**Search Strategy (run on 31.01.18).** RCT Filter: Cochrane Handbook sensitivity and precision maximising

|  |  |  |
| --- | --- | --- |
| **EMBASE** | **PubMed** | **Pedro** |
| 1. (plantar adj3 fasci$).mp.  2. (heel adj3 pain$).mp.  3. calcaneodynia.mp.  4. (plantar adj3 aponeurosis).mp.  5. (heel adj3 spur$).mp.  6. (calcane$ adj3 spur$).mp.  7. or/1-6  8. random$.ti,ab.  9. factorial$.ti,ab.  10. crossover$.ti,ab.  11. cross over$.ti,ab.  12. placebo$.ti,ab.  13. (doub$ adj blind$).ti,ab.  14. (sing$ adj blind$).ti,ab.  15. assign$.ti,ab.  16. allocat$.ti,ab.  17. volunteer$.ti,ab.  18. double-blind procedure/  20. crossover-procedure/  21. randomized controlled trial/  22. single-blind procedure/  23. or/8-21  24. 7 and 22  25. exp animal/ not human/  26. 23 not 24  27. limit 25 to embase  **CINAHL (HDAS)** RCT Filter: based on Pubmed Cochrane filter  "((((plantar ADJ3 (fasci\*).af) OR (heel ADJ3 (pain\*).af) OR (calcaneodynia).af OR (plantar ADJ3 (aponeurosis).af) OR (heel ADJ3 (spur\*).af) OR (calcane\* ADJ3 (spur\*).af)) AND (("randomized controlled trial").pt OR ("controlled clinical trial").af OR (randomized).ti,ab OR (placebo).ti,ab OR exp CLINICAL TRIALS/ OR (randomly).ti,ab OR (trial).ti)) NOT (exp ANIMALS/ NOT HUMANS/)) | ((((((randomized controlled trial[Publication Type]) OR (controlled clinical trial[Publication Type]) OR (randomized[Title/Abstract]) OR (placebo[Title/Abstract]) OR ("Clinical Trials as Topic"[Mesh:noexp]) OR (randomly[Title/Abstract]) OR (trial[Title])))) AND (((plantar AND fasci\*) OR (heel AND pain\*) OR (calcaneodynia) OR (plantar AND aponeurosis) OR (heel AND spur\*) OR (calcane\* AND spur\*))))) NOT ((animals[mh] NOT humans[mh]))  **Cochrane Library**  #1 plantar near/3 fasci\*  #2 heel near/3 pain\*  #3 calcaneodynia  #4 plantar near/3 aponeurosis #5 heel near/3 spur\*  #6 calcane\* near/3 spur\*  #7 #1 or #2 or #3 or #4 or #5 or #6  **AMED (HDAS)** RCT Filter: based on Pubmed filter  "((((plantar ADJ3 (fasci\*).af) OR (heel ADJ3 (pain\*).af) OR (calcaneodynia).af OR (plantar ADJ3 (aponeurosis).af) OR (heel ADJ3 (spur\*).af) OR (calcane\* ADJ3 (spur\*).af)) AND (("randomized controlled trial").pt OR ("controlled clinical trial").pt OR (randomized).ti,ab OR (placebo).ti,ab OR exp CLINICAL TRIALS/ OR (randomly).ti,ab OR (trial).ti)) NOT (exp ANIMALS/ NOT HUMANS/)) | Title & Abstract: Plantar fasci\* (selected combine terms with AND)  Title & Abstract: heel pain\* (selected combine terms with AND)  Title & Abstract: calcaneodynia (selected combine terms with AND)  Title & Abstract: plantar aponeurosis (selected combine terms with AND)  Title & Abstract: heel spur\* (selected combine terms with AND)  Title & Abstract: calcane\* spur\* (selected combine terms with AND)  **Clinicaltrials.gov**  *Nb: words in brackets are automatically searched as AND*  (plantar fasciitis) OR (plantar fasciopathy) OR (plantar fasciosis) OR (heel pain) OR (painful heel) OR calcaneodynia OR (plantar aponeurosis) OR (heel spur) OR (heel spurs) OR (calcaneal spur) OR (calcaneal spurs)  Web of Science (Indexes=SCI-EXPANDED, SSCI, CPCI-S, CPCI-SSH) RCT Filter: based on Pubmed filter  # 14 #13 AND #7  # 13 #12 OR #11 OR #10 OR #9 OR #8  # 12 ti=trial  # 11 ts=placebo  # 10 ts=(randomly OR randomized)  # 9 ts="clinical trial\*"  # 8 ts="randomized controlled trial"  # 7 #6 OR #5 OR #4 OR #3 OR #2 OR #1  # 6 ts=(calcane\* near/3 spur\*)  # 5 ts=(heel near/3 spur\*)  # 4 ts=(plantar near/3 aponeurosis)  # 3 ts=calcaneodynia  # 2 ts=(heel near/3 pain\*)  # 1 ts=(plantar near/3 fasci\*) |

