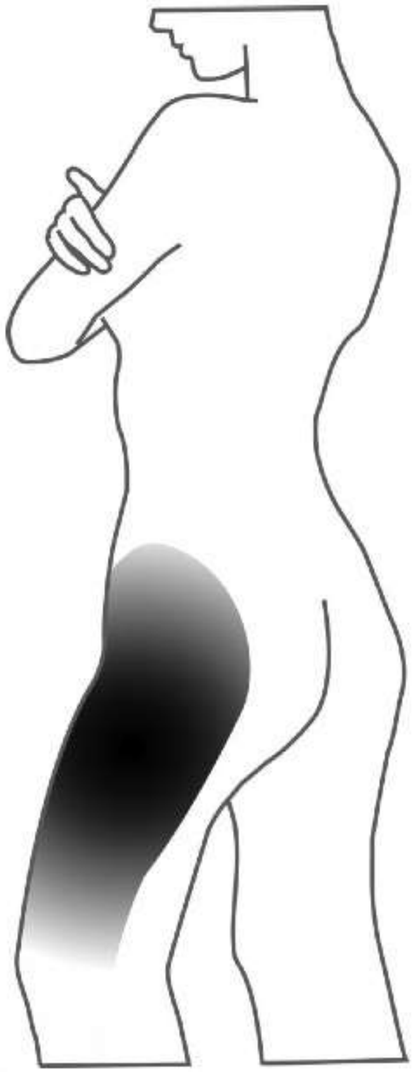
LATERAL HIP PAIN

Diagnosis, assessment & treatment



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CONTENTS

- Presentation, pathology and principles for management
- Differential diagnosis
- Subjective and objective assessment
- Psychosocial factors and life impact
- Strength and biomechanics
- Key advice on managing gluteal tendinopathy
- Step by step rehab

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HOW CAN WE HELP?

ANY SPECIFIC TOPICS YOU'D LIKE US TO COVER?

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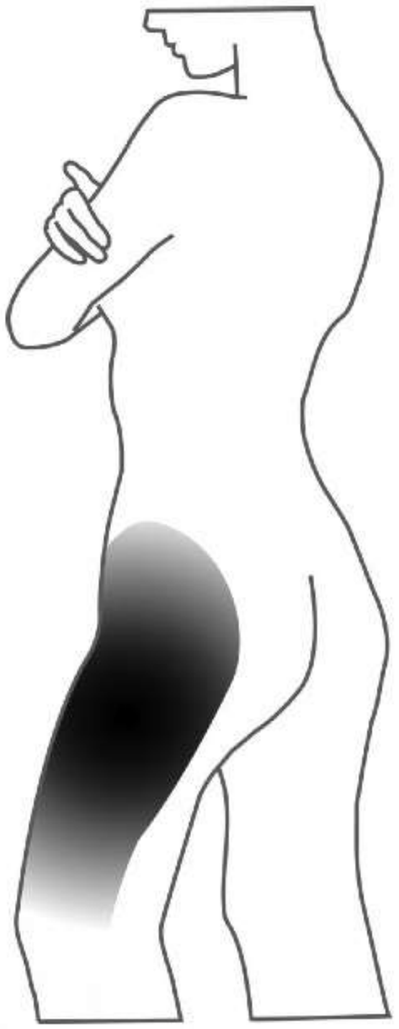
PRESENTATION OF GLUTEAL TENDINOPATHY (GT)

- GT is thought to be the primary cause of lateral hip pain (Grimaldi and Fearon 2015)
- Pain over region of greater trochanter
  - Can be ‘pseudo-radicular’ in nature and extend down the lateral thigh to the knee
- Aggravated by side-lying, stair ascent/ descent, activities incorporating hip adduction, prolonged sitting or standing
- Usually insidious onset but can occur after trauma



Source: Williams and Cohen (2009)

PEOPLE AFFECTED BY LATERAL HIP PAIN

- More common in females than males
  - Over 80% of participants in recent GT study were female
- **Affects 1 in 4 women over 50**
- Associated with Peri-menopausal changes
- Can lead to significant disability
  - **Similar to end stage OA**

