DSKESWT

FACT SHEET

The effect of shockwave on fascitiis plantaris

INTRODUCTION

Definition (1)

Inflammation at the attachment of the fascia plantaris on the plantar side of the heel, similar to the anterior part of the tuber calcanei

Occurrence(1)

Is one of the most common causes of pain under the heel
Affects people of all ages, but is most common from the age of 40 and up
A frequent disorder in athletes (runners) and military personnel

METHOD

We used search string in PubMed

Search: Extracorporeal Shockwave Therapy for Plantar Fasciitis oR heel pain Filters: Meta-Analysis, Review, Systematic Review, in the last 5 years, Humans, English

Next: Similar articles: Extracorporeal Shockwave Therapy for Plantar Fasciitis oR heel pain Filters: Meta-Analysis, Review, Systematic Review, in the last 5 years, Humans, English

43 articles,2 selected for review:

Nazim B Tengku Yusof, T., Seow, D., & Vig, K. S. (2022). Extracorporeal Shockwave Therapy for Foot and Ankle Disorders: A Systematic Review and Meta-Analysis. Journal of the American Podiatric Medical Association, 112(3), 18-191.

Melese, H., Alamer, A., Getie, K., Nigussie, F., & Ayhualem, S. (2022). Extracorporeal shock wave therapy on pain and foot functions in subjects with chronic plantar fasciitis: systematic review of randomized controlled trials. Disability and rehabilitation, 44(18), 5007–5014.

Melese et al.(2) chosen as this is specifically fascitis plantaris (and then now known as chronic heel pain)

RESULTS

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

11 studies

658 participants included

The treatment effect has been measured:

Baseline and immediately after last need
Baseline, 2u, 4u, 5, 6, 8, 12, 17 months after last need
Baseline, 1.3 months after last treatment
Baseline, 4, 12 weeks after last use
Baseline, 4,12,24 and 48 weeks after last use

9 studies with fESWT
2 studies with rESWT

1 bar = 0.1 mJ/mm2

1MPa = 10 bar

Assessment:

Visual Analogue Scale (VAS)
Foot Function Index (FFI)
Roles and Maudsley scale (RM)
American Orthopedic Foot and Ankle Association Score (AOFAS)
Heel Tenderness Index

STUDY	DOSE	CONTROL GROUP	EFFECT	METHOD
Eslamian et al., 2016 (3) 40 included rESWT	rESWT, 5 treatments 3 days apart 2000 pulses, 2 Hz, 2 bar Everyone got insoles + heel inserts + stretching exercises	A: ESWT B: Injektion methylprednisolone (anti-inflammatory)	ESWT reduce morning pain and lead to increased functional levels in both groups 55-60% of participants in the ESWT group achieved satisfactory improvement, 35-40% in the injection group	Not described
Roca et al., 2016 (4) fESWT 72 included	1 Treatment 3000 slag, 4 Hz, 12mJ/mm2 Stretching exercise daily	A: ESWT B: botulinum toxin type A injection (Botox)	ESWT significantly reduce pain levels more than botulinum toxin type A	Not described
Ibrahim et al., 2017 (5)	2 treatments, 1 week apart 2000 pulses, 8Hz, 3.5 bar	A: ESWT B: sham ESWT	ESWT significantly better than placebo, for up to 2 years	Not described

