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Greater trochanteric pain syndrome



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Outline

- Anatomy
- Clinical Assessment
- Treatment
 - Physiotherapy
 - Adjunct therapies
 - Surgery
- Evidence-based Physiotherapy program



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What is GTPS?

- GTPS = Lateral sided hip pain
- Formerly known as “trochanteric bursitis”

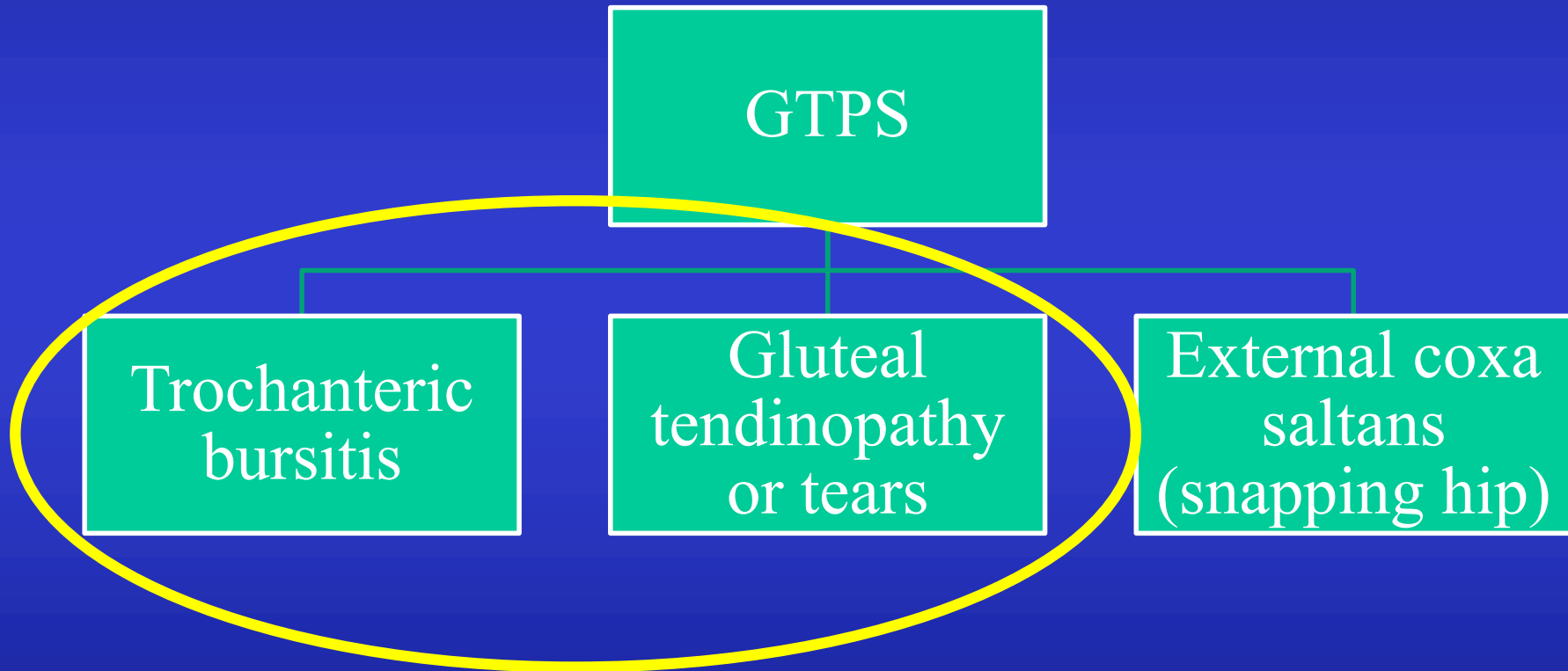


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What is GTPS?