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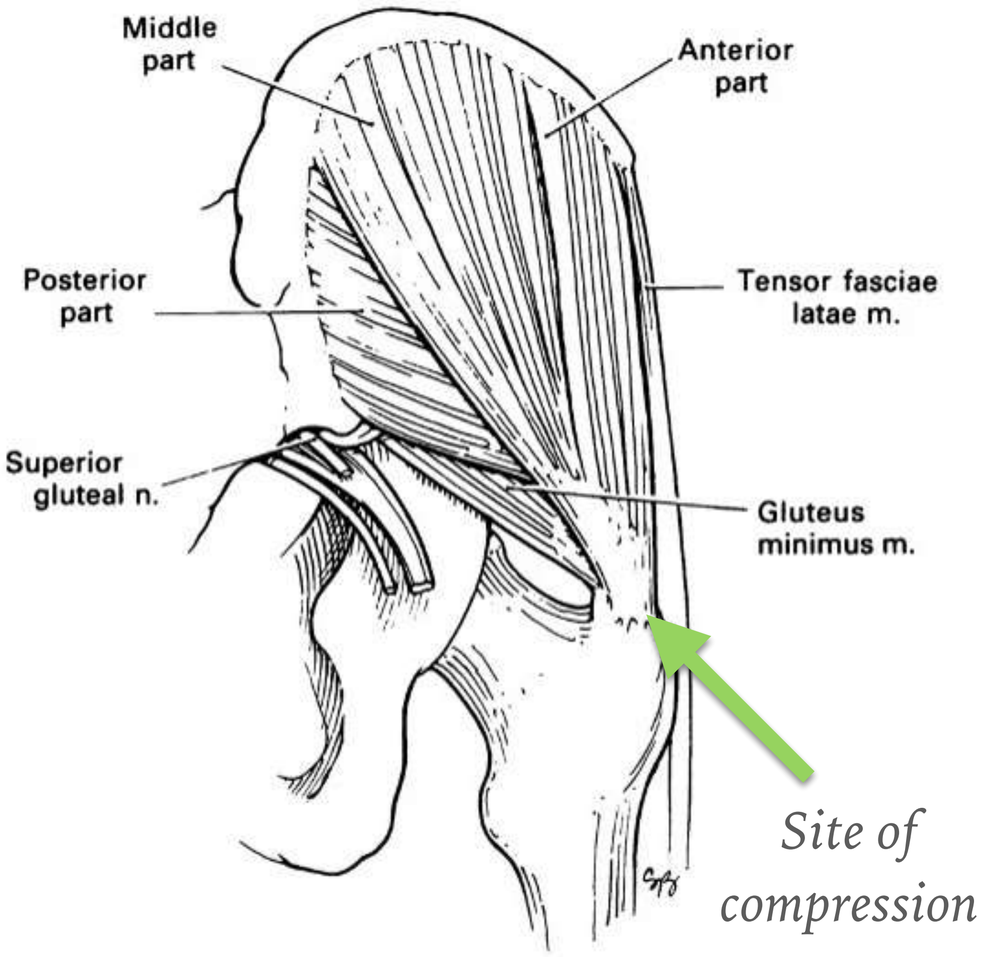
PATHOLOGY OF GLUTEAL TENDINOPATHY

- Insertional tendinopathy of the Gluteus Medius and/ or Gluteus Minimus Tendons
- Compression of the tendon thought to be key
  - Occurs when hip is adducted
  - Can be increased when combined with hip flexion or external rotation
- Examples: sitting cross-legged, side lying, 'hip hanging', gluteal stretches, poor femoral/ pelvic control



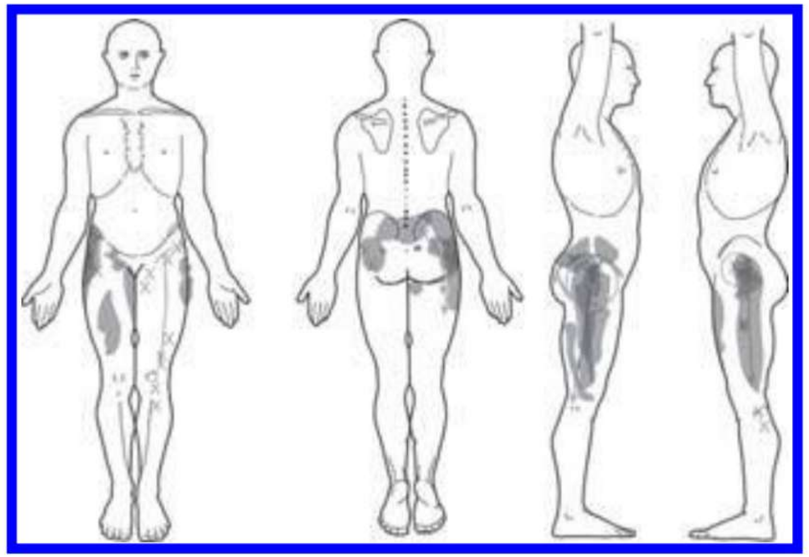
Source: Gottschalk et al. (1989)

IS THE BURSA INVOLVED?

- MRI studies suggest swelling of the bursa is present in just 8% of cases (Bird et al. 2001)
- Did not occur in the absence of Gluteal Tendinopathy
- Prevalence of bursitis found to be similar between symptomatic and asymptomatic hips

CO-EXISTING PATHOLOGIES

- Other co-existing pathologies are common
- Woodley et al. (2008) study of lateral hip pain
  - 50% had a previous lower limb injury
  - 75% had a past medical history of low back pain
  - 30% had low back pain currently (at the time of the study)



Source: Woodley et al. (2008)

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INTRINSIC FACTORS

- Age
- Gender
- Hormonal change associated with menopause
- Obesity
- Hypertension and raised cholesterol
- Mental health
- Past medical history and drug history
- Structural variations may influence tendon load (e.g. femoral neck shaft angle)

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EXTRINSIC FACTORS

- Changes in tendon load
  - Key point - ask about any changes in activity that may load the tendon
- General activity levels
- Demands of work
- Sport and hobbies
- Home life and ADLs

