer to GP

Note: 'footballer's hernia' (Gilmore's groin) is not a true hernia but a tear at the origin of adductor longus. It therefore, may be treated using the same PRICE protocol and post-treatment care guidelines common to all soft tissue injuries. How-ever Gilmore's groin can often be referred for surgery in many cases.

Bursitis – Any of the bursas of the hip may become inflamed as a result of overuse of a overlying muscle or extrinsic impact. GTPS or as otherwise called Greater Troncanteric pain syndrome, affects around 1.8% per 1000 clients on average per year, causing lateral hip pain.

Presentation:
- Pain local to the affected bursa and made worse with prolonged sitting, climbing stairs for example.
- Pain on palpation of the bursa in and around the structure.
- reduced ROM
- Pain upon palpation, for example the Greater Tronchanter Palpation test.

Practitioner's aims/actions:
- treat any inflammation using PRICE
- lengthen short muscles
- strengthen inhibited muscles

- Ensure the client has sufficient ROM, strength and proprioceptive abilities to carry out ADLs without the need to develop compensatory movement patterns
- Try to determine the cause and give preventative advice or treatment
- Identify any secondary conditions which may be apparent
- Educate the client and give some correct exercise.

Ligament injuries – The pelvic-hip complex is supported by a number of interwoven ligaments. All of which will be at risk of sprains due to dynamic movements, extrinsic injury, overuse (causing inflammation.) and poor movement patterns or laxity.

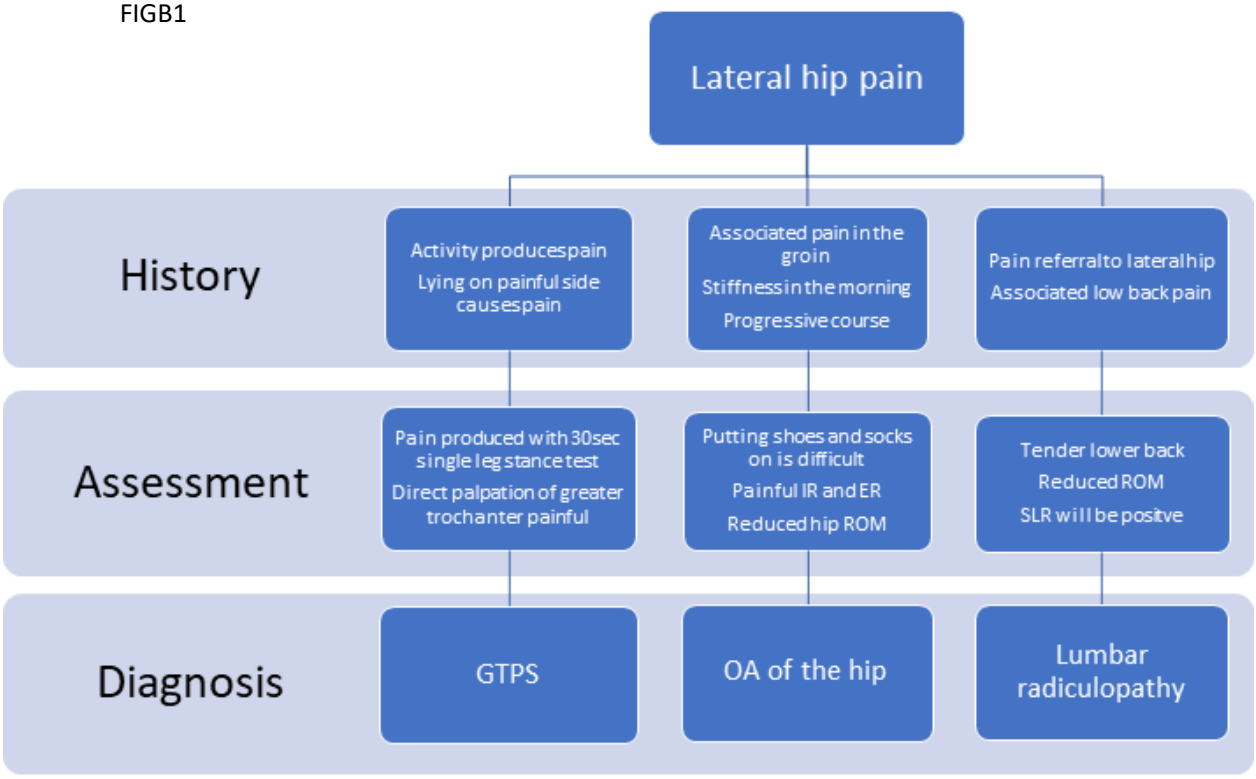
Presentation:
- localised pain or instability
- restricted ROM due to protective spasm
- excessive ROM due to laxity and loss of stability
- hypertonicity in surrounding musculature

