

A therapist's guide to treating hip pain in varying presentations

In this article, Sally Mason offers an approach for assessing clients with hip pain, and being confident about offering advice, treating with soft tissue work, or referring on when necessary. She explains varying presentations, potential conditions to consider and explains when following protocols may be only part of the story.

Background

My interest in hip pathology began eight years ago at a symposium hosted by one of my professional mentors, the highly regarded Rob Granter. The presentation by a physiotherapist and a remedial massage therapist was about returning symptomatic hips to full function using physiotherapy led exercises and soft tissue management. They explained (what was then) a little-known condition called femoro-acetabular impingement (FAI), as well as some common differential diagnoses. They also explained the potential benefits of minimally invasive arthroscopic intervention to address abnormal morphology or underlying joint issues, thus easing symptoms and potentially delaying the onset of osteoarthritis. It was to be the beginning of an increasing trend in hip arthroscopy for surgeons in Australia and worldwide, and what piqued my interest the most was the willingness of leading surgeons in Melbourne to accept the contribution of soft tissue therapy into their post surgical rehabilitation protocols. Many allied health professionals including myself have since been fortunate to have attended hip arthroscopy workshops with Hip Arthroscopy Australia (HAA), which include observation of a live surgery and training specifically for post surgical rehabilitation.¹

Current wisdom

Today, surgeons are well aware of, and have access to many options, from injectable substances and minimally invasive arthroscopic surgery, to periacetabular osteotomy (PAO) and total hip replacements (THR). It is in the surgeon's best interest to have positive outcomes: they record patient outcomes to use toward further research and professional development. The aim is to preserve the hip to the best of their ability with their current knowledge and skills, including acknowledgement of individual circumstance (no longer a one-surgery-suits-all approach, and sometimes it is appropriate to not proceed).

Some hip symptoms can be treated effectively with non-steroidal anti-inflammatory drugs (NSAIDS), cortisone injections, platelet-rich plasma (PRP) and other injectable substances. Correct diagnosis using orthopaedic testing and appropriate imaging will help to determine the best treatment approach. Imaging is best interpreted by a specialist.

Often, conservative intervention can restore hip function, reduce pain, and delay joint degeneration. Although hip arthroscopy and personalised hip therapy can both improve hip-related quality of life for clients with FAI syndrome, surgery for this particular condition tends to lead to a greater improvement.² For allied health professionals, there is still ample opportunity to support hip preservation in our communities, working alone or in conjunction with other health professionals. Knowing when to treat and when to refer for orthopaedic opinion is important.

Potential hip conditions

There are several potential pathologies which may cause pain or dysfunction in or around the hip joint. Some terms used are variations of the same or similar condition:

- Bursitis, Greater Trochanteric Pain Syndrome (GTPS), gluteal tendinopathy
- Osteoarthritis (OA)
- Femoro-acetabular/cam and pincer/ball and socket impingement (FAI)
- Restricted ROM
- Dysplastic hips (<25-33° of coverage of the femoral head), hyper-mobility, Ehler's Danlos Syndrome (EDS)
- Piriformis syndrome, deep gluteal syndrome, ischio-femoral impingement
- Psoas tendinopathy, 'snapping hip', over-facilitated hip flexors
- Cartilage damage or Loose bodies (from injury or OA)
- Labral damage
- Ligamentum teres damage or irritation

- Referral into the posterior hip or upper thigh from lumbar spine pathology including central sensitisation
- Adverse biomechanics in the trunk, hip, ankle or knee may disrupt or increase force impact at the hip joint.

Subjective assessment and pain

It's important to listen sincerely to the client. They may require your advice, knowledge and skills, but this is their personal experience, and they are the first expert on their body and how it feels. They know what feels normal to them and what doesn't, and this may differ from what looks or seems normal to you. The most important part of your subjective assessment is to listen to the way the client explains their pain, without making assumptions.

