

GTPS

GREATER TROCHANTER PAIN SYNDROME

JENS ERIK JØRGENSEN. MSCPT

ÅRSMØDE ODENSE SEPT 2020.

CONCLUSIONS:

- SMALL NUMBER OF CROSS-SECTIONAL STUDIES:
- THAT GREATER TROCHANTERIC WIDTH,
- GREATER BMI,
- HIP ABDUCTOR MUSCLE WEAKNESS,
- ALTERED HIP ABDUCTOR ACTIVITY,
- ALTERED SINGLE LEG LOADING AND GAIT PARAMETERS
- THE OVERALL QUALITY OF THE EVIDENCE WAS VERY LOW ACROSS STUDIES. ADDITIONAL, AND HIGHER QUALITY METHODOLOGY AND STUDY DESIGNS ARE REQUIRED TO ADDRESS THOSE LIMITATIONS.

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Contents lists available at [ScienceDirect](#)

 Musculoskeletal Science and Practice
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Systematic Review

Physical findings differ between individuals with greater trochanteric pain syndrome and healthy controls: A systematic review with meta-analysis

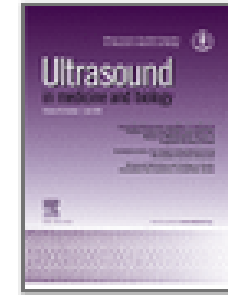
Melanie Louise Plinsinga^a, Megan Heather Ross^a, Brooke Kaye Coombes^b, Bill Vicenzino^{a,*}





Ultrasound in Medicine & Biology

Volume 46, Issue 7, July 2020, Pages 1584-1598



Review Article

Ultrasound Definitions and Findings in Greater Trochanteric Pain Syndrome: A Systematic Review

Mads Hilligsøe ^{*}  , Michael Skovdal Rathleff ^{*}   [†], Jens Lykkegaard Olesen [†]

Implications for future research

US examination of the lateral hip is highly relevant to confirm the pathology underlying GTPS and to exclude differential diagnoses.

In a recent Delphi study in which 41 general practitioners discussed which US scanning modalities are essential to general practitioners, they reached consensus that trochanteric bursitis was an important scanning modality (Løkkegaard et al. 2020).

However, standardized US procedures and definitions are needed before a reliable evaluation of the lateral hip can be made.

Greater trochanteric pain syndrome

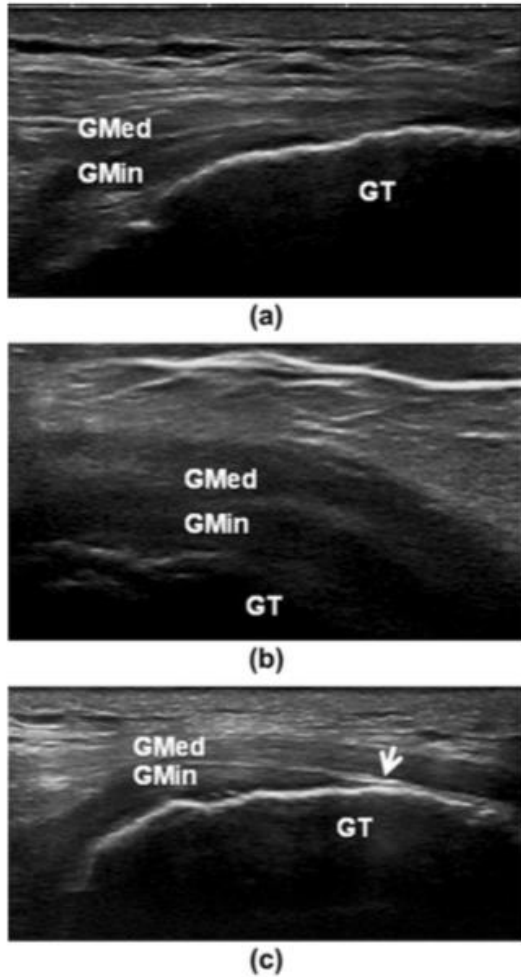


Figure 5 Ultrasound images of the gluteus medius and minimus tendons (cranial aspect to left of images). Lateral longitudinal images of the gluteus medius and minimus attachments onto the greater trochanter with (a) a normal appearance; (b) the hypochoic appearance of tendinosis; and (c) calcification (white arrow) between the gluteus medius and minimus tendons. GMed, gluteus medius tendon; GMin, gluteus minimus tendon; GT, greater trochanter.