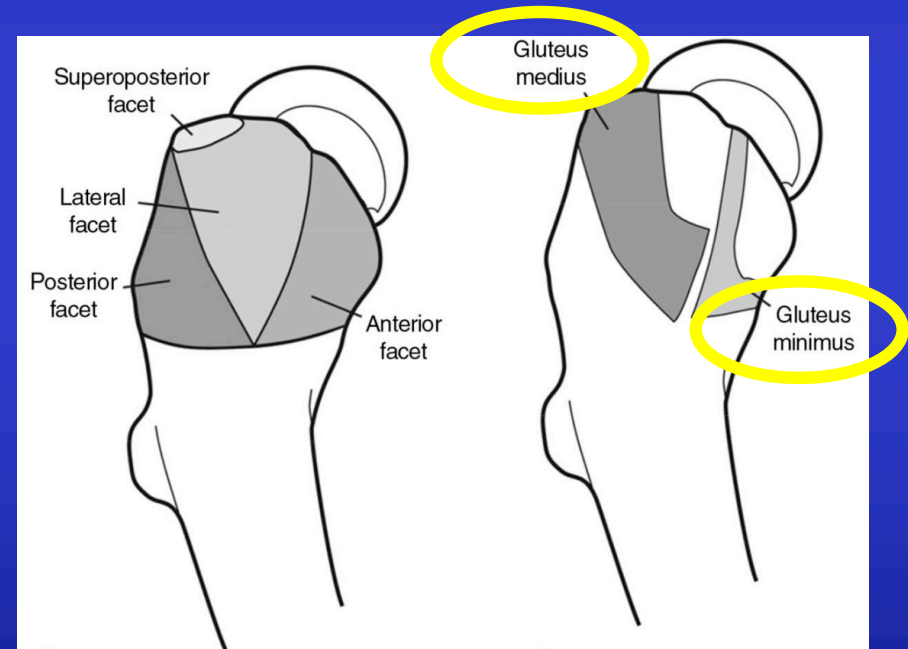


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Anatomy



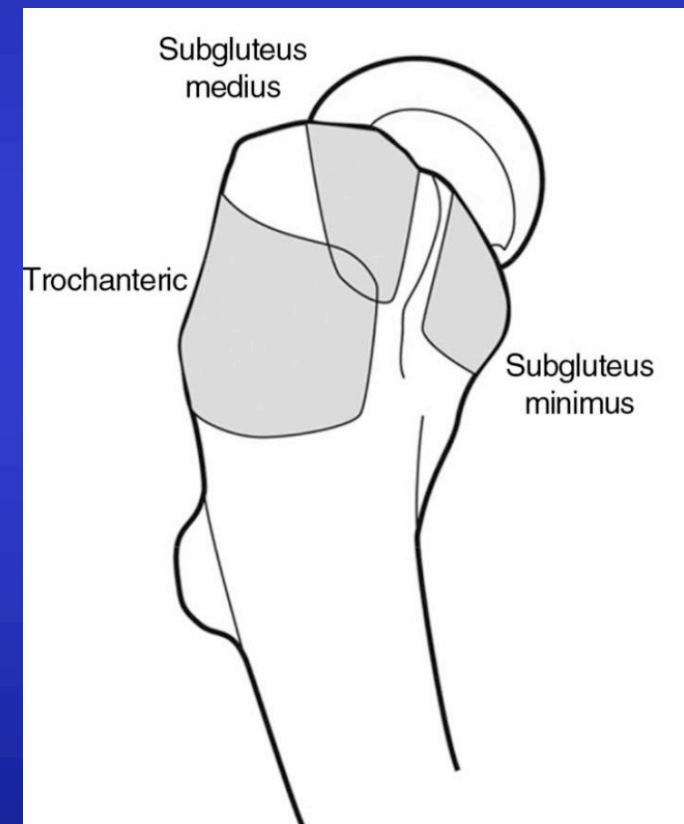
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Anatomy

- Bursa – fluid-filled sac that provides cushioning between bony prominences and surrounding soft tissues.
- Subgluteus maximus (aka trochanteric) bursa.
 - Between Glut max muscle and glut medius tendon, overlying GT.
- Subgluteus medius bursa
- Subgluteus minimus bursa