Causes of hip pain are varied, and hip pain can exist with co-morbidities. Some co-morbidities may even, be the cause, so be curious about the clients' whole lives, their past sports, current situation and daily activities. Occasionally, if you're lucky, a client has had a one-off incident, slip or fall, and you can approach directly and clearly as an acute presentation. However sometimes clients won't know what caused the pain and may not even be able to say how long it's been. They may be driving or gardening more, gained weight, or been staying in a different bed. They may have joined a new yoga class, changed personal trainers, introduced a new Pilates move (e.g. foot circles in the air), changed occupation, or bought a new car which affects their hip biomechanics driving or just getting in and out. Be aware of hormonal changes or stressors which may have caused an inflammatory response, nutritional changes, side effects of medicines or recreational drugs, and consider anxiety, trauma or grief. There is a myriad of things which may go back one week or a lifetime, and although you don't necessarily need to know it all (nor do you have the time), if you can help the client figure out the cause

of their pain or condition, they will be more able and likely to resolve it.

A recent study into co-morbidities in the first two years after arthroscopic hip surgery³ has revealed evidence of a substantial increase in mental health disorders (84%), chronic pain diagnoses, substance abuse (57%) and cardio-metabolic conditions including sleep disorders. Some of these may have been present in this cohort prior to elective hip surgery, however this still highlights factors which shouldn't be overlooked pre-surgery. If they're addressed particularly well pre- and post-surgery, a positive outcome is more likely to be achieved.

Therapists generally spend a lot more time in conversation with a client than surgeons are able to, so there is a great opportunity to practise a holistic approach to the management plan. Where trauma has been a factor involved in a hip injury, Cognitive Behavioural Therapy (CBT), meditation, breathing, progressive muscle relaxation can be effective tools, and referral may be useful. If exercise is necessary but the client feels it has been forced upon them, CBT may help alter this perception, as the effects of forced exercise can be counter-productive.⁴ For clients with Ehler's Danlos syndrome symptoms, awareness about this condition⁵ can help your treatment approach.

Once you have listened to their story, gained their respect, and collected their full history, consider your objective assessment. You only need a few specific tests to guide your first attempt at treatment. Each treatment may vary; proceed as per your original remedial massage training, continuing to 'Assess, Treat, Re-assess' taking notes to monitor impact and progress. Aim to create a suitable management plan for the client which begins with conservative treatment, offering realistic expectations within a defined time frame.

Common assessments to help determine hip pathology or differential diagnoses:

- Standing or gait assessments may be useful to reveal postural habits for pain avoidance
- FADIR – Supine, passive hip flexion, with slight Adduction and Internal Rotation.
- FABER – Supine, passive hip flexion, slight Abduction and External Rotation
- IR – passive internal hip rotation supine, and also 'around the clock' to determine where the impingement point is, this may explain why pain occurs when running not walking, or when client reports pain in a particular movement

- Functional testing – observe client perform pain-provoking movement
- Double and then single leg squat
- Log roll – Supine, observe feet and legs, tap feet inwards – check for 'spring' type tension with ER (can indicate laxity)
- Thomas test or modified Thomas test to check hip flexor tension/pain (consider psoas, TFL or rectus femoris)
- Adductor tightness and/or strength (squeeze) test – may cause pain or show dysfunction
- Special test for 'sports' hernia pain – resisted adduction (squeeze) test while doing a sit up.

Soft tissue treatment options

Soft tissue treatment will be determined by the skill set and modalities available to you within your scope of practice and experience. Treat the muscles most commonly involved in hip pain*, with specific focus on the muscles which have shown up as hypertonic, indicating restricted range of motion or replicating pain during testing (eg. Piriformis tightness test may have caused familiar pain, or the Thomas Test may indicate restriction and tightness in psoas major).

