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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 Jørgensen. MScPT

Årsmøde for DSKE SWT 2019

- Uddannet i Aalborg 1991
- Praktiserende Fysioterapeut siden 1993
- Godkendt Specialist i Muskuloskeletal Fysioterapi
- Nuværende Sofiendal Sundhedsteam Aalborg
- Klinik udenfor ydernummer. (Fys, Kiro, Jordemoder, Fodterapeut, Massør, Zoneterapeut)
- Kandidat / MSc i Fysioterapi. Queen Margarets Edinburgh
- Samarbejder med Forskningsenheden for Almen Praksis Aalborg
- Samarbejder med Idrætsmedicinsk Klinik Aalborg Universitetshospital
- Tilknyttet DJO Nordic som underviser i ultralydsscanning og ESWT.
- DJO Nordic har ingen forbindelse med dette studie

- Erfaring med ESWT: rESWT ca. 9 år. fESWT ca 3 år.

Ideen til dette studie

Interesse for laterale hoftesmerter fra klinisk praksis: ”synes jeg ofte stødte på problematikken”

Havde svært ved for alvor gør en forskel – konservativ behandling havde kun effekt i kort tid

Kobler dernæst dry needling på: lille bedring i langtidseffekten – men fortsat med en del tilbagefald

Frustrerende for mig og ikke mindst patienten

En bedre løsning?

The American Journal of Sports Medicine

<http://ajs.sagepub.com/>

Home Training, Local Corticosteroid Injection, or Radial Shock Wave Therapy for Greater Trochanter Pain Syndrome

Jan D. Rompe, Neil A. Segal, Angelo Cacchio, John P. Furia, Antonio Morral and Nicola Maffulli

Am J Sports Med 2009 37: 1981 originally published online May 13, 2009

DOI: 10.1177/0363546509334374

The online version of this article can be found at:

<http://ajs.sagepub.com/content/37/10/1981>

Two hundred twenty-nine patients with refractory unilateral greater trochanter pain syndrome were assigned sequentially to a home training program, a single local corticosteroid injection (25 mg prednisolone), or a repetitive low-energy radial shock wave treatment.

The role of corticosteroid injection for greater trochanter pain syndrome needs to be reconsidered. Subjects should be properly informed about the advantages and disadvantages of the treatment options, including the economic burden. The significant short-term superiority of a single corticosteroid injection over home training and shock wave therapy declined after 1 month. **Both corticosteroid injection and home training were significantly less successful than was shock wave therapy at 4-month follow-up. Corticosteroid injection was significantly less successful than was home training or shock wave therapy at 15-month follow-up.**

Winner of the 2009 ISAKOS Achilles Orthopaedic Sports Medicine Research Award

Low-Energy Extracorporeal Shock Wave Therapy as a Treatment for Greater Trochanteric Pain Syndrome

John P. Furia,^{*†} MD, Jan D. Rompe,[‡] MD, and Nicola Maffulli,[§] MD, MS, PhD, FRCS (Orth), FFSEM (UK)

From [†]SUN Orthopedics and Sports Medicine, Lewisburg, Pennsylvania, [‡]OrthoTrauma Evaluation Center, Mainz, Germany, [§]Centre for Sports and Exercise, Barts and the London School of Medicine and Dentistry, London, United Kingdom

Conclusion: Shock wave therapy is an effective treatment for greater trochanteric pain syndrome.

Furia:

Each patient received 1 low-energy treatment. **Two thousand shocks were applied with a pressure of 4.0 bars** (equal to an energy flux density of approximately 0.18 mJ/mm²). The treatment frequency was 10 shocks/s. The total energy flux density of the treatment session was approximately 360 mJ/mm².

Rompe:

The treatment was administered in 3 weekly sessions. **At each session, 2000 pulses were applied with a pressure of 3 bar** (equal to an energy flux density of 0.12 mJ/mm²). The treatment frequency was 8 pulses/s. With use of the principle of clinical focusing, the area of maximal tenderness was treated in a circumferential pattern, starting at the point of maximum pain level over the greater trochanter.