**Notes for using Cochrane Risk of Bias tool**

**Random sequence generation**

**High risk** if clearly non-random method used, e.g, alternating allocation, or based on a date

**Unclear** if not enough information given to judge

**Low risk** if randomisation method described is appropriate, e.g. computer-generated sequence, or use of random number tables to generate sequence

**Allocation concealment**

**High risk** if personnel responsible for the selection of trial participants can influence allocation of next patient

**Unclear** if not described

**Low risk** if appropriate method used such as remote randomisation or sealed, opaque envelopes

**Blinding of participants and personnel**

**High risk** if neither are blinded

**Unclear** if not reported or if only participants OR personnel (e.g. clinicians proving treatment) but not both blinded

**Low risk** if both are blinded

**Blinding of outcome assessors**

**High risk** if outcome assessors (or participants if self-reported measure, eg pain) not blinded

**Unclear** if not reported

**Low risk** if outcome assessors (or participants if self-reported measure, eg pain) are blinded

**Incomplete outcome data**

**High risk** if >20% dropout rate OR attrition is clearly uneven between groups

**Unclear** if not reported

**Low risk** if dropouts <20% and attrition similar in groups

**Selective outcome reporting**

**High risk** if results for outcomes mentioned in methods not reported

**Unclear** if results not reported for all outcomes or unsure

**Low risk** if results for all outcomes mentioned are reported

**Other sources of bias**

**High** **risk** if any other concerns about validity/conduct of the trial, e.g. baseline imbalance, conflicts of interest, issues with treatment adherence, in appropriate ways of dealing with missing values, or other methodological issues