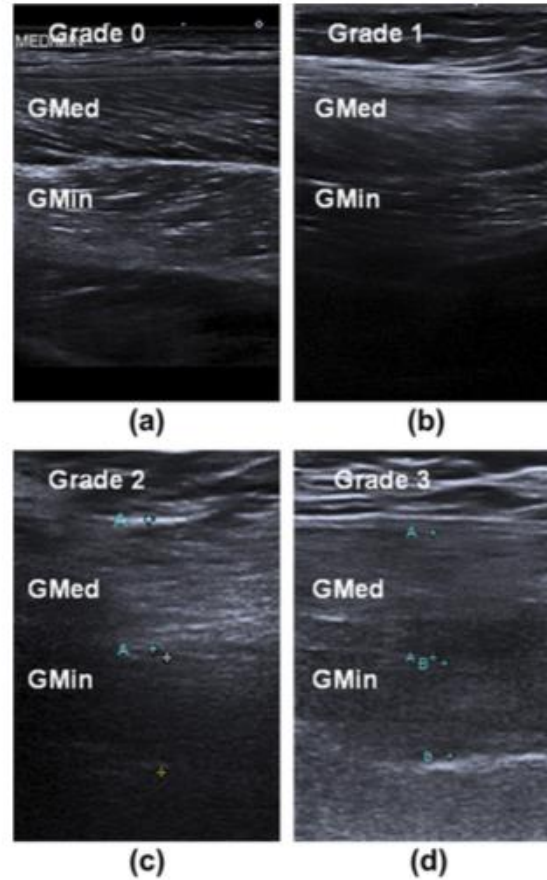


Figure 4 Ultrasound grading of hip abductor muscle atrophy (cranial aspect to left of the images). Lateral longitudinal images of the midpoint position of the gluteus medius and minimus muscles showing consecutive graded muscle atrophy as (a) grade 0 or normal muscular architecture without fatty replacement; (b) grade 1 <30% size reduction with some fatty replacement; (c) grade 2 or 30–70% size reduction with fatty replacement; and (d) grade 3 or extensive loss of muscular architecture with widespread fatty replacement and a decrease of >70% in size as compared to the contralateral hip muscles. GMed, gluteus medius muscle; GMin, gluteus minimus muscle.

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Systematic Review

Physical findings differ between individuals with greater trochanteric pain syndrome and healthy controls: A systematic review with meta-analysis

Melanie Louise Plinsinga^a, Megan Heather Ross^a, Brooke Kaye Coombes^b, Bill Vicenzino^{a,*}

Clinical Radiology xxx (2013) e472–e478

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Clinical Radiology

journal homepage: www.clinicalradiologyonline.net

ELSEVIER

Technical Report

Cross-sectional imaging of the metal-on-metal hip prosthesis: The London ultrasound protocol

I.A. Siddiqui^a, S.A. Sabah^a, K. Satchithananda^b, A.K. Lim^b, J. Henckel^a, J.A. Skinner^a, A.J. Hart^{a,*}



Original Article

 **CLINICAL
REHABILITATION**

Focused extracorporeal shock wave therapy for greater trochanteric pain syndrome with gluteal tendinopathy: a randomized controlled trial

**Ettore Carlisi¹ , Miriam Cecini^{1,4},
Giuseppe Di Natali¹ , Federica Manzoni^{2,3},
Carmine Tinelli² and Claudio Lisi¹**

Clinical Rehabilitation

1–11

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Patients in the study group were treated with
**focused extracorporeal shock wave
therapy once a week for three consecutive weeks.**

**Patients in the control group were treated with ultrasound therapy
daily for 10 consecutive days.**

With the patients lying in lateral decubitus position, we treated an area of 5 cm², softly moving the probe around the most painful point of the greater trochanter at the clinical palpation.