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BALANCING LOAD AND CAPACITY

Tendon Load

General activity
Work
Family life
Hobbies
Sport

BMI
Movement patterns

Tendon Capacity
to manage load

Age
Hormonal changes
Past medical history
Drug history

Strength, control and flexibility

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KEY PRINCIPLE

REDUCE LOAD TO A MANAGEABLE LEVEL

&

INCREASE CAPACITY TO MEET INDIVIDUAL NEEDS

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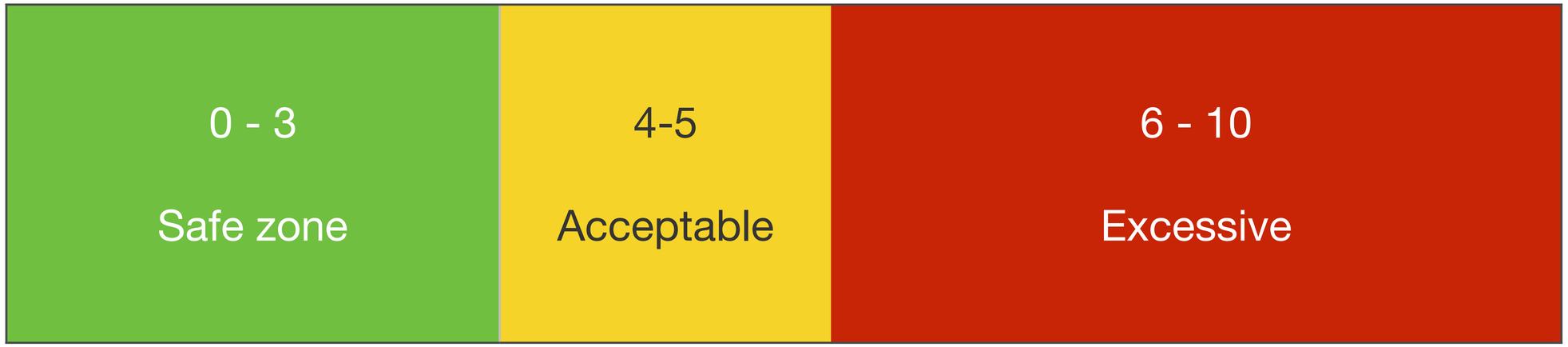
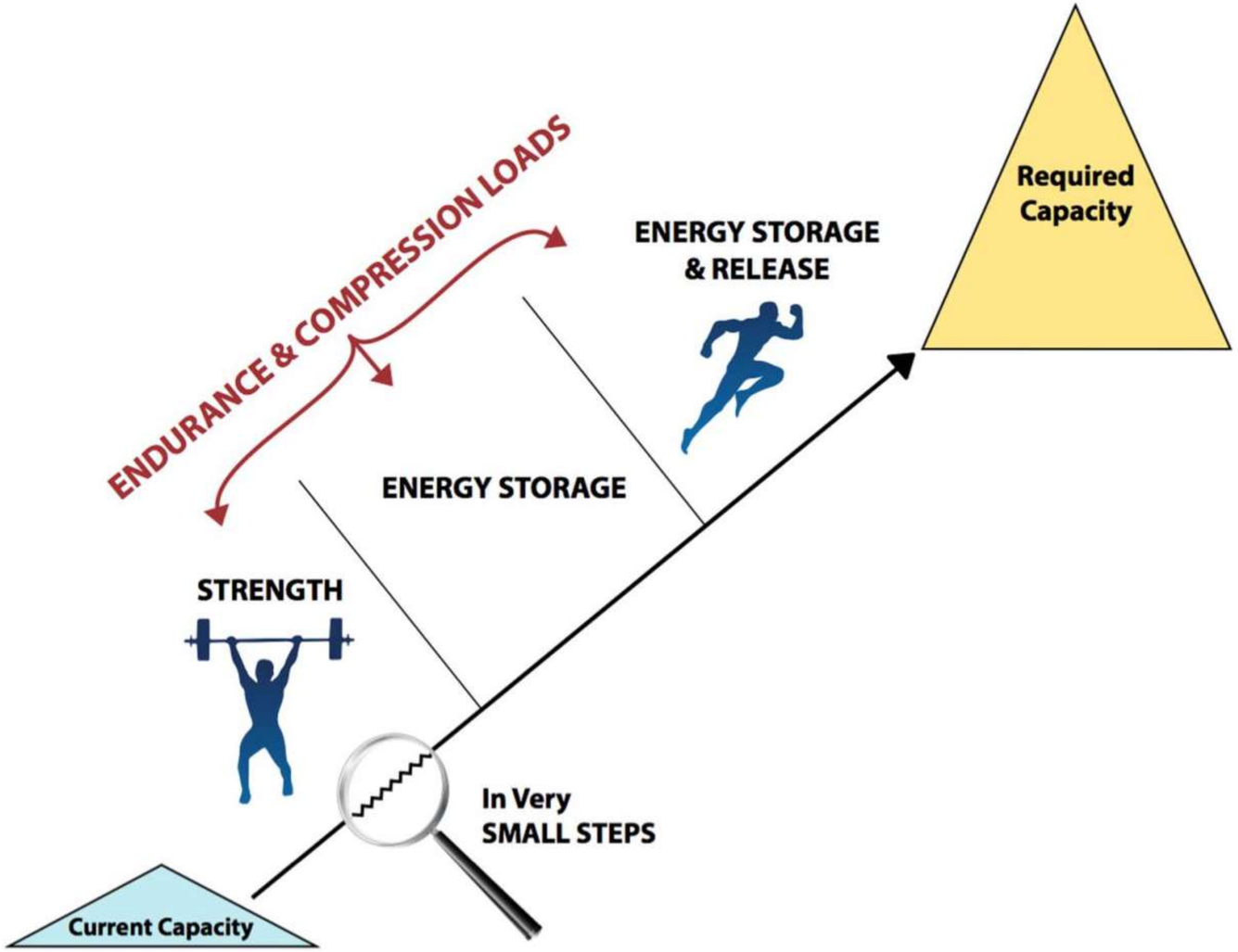
REDUCING LOAD