Table 1. Characteristics of findings table for analysed studies; n=31

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **First Author / Yr** | **Country** | **Study setting** | **Diagnosis/**  **Inclusion criteria** | **Sample size at randomisation** | **mean age Intervention/control arm ± SD** | **Mean Duration of symptoms (weeks)** | **Intervention description and dose /**  **No of sessions/ Duration of treatment :** | **Control/Intervention II description and dose /**  **No of sessions/ Treatment duration:** | **Delivered by?** | **Comments**  **Co-interventions** |
| Biswas 2011 | India | Tertiary care | Plantar fasciitis  <3 months, no prior treatment, VAS score 5-9 in 10cm scale. | 120 | 41.7 ± 8.87  38.4 ± 11.63 | <12 | Steroid Injection:  single injection 40 mg (1 ml) methylprednisolone and 2 ml of 0.5% bupivacaine.  **Co-interventions:** ice, avoid strenuous activity >48 hours, stretching exercises after 1 week. | NSAIDs: oral diclofenae (50 mg) and paracetamol (500 mg), twice daily plus ranitidine (150 mg) for 4 weeks  **Co-interventions:** NR | NR | All: use soft heel foot wear, not stand for long time, and not walk bare foot. |
| Buchbinder 2002 | Australia | Outpatient | Plantar fasciitis  > 6 weeks, ultrasound confirmed lesion | 166 | 52.2 ± 12.81  54.2 ± 12.05 | ESWT/control group: median 36/43 | ESWT:  3 sessions of 2000/2500 shock waves per treatment for 3 weeks. Total dose 1000 mJ/mm2. Ultrasound gel used. | Placebo ESWT: 3 sessions of 100 shock waves per treatment, for 3 weeks. Total dose 6.0 mJ/mm2. | Qualified health professional | All: allowed to continue to wear orthotics/splints as prescribed, new orthopaedic devices not allowed; only paracetamol, no other therapies allowed. |
| Chow 2007 | Hong Kong | Outpatient | Chronic heel pain>3 months. | 57 | 51.94 ± 11.68  50.64 ± 9.75 | 40 | ESWT:  3 sessions (1 per wk) of 1000 shock wave impulses, 3 Hz. Dose 0.05 mJ/ mm2, increasing to highest possible tolerable pain level. Ultrasound used. | Placebo ESWT:  3 sessions (1 per wk) of 30 shock wave impulses, 3 Hz. Dose 0.03 mJ/ mm2. Ultrasound used. | NR | Maximum tolerable’ energy density group, starting density 0.05 mJ/mm2, increased by a ‘staircase’ method after every 200 impulse application. |
| Grecco 2013 | Brazil | Hospital/Rehabilitation | Plantat fasciitis > 3 months; fascia thickness | 40 | NR | Unclear | ESWT + Exercise:  3 sessions (1 per wk) of 2 000 shock waves at 6Hz and pressure of 3 bar.  Stretching exercises as home programme | Exercise: 10 sessions (5 weeks) of Physiotherapy incorporating Ultrasound (1Hz, intensity 1.2 W/cm2 for 5 minutes) and stretching | ESWT by Physician; Placebo by Physiotherapist |  |
| Haake 2013 | Germany | Hospital/Rehabilitation | Plantar fasciitis with proven heel spur, failed >6 month conservative treatment, 4 weeks Therapy free period before referral | 272 | 53.1 ± 10.8  52.9 ± 10.8 | 56 | ESWT:  3 sessions (over 6 weeks) ESWT 4 000 waves under local anaesthesia. Dose: 0.08mj/mm2 | Placebo: 3 sessions (over 6 weeks) of sham ESWT under local anaesthesia | Physician |  |
| Hawamdeh 2016 | Jordan | Hospital/Rehabilitation | Plantar fasciitis; able to walk > 50metres without support. | 34 | Unclear | NR | ESWT:  3 sessions (over 3 wks) of 2000 shockwaves Dose: 0.25mj/mm2 | Placebo: 3 sessions (3 wks.) - sham ESWT | Physiotherapist | All: Ice + stretches for the plantar fascia |
| Mardani-Kivi 2015 | Iran | Outpatient | Acute plantar fasciitis  <6 weeks, VAS>5 | 84 | 43.91 ± 7.96  44.68 ± 9.2 | NR | ESWT: 3 sessions (over 3 wks), intermediate shock wave therapy (electrohydraulic system) of 2000 wave impulses at an energy level of 0.15 mJ/mm2. Dose: 900 mJ/mm2 | Steroid Injections:  1 mL of methyl prednisolone acetate (40 mg) and 1 mL of lidocaine 2% | NR | All: No running/long walk, night-splints, massage, NSAIDs, narcotics |