Practitioner's aims/actions:
- treat any inflammation using **PRICE**
- support soft tissue repair using the principles of post-treatment care
- try to determine the cause and give preventative advice or treatment
- identify any secondary conditions which may be apparent
- Lengthen short muscles
- strengthen inhibited muscles
- Ensure the client has sufficient ROM, strength and proprioceptive abilities to carry out ADLs without the need to develop compensatory movement patterns
- Educate the client and give correct exercise.

Lateral Hip Pain - A very common issue that clients report within a clinic. There are many causative factors that affect the Lateral aspect of the hip. Lateral pain may be caused by structural changes to the glute medius/minimus tendon as well as the illiotibial band which runs up the side of your thigh. Pain may also be caused by a fall or overuse of the muscles surrounding the hip such as the illiotibal band and FL for example.

Presentation: As shown in FIGB1, a client may present in a number of different fashion. This isn't an exhaustive list, however an excellent starting point.

FIGB1



Practitioner's aims/actions:

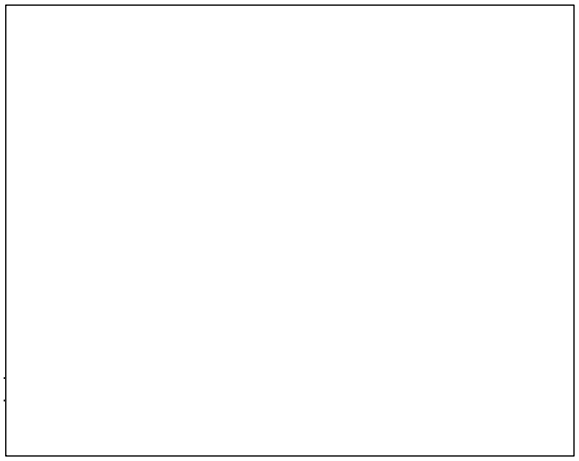
- Treat any inflammation using **PRICE**
- Consider Theraputic Ultrasound as a therapy.
- try to determine the cause and give preventative advice or treatment
- identify any secondary conditions which may be apparent
- Look to lengthen any shortened muscles, such as TFL.
- strengthen inhibited muscles
- Ensure the client has sufficient ROM,strength and proprioceptive abilities to carry -out ADLs with-out the need to develop compensatory movement patterns
- Educate your client on corrective exercise and movements that will aid the rehabilitation of the lateral aspect of the hip.
- Support soft tissue repair, using post-treatment care principles.

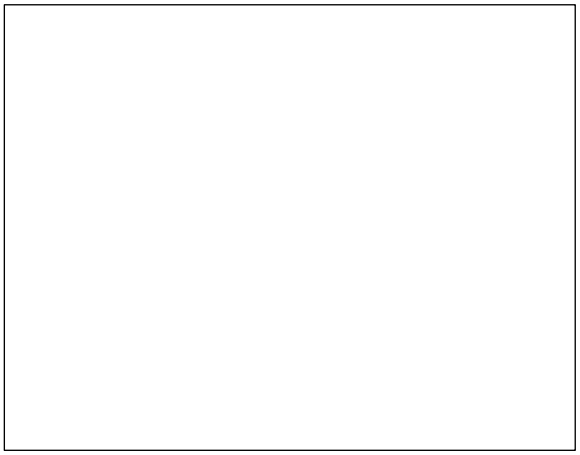
Special Testing of the Hip

The Single Leg Stance Test.

The test is designed to help identify gluteal tendinopathy. A positive test would have the clients pain reproduced lateral hip pain around the great trochanter area. Look for a reported pain of above 3/10 on a pain scale.

1. Client stands next to the wall laterally. With the reported affected leg furthest away.
2. Get the client to touch the wall with one finger at around shoulder height to aid balance.
3. The leg closest is then raised to 90 degrees. This position is then held for 30 seconds in duration.