Ultrasound therapy was supplied in a continuous modality, with an intensity of 1.5W/cm² in sessions of 10 minutes each.

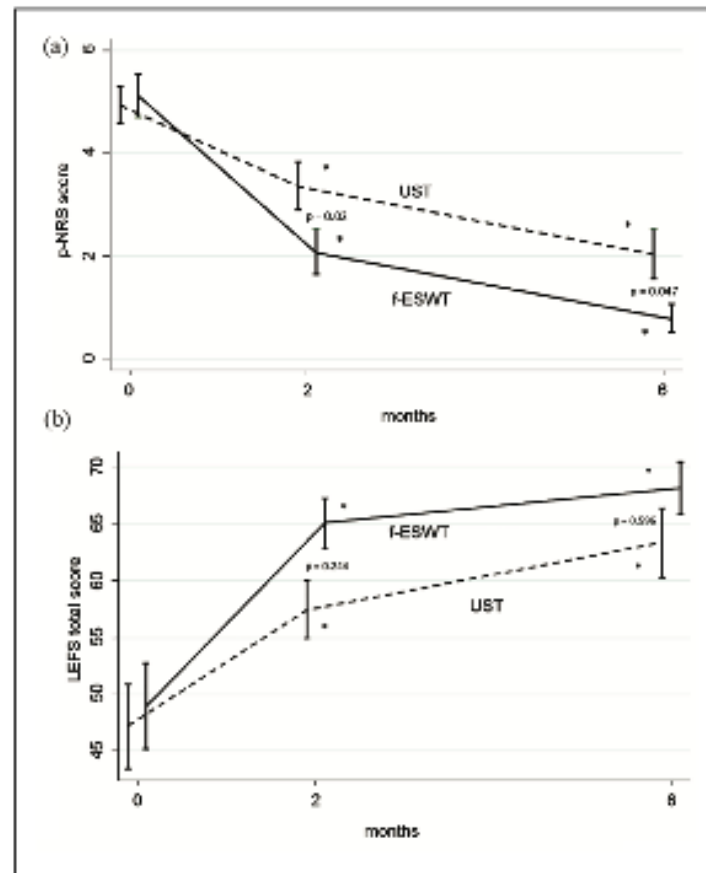


Figure 2. Line charts of the outcome measures for the ITT analysis ($n=50$; f-ESWT = 26, UST = 24).
 (a) line chart for p-NRS score (\bar{x} = standard error; P-values for the comparisons between groups at follow-up two and six months are reported. *Comparisons within group: f-ESWT: baseline to two months: $P < 0.0001$; two to six months: $P = 0.003$; UST: baseline to two months: $P < 0.006$; two to six months: $P = 0.004$).
 (b) line chart for LEFS total score (\bar{x} = standard error; P-values for the comparisons between groups at follow-up two and six months are reported. *Comparisons within group: f-ESWT: baseline to two months: $P < 0.0001$; two to six months: $P = 0.022$; UST: baseline to two months: $P < 0.008$; two to six months: $P = 0.018$).
 p-NRS: pain numeric rating scale; f-ESWT: focused extracorporeal shock wave therapy; UST: ultrasound therapy; LEFS: lower extremity functional scale.

MCD:

NPRS = 2 points

LEFS = 9 points



A commentary by Mengnai L, MD, PhD, is linked to the online version of this article at jbjs.org.