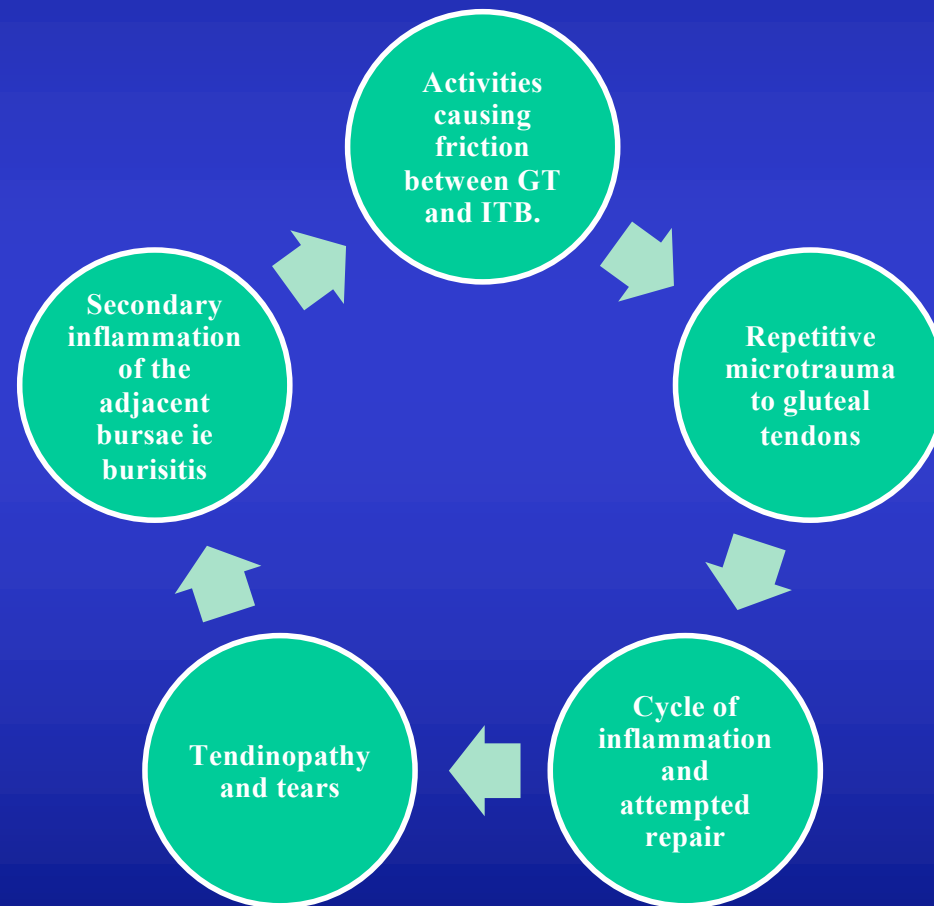


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Pathophysiology

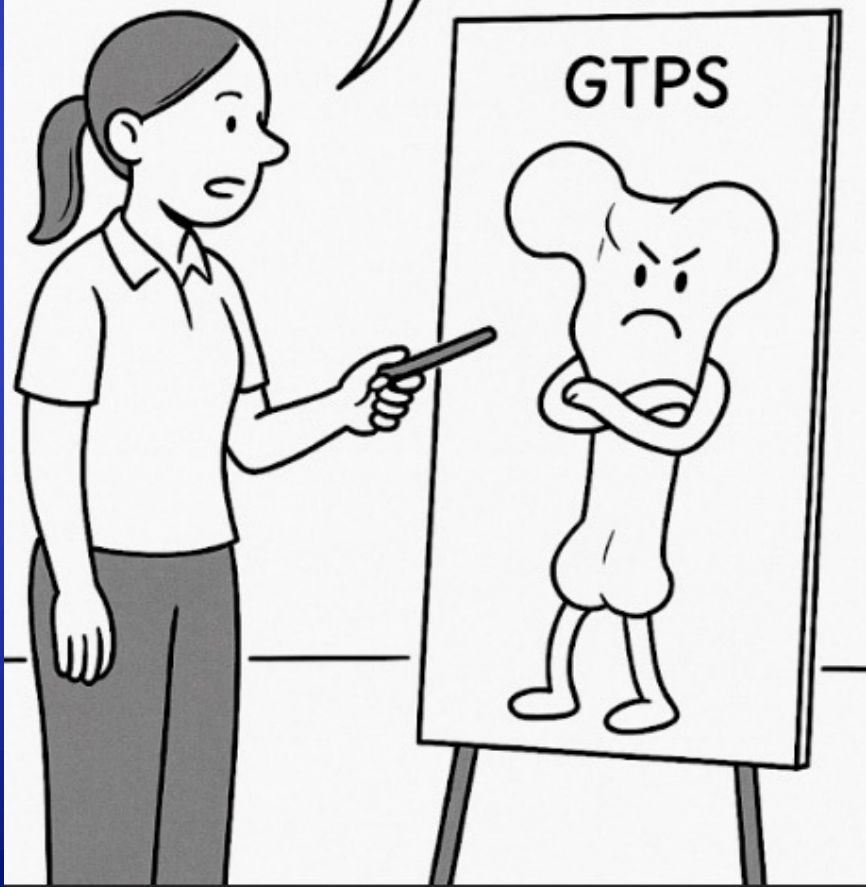


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YOU NAMED THE
WHOLE SYNDROME
AFTER ME – AND STILL
BLAME THE TENDON?!



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Epidemiology

- Common
 - ~10% population
- Females > males
- Risk factors: BMI, inflammatory arthritis, diabetes.
- Often co-exists with OA, LBP. Can make diagnosis challenging.



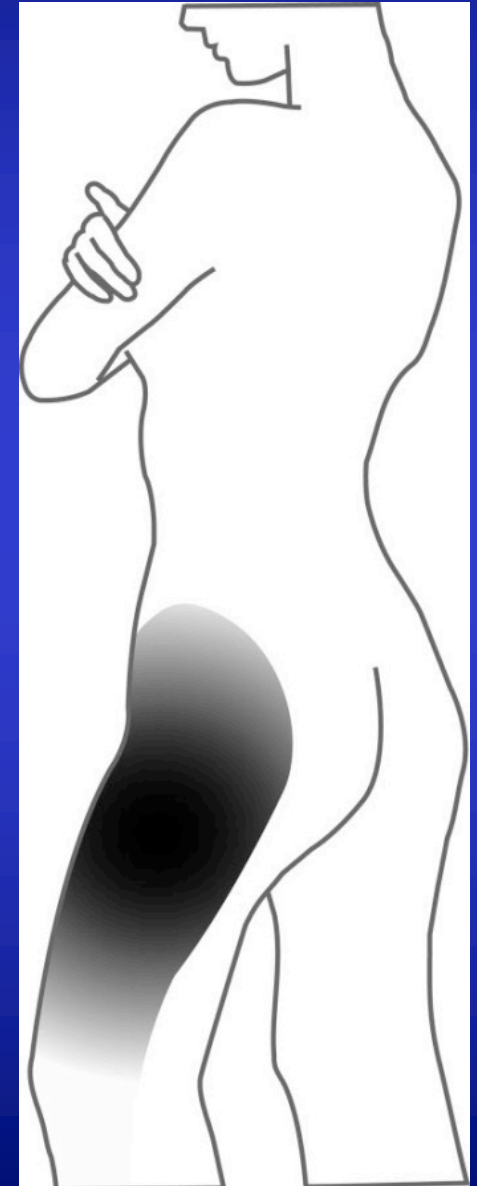
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History

- Location of pain
- Exacerbating factors: **sleeping on affected side**, side-bending, prolonged sitting.
- Mechanical symptoms: snapping, catching.
- Numbness, weakness, associated back pain.
- Note: Symptoms can be severe/debilitating



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Examination

- Resisted hip abduction
- GT palpation test
- Trendelenburg sign
- Single leg 30 sec stance
- Resisted hip external de-rotation
- Resisted hip internal rotation
- FABER test
- Hip lag sign
- Passive hip adduction
- FADER test
- Passive hip internal rotation
- Passive hip abduction
- Active hip internal rotation
- Hip abduction (strength)
- Hip internal rotation (range)



Examination

- Kinsella et al (2024) – Journal of Orthopaedic & Sports Physical Therapy.