Your client's target tissue may respond to trigger point therapy, cupping, myofascial tension techniques, passive joint mobilising, corrective taping, cryotherapy, transcutaneous electrical nerve stimulation (TENS), Muscle Energy technique (MET), Proprioceptive Neuromuscular Facilitation (PNF), dry needling, or longitudinal massage strokes. Clients will respond differently; adjust your subsequent treatments accordingly. In addition to your familiar or preferred techniques, transverse friction (short deep cross fibre) work can be very beneficial to stir up muscle guarding patterns and assist with short term pain relief. Post operatively cross friction work can help to prevent dysfunctional scar formation and encourage faster healing, assist with pain and symptomatic relief.

Not all soft tissue work or massage is the same, and unfortunately research articles struggle to clearly define specific techniques or dosage. Your intention needs to be clear before you commence a treatment plan and your notes and clinical reasoning should be thorough. Generally, the goals of your soft tissue work should be to de-load the hip joint to prevent further damage or aggravation of symptoms, provide an opportunity for pain management through short term relief, obtain pain feedback to help determine appropriate treatment and pain education, offer

proprioceptive feedback and re-mapping opportunities for better body function, and to decrease or increase tissue tone. If you can effect some change in the client's pain perception, future treatments should include what works, and then expand to include consideration of muscles affecting trunk or pelvic rotation and movement, as well as function and flexibility of knees and ankles.

**Muscles commonly affecting hip pain – gluteus medius, piriformis, obturator internus, quadratus femoris, tensor fascia latae, psoas major, iliacus, rectus femoris. Muscles which may also be implicated – adductors, quadratus lumborum, hamstrings. Also check latissimus dorsi and erector spinae over-activity, especially where excessive anterior pelvic tilt is observed.*

Strengthening, functional retraining and other options

Give your client appropriate options to gain control and optimal function of their hips to suit their ongoing lifestyle or sporting requirements. There is a place for strength and conditioning, 'core work', pilates, yoga, functional training, cueing to help with lumbo-pelvic stabilising and glute 'control'. Golfers, for example, should be able to rotate the trunk without moving the pelvis, and vice versa. Post operative rehabilitation may include a pool program and cycling. Generally to get the hips swinging in the sagittal plane is helpful. Exercise plans must be tailored specifically to the client to address symptoms or improve muscle function. Explore other pain management options – pain education, self-massage, stretching, avoidance of aggravating factors, using massage balls or rollers, using a TENS machine, and thermotherapy.

If you are not confident to advise your client, refer them to someone who is. There are many great therapists who have experience with hips. There are also great guidelines for post surgical rehabilitation from surgeons who work closely with physiotherapists. These may include, pre- and post-surgical gait aids, detailed exercises for strengthening the deep hip muscles (e.g. quadratus femoris) to ensure co-ordinated local muscular control, followed by global retraining and strengthening. Always attempt to obtain notes from the client's surgeon or sports medicine doctor about exactly what has been done or injected, and what guidelines should be followed post-operatively or post-injection. Surgeons, sports medicine doctors and physiotherapists may

differ slightly in their approach and their opinion. Consider their guidelines keeping in mind that not all protocols will suit all clients. Your client will appreciate a team approach to obtaining the best outcome for them.

General considerations of hip complaints

The adolescent hip

- potential for overload during times of growth – soft growth plates at tendon attachment sites (note the epiphyseal plate of the iliac crest can still be soft at 16 years)
- Osgood-Schlatters & Severs symptoms – consider hip load and bio-mechanics of lower leg
- Perthes disease (rare – deformity of the femoral head due to disrupted blood supply)
- Altered morphology of cam and/or pincer, particularly in sports such as dancing, soccer, baseball, ice hockey, squash and basketball which involve high hip flexion and internal rotation. Several research studies⁶ have shown that if adolescents over-train and over-play sports before bone maturity, their hip morphology can change: parents and children in junior sports should be aware of what these changes may mean in an adult hip. Bony changes of the femoral head and neck begin to occur from ten years of age, are more significant at the time of epiphyseal closure, and have a dose response relationship (more exercise = more changes). Males participating in high-level sports during adolescence are at particularly elevated risk of developing abnormal cam (femoral head) morphology and secondary hip pathology.