- ***What's a 'manageable level'?***
- Pain during exercise is acceptable as long as it's mild (e.g. 0 to 3 out of 10) and there's no increase in night pain or increase in symptoms the following day.
- Modify activity based on this;
  - More severe pain during or lasting pain after = too much



Pain during exercise: 0 = no pain 10 = worse pain imaginable

BUILDING CAPACITY



Source: Cook and Docking 2015

Gradually increase load and monitor;

1) Pain during activity
2) Symptom response over next 24-48 hours

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LATERAL HIP PAIN

Differential Diagnosis

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DIFFERENTIAL DIAGNOSES IN LATERAL HIP PAIN

- Low back pain
- Hip joint - **OA**, FAI, hip instability, labral pathology
- Neural symptoms
  - Radiculopathy
  - Meralgia paresthetica
- Don’t forget SAM!...

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SERIOUS PATHOLOGY? REMEMBER SAM

- SAM (credit Benoy Mathew)
  - **S**tress Fracture
  - **A**vascular Necrosis
  - **M**etastases

Why Sam Neill?!

*As well as being a famous actor Sam Neill is a successful winemaker and **alcohol** can be a factor in development of **avascular necrosis**.*

Sam Neill *Source: thedrinksbusiness.com*

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HOW DO YOU DIFFERENTIATE GLUTEAL TENDINOPATHY FROM HIP OA?

- GT patients tend to be younger
- 3 simple signs (Fearon et al. 2012);
    1. Pain on palpation of greater trochanter
    2. GT usually have no difficulty managing socks and shoes
    3. GT associated with a positive FABER test
- Groin pain and reduced internal rotation ROM more common in hip joint pathology

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WHAT IS KEY TO ASK IN THE SUBJECTIVE ASSESSMENT?

- Pain severity, location and behaviour
- Aggravating and easing factors
- Differential diagnosis questions e.g. groin pain, neural signs, red flag questions
- Activity levels and how they've changed
- 'Load tolerance' - what can they currently manage?
- Goals
- Intrinsic factors, use **TendonQ**...

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HOW DO I MAKE SURE I DON'T MISS ANYTHING?

- Use the TendonQ
- Aids with differential diagnosis
- Screens for intrinsic factors

Available in your GP resource page

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DIAGNOSTIC TESTS FOR GLUTEAL TENDINOPATHY

- Pain on palpation of gluteal tendon insertion on the greater trochanter plus at least 1 positive test from the following;

1. Hip FADER
    - +/- resisted External Rotation
2. Hip FABER
3. Passive hip adduction in side-lying
    - +/- resisted Abduction
4. Single leg stand 30 seconds

DOES IT REPRODUCE <u>THEIR</u> PAIN?

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ADDITIONAL TESTS

- ROM of lumbar spine and hip
- Control and symptom response to;
  - Single leg balance
  - Single leg squat
  - Aggravating movements e.g. stair ascent, sit to stand, impact tests
- Strength testing;
  - Glute Med
  - Glute Max and posterior chain
  - Quads
  - Calf

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DEMONSTRATION: KEY TESTS

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STRENGTH AND MUSCLE FUNCTION

- Some evidence to suggest atrophy of gluteus minimus and/ or medius is common in GT and there may be hypertrophy of TFL (Woodley et al. 2008 Grimaldi and Fearon 2015)
- 32% deficit in hip abductor weakness demonstrated in subjects with GT (Allison et al. 2016) - weakness may influence movement control
- Other deficits may be present, especially in older, less active individuals
- Consider individual needs and goals in assessment of muscle strength and function
  - GT can be as disabling as severe hip arthritis so need vary your assessment accordingly

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LATERAL HIP PAIN

Strength and Biomechanics

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ALTERED MOVEMENT PATTERNS

- Altered walking pattern (Allison et al. 2016)
  - Increased hip adduction and contralateral pelvic drop
- Altered loading during walking (Allison et al. 2016)
  - Greater force adducting the hip
- May see altered movement patterns during multiple functional tasks e.g. sit to stand, stair ascent, single leg balance, landing mechanics etc (Grimaldi and Fearon 2015)

Which means increased demands on the hip abductors AND potentially greater compressive load on the tendon.