Focused Shockwave Treatment for Greater Trochanteric Pain Syndrome

A Multicenter, Randomized, Controlled Clinical Trial

J Bone Joint Surg Am. 2020;102:1305-11 d <http://dx.doi.org/10.2106/JBJS.20.00093>

103 participants with GTPS were enrolled and randomly assigned to two groups, consisting of electromagnetic F-ESWT and a specific exercise protocol, or the control group, receiving sham F-ESWT and the same exercise protocol

VAS, pain 0-10

Harris hip score (HHS), which evaluates hip disability using questions about pain and daily life activities in the previous week and hip function and range-of-motion assessments.

Lower Extremity Functional Scale (LEFS), a self-report questionnaire measuring the patients' initial function, ongoing progress, and outcome with regard to the lower extremity.

EuroQoL-5 Dimensions Questionnaire (EQ-5D), which evaluates patients' quality of life.

Roles and Maudsley (RM) treatment satisfaction scale, which assesses pain and limitation of activity,

TABLE II HHS, LEFS, and EQ-5D

	Mean ± SD		P Value
	FESWT	Control	
HHS			
Baseline	65.0 ± 13.5	65.9 ± 11.2	0.71
1 mo	80.0 ± 12.4	73.5 ± 12.2	<0.01
2 mo	88.5 ± 11.2	77.6 ± 12.6	<0.001
3 mo	90.4 ± 10.3	78.0 ± 11.7	<0.001
6 mo	91.0 ± 10.3	79.4 ± 12.5	<0.001
LEFS			
Baseline	50.3 ± 15.7	49.6 ± 13.1	0.82
1 mo	57.3 ± 14.8	54.0 ± 13.7	0.25
2 mo	65.7 ± 12.7	56.5 ± 14.6	<0.001
3 mo	67.6 ± 12.0	60.6 ± 10.4	0.003
6 mo	68.1 ± 11.0	60.6 ± 12.4	0.002
EQ-5D			
Baseline	0.53 ± 0.31	0.56 ± 0.24	0.28
1 mo	0.72 ± 0.22	0.62 ± 0.18	0.025
2 mo	0.82 ± 0.17	0.66 ± 0.22	<0.001
3 mo	0.85 ± 0.14	0.68 ± 0.15	<0.001
6 mo	0.83 ± 0.14	0.69 ± 0.15	<0.001

e91(1)

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COMMENTARY & PERSPECTIVE

Shockwave: Does It Work Like Magic for Greater Trochanteric Pain Syndrome?

Commentary on an article by Silvia Ramon MD, PhD, et al.: "Focused Shockwave Treatment for Greater Trochanteric Pain Syndrome. A Multicenter, Randomized, Controlled Clinical Trial"

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J Bone Joint Surg Am. 2020;102:e91(1-2) d
<http://dx.doi.org/10.2106/JBJS.20.01067>

First, GTPS is usually a chronic condition with flare-ups that might require frequent nonoperative treatment to reduce the high level of pain and improve life quality.

When NSAIDs and physiotherapy stop working, more invasive treatments are usually considered.

Although corticosteroid injections usually provide immediate short-term pain relief that lasts up to 3 months, it does not usually last >12 months .

The Level-I evidence from the current study indicates that F-ESWT is another nonoperative management modality to consider for patients with GTPS because it may provide significant pain reduction and improved quality of life.

From the surgeon's perspective, this current study provides validated outcome measurements regarding pain reduction and functional status improvement up to 6 months after treatment.

Thus, when counseling patients with GTPS, we might advocate a nonoperative treatment that could be effective in the mid-term.

A Study Protocol for a Pragmatic Clinical Trial Evaluating Clinical Predictors of Extracorporeal Shockwave Therapy Efficacy in Patients Presenting with Lateral Hip Pain.