Greater Trochanter Palpation

The test is designed to help identify gluteal tendinopathy. A positive test would have the clients pain reproduced lateral hip pain around the great trochanter area. Look for a reported pain of above 3/10 on a pain scale.

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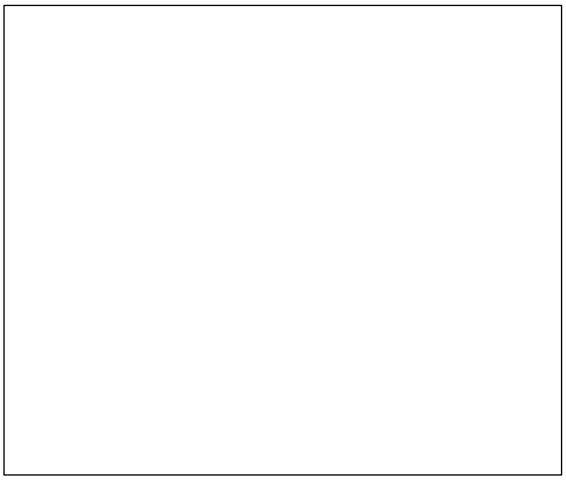
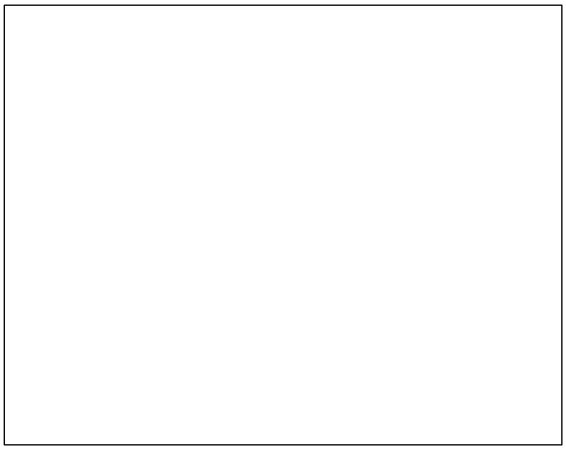


The Modified Thomas Test

The Thomas test or Kendall test is a test which can be used to measure the ROM/Flexibility of the hip flexors of your client. The muscles within this includes rectus femoris, gracillis, Tensor fascia latae, Sartorius and iliopsoas muscle group. A positive test will see the knee raise from 90 degrees of flexion.

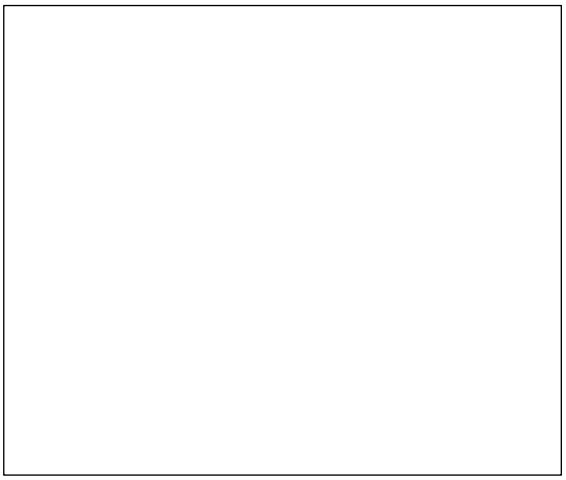
1. Client is in the supine position, with knees both maximally flexed hanging of the edge of the table.
2. Back flat on the table and ensure there is no anterior tilt of the pelvis.
3. Ask your client to then bring up the leg not being tested to the chest, until lumbar spine flattens.