| McMillan 2012 | Australia | Community | Plantar fasciitis > 8 weeks duration, >20/100 on VAS, plantar fascia thickening on ultrasound (>4.0mm) | 82 | 51.7 ± 11.9  53.6 ± 9 | 42 | Steroid Injections + exercise:  intrafascial injection of 1 mL of 4 mg/mL dexamethasone sodium phosphate (following prior ultrasound-guided posterior tibial nerve block with 2% lidocaine hydrochloride)  Daily stretching programme for first 8 weeks. | Exercise: daily stretching programme for 8 weeks  ultrasound-guided injection with 1 mL 0.9% sodium chloride and tibial nerve block with 2% lidocaine hydrochloride. | Podiatrist | No further detail reported about the stretching programme. |
| Oliveira 2015 | Brazil | Outpatient | Plantar fasciitis  foot pain 3-8 cm on a 0-10 NRS, age ≥ 18yrs | 74 | 48 ± 10.1  53 ± 10.8 | 48 | Custom orthoses:  ethylene vinyl acetate Total contact insole, for "day-to-day use" for 26 wks | Placebo: flat insole for 26 wks | NR | All: Diclofenac permitted |
| Porter 2005 | Australia? | Unclear | Proximal plantar fasciopathy  Plantar heel pain, worse in morning, duration at least 6 weeks | 132 | 39.9 ± NR  38.6 ± NR | 11.8 | Steroid Injections + ESWT:  1 ml betamethasone (5.7mg) and 2ml 1% lignocaine.  3 applications of 1000 pulses of energy density 0.08/mm2 | ESWT + exercise:  3 applications (3wks) of 1000 pulses of energy density 0.08/mm2  Stretching exercise as home programme. | Steroid injection by Physician ESWT: NR |  |
| Radford 2007 | Australia | Community | Plantar heel pain >4 weeks | 92 | 50.7 ± 11.8  50.1 ± 11 | 56 | Exercise:  Stretching while standing on standardised, supplied wedge + sham ultrasound session  5 min/day over 2 weeks | Placebo:  sham ultrasound**-3mins.** | NR | All: Advice not to commence any new treatments |
| Ryan 2013 | Canada | Community | Chronic plantar fasciopathy  >12 months, >20 on 100mm VAS for pain. | 56 | 52.4 ± 7.5  46.2 ± 8.5 | 287 | Exercise:  12 week exercise programme: karaoke, balance/ stretching | Steroid Injections + Exercise:  palpation guided, cortiosteroid injection (1ml dexamethasone plus 0.5ml 1% lidocaine)  **Co-interventions:** In group 2 (injection): additional daily calf stretching exercises | Exercise instruction by physiotherapist Injection by trained physician |  |
| Ibrahim 2010 | US | Primary care | Painful heel (unilateral and chronic).  6 months failed conservative treatment, > 4 weeks therapy free period before referral. | 50 | 56.6 ± 2.71  49.1 ± 2.55 | NR | ESWT:  2 sessions 2,000 impulses (Air pressure of device at 3.5 bar) Dose =0.16 mJ/mm2; 15 mm applicator at frequency of 8 Hz. | Placebo:  2 sessions of sham ESWT performed with clasp on heel to prevent transmission of impulses from applicator to skin | Principal Investigator | Standardised protocol but PI not blinded. |
| Kudo 2006 | Canada | Outpatient | Plantar fasciitis > 6 months, stretching program within last 6mths, VAS>5; >6mths unsuccessful conservative therapy (can include NSAIDs), RandM scores of >=3 | 114 | 51.1 ± 10.6  48.8 ± 9.8 | 126.4 | ESWT: 1 session of 3800 shockwaves, total energy delivery of 1,300 mJ/mm2 (ED+) or 2,330 mJ/mm2 (ED). | Placebo: sham ESWT with thin foam cushion and ultrasound gel. | Primary care, sport medicine physicians or orthopaedic specialists. | Both groups received 5 mL of 1% Xylocaine (medial calcaneal nerve block), 15–20 min prior to the procedure. |
| Landorf 2006 | Australia | Community | Plantar fasciitis  PF symptoms for > 4 weeks | 136 | 47.3 ± 11.6  48.5 ± 9.6 | 52 | Prefabricated orthoses:  strong foot support mould made from firm density polyethylene foam. | Custom orthosis: Strong foot support for individual patient | Principal investigator | 3rd arm-Placebo:  sham orthosis-minimal foot support from soft (120 kg/m3) ethyl vinyl acetate foam over an unmodified cast of the foot. |
| **Mahindra 2016** | India | Unclear | Chronic heel pain; failed >3 months of conservative trt | 75 | 33.92 ± 8.61  35.48 ± 9.54 | NR | Steroid Injections + Exercise:  1 Dose 2mL of 40mg of methylprednisolone.  Physical therapy to stretch calf and PF | Exercise:  Physical therapy to stretch calf and PF  injection of normal saline | NR | Used two out of three interventions in analysis |