Jens Erik Jorgensen¹, Angela Fearon², Jane Andreasen^{4,5}, Jens Kristinsson³, Carsten M Mølgaard^{3,4},

Study protocol: The experience of daily life, physical activity and treatment by extracorporeal shockwave therapy for patients with greater trochanteric pain syndrome- a qualitative study

Jens Erik Jorgensen¹, Angela Fearon², Jens Kristinsson³, Carsten M Mølgaard^{3,4}, Jane Andreasen^{4,5}

OBJECTIVE

- CONSIDERING THE VARIABLE RESPONSE TO TREATMENT OUTCOME OF INDIVIDUALS WITH GTPS, AND THE LACK OF EVIDENCE ON THE TREATMENT OF GTPS WITH FESWT, THE AIM OF THIS STUDY WAS TO IDENTIFY PREDICTORS OF FESWT EFFICACY IN INDIVIDUALS WITH GTPS . SPECIFICALLY, THE ABILITY OF CLINICALLY APPLICABLE MEASUREMENTS INCLUDING:
- PATIENT DEMOGRAPHICS, OESTROGEN LEVELS, PAIN CHARACTERISTICS, HIP ABDUCTOR STRENGTH, TIME TO PAIN DURING SINGLE-LEG STANCE TEST, LOW BACK PAIN, AND IMMEDIATE PAIN REDUCTION TO LOCAL ANAESTHETIC INJECTION AT THE TROCHANTER MAJOR INSERTION OF GMED DURING WALKING.

Displaying: [Instrument status only](#) | [Lock status only](#) | [All status types](#)

	Screening	1. Undersøgelse UGE 0 (Idræt)	Blodprøvesvar (Jens)	Magnetic Resonance -T2 (Radiolog)	Shockwave behandling (Jens Erik)				Opfølgning fysio UGE 6 (Jens Erik)	2. Undersøgelse UGE 12 (Idræt)	3. Undersøgelse UGE 26 (Idræt)	4. Completion Data (Idræt)
Study ID	Screening	1. undersøgelse	Blodprove	MR skanning	Fysio 1	Fysio 2	Fysio 3	Fysio 5 (start øvelser)	Fysio 4 (opfølgn)	2. undersøgelse	3. undersøgelse	3. undersøgelse