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MOVEMENT RE-TRAINING

- Can you reduce hip adduction or pelvic drop?
- Can you reduce pain during movement?
- Use simple methods to alter movement or pain
  - Short term use of stick if walking is painful (in opposite hand)
  - Using stair rail for support/ one step at a time
  - “Keep knees apart” during squat/ sit to stand
- Altering movement patterns is task specific i.e. **practice the movement you want to change**

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LATERAL HIP PAIN

Psychosocial Factors and Education

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PSYCHOSOCIAL FACTORS TO CONSIDER

- Plinsinga et al. (2018) analysed data from 204 subjects with GT
- **Hip abductor strength was not associated with severity but psychological factors were**
- The severe group within the study had;
  - Higher pain catastrophizing and depression scores
  - Lower self-efficacy
  - Lower activity levels and quality of life scores
- ***In other areas of tendinopathy there is evidence of fear and uncertainty regarding pain and concern about tendon damage which may influence adherence to rehab (McAuliffe et al. 2017)***

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WHAT IS THE KEY ADVICE TO PROVIDE TO SOMEONE WITH GLUTEAL TENDINOPATHY?

- Discuss beliefs about pain
- Address each individual's concerns especially around prognosis and fear of damage
- Consider using PCS (Pain Catastrophizing Scale)
- Modify provocative movements
- Reduce hip adduction, pelvic drop and direct compression during;
  - Sitting, sleeping and standing positions
  - Movement strategies
  - Rehab approaches
- **BUT** be mindful how this is communicated. **DON'T CREATE FEAR**.

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IS THERE EVIDENCE TO SUPPORT EDUCATION IN GLUTEAL TENDINOPATHY?

- Yes...
- Both the GLoBE and LEAP Trial support the inclusion of education in management of GT
- The GLoBE Trial (Ganderton et al. 2018) recruited 94 post-menopausal women
- Subjects were randomised into **1. Education + progressive loading** *OR* **2. Education + sham exercises**
- Both groups improved significantly BUT...
- **...there were no significant differences between the groups.**
- ***Education is likely to be responsible for the improvements reported***

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HOW MIGHT THIS FIT INTO YOUR PRACTICE?

- Priorities
  - Diagnosis - history and 2 or 3 key tests
  - Education - about GT and activity changes

- Time allowing/ at a follow up
  - Provide 1 or 2 low level exercises
  - Address contributing factors e.g. menopause/ weight/ mental health
  - Guide return to goal activities

LATERAL HIP PAIN

Key New Research

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THE LEAP TRIAL – MELLOR ET AL. (2018)

- Recruited 204 subjects (aged 35 - 70, 82% female) with gluteal tendinopathy
- Randomised to 3 groups;

1. Wait and see
2. Education and exercise
3. Corticosteroid injection

- Primary outcome measures were Global Rating of Change (GROC) and pain intensity (0 to 10)

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THE LEAP TRIAL – MELLOR ET AL. (2018) – REHAB PROTOCOL

- 3 main exercise types used

1. Low level ‘activations’
    - Useful starting point, reduces pain
2. Control exercises for pelvic and femur
    - Improves movement pattern to reduce tendon load
3. Glute strengthening
    - Increases muscle and tendon’s ability to manage load

THE LEAP TRIAL – MELLOR ET AL. (2018) – THE RESULTS!...

"EDUCATION PLUS EXERCISE WAS BETTER THAN CORTICOSTEROID INJECTION USE IN FUNCTIONAL OUTCOMES, QUALITY OF LIFE, AND SELF-EFFICACY MEASURES, AND ALSO HAD LESS FREQUENT PAIN AND GREATER CLINICALLY IMPORTANT PAIN REDUCTION"

MELLOR ET AL. (2018)