BMJ

RESEARCH

Radial extracorporeal shockwave treatment compared with supervised exercises in patients with subacromial pain syndrome: single blind randomised study

Kaia Engebretsen, physiotherapist,^{1,2} Margreth Grotle, research leader,^{2,3} Erik Bautz-Holter, professor,^{1,2} Leiv Sandvik, professor,⁴ Niels G Juel, MD consultant,^{1,2} Ole Marius Ekeberg, Research fellow,^{1,2} Jens Ivar Brox, MD consultant^{2,5}

Radial extracorporeal shockwave treatment:

The treatment was **administered once a week for four to six weeks; three to five tender points were treated each time.**

Points were identified through a patient oriented biofeedback process (insertion of supraspinatus tendon, dorsolaterally below the acromion, and a maximum of three trigger points in the rotator cuff muscles).

The frequency applied was 12-8 Hertz with from 2000 pulses per session, with a pressure between 2.5 and 4.0 Bar, depending on what the patient tolerated without local anaesthetic.



Contents lists available at ScienceDirect

Gait & Posture

journal homepage: www.elsevier.com/locate/gaitpost



Full length article

Pain, not structural impairments may explain activity limitations in people with gluteal tendinopathy or hip osteoarthritis: A cross sectional study[☆]



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Conclusion:

There is a significant level of dysfunction and impairments associated with GT and hip OA.

As activity limitations do not appear to be differentiated by structural impairments, we suggest that pain, rather than the underlying pathology may be the driving impairment that leads to walking and single leg standing dysfunction.

Key Topic

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Trigger points – Diagnosis and treatment concepts with special reference to extracorporeal shock waves



International Journal of Surgery

journal homepage: www.journal-surgery.net



Review

Update on the efficacy of extracorporeal shockwave treatment for myofascial pain syndrome and fibromyalgia



Silvia Ramon ^{a, *}, Markus Gleitz ^b, Leonor Hernandez ^c, Luis David Romero ^c

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S. Ramon et al. / International Journal of Surgery 24 (2015) 201e206

Myofascial pain syndrome (MPS) is defined as a series of sensory, motor, and autonomic symptoms caused by a stiffness of the muscle, caused by hyperirritable nodules in musculoskeletal fibers, known as myofascial trigger points (MTP), and fascial constrictions. The mechanism of action that best explains it is Simons' Integrated Hypothesis of TP Formation (or Energy Crisis Integrated Hypothesis)

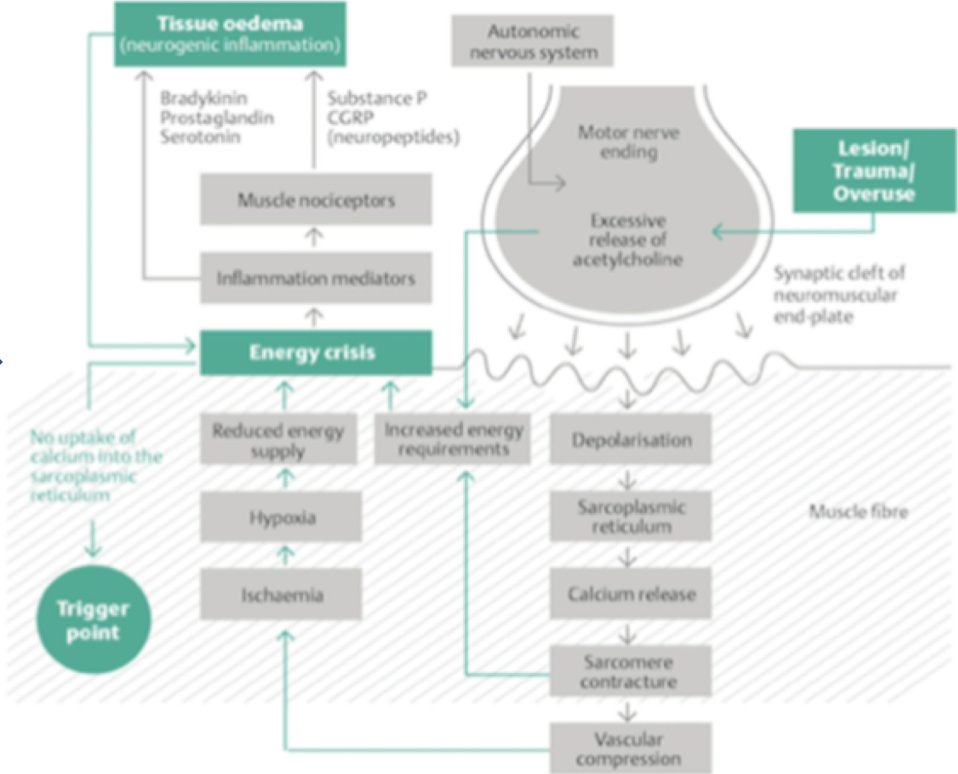
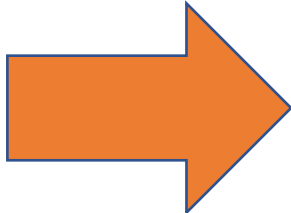


Fig. 2. Integrated myofascial trigger point (MTP) hypothesis [1,2].