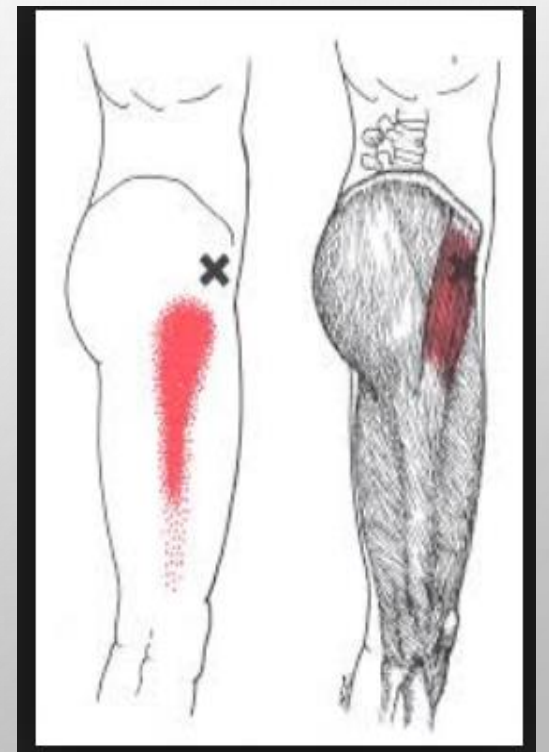
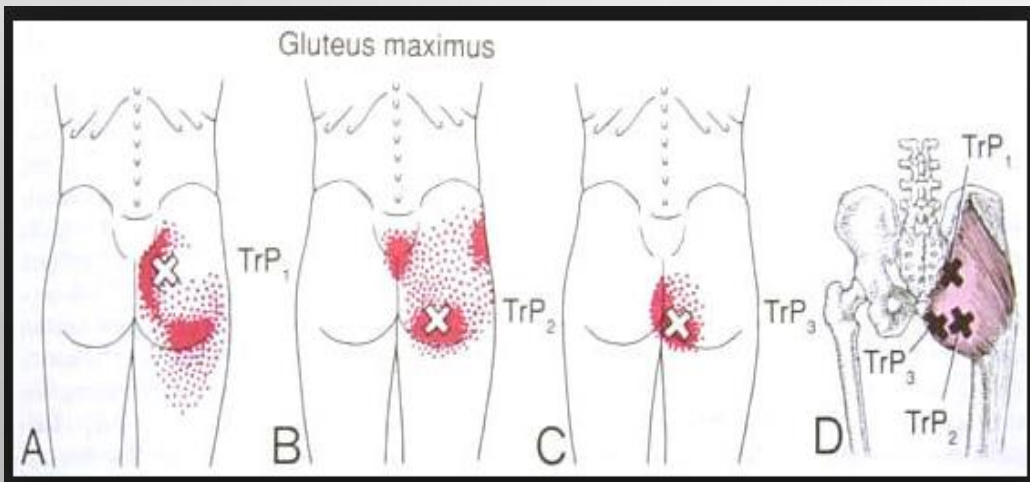
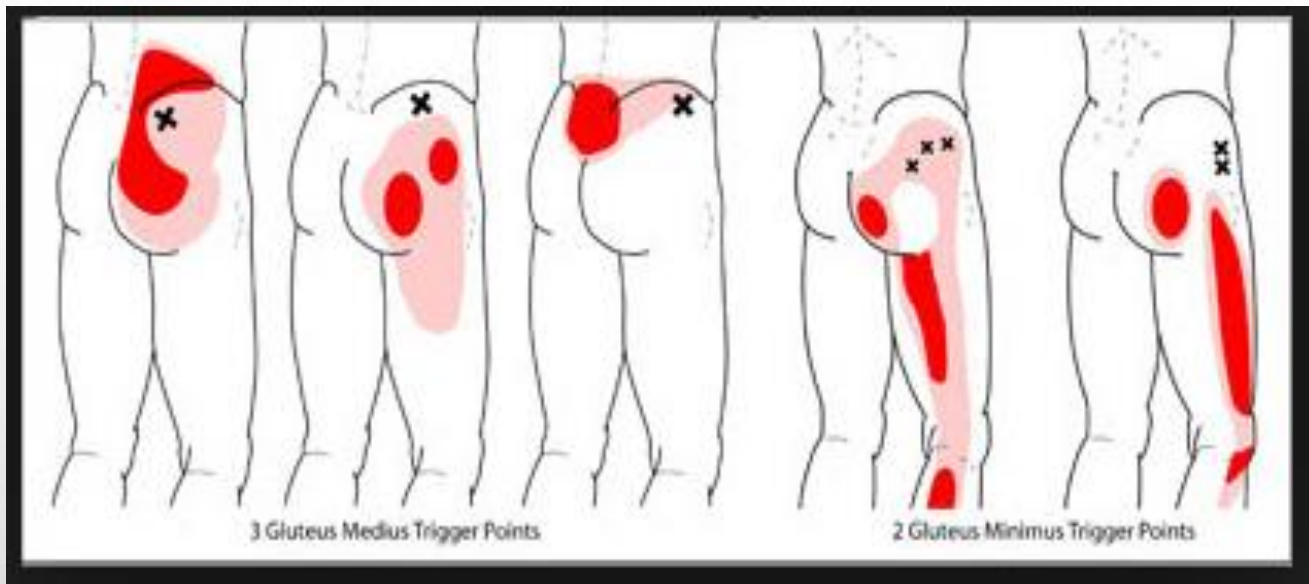
Study ID	Screening				1. undersøgelse		Blodprove	MR skanning	2. undersøgelse						3. undersøgelse							
	Screening	Patient Specifik Funktionel Status (Læge/fys udfylder)	VISA-G (Patient udfylder)	PHQ-9 (Patient udfylder)	EQ5D5l (patient udfylder)	1. Undersøgelse UGE 0 (Idræt)	1. Global Rating of Change Scale (Læge/Fys udfylder)	Blodprøvesvar (Jens)	Magnetic Resonance -T2 (Radiolog)	Patient Specifik Funktionel Status (Læge/fys udfylder)	2. Undersøgelse UGE 12 (Idræt)	VISA-G (Patient udfylder)	PHQ-9 (Patient udfylder)	EQ5D5l (patient udfylder)	Global Rating of Change Scale (læge/fys udfylder)	Patient Specifik Funktionel Status (Læge/fys udfylder)	3. Undersøgelse UGE 26 (Idræt)	4. Completion Data (Idræt)	VISA-G (Patient udfylder)	PHQ-9 (Patient udfylder)	EQ5D5l (patient udfylder)	Global Rating of Change Scale (læge/fys udfylder)