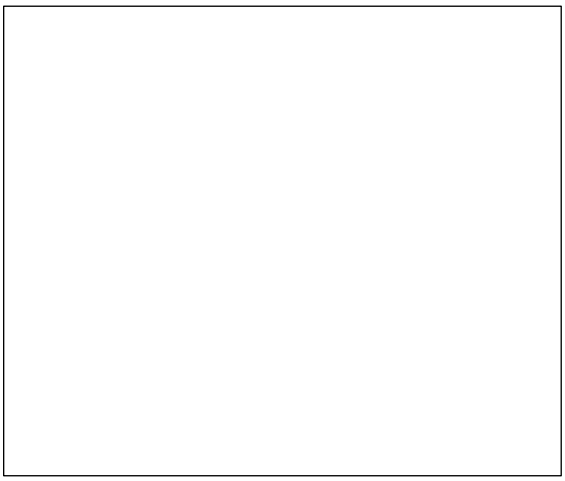


Trendelenberg Sign

A quick and easy test, the Trendelenburg can help you as a therapist assess for any hip dysfunction that your client may have. A positive test will be when the client's pelvis drops on their contralateral side during their single leg stand on their affected side.

1. Ask you client to stand on one leg for 30 seconds
2. If balance is a problem they can hold onto to something (consider if elderly or has previous injury.).
3. Observe your client to see if their pelvis stays level , whilst they perform the single leg stance.

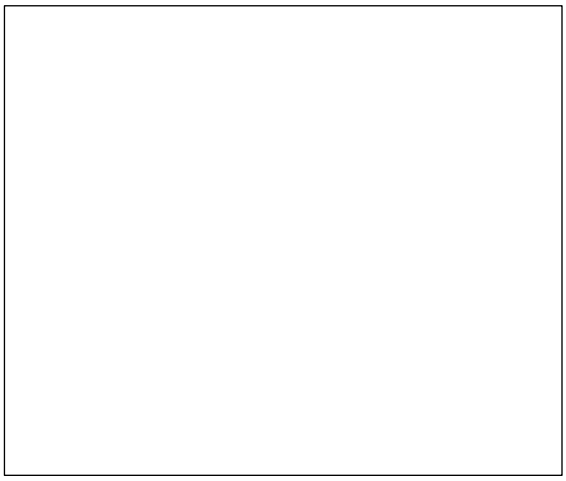


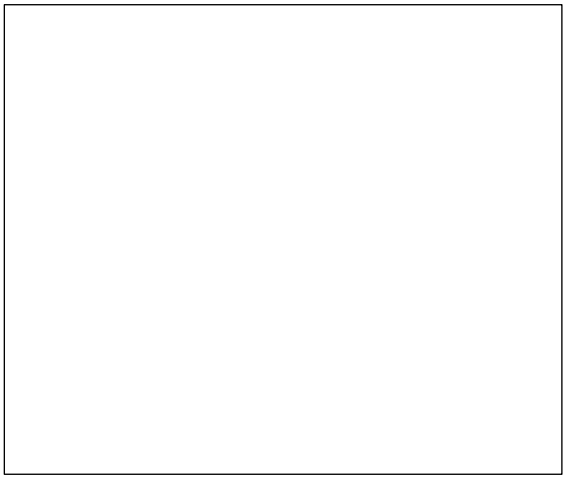


Elys Test

Testing the length of the rectus femoris. The test will indicate a shortened muscle if the client cannot perform without lifting and driving the knee forward into hip flexion.

1. Client begins in a prone position.
2. The client then brings the heel into maximal flexion
3. The therapist will aid and bring the ankle towards the gluts.