Treatment tips

- Soft tissue work (*refer to previously mentioned soft tissue treatment options*), intention to deload tendons at attachment sites, work toward insertion site of pain.
- Reduce repetitive load training, avoid high flexion and internal rotation of hips
- Surgery for FAI type impingement may be a necessary and helpful option for some elite athletes; the type of surgical intervention will depend on whether the physis is closed or open at the femoral head⁷
- Access helpful injury prevention program resources such as FIFA 11+, AFL FootyFirst, Netball KNEE program.

The young athletic hip

- Congenital disorders may show up
- Forgiving recovery post activity, may have onset of FAI but be asymptomatic
- Injury recovery is fast, established pain patterns are uncommon
- Previous load may have already altered morphology
- Optimise functional load technique to reduce further bony changes
- May cause or show as back strain, knee or ankle issues
- Young males more likely to have a CAM type impingement than women
- Damage pattern from underlying deformity of cam/pincer (cartilage starts to delaminate, shearing force displaces the labrum, significant damage to the cartilage and then damage to the femoral head).

Treatment tips

- Soft tissue work; should respond well
- Injury prevention education (e.g. FIFA 11+, AFL FootyFirst, Netball KNEE program)
- Dysplastic hips may benefit from PAO surgery (acetabulum reshaping), laxity issues may benefit from ligamentum teres reconstruction/repair via arthroscopy. Arthroscopic surgery for obvious cam/pincer deformities may be considered to prevent premature hip osteoarthritis. Refer if your management is not helping, or if client is particularly hypermobile.
- Strength and/or rehabilitation – exercise and education may range from 6 weeks to 3 months, monitoring closely for symptoms. Use a single leg squat test to check lower limb motor control.

The middle-aged hip in active adults

- May have recently started exercise, new techniques, new demands for hip ROM or function required
- May have recently re-started exercise, body shape or weight may have altered function since time away from exercise
- Women more likely to have a PINCER type impingement than men (compressed labrum then damage to the rim under pressure from femoral head by body weight or exercise load)
- Tendon irritation pathology over use (oestrogen lower and therefore less protective of the tendons in women) Bursitis may be present (symptom of compression, impingement or over-use)

- Femoro-acetabular impingement (FAI)
- GTPS (greater trochanteric pain syndrome)
- Chronic pain patterns may be established, more environmental factors, lifestyle etc.

Treatment tips

- Soft tissue work, *avoid working directly on irritated or affected tendons*
- If IR is <5° and doesn't improve post RX then consider referral to hip specialist
- Improve hip muscle strength, lumbo-pelvic stability, biomechanics, reduce stride of steps if bursitis or inflammation present
- Keep knees widespread when seated to reduce the overstrain and compression to gluteal muscle tendons
- Consider nutritionist/dietician/naturopath support for peri-menopausal women with persistent inflammatory response to exercise.

The middle-aged hip in sedentary adults

- Tendon irritation and pathology, compressive forces, GTPS,
- Gluteus medius tendinopathy common, potential cause of bursitis diagnoses
- May be over-weight, inefficient/dysfunctional gait, carrying other injuries
- Hormonal changes, nutritional deficiencies
- Chronic pain patterns.

Treatment tips

- Soft tissue work, *avoid working directly on irritated tendons*.
- Avoid crossing legs when seated and if sitting for long periods, keep knees widespread to reduce the overstrain and compression to gluteal muscle tendons
- Sleep side lying with a pillow between the knees (reduce compressive forces to top hip) Mattress pressure should also be considered for the hip which is in contact with the bed (softer better for flare ups of bursitis or if weight is a factor)
- Discussions around pain education, lifestyle and weight, encourage walking and movement, hydrotherapy, aqua aerobics, swimming.

The older hip in active adults

- Tendon overload, less potential muscle strength and support
- Injuries leading to changes in activity
- Nutritional deficiencies, less intake of protein
- Osteopaenia, osteoporosis; bony changes due to genetics, medications or diseases

- Osteoarthritis, degenerative change due to lifetime of use or FAI.