PARTICIPANTS

- SIXTY CONSECUTIVE PATIENTS WHO PRESENT FOR TREATMENT OF GTPS ARE INCLUDED IN THE TRIAL.

EXTRACORPORAL SHOCKWAVE THERAPY

- ALL SUBJECTS RECEIVE 3 SESSIONS OF SHOCK WAVE TREATMENT VIA A FESWT DEVICE
- THE TREATMENT WILL BE ADMINISTERED IN 3 WEEKLY SESSIONS. THE PATIENT WILL BE TREATED IN THE LATERAL DECUBITUS POSITION. THE SHOCK WAVE WILL FOCUS ON THE AREA OF MAXIMAL TENDERNESS, WHICH WILL BE TREATED IN A CIRCUMFERENTIAL PATTERN. TREATMENT WILL FOCUS ON AREAS WITH ACTIVE MYOFASCIAL TRIGGER POINTS, WHICH IN THIS REGION WILL INCLUDE PIRIFORMIS, GLUTEUS MAX (GMAX), GMED, GMIN AND TENSOR FASCIA LATA (TFL)).
- THE POINT OF MAXIMUM TENDERNESS OVER THE GREATER TROCHANTER WILL BE INCLUDED IN THE TREATMENT REGIME, AS THIS IS A CRITERION FOR THE DIAGNOSIS OF GTPS. THE REASON FOR ADDRESSING MULTIPLE MYOFASCIAL TRIGGERPOINTS IS THAT GTPS BEING A SYNDROME, MULTIPLE TRIGGERPOINTS MAY BE FOUND IN THE INCLUDED INDIVIDUALS, DUE TO VARYING EVERYDAY EXPOSURE AND FACTORS SUCH AS AGE, WORK SITUATIONS, EXERCISE HABITS AND PAIN PERCEPTION. THE INCLUSION OF SEVERAL HIP MUSCLES AS MENTIONED ABOVE IS THEREFORE NECESSARY TO ADDRESS THE LATERAL HIP AS A WHOLE ENTITY.



WE ARE WE?

- ONGOING: DATA INTERPRETATION IN PROGRESS – INCLUSION COMPLETE (SCREENED 107 POSSIBLE PARTICIPANTS) **AT LAST !!!!!** 😊
- ONGOING: QUALITATIVE STUDY LOOKING INTO PARTICIPANT EXPERIENCE BEFORE, UNDER AND AFTER TREATMENT (16 PARTICIPANTS)
- ONGOING: MRI EVALUATION – PROGNOSTIC OR NOT? ARE WE DESCRIBING THE MRI APPROPRIATELY ?
- PROTOCOL SUBMITTED
- **EXPERIENCES UNTIL NOW:** NOT ALL PATIENTS ARE EQUAL, NOT ALL PAIN IS EQUAL, NOT ALL SHOULD BE TREATED WITH SAME PROTOCOL, EXERCISE – IS THIS NECESSARY ?, 13 YEARS OF PAIN CAN SIGNIFICANTLY CHANGE WITHING 3 WEEKS, “CHRONIC PATIENTS CAN BECOME ALMOST PAIN FREE, “SENSITIVE PATIENTS” – COMBINATION THERAPY?