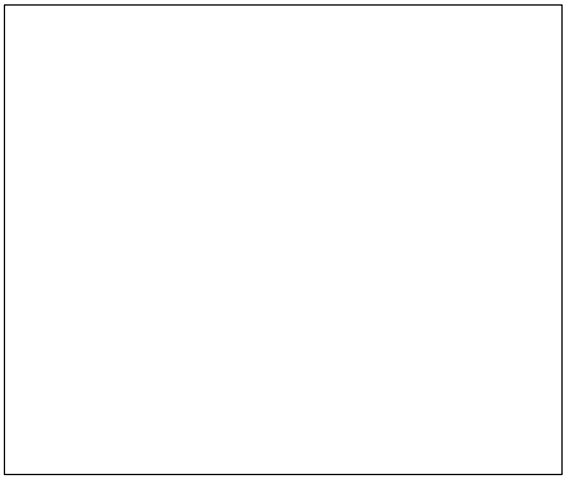


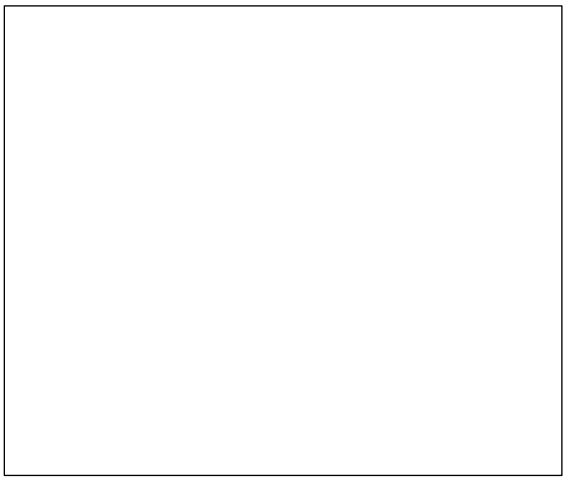


FADDIR Test

A positive test will be when the clients groin pain is reproduced. The test also referred to in some publication as the anterior apprehension test. The test can be an indication of hip impingement with a labrum tear.

1. Client begins in a supine position with one leg extended and the side being tested hip fully flexed or in 90 degrees flexion.
2. Then adduct the client's hip with maximal Internally rotation of the hip

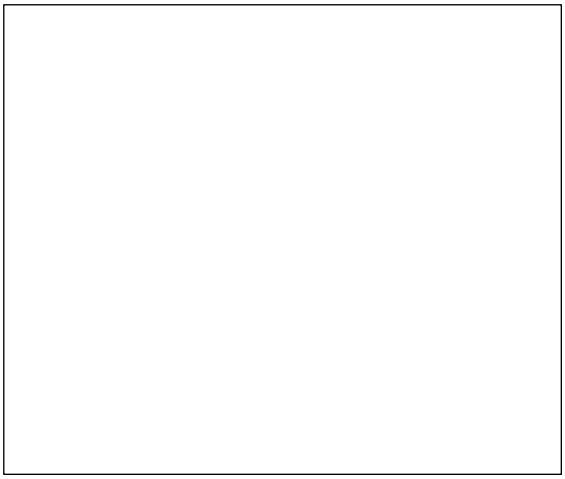


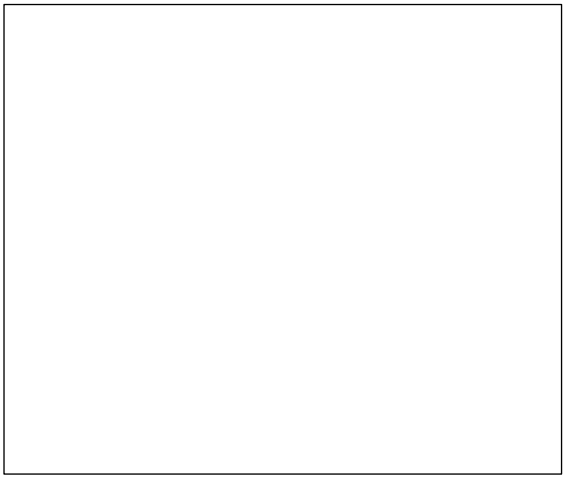


FABER Test

The test or also referred to as Patricks, is a special test to identify adductor length as well as possible dysfuncton in the client's lumbar spine or sacroiliac joint. A positive test is indicated when the knee of tested side remains above extended knee and a discomfort is felt in the adductor muscle group.

1. Client begins lying in a supine position.
2. Ask your client to cross legged in a figure of 4 position. With opposing ankle above the knee joint. With hip flexed.
3. You as therapist then fixates the opposing side of the hip (ilium) with one hand.
4. With the opposite hand push downwards on the client's knee to move hip into abduction.