| Theodore 2004 | USA/Germany? | Unclear | Chronic plantar fasciitis (unilateral); > 6 mnth; stretching programme in last 6 mnth; VAS first step pain >5; Roles and Maudsley 3 or 4; unsuccessful conservative therapy | 150 | 50 ± NR  53 ± NR | 91.5 | ESWT: 3800 shocks (3500 at 0.36 mJ/mm2) for a total of 1300 mJ/mm2 (generated using the Epos Ultradevice. Medial calcaneal nerve block using 5 mL of 1% xylocaine 15–20 minutes prior to the procedure). | Placebo:  sham ESWT. With thin air cushion on the therapy head | NR |  |
| Walther 2013 | Germany | Unclear | Plantar fasciitis (clinical diagnosis with MRI) | 30 | 51.6 ± 12.5  53.8 ± 13.2 | ~10 | Custom orthoses:  Rigid material with a layered,  polyurethane cushion zone.  Individualization for each  Patient was carried out with the help of an orthopaedic technician. | Placebo:  Thin, non-supportive orthotic, made of polyethylene (PE) and thin polyurethane (PU). Besides trimming for sizing purposes, no further adjustments are possible. | Orthopaedic technician | Used two out of three interventions in analysis  No co-interventions allowed (all groups) |
| Yan 2014 | China | Unclear | Plantar fasciitis (clinical diagnosis with ultrasound or MRI) | 153 | NR | 94.24+/-39.92 | ESWT + custom orthoses: 5 sessions (1 per wk) 1000-2000 Shockwave 10-15Hz; pressure-1-4 bar  Custom orthoses | ESWT: 5 sessions (once a week) 1000-2000 Shockwave 10-15Hz; pressure-1-4 bar. | NR | 3rd arm : custom orthoses |
| Yucel 2010 | unclear | Unclear | Plantar fasciitis > 6mnths; unsuccessful conservative therapy. | 60 | 44.7 ± 9.2  42.9 ± 7.08 | 38.6 | Steroid Injections:  0.5 mL combined betamethasone dipropionate (6.43 mg/mL) and betamethasone sodium phosphate (2.63 mg/mL) and 0.5 mL of prilocaine hydrochloride, 2% (20 mg/mL) applied to the most painful area over the medial calcaneal tuberosity determined by palpation.  Patients were instructed to refrain from running and impact activities for 10 days. | ESWT: Single application of 3000 shock-waves  using an electrohydraulic shockwave generator. Fivefold nerve block was applied with 20 mL of prilocaine hydrochloride, 2%.  ultrasound gel was used as a contact medium. | NR | Except for the continued use of heel cups, no additional treatment was permitted. |
| Yucel 2013 | Turkey | Outpatient | Plantar fasciitis (unilateral) pain> 3 months; First-step pain >4 (0–10 VAS). | 44 | 45.6 ± 9.3  47.4 ± 7.9 | 29.2 | Steroid Injections:  Single Ultrasound guided injection of 1 mL betamethasone dipropionate (6.43mg/ml) and betamethasone sodium phosphate (2.63 mg/mL) combination plus 1 mL lidocaine HCl 20 mg/2 mL). | prefabricated orthoses:  full-length silicone insole worn in daily lives for 4 weeks. No change to usual diet, daily activities, and sporting habits. | NR | Simple analgesics (such as acetaminophen) was allowed if necessary, except last 24 h before evaluations |
| Celik 2016 | Turkey | Hospital/Rehabilitation | Plantar fasciitis; a negative tarsal tunnel test, and a positive windlass test. | 43 | 45.6 ± 7.9  45.4 ± 9.3 | ~48 | Steroid Injections:  1 mL of corticosteroid (40 mg methylprednisolone acetate) or 4 mL of 2% prilocaine hydrochloride was injected using a 22-gauge needle. | Exercise: 9 sessions (3 weeks) of Joint mobilisation, gastrocnemius stretching, plantar fascia-specific stretching.  (Stretching for a count of 30 and to repeat it a total of 10 times) | Injection by Physician Exercise by Physiotherapist | Exercise group patients were advised to repeat the same stretching exercises on their own. No calf stretches performed for injection group. |
| Crawford 1999 | UK | Hospital/Rehabilitation | Heel pain | 106 | 59.41 ± 11.84  56.88 ± 13.02 | ~24 | Steroid Injections:  1 ml of 25 mg/ml of prednisolone acetate with 1 ml of 2% lignocaine to medial aspect of the heel pad once | Placebo: 2 ml of 1% lignocaine hydrochloride once. | Physician | Used two out of four interventions in analysis**.** Patients using orthoses, insoles, pads or analgesia allowed to continue as normal. |