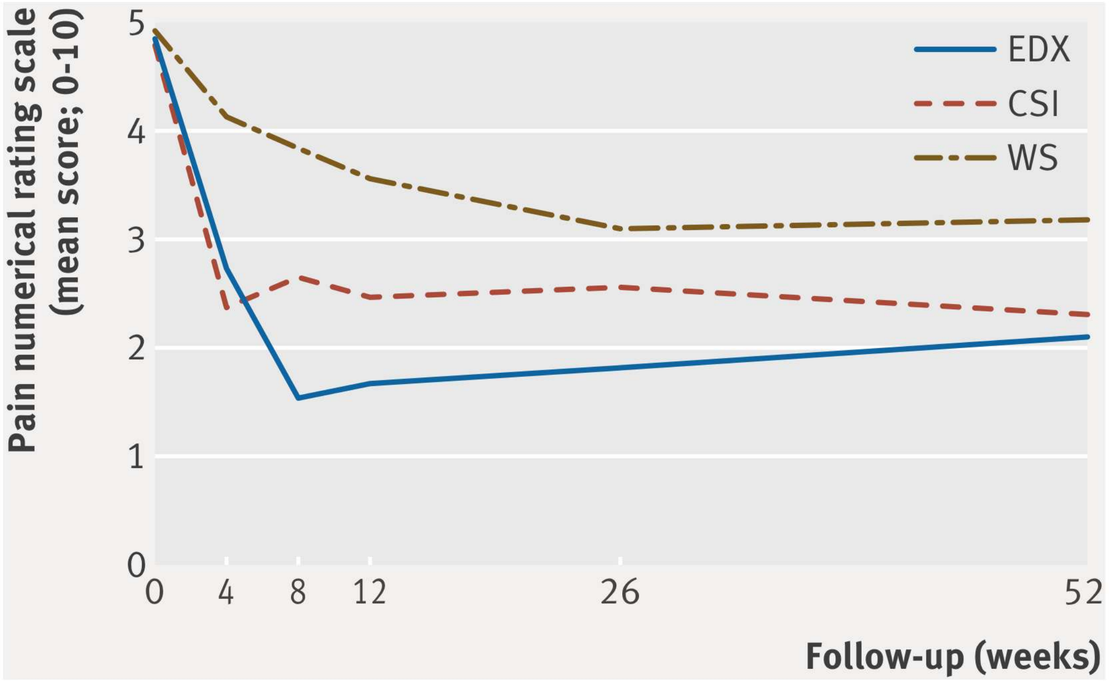

Figure 3 from Mellor et al. (2018) showing changes in pain

Nearly 80% success rate at 8 weeks

THE LEAP TRIAL – MELLOR ET AL. (2018)

- **Conclusions: Exercise and education appear to be effective for Gluteal Tendinopathy and superior to corticosteroid injection and a wait and see approach**

- *Surprising finding?*
- Symptoms differed significantly between the groups at 8 weeks…
- ….BUT measures of hip abduction strength did not.

- Other factors such as education or changes in movement patterns may explain the difference in symptoms between the groups at this point.

LATERAL HIP PAIN

A step by step approach

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MANAGING PAIN

- Modify painful movements
- Education and reassurance
- Consider analgesic options especially if waking at night
- Heat/ ice
- Low level exercises
- Improving mood and mental wellbeing may help

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OUTCOME MEASURES AND PAIN RESPONSE

- Change in night pain is often a good indicator of response to an exercise program.
  - Increased pain suggests excessive load
  - Improving night pain is an encouraging sign
- VISA-G
- Pain score (NRS/VAS) during activity
  - LEAP Trial allowed a maximum of 5/10 pain during exercise providing there was no increase in pain that night or the next morning
  - During functional re-training no gluteal pain was allowed (as this may suggest inadequate control).

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REHAB CONSIDERATIONS

- Depends on individual and assessment findings;
    1. Specific impairments from examination - strength, control & ROM
    2. Goal activities
    3. Demands of daily life, sport, work and leisure
- Strengthen the glutes plus other muscles if weak;
    - Quads
    - Calf
    - Hamstrings and Gluteus Maximus
    - The ‘hip cuff’ - hip joint internal and external rotators

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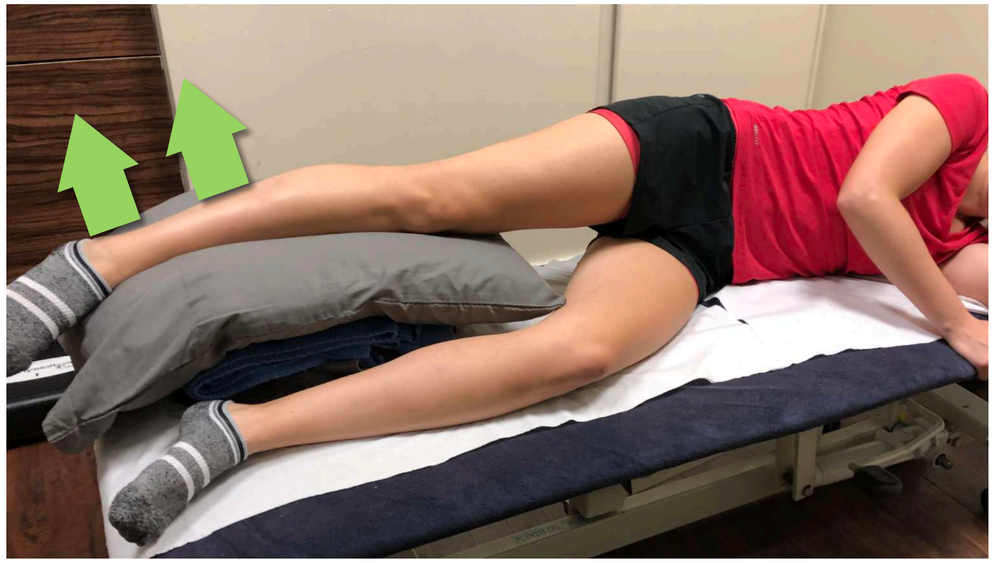
LOW LEVEL ACTIVATION EXERCISES

Side-lying leg lift

Lie on your good side with the painful leg support in a comfortable position on pillows

Lift the leg off the pillows, just as much as you can manage. Hold for 10 seconds. Repeat 5 times



Thigh push out

Lie on your back with a pillow under your knees.

Tie a scarf or resistance band around your knees.

Gently push out against it.

Hold for 10 seconds. Repeat 5 times

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LOW LEVEL ACTIVATION EXERCISES

Standing push out

Stand with feet shoulder width apart and hands on hips.