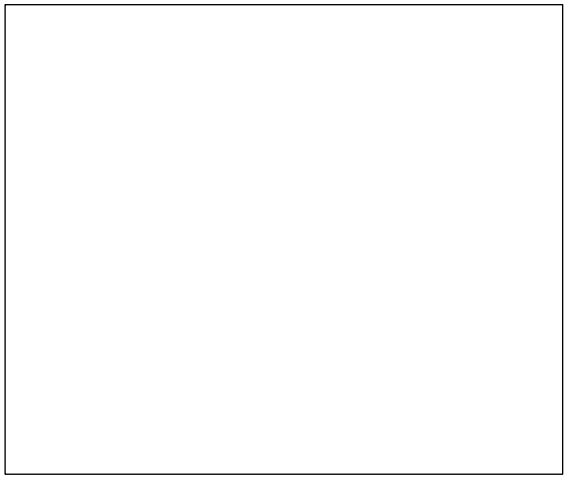


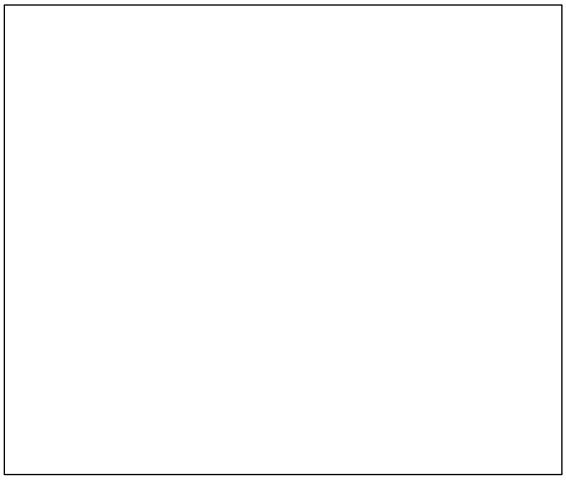


Obers Test

A positive outcome would be if the client's upper leg cannot be adducted far enough to touch the table they are on. This would indicate a shortened IT band.

1. Client is laid on their side with the side being tested on top. Flex hip and knee of the lower to help client feel and become more stable.
2. As a therapist passively abduct the patient's upper leg and bring it into slight extension, whilst the with the other hand you hold the pelvis stable.

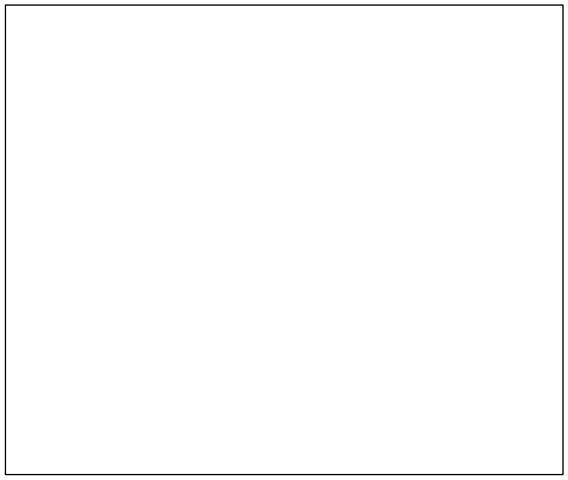


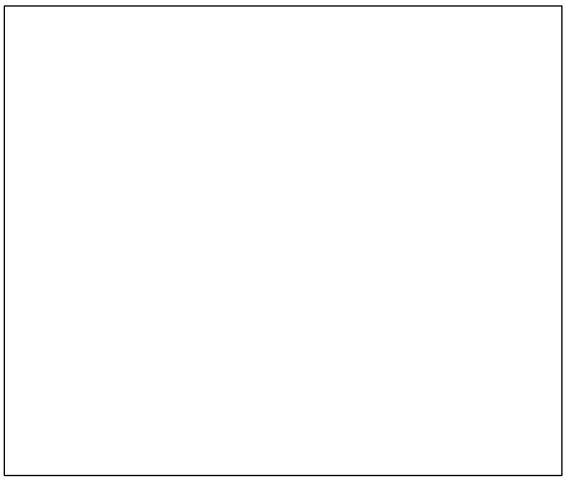


FADDIR Test

A positive test will be when the clients groin pain is reproduced. The test also referred to in some publication as the anterior apprehension test. The test can be an indication of hip impingement with a labrum tear.