| Vahdatpour 2012 | Iran | Outpatient | Plantar fasciitis> three months, failed previous treatments | 40 | 50.6 ± 10  48.1 ± 8.9 | NR | ESWT: 3 applications (over 3 wks) of 2000 focused shock waves and 2000 radial pulses (4000 shock waves/session of 0.2 mJ/mm2). | Placebo:  sham ESWT, minimal energy pulses (0.04 mJ/ mm2). | NR | Conservative managements including stretching exercise, using NSAIDs, and heel pad were permitted in both groups |
| Ball 2013 | Northern Ireland | Secondary care | Plantar fasciitis, failed conservative treatment > 8 weeks | 65 | 49 ± 12.9  50.1 ± 10.7 | 24 Median | Steroid Injections:  2 Ultrasound guided injection, 0.5 ml (20 mg) of methylprednisolone acetate +0.5 ml of 0.9% saline over 6 or 12 wks. | Placebo: ultrasound guided injection, 1 ml of 0.9% saline. 2nd application at 6 or 12 weeks. | Grp 1 Experienced Physician. Grp 2 Physician (naïve to ultrasound guided technique) | 3 arm trial. (3rd arm unguided injection dropped from the analysis).  All patients were asked to avoid weight bearing on the heel pad for 48h and allowed to continue usual analgesics |
| Lizis 2015 | Poland | Hospital/Rehabilitation | Plantar fasciitis (not explicitly stated in text) | 30 | NR | NR | ESWT: 1000 or 2000 shock waves per treatment, energy levels varying between 0.02 and 0.33 mJ/mm2, pulse freq gradually increased to 240/min over 5 wks. | Placebo: Sham ESWT of 100 shock waves per treatment, energy level of 0.02 mJ/mm2, frequency 60/min | NR | Only long term outcome data (12 months) reported and analysed in the long term networks. |
| Guner 2013 | Turkey? | Unclear | Plantar fasciitis. failed conservative treatments > 3 mths | 64 | 41.4±12. | NR | NSAIDs: 1 application of Local injection of 1 mL of tenoxicam (20 mg/2 mL) and 1 mL of 2% lidocaine | Steroid Injections:  Local injection of 1 mL of 40mg of methylprednisolone acetate and 1mL of 2% lidocaine. | Physician | Only long term outcome data (6, 12 months) reported.  All arms: limit use of feet for ~ 4 weeks. 48 hours post injection. stretching & strengthening protocol given. |
| Rompe 2003 | Germany | Outpatient | chronic plantar fasciitis  Moderate-severe pain; >12 months, >/ 3 unsuccessful conservative treatments in previous 6 months | 45 | 43±NR  40±NR | 78-86 | ESWT:  3 applications of 2 100 impulses of 0.16mJ/mm2, 4Hz radius 1.5-2cm over 3 wks. | Placebo:  3 applications of Sham ESWT over 3 wks with sound reflecting pad, no coupling gel. | physician | Only long term outcome data (6, 12 months) reported. |
| Hocaoglu  2017 | Turkey | Outpatient | Plantar fasciitis. non-response to conservative treatment for 6 months | 72 | 50±8.3 | 34 | ESWT:  3 applications of 2000 shockwaves at 10Hz frequency with an energy flux density per shock of 0.16mJ/mm2 over a week period | Steroid Injections: Single dose. 1ml of betamethasone sodium plus 0.5mL of prilocaine | Physiotherapist | Advice to avoid any pain provoking physical activity after treatment |
| Eslamian 2016 | Iran | Hospital/Rehabilitation | Plantar fasciitis. failure to respond to conservative care for 2 months | 40 | 41.4±8 | 9.5 | ESWT: 5 applications of 2000 shockwaves at 2 pulses per second with an energy flux density per shock of 0.2mJ/mm2 over 2 weeks | Steroid Injections: Single dose of 40mg of methylprednisolone plus 1mL of 1% lidocaine | Unclear | Ice pack was given as co-intervention |
| Serna 2017 | Columbia | Hospital/Rehabilitation | Plantar fasciitis. Chronic (>3months), No response to previous (NSAIDs), intramuscular steroids and / or rehabilitation. | 60 | 53 (range 26-72) | NR | ESWT:  2500 shocks in total per application. frequency range of 6-12 hertz (h). 4 sessions were performed in 8 to 10 days interval. | Steroid Injections: single dose of 3 cc lidocaine injections with epinephrine plus 2 cc of methylprednisolone acetate 40 mg / 1cc (Depomedrol R) | NR | Cold pack was given as co-intervention |