Treatment tips

- Soft tissue work
- Increase time between exercise days (tendons need longer recovery time – 48hours+)
- Assess for gait changes and imbalances, consider feet issues
- Discuss nutrition, pain education, medication affecting muscles or joints
- Suggest modifying activities to suit changes to body (e.g. aqua aerobics instead of Zumba), smaller strides to minimise impact to bony landmarks within hip joints. Maintain exercise – replace an exercise with another rather than stop altogether.
- Referral to hip specialist if IR <5° and causes pain in IR or ER, or if daily life is significantly affected by pain.

The older hip in sedentary adults

- Higher potential for muscle atrophy
- Less activity and load than previously
- Falls or injuries
- Nutritional deficiencies, less intake of protein
- Osteopaenia, osteoporosis; bony changes due to genetics, medications or diseases
- Osteoarthritis, degenerative change in hip joint due to past overload or genetic predisposition.

Treatment tips

- Soft tissue work
- Clients with, or at risk of OA need strength for support – target muscle weakness in adductors, hamstrings, quadriceps and glute maximus and minimus (not TFL or glute medius)⁸
- Conversation around moving more, and take smaller strides (reduce further OA damage)
- Simple exercises like a holding wall squat
- Referral to hip specialist if IR is <5° and causes pain, or if daily life is being significantly affected by pain.

Red flags to keep in mind: AVN (avascular necrosis of the femoral head due to disrupted blood supply from traumatic or non-traumatic factors), slipped capital femoral epiphysis in adolescents require urgent paediatric referral (obvious limp, may cause thigh or knee pain), fractures, previous hip replacement hardware faulty or may have caused a fracture to the femur, hernia, post-op groin pain (potential nerve damage).

Conclusion, and a note about 'normal'

When you choose to treat a client as an individual, measurement of their range of motion (ROM) in comparison to a 'normal ROM' no longer applies, or rather, no longer should be your focus. The general public entrusts therapists with their personal information and physical health, so it is understandable that therapists should follow particular guidelines and protocols, and to keep abreast of current research evidence. Theoretically, this is important for many reasons. In practice, however, a purely evidence-based protocol approach may be flawed if the full client picture has not been considered. Research analysts like to categorise people and test single interventions; it's much easier, and neater for reporting and data collection. The reality is that humans are complicated, and the variables which may be affecting them, their perception and their recovery from injury or pain can be hundreds if not thousands. Even with relatively loose classifications as above, a middle-aged client can still present with an old hip (think Andy Murray⁹). Treating a client as an individual within flexible guidelines will allow you more scope for success.

Furthermore, those clients who 'fail' the normal model may be at highest risk of comorbidities if therapists continue to insist on applying 'the protocol'. If the system which usually works in a percentage of the population doesn't work for this group, what then? The client may feel as though there must be something wrong, that they're the problem, which may exacerbate their condition. They may lose hope, despair of seeking treatment, and this can lead to chronic pain, substance abuse and/or mental health issues. Add to this, the well-meaning therapist who insists on following protocol because it 'should' work or has worked for other clients may become frustrated with their client and lose confidence in their own ability and skill set. Everyone continues to 'try', until eventually more medications, options, imaging, therapists, modalities, and opinions are sought, at a large expense of time, money and mental health.

We need research data and safe protocols to guide us, but we also need enough logic, courage and curiosity to consider very quickly what to do next when a model we 'usually use' may not be showing positive outcomes. Abandoning it, based on good clinical reasoning, to take an unknown path with clients, for the client's sake, can be more rewarding than text book cases. Keep your

new hip knowledge in mind, but who does the hip belong to? Listen, watch and consider your whole approach when treating your person.

Note: In the interest of remaining open minded to new information, please be assured that this information is open and welcome to challenge, speculation, opinion and further research. It is my intention to offer an overview accompanied by a general approach toward effective options for assessment, treatment, management or resolution of such symptoms.

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