[LITERATURE REVIEW]

RITA KINSELLA, MAppSci (PT Research)^{1,2} • ADAM I. SEMCIW, PhD^{3,4} • LYNDON J. HAWKE, M Clin Rehab (Neuro PT)¹
JAMES STONEY, MD^{1,5} • PETER F.M. CHOONG, MD^{1,5} • MICHELLE M. DOWSEY, PhD^{1,5}

Diagnostic Accuracy of Clinical Tests for Assessing Greater Trochanteric Pain Syndrome: A Systematic Review With Meta-analysis



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Examination

- Pre-test probability of GTPS in a patient with lateral hip pain is 59%.
- Negative GT palpation → 26%.
- Negative GT palpation + resisted abduction → 14%.



Examination

- Pre-test probability of GTPS in a patient with lateral hip pain is 59%.
- Positive GT palpation → 78%.
- Positive GT palpation + resisted abduction → 96%.



Investigations

- Xray Pelvis and hip
 - OA
 - Enthesophytes

- US

- MRI

- Most detailed look at anatomy.



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Treatment

- **Physiotherapy**
- **Adjunct therapies:**
 - Cortisone injections
 - PRP
 - Shockwave therapy
- **Surgery**



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Treatment – Adjunct therapies

- Cortisone
 - Evidence for short term pain relief.
 - May allow increased participation in exercise therapy.
 - Reduces tenocyte proliferation and collagen synthesis capacity



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Treatment – Adjunct therapies

- PRP
 - Introduces growth factors which should theoretically promote tendon healing.
 - Mixed results in literature. Most show some benefit.
 - JBJS 2025: RCT in 80 patients who failed cortisone injections. No difference PRP vs sham.



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Treatment – Adjunct therapies

- ESWT
 - Mechanism: shock waves increase blood flow and expression of local growth factors.
 - A few studies with small numbers.
 - Some evidence of effectiveness at 1yr.



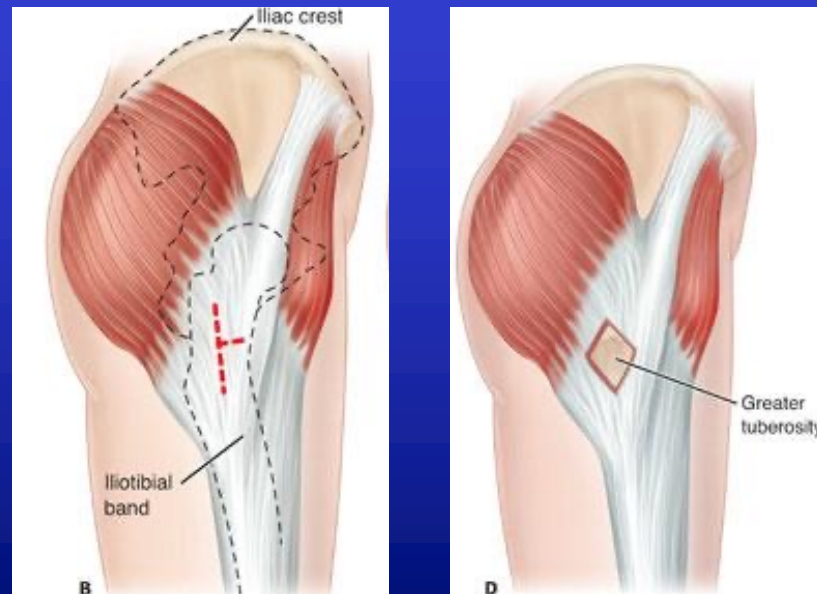
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Treatment - Surgery

- Open/Arthroscopic ITB release/lengthening and bursectomy.
 - Limited evidence
 - Small case series which show benefit.