Keeping both feet on the floor gently push out as if moving both feet apart.

The floor will prevent movement but you will feel the hip muscles working.

Hold for 10 seconds. Repeat 5 times

Standing scissors

Balance on your good leg and use a wall or a sturdy surface for support.

Abduct your leg out to the side (as shown)

Hold for 10 seconds. Repeat 5 times.

NOTE: Use support initially, especially if balance is poor

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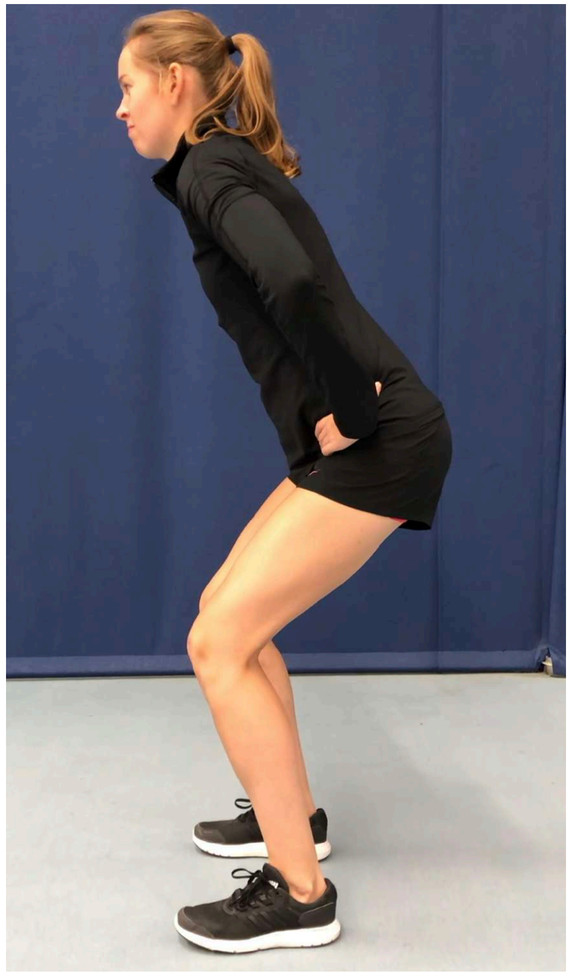
CONTROL EXERCISES

2 leg Bridge

Lie on your back with your knees bent so your feet are flat on the floor.

Flatten your back into the floor, tighten your buttock muscles then lift your pelvis. Aim for 10 slow repetitions.



Shallow squat

In standing with legs shoulder width apart.

Squat as if sitting down in a chair. Just move as far as comfortable. Don't let the knees drift towards each other.

Push back up tall again and tighten your buttock muscles as you come up straight again.

Aim for 10 slow repetitions

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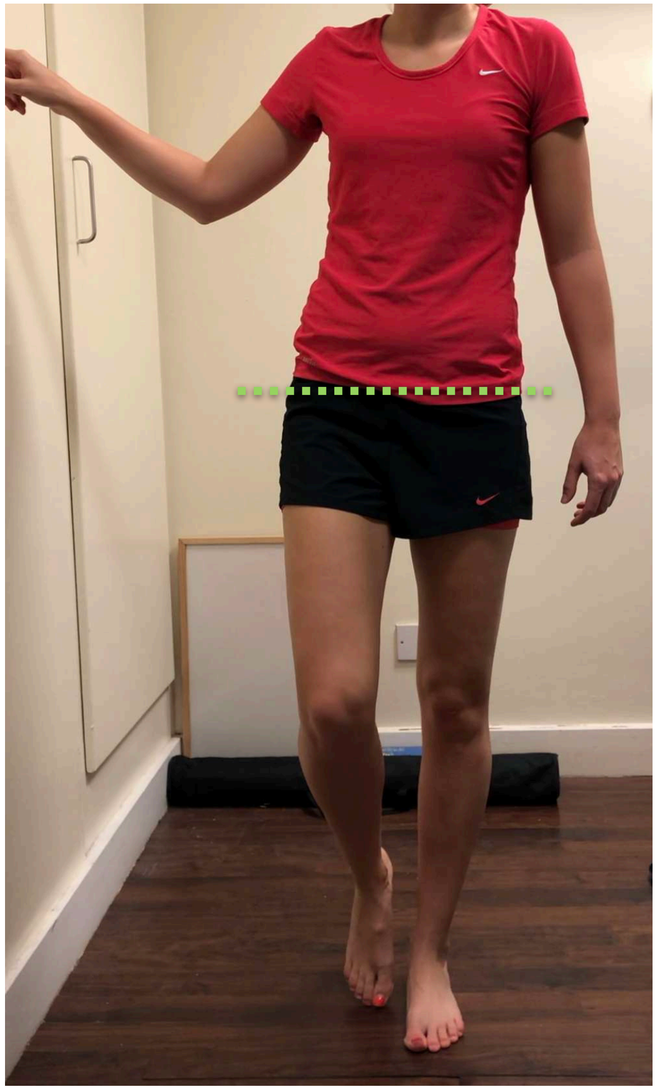
CONTROL EXERCISES