Jens Erik Jørgensen. MScPT May 2019.

Muscular shockwave therapy has come to be referred to as “trigger point shockwave therapy” because shockwaves are **able to trigger the referred pain that is characteristic of TP and treat the clinical symptoms associated with these TP**

2.1. Suggested protocol for MPS and FM

A) We suggest the following **MPS** Treatment Protocol, based on the area to treat, its depth and surface area. The treatment range should always be kept at low (and medium) energy levels:

1 Focused ESWT: 1000–2000 pulses (depending on the generator and muscle size); 4 Hz; 0.1 mJ/mm² (0.05–0.35 mJ/mm²) 1–3 sessions

2 Radial ESWT: 1000 pulses; 1–1.5 bar (for medium-sized muscles); 1.5–2 bar (big muscles); 6–10 Hz; 3–5 sessions

- Application interval: 1 week

- Follow-up: 6 weeks; 3, 6, 12 months after treatment

No local anesthesia.

5. Conclusions

People with hip GT or hip OA present with similar low level of walking and single leg standing dysfunction, and hip strength compared to an asymptomatic group. We suggest that the pain associated with these conditions, rather than the primary structural impairment, may be driving the dysfunction we report in people with GT or hip OA.



A. Fearon et al. / Gait & Posture 52 (2017) 237–243

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

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5. The Faculty of Medicine, Department of Health Science and Technology, Public Health and Epidemiology Group, Aalborg University, Aalborg, Denmark

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.

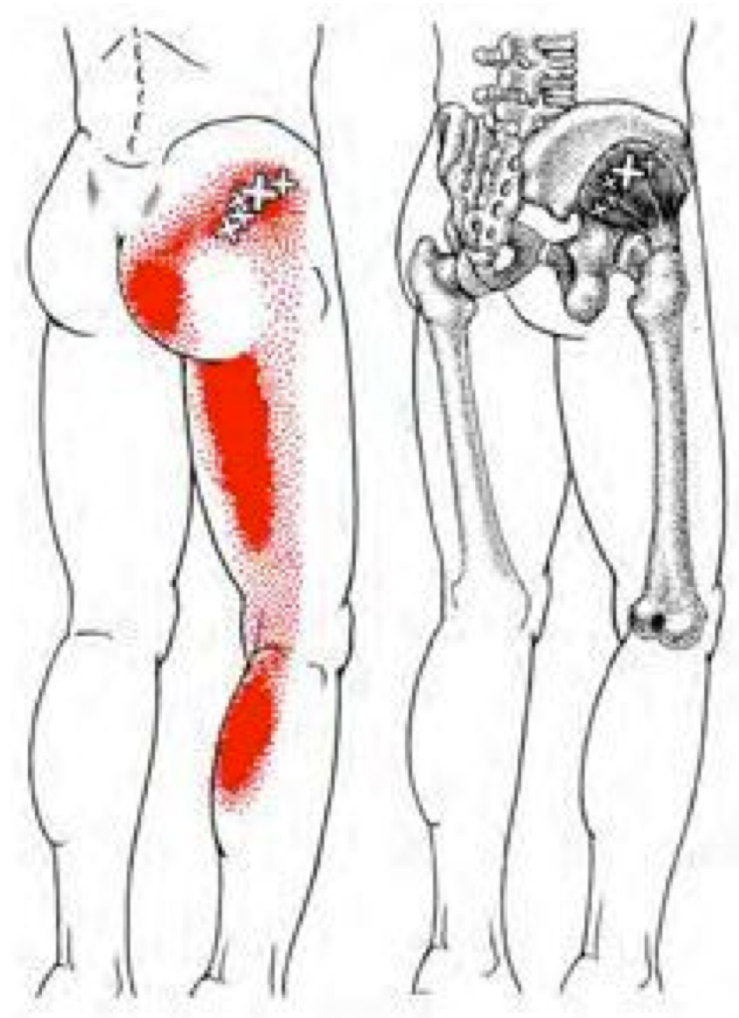
Specifically, the ability of clinically applicable measurements including: Patient demographics, oestrogen levels, pain characteristics, hip abductor strength, time to pain during single-leg stance test, and immediate pain reduction to local anaesthetic injection at the trochanter major insertion of GMed during walking.