1. Client begins in a supine position with one leg extended and the side being tested hip fully flexed or in 90 degrees flexion.
2. Then adduct the client's hip with maximal Internally rotation of the hip





FADDER Test

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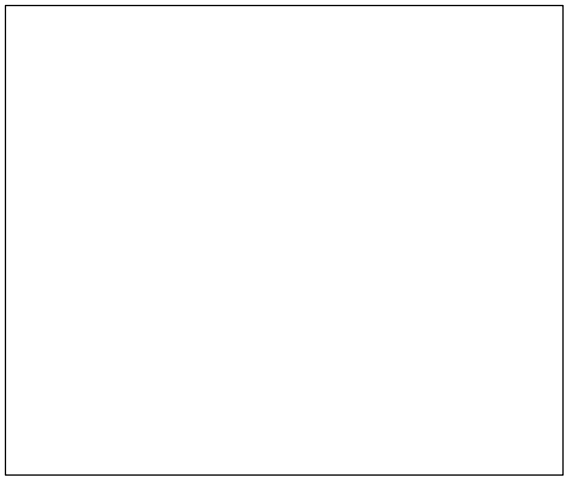
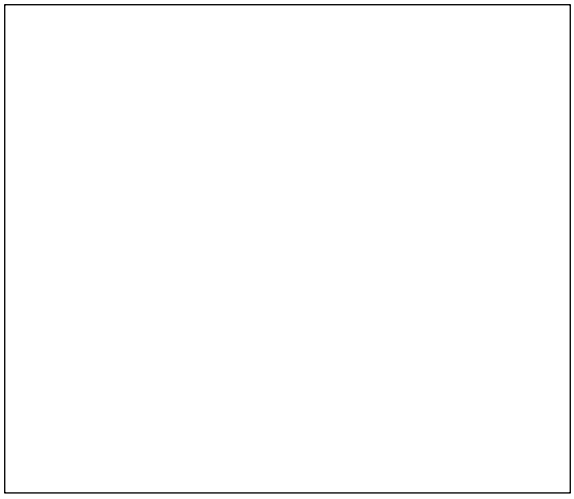
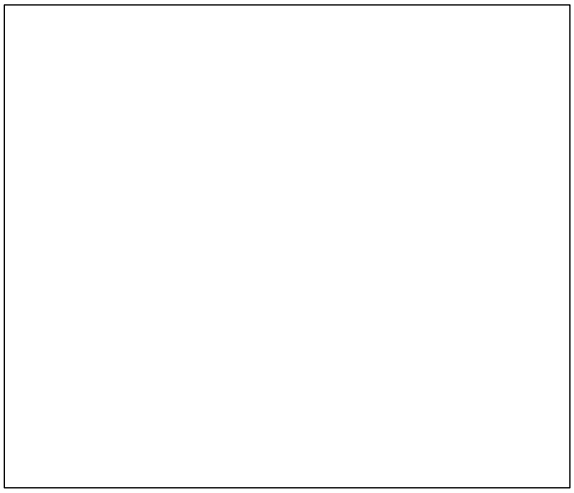


Pace Maneuver

A simple and easily interpreted test for deep gluteal syndrome. A positive test will be given with weakness and pain on the effected side.

1. Get the client to sit with hips and knees flexed. With lower legs hanging off the treatment table.
2. Therapist, will place both hands on the lateral aspects of the patient's knees. As seen in image 2.
3. Then against a resistance the client is asked to push out, trying to further the distance between the therapist hands.

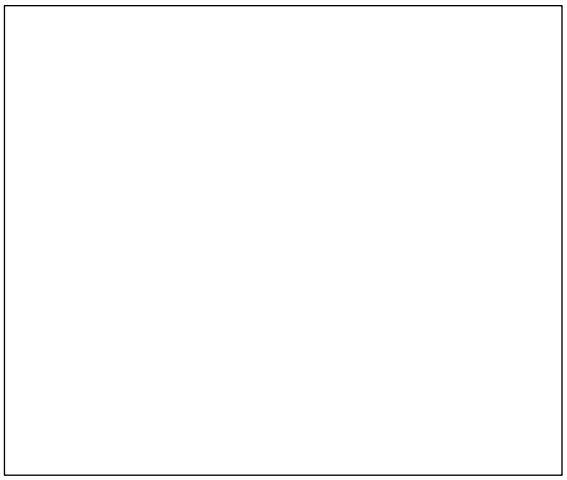




Seated piriformis Stretch Test

A deep gluteal syndrome is now preferred to piriformis syndrome. Very a sciatica like in its presentation. A positive test will be the client presenting pain around the buttock area and possibly lower leg.

1. Client begins sat over the edge of the table, with hips at 90 degrees.
2. Palpate the sciatica notch
3. Then bring the clients leg into adduction with maximal Internally rotation.



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