rESWT 50 included				
Akinoglu et al., 2017 (6) rESWT 54 included	3 treatments, 1 week apart 500 pulses, 3HZ ,2 bar distributed over the entire heel area Next, 1500 pulses, 8Hz, 3 bar over the most tender spot found on palpation US US: 2 days a week, a total of 7 treatments All with home exercises 2 x daily (stretching exercises)	A: ESWT 2: Ultrasound C: home exercises	There is improvement in all groups. US shows the greatest improvement (note the dose)	Lying with foot on cushion so that the sole of the foot is free for treatment
Ulusoy et al., 2017 (7) 52 included	UL: 15 treatments 5 treatments per week for 3 weeks LLT:15 treatments 5 treatments per week for 3 weeks ESWT: 3 treatments 1 week apart.2000 pulses, 10 Hz, 2.5 bar	A: low level laser B: UL C: ESWT	LLT and ESWT significantly better at reducing pain levels and increasing functional levels than UL at 1 month (note the dose)	Shockwave is distributed by attachment to the calcaneus and then the fascia
Ordahan et al., 2017 (8) rESWT 70 included	5 treatments at 1 week interval, 2500 pulses, 12-15 Hz, 2-3 bar New tape every 5 days for 5 weeks.	A: ESWT B: kinesio tape	Significant improvement in both groups, measured after the last treatment	Forward, focal point: most painful area of attachment to the calcaneus
Lai et al., 2018 (9) fESWT 97 included	2 treatments 2 weeks apart 1500 pulses, between 0.07 – 0.29 mJ/mm2	A: ESWT B: cortisone injection	ESWT significantly better than injection in terms of pain and function. The difference slowly increases over time in favor of ESWT	Begins with 0.07 and slowly increases to 0.29 mJ/mm2 Treatment time 30 min
Cinar et al., 2018 (10) rESWT 66 included	3 treatments 1 week apart 2000 pulses, Hz?, 2 bar LLT:10 treatments, 3 per week	A: ESWT + home exercises + insoles B: Low level laser + exercises + insoles	Significant improvement in all groups After 3 weeks largest in the LLT group (pain) After 12 weeks, largest in the ESWT group (pain)	Present 1000 pulses over the most painful spot found on palpation, 1000 pulses distributed over the fascia.

	All with stretching exercises (3 x daily for 3 weeks) + insoles	C: exercises + insoles	However, there are more people who achieve improvement in the LLT group at 12 weeks. (note the dose)	
Okur et al., 2019 (11) rESWT 83 included	3 treatments, 1 1 week apart 2000 pulses, 12 Hz, 2 bar All stretching exercises 2 x daily for 1 month	A: ESWT B: Posts	Both methods improve pain and function level Orthotics had a greater effect in the long term (48 weeks)	Propositional, distributed over the 5 most painful areas found on palpation. 400 pulses over each point
Sanmak et al. 2019 (12) rESWT 34 included	3 treatments, 1 beh 1 week apart 2000 pulses, 10 Hz, 2 bar LLT: 3 beh per week for 4 weeks	A: ESWT B: low level laser	ESWT and COPD increase the level of function and reduce pain. No difference between the 2 methods. (note the dose)	Protruding, 1000 pulses over insertion on the calcaneus, 1000 over the fascia as a whole
Bagcier et al., 2020 (13) rESWT 40 included	3 treatments, 1 week apart 2500 pulses, 12-15 Hz, 2 bar 3 DN treatments (TrP) in gastrocnemius Both groups of stretching exercises, insoles are recommended	A: ESWT B: ESWT + dry needling	ESWT + DN most efficient	Forward. Equal distribution of pulses over the 5 most painful areas of the fascia, found by palpation. 500 pulses each.

The authors' own conclusion when comparing all the results found in the included studies:

“Extracorporeal shock wave therapy was found to improve pain, and foot function of subjects with plantar fasciitis. The overall pooled effects of different shock wave types and dosage levels of chronic plantar fasciitis require further investigation. “

CONCLUSION

In general, ESWT can be a possible treatment method for what is most often called "heel spur" but the evidence is not overwhelming compared to other common treatment methods.

However, it should be noted that the indication of the dose for e.g. COPD entails a significantly higher number of treatments, thus increased costs and possibly disadvantages for the individual patients in relation to attendance, etc.

Secondly, even if it is only a single study, you may want to think about TrP treatment in the treatment, especially in chronic cases. In addition, the majority of treatments are in combination with relevant home exercises, thus as part of a whole.

RECOMMENDATION

Patient prone. Treatment is focused over the most painful points found on palpation (3-5 pieces). Can be combined with TrP in gastrocnemius and soleus.

Dose rESWT: 3-5 treatments at 1 week intervals between 1500 and 2500 pulses, between 10-15 Hz, between 2-4 bar

Dose fESWT: 3-5 treatments 1 week apart between 2000 – 2500 pulses, between 6 – 10 Hz, to the patient's maximum pain threshold (based on clinical experience as only 1 study is included)

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