Forløb:

- Deltagere findes via egen læge, FB og mund til mund
- Indledende undersøgelse Idrætsmedicinsk Klinik
- Behandling + information x 3 på klinik
- Opfølgning på klinik efter 6 uger (øvelser)
- Opfølgning idrætsmedicinsk 3 måneder
- Opfølgning Idrætsmedicinsk 6 måneder

The starting energy density will be 0.05 mJ/mm², which will be increased in a progressive stepwise manner. The physiotherapist will adjust the energy density to the **subject's maximal tolerable level** after every 200 impulse application, based on feedback from the patient

Chow IHW, Cheing GL. Comparison of different energy densities of extracorporeal shock wave therapy (ESWT) for the management of chronic heel pain. Clin Rehabil [Internet]. 2007;21(2):131–41.



Glut Minimus TrP

Methods

This is a pragmatic clinical trial conducted in medical and physiotherapy clinics in Aalborg, Denmark. In people with persistent gluteal tendinopathy it compares clinical predictors of fESWT efficacy for gluteal tendinopathy over six months.

Participants

Sixty consecutive patients will be invited to take part in the trial.

Inclusion criteria

Lateral hip pain, worst over the greater trochanter, present for a minimum of 3 months

Age 35–70 years

Female

Average pain of $\geq 3/10$ on most days of the last week.

Tenderness on palpation of the greater trochanter

Pain on one of the following:

Reproduction of pain with 30 sec single leg stand

Positive Faber test

TREATMENT OUTCOMES	MEASUREMENT	BASELINE	6 WEEKS	12 WEEKS	26 WEEKS
Average Patient-Specific Functional Scale	11-point PSFS, (0 = 'unable to perform' and 10 = 'Able to perform activity at the same level as before problem')	X	X	X	X
Perceived overall change in condition of Hip	Global Rating of Change Scale	X		X	X
Predictive variables					
Lateral Hip Pain	Pain Pressure Threshold	X		X	X
Quality of life	EuroQoL (EQ-5D™)	X		X	X
Muscle strength Static	abductor muscle strength	X		X	X
Muscle Function Active	Lag Abductor Muscles	X		X	X
Muscle and tendon quality	MRi	X			
Pain and Function	VISA-G	X		X	X

OUTCOME MEASURE	USE
<p>Global Rating of Change (GROC)</p> <p>Primary outcome measure</p>	<p>These scale are designed to quantify a patient's improvement or deterioration over time, usually either to determine the effect of an intervention or to chart the clinical course of a condition.</p>
<p>Patient Specific Functional Scale (PSFS)</p>	<p>The Patient Specific Functional Scale (PSFS) is a patient-specific outcome measure which investigates functional status.</p>
<p>EuroQoL (EQ-5D™)(45)</p>	<p>The EuroQoL (EQ-5D™) is a standardised instrument for use as a measure of health-related quality of life.</p>
<p>The VISA-G.DK questionnaire</p>	<p>The VISA-G.DK questionnaire is a self-reported, patient-specific tool for evaluating the severity of disability in people with gluteal tendinopathy.</p>



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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All patients received 1800 pulses (frequency=4Hz) of an energy flux density of 0.15 mJ/mm² with a perpendicular technique. At the first treatment session, the energy flux density was gradually increased from 0.05 to 0.15mJ/mm² during the first 300 pulses.

At the beginning of each treatment session, with the patients lying in lateral decubitus position, the enthesis of the gluteus medius on the anterior part of the greater trochanter's lateral facet was targeted through a non-inline sonographic focusing, using a linear probe (7.5–12MHz) connected to an ultrasound scanner (ESAOTE MYLAB FIVE, Genova and Florence, Italy).

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

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.**

Conclusion: Our findings support the hypothesis that f-ESWT is effective in reducing pain, both in the short-term and in the mid-term perspective. We also observed a functional improvement in the affected lower limb, but, in this case, f-ESWT showed not to be superior to UST.