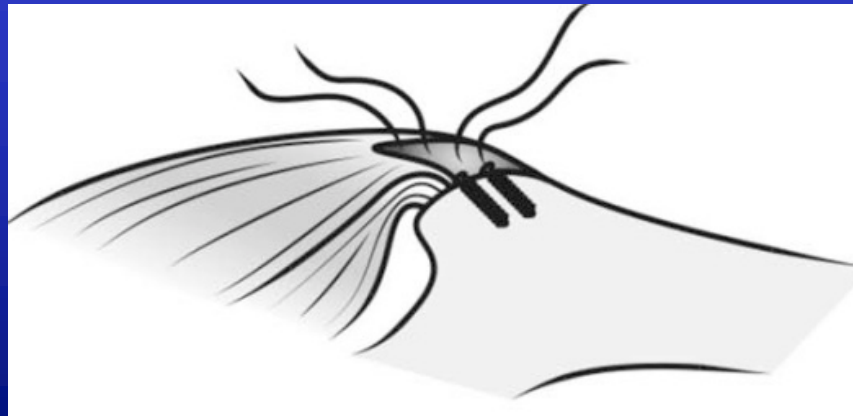
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Treatment - Surgery

- Gluteal tendon repair +/- augmentation
 - Indication: Refractory GTPS with MRI confirmed tear.
 - Open repair using intraosseous tunnels or anchors.
 - Similar to RC repair.
 - Australian case series 72 patients → 95% minimal/absent pain by 6-12 months.



LEAP Study

RESEARCH



OPEN ACCESS

Education plus exercise versus corticosteroid injection use versus a wait and see approach on global outcome and pain from gluteal tendinopathy: prospective, single blinded, randomised clinical trial

Cite this as: *BMJ* 2018;360:k1662
<http://dx.doi.org/10.1136/bmj.k1662>

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Rebecca Mellor,¹ Kim Bennell,² Alison Grimaldi,³ Philippa Nicolson,² Jessica Kasza,⁴ Paul Hodges,⁵ Henry Wajswelner,⁶ Bill Vicenzino¹



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LEAP Study

- Australian RCT
- 204 patients (82% female)
- Age 35-70
- 3 months of clinically diagnosed GTPS at least 4/10 severity, with confirmed MRI gluteal tendinopathy.
- Exclusions: groin pain, LBP, sciatica.
- Education+8 weeks exercise program vs one-off corticosteroid injection vs wait and see.



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LEAP Study - Results

- “Moderately better” or “very much better”

	8 weeks	1 year
Education/Exercise	77%	79%
Corticosteroid	59%	58%
Wait and see	29%	52%



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LEAP Study - Results

- Gluteal torque strength testing was no different between groups.
- Suggests strengthening is not necessarily the mechanism by which treatment success occurs.
- Education about tendon loading, posture, activity avoidance may be a very important element of the successful treatment program.



LEAP Study - Program

Week	Stage	Exercises
1	Familiarisation	Daily Low level activations: static abduction (lying and standing) Pelvic control during functional loading: double-leg bridging, double-leg squats Abductor loading: side-stepping



LEAP Study - Program

Week	Stage	Exercises
2	Early loading and movement optimisation	Daily Add: offset bridging, offset squat.



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LEAP Study - Program




Week	Stage	Exercises
3-8	Graduated loading	Daily Add: band sideslides, Twice weekly supervised in clinic Add: Sliding platform with spring resistance (bilateral abduction upright, minisquat, scooter).



LEAP Study - Program

- <https://bjsm.bmj.com/content/bjsports/52/22/1464/DC1/embed/inline-supplementary-material-1.pdf?download=true>