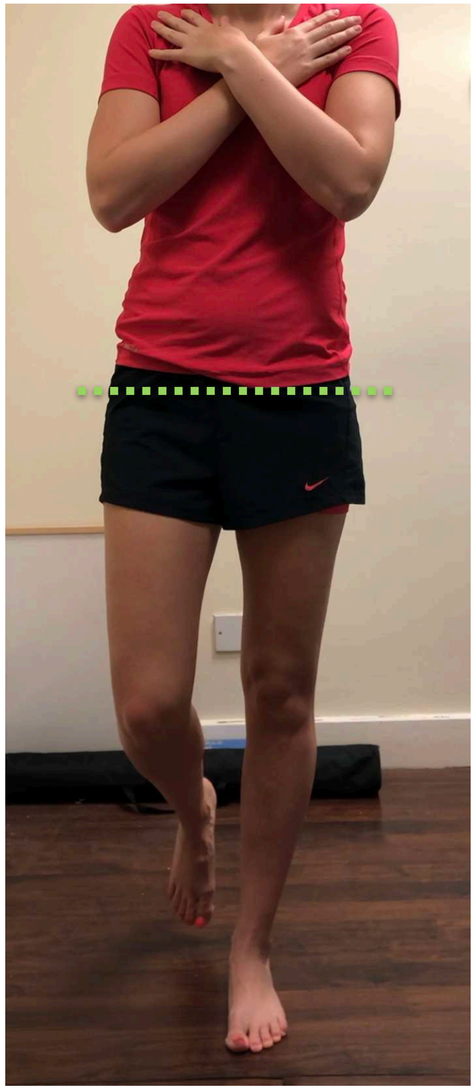


Supported balance

Hold on to a wall or sturdy surface for support.

Balance on one leg. Try to keep the knee straight and pelvis level.

Hold for 5 to 10 seconds. Repeat 5 times



Progress to...

Unsupported balance

When you can perform supported balance well for 10 seconds without pain try unsupported balance with hands by your side or across your chest.

NOTE: Ask your physio/ GP about this exercise if you're not sure if you're ready for it.

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STRENGTHENING THE GLUTES

Side-lying leg lift

Lie on your good side with the painful leg support in a comfortable position on pillows.

Lift the leg as high as comfortable then lower onto the pillows again. 8 to 10 slow repetitions.

Hip hitch

Balance on one leg (with support if needed).

Tighten your glutes and lift opposite side of your pelvis (the leg you're not balancing on).

Slowly lower again.

8 to 10 slow repetitions

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STRENGTHENING THE GLUTES

Push off this foot to start the step.

Side stepping

Stand with feet shoulder width apart.

Step to the side and focus on pushing sideways off one leg and onto the other.

8 to 10 steps to the left and to the right.

Band push out

Balance on your good leg and use a wall or a sturdy surface for support.

Tie a scarf or resistance band around your thighs, just above the knee.

Push out against the band. 8 to 10 repetitions.

NOTE: This is a little more challenging

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DEMONSTRATION: EXERCISE OPTIONS

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HOW MIGHT THIS FIT INTO YOUR PRACTICE?

- Diagnosis, education and activity modification are key
- How might other aspects fit in your clinic?
  - Exercises
  - Intrinsic factors
  - Mental health
  - Graded return to activity

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LATERAL HIP PAIN

Managing Athletes

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CONSIDERATIONS IN RUNNERS AND ATHLETES

- Training structure and progression
  - Any recent ‘spikes’ in training load
  - Recently introduced hill work?
  - Increase in training volume or intensity?
- Lack of adequate rest/ recovery
- Introduction of new exercises e.g. deep squats/ lunges, plyometrics, yoga/ deep stretches
- Running gait…

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GAIT ANALYSIS AND RE-TRAINING OPTIONS

- Consider factors influencing

1. Compressive load
   - Increased by hip adduction and contralateral pelvic drop
2. Peak gluteal load
   - Occurs during loading response
   - Increased by over-striding
   - Reduced by increasing step rate (with speed fixed)

Lenhart et al. (2014) Peak loads

3.99 x body weight

*4.31 (with 10% **decrease** in step rate)*

*3.57 (with 10% **increase** in step rate)*

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EXERCISE PRESCRIPTION IN RUNNERS

- Consider kinetic chain needs
  - Assess capacity tests/ 10 rep max of quads, posterior chain and calf
  - Remember the distal chain e.g. ankle dorsiflexion
- Progress control exercises to include single leg and impact control
- Restore strength and then add power work if indicated
- GRADUAL progression needed for
  - Strength work
  - Return to running
  - Introduction of power/ plyometrics

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LATERAL HIP PAIN SUMMARY

- Key points to take away

1. Assess thoroughly to exclude differential diagnoses in lateral hip pain
2. Gluteal Tendinopathy is a common cause, especially in women over 50
3. Peri-menopausal change may be a factor for many in this group
4. Gluteal Tendinopathy is thought to be aggravated by movements that compress the tendon - especially hip adduction and contralateral pelvic drop
5. Educating patients to modify these movements can help symptoms BUT don't create fear
6. Progressive rehab to restore strength, control and range can be very effective when combined with appropriate education and GRADED return to goal activities

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