

FACT SHEET

The effect of shockwave on lateral hip pain

INTRODUCTION

Definition (1)

- Greater trochanteric pain syndrome (GTPS) is used internationally as a collective term for pain conditions that are localized around the trochanter major
- This has often been attributed to a suspected irritated bursa on the outside of the hip or a suspected tight iliotibial band.
- Internationally, the focus over the past two decades has been on pathological conditions in the primary abductors of the hip, the gluteus medius and the gluteus minimus

Occurrence(1)

- Pain from the outside of the hip, lateral hip pain (LHP), is a frequent and debilitating problem in patients over the age of 30.
- An extract of data via the Central Denmark Region Business-Intelligence portal shows that around 1,200 patients annually receive a diagnosis code related to LHP (DM76.0/DM70.6).
- Based on this figure, more than 5,000 Danes are referred for further assessment and treatment for LHS at a hospital every year.
- LHP affects the patient's daily and leisure activities as well as night's sleep.
- Working patients with LHS may also find that the pain affects their work function to such an extent that they need sick leave.
- A Danish report showed that 72% of the patient group had received physiotherapy and 66% had received corticosteroid blockades.
- The numerous inquiries to the health service with regard to diagnosis and treatment make LHP a significant burden on society.

Etiology and pathogenesis(1)

- It is presumed that abductor related LHP is primarily caused by degenerative conditions
- The degenerative changes are assumed to develop into outright injuries, i.e. partial or complete tendon tears of the abductors' insertion on the trochanter major.
- Likewise, abductor-related injuries are a relatively frequent finding in hip fractures and in patients with hip dysplasia or hip osteoarthritis.

This is outside the topic of this search, but if you want to immerse yourself in relevant clinical studies, they can be found here:

Kinsella, R., Semciw, A. I., Hawke, L. J., Stoney, J., Choong, P. F. M., & Dowsey, M. M. (2024). Diagnostic Accuracy of Clinical Tests for Assessing Greater Trochanteric Pain Syndrome: A Systematic Review With Meta-analysis. *The Journal of orthopaedic and sports physical therapy*, 54(1), 1-24. <https://doi.org/10.2519/jospt.2023.11890>

METHOD

Searched in PubMed with the following keywords:

Extracorporeal Shock Wave Therapy OR ESWT OR shockwave AND GTPS OR Greater AND Trochanteric AND Pain AND Syndrome Filters: Meta-Analysis, Review, Systematic Review, in the last 5 years, English Sort by: Most Recent

We found 1 article (2)

Harding, D., Cameron, L., Monga, A., & Winter, S. (2024). Is shockwave therapy effective in the management of greater trochanteric pain syndrome? A systematic review and meta-analysis. *Musculoskeletal care*, 22(2), e1892. <https://doi.org/10.1002/msc.1892>

The article's keyword search string:

"GTPS" OR "Greater Trochanteric Pain Syndrome" OR "Lateral Hip Pain" OR "Lateral Hip Tend?n*" OR "Trochanteric Bursitis" OR "Glut* Tend?n*" OR "Glut* min*" OR "Glut* med*" OR "Hip Bursitis" OR "Hip enthes*"

Medline, Embase, AMED, Google Scholar, Web of Science, have been searched until May 2023

RESULTS

Below is an overview of the methods and effects of the included studies.

Assessment:

CSV, Central Sensitisation Inventory
 HADS, Hospital Anxiety and Depression Score
 HEP, Home Exercise Programme
 IPAQ, International Physical Activity Questionnaire
 MPQ, McGill Pain Questionnaire
 ODI, Oswestry Disability Index
 PCS, Pain Catastrophising Scale
 PSIQ, Pain Self-Efficacy Questionnaire
 SLR, Straight Leg Raise
 VISA-G: Victorian Institute of Sport Assessment–Gluteal.
 VAS: Visual Analogue Scale
 NRPS: Numerical Pain Rating Score
 PainDETECT
 HHS: Harris Hip Score
 NAHS: Non-Arthritis Hip Score
 LEFS: Lower Extremity Functional Scale
 S-LANSS: Leeds Assessment of Neuropathic Symptoms and Signs
 PHQ-4: Patient Health Questionnaire-4
 PHQ-9: Patient Health Questionnaire-9
 GAD-7: General Anxiety Disorder-7
 EQ5D, EuroQol 5-Dimension questionnaire