Stage	Exercise	Effort	Speed	Reps	Sets	Freq
	Single leg biased exercise: Offset bridging Functional Strengthening: Double leg squats Single leg biased exercise: Offset squat	Light SWH	Slow Slow	10 5	1 1	daily
	Abductor Loading via Frontal Plane Movement: Sidestepping	Light	Moderate	15 each	1	daily
Week 3-8 – Graduated Loading	Low load activations: Static Abduction:	Maintain as per week 1				
	Pelvic Control during Functional Loading: Bridging: Double leg bridging Single leg biased exercise Functional Strengthening: Double leg squats Single leg biased exercise	Light SWH – Hard Light SWH - Hard	Slow Slow	5 5-10 5 5-10	1 2 1 2	daily daily
	Abductor Loading via Frontal Plane Movement: Sidestepping Band Sideslides	Light SWH- Hard	Moderate	10 each 5-10 each	1 1-2	daily
Week 3-8 – Graduated Loading; Sliding platform with spring resistance Warm up	All supervised by Physiotherapist in Clinic					
	Abductor Loading via Frontal Plane Movement: Bilateral Abduction: Upright Minisquat	Light Light	Moderate Moderate	5 each way 5 each way	1 1	Twice weekly
Higher level loading	Abductor Loading via Frontal Plane Movement: Bilateral Abduction: Upright Minisquat	SWH-VH SWH-VH	Slow Slow	5-10 each way 5-10 each way	1 1	Twice weekly
	Pelvic Control during Functional Loading: Scooter	Light - SWH	Moderate	5 - 10	1-2	Twice weekly

5. Step ups		<p>Wake up the deep gluteal muscles at the side of your hips by doing a couple of static abductions in standing ('imaginary splits') as above - 2 x 15 seconds.</p> <p>Think 'tall' then place one foot up on a step directly in front of the hip, <u>not in the midline</u>. Start with hand support opposite the foot on the step. Slowly lunge forward over the foot, keeping the kneecap straight ahead, directed over 2nd-3rd toe. Push up onto the step by squeezing the buttock. Don't let the hips sway out to the side.</p> <p>Ensure the hips are level and you think about keeping a straight line down the side of your body. Keep the knee facing straight ahead. You can initially use as much hand pressure as required to keep the correct alignment. As you get stronger you will be able to reduce hand support.</p> <p>Step back down again with the trail leg first – ie last foot up, first foot down, so the leg placed on the step first is doing all the work.</p> <p>There must be <u>NO</u> pain over the bone at the side of the hip, but some fatigue ache in the buttock muscles is normal.</p> <p>The movement should be slow, like the squats – 3-4 seconds up and 3-4 seconds down.</p>
Weightbearing abductor loading		<p>Aim: To activate & strengthen the gluteal muscles and tendons at the side of your hip</p> <p>Start with good posture.</p> <p>Now practice some controlled sidestepping side to side.</p> <p>The focus should be on a controlled push from one side and landing softly and with control on the other. The trunk should remain upright, and the kneecaps facing straight ahead.</p> <p>When stepping together, only step back to hip width apart. Do NOT bring ankles together.</p> <p>Start with 5 repetitions side to side, then gradually increase as instructed by your physiotherapist.</p>
1. Sidestepping		
2. Doorway side slides		<p>Place an elastic band around your ankles.</p> <p>Stand in a doorway with one foot on a non-slip surface, & the other foot, with a sock on, on a slippery surface. Sometimes a folded handtowel can also help the sliding.</p> <p>Bend your hips and knees about 45° so you are in a shallow squat.</p> <p>Now slide the 'slip side' foot out to the side, pushing against the resistance of the band to take the knees apart, and take your knee almost to a straight position, or as far as is comfortable for your hip. Keep your body and non-slip side completely still.</p> <p>The movement should be slow and controlled – 2-3 seconds out and 2-3 seconds back in.</p>



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My management algorithm

- Referral to physio
 - Suggest a program based on the LEAP protocol
- Consider US-guided cortisone injection
 - If severe pain (this may allow increased engagement in physio).
- Referral to sports physician
 - Consideration of PRP (? Evidence)
- Surgery
 - Open ITB release (Not convinced this actually works!).
 - I've never done a gluteal tendon repair



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Key take home points

- Trochanteric tenderness + pain with resisted hip abduction → 96% GTPS.
- Evidence supports physiotherapy as first line intervention.
- LEAP Study → 80% improved at 12 months. 60% with cortisone, 50% with wait and see.
- Surgery is rarely required.



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Thank you



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