12 studies included

The treatment effect has been measured:

3 studies with fESWT
 9 studies with rESWT

1,4,15 months
 2,6 months
 1,2,3,6 months
 3,12 months
 6 weeks, 3.6 months
 1,3,13 months
 1.4 months
 3 (3-19 months)
 6 weeks, 3.6 months
 1 week, 4-27 months
 3,6,12,24 months
 3.6 months

1 bar = 0.1 mJ/mm²

1MPa = 10 bar

STUDY	DOSE	CONTROL GROUP	EFFECT	METHOD
Rompe et al. (2009)(3) rESWT 229 included	3 at weekly intervals 3.0 bar/0.12 mJ/mm ² 2000 pulses 8Hz	cortisone + exercises	after 1 month cortisone most effective after 4 months ESWT+ exercises most effective after 15 months ESWT+ exercises most effective	Lateral lying over the most painful area above the trochanter major

Carlisi et al. (2018)(4) fESWT 50 included 26 ESWT 24 UL	+ exercises 3 at weekly intervals 0.15 mJ/mm ² (3.5 bar) 1800 pulses 4 Hz	Treatment with ultrasound daily for 10 days Continuous mode 10 min beh time	both modalities improved pain and function, but ESWT was most effective Ultrasonic treatment may therefore be an alternative to ESWT	Lateral decubitus position Trochanter major lateral surface found on ultrasound Next, the area is treated
Ramon et al. (2020)(5) fESWT 103 included 50 in the control group	3 at weekly intervals 0.20 mJ/mm ² (~4 bar) 2000 pulses 5 Hz	3 at weekly intervals 0.01 mJ/mm ² 20 impulses 5 Hz	good effect of fESWT + exercises 86.8% success rate after 2 months	Lateral lateral decubitus Treatment is focused on the glut with the tendon by attachment to the trochanter major
Heaver et al. (2021)(6) fESWT 104 included 51 Cortisone 53 ESWT	3 at weekly intervals 0.15–0.35 mJ/mm ² (currently pain threshold) (>3.5 bar) 2500 pulses + home exercises	cortisone syringe + home exercises	significantly better efficacy of fESWT after 1 year 68% symptom-free after fESWT 24% of the cortisone group became symptom-free	lying lateral pressure ulcers Treats the most painful area
Wheeler et al. (2022)(7) rESWT 110 included	3 treatments one week apart PT pain threshold 1 treatment	1 Treatment PT pain threshold 1.4 bar	Significant improvements in pain level in both groups Functional improvement is seen to a lesser extent	Not described The question is raised: Is one treatment enough or do you need several treatments to achieve a greater effect.

<p>56 in the intervention group</p> <p>63 in the control group</p>	<p>2.3 +/- 0.3 bar (~ 0.1 mJ/mm²)</p> <p>2 treatments: 2.8 +/- 0.3 bar (~ 0.11 mJ/mm²)</p> <p>3 treatments: 3.3 +/- 0.4 bar (~ 0.14 mJ/mm²)</p> <p>20 Hz</p> <p>2000 pulses</p> <p>+ exercises</p>	<p>20 Hz</p> <p>500 pulses</p> <p>+ exercises</p>		<p>Can the exercises be the cause of lack of improvement, as everyone has previously completed a rehab program</p> <p>This is a group with long-term GTPS pain</p>
<p>Furia et al. (2009)(8)</p> <p>rESWT</p> <p>66 incl</p> <p>33 in each group</p>	<p>1 treatment</p> <p>Currently own pain threshold</p> <p>4 treatmentsdf (0.18-0.28 mJ/mm²) 2000 pulses</p> <p>10 Hz</p>	<p>randomised patients being treated for GTPS with other modalities at the same clinic</p>		<p>lateral decubitus</p> <p>Most painful area is treated with circulating movements</p>
<p>Matteo et al. (2009)(9)</p> <p>rESWT</p> <p>114 included</p>	<p>3 at weekly intervals</p> <p>0.28 mJ/mm² (4.0 bar)</p> <p>1700 pulses</p> <p>Light exercises + stretching 2 x a week for 4 weeks</p>		<p>pain relief in 86% of those included at 4 months</p>	<p>Most painful place over the trochanter major is treated</p> <p>Starting position not described</p>

Sultan and Lovell (2015)(10)	5 treatments at one-week intervals		67% success rate over 15 months, but few relapses	the patient is offered an analgesic injection before treatment: "Pethidine"
rESWT	3 bar (0.12 mJ/mm ²)			as this is not indicated prior to ESWT treatment, this study is disregarded
71 included	2000 pulses			
	3 hz			
Wheeler and Tattersall (2016)(11)	1 treatment (average intensity)		Significant improvement in average pain and worst imaginable pain	Not described
rESWT	2.37 +/- 0.27 bar (~ 0.10 mJ/mm ²)		63% of those included were very satisfied after 3 months	
46 included	2 beh (gns intensitet)		70% after 6 months	
	2.94 +/- 0.41 bar (~ 0.11 mJ/mm ²)		functional level did not show the same degree of improvement	
	3 beh (avg intensity 3.44 +/- 0.52 bar (~ 0.14 mJ/mm ²)			
	20Hz			
	2000 pulses			
Seo et al. (2018)(12)	Up to 12 treatments, 1x per week		short term 86% success rate (1 week after)	lateral decubitus treated until the patient assesses good or excellent recovery
rESWT	0.10 mJ/mm ² (~ 2.3 bar)		long-term 56% success rate between 4 and 27 months (unclearly described)	Up to 12 treatments
18 included	600 pulses			
Maffuli et al. (2018)(13)	1.5 bar (~ 0.07 mJ/mm ²)		Significant improvement in function and pain at 3 months and still present at 24 months	Standardized protocol (not described)
rESWT	500 pulses			All therapists certified in the protocol

40 included	Next, the intensity increases to the PT pain level			
	2000 pulses			
Wheeler (2022)(14)	3 at weekly intervals		30% improvement in average pain at 3 months	Not described
rESWT	PT pain threshold		37% at 6 months	
260 included	1 treatment 2.3 +/- 0.3 bar (~ 0.1 mJ/mm ²)		10% improvement in function level	
	2 treatments: 2.8 +/- 0.3 bar (~ 0.11 mJ/mm ²)			
	3 treatments: 3.3 +/- 0.4 bar (~ 0.14 mJ/mm ²)			
	2000 pulses			
	20Hz			
	+ home exercises			

The authors' own conclusion(2)

Moderate-quality evidence demonstrated no statistically significant improvements in pain and function post-SWT compared to control. Low-quality evidence established clinical improvements throughout all included studies favouring SWT over control. Consequently, owing to relatively low incidence of side effects, SWT should be considered a viable option for the management of GTPS. Issues with both clinical and statistical heterogeneity of studies and during meta-analysis require consideration, and more robust RCTs are recommended if the efficacy of SWT for the management of GTPS is to be comprehensively determined.

CONCLUSION

An unambiguous conclusion is difficult to draw, on the basis of the included studies, as they are very different in their set-up and choice of method. In general, there is an improvement in the individual's pain level, despite long-term pain problems. There is no consensus on the dose, use of exercises or non-exercises.

RECOMMENDATION

We recommend that ESWT is a possible pain treatment for GTPS patients.

A pain modulating treatment that may benefit for the way to increased functional levels through relevant exercises, or other forms of activity.

Treatment:

Lateral decubitus position

3 treatments one week apart

Dose rESWT: 2000 pulses, 4-5 Hz. Intensity to the patient's acceptable pain threshold

Dose fESWT: 2000-2500 pulses (device dependent). Intensity to the patient's acceptable pain threshold

Treatment is focused on the most painful area above the trochanter major, tendon attachment of the gluteus etc. on the trochanter major (Myofascial pain from glut minimus and medius (Unpublished data)

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