*NR: Not reported*

**Table 2.** Between study variation, τ2, from each type of network meta-analysis. Presented as mean (95% confidence interval).

|  |  |
| --- | --- |
| **Evidence base** | **τ2; Mean (95% CI)** |
| **Short term pain** | 0.77 (0.27,1.52) |
| **Medium term pain** | 2.02 (0.76,3.9) |
| **Long term pain** | 0.64 (0.01,2.23) |
|  |  |
| **Short term function** | 2.41 (0.61,5.4) |
| **Medium term function** | 1.28 (0.18,3.37) |
| **Long term function** | 0\* |

CI=confidence interval.  
\*Note: 95% CI not presented as no heterogeneity present

**Table 3.** Summary of all outcome data used, for each of the 31 studies included in network meta-analyses.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **First Author, Publication Year** |  | **Treatment** |  | **Follow up** |  | **n\_pain** | **n\_function** |  | **Outcome, Mean (SD)** | |  | **Outcome Measure** | |
|  |  |  |  | **Pain** | **Function** |  | **Pain** | **Function** |
| Hocaoglu,  2017 |  | ESWT |  | 1 month |  | 36 | 36 |  | 50.00 (16.55) | 124.90 (29.30) |  | VAS, 4. Overall/others | Total FFI |
|  | Steroid Inj |  | 1 month |  | 36 | 36 |  | 40.00 (14.19) | 78.60 (20.70) |  | VAS, 4. Overall/others | Total FFI |
|  | ESWT |  | 3 months |  | 36 | 36 |  | 35.00 (11.82) | 67.00 (29.70) |  | VAS, 4. Overall/others | Total FFI |
|  | Steroid Inj |  | 3 months |  | 36 | 36 |  | 42.50 (16.55) | 57.00 (19.10) |  | VAS, 4. Overall/others | Total FFI |
| Serna,  2017 |  | ESWT |  | 1 month |  | 27 | 36 |  | 2.70 (2.33) | -68.52 (41.32) |  | VAS, 4. Overall/others | AOFAS Ankle-Hindfoot Scale\* |
|  | Steroid Inj |  | 1 month |  | 16 | 22 |  | 2.12 (1.59) | -68.72 (44.08) |  | VAS, 4. Overall/others | AOFAS Ankle-Hindfoot Scale\* |
|  | ESWT |  | 3 months |  | 27 | 36 |  | 1.96 (1.91) | -71.22 (42.38) |  | VAS, 4. Overall/others | AOFAS Ankle-Hindfoot Scale\* |
|  | Steroid Inj |  | 3 months |  | 16 | 22 |  | 1.12 (0.34) | -71.27 (44.87) |  | VAS, 4. Overall/others | AOFAS Ankle-Hindfoot Scale\* |
|  | ESWT |  | 12 months |  | 25 | 35 |  | 1.68 (1.97) | -67.82 (44.37) |  | VAS, 4. Overall/others | AOFAS Ankle-Hindfoot Scale\* |
|  | Steroid Inj |  | 12 months |  | 16 | 22 |  | 1.31 (1.01) | -66.68 (46.22) |  | VAS, 4. Overall/others | AOFAS Ankle-Hindfoot Scale\* |
| Celik,  2016 |  | Steroid Inj |  | 6 weeks |  | 20 | 20 |  | 1.20 (1.40) | -85.70 (11.20) |  | VAS, 3. Activity | FAAM\* |
|  | Exe |  | 6 weeks |  | 21 | 21 |  | 5.00 (2.30) | -70.20 (17.50) |  | VAS, 3. Activity | FAAM\* |
|  | Steroid Inj |  | 3 months |  | 20 | 20 |  | 1.50 (1.90) | -83.50 (14.60) |  | VAS, 3. Activity | FAAM\* |
|  | Exe |  | 3 months |  | 21 | 21 |  | 4.90 (2.40) | -69.40 (16.80) |  | VAS, 3. Activity | FAAM\* |
|  | Steroid Inj |  | 12 months |  | 19 | 19 |  | 3.30 (3.20) | -83.40 (17.30) |  | VAS, 3. Activity | FAAM\* |
|  | Exe |  | 12 months |  | 20 | 20 |  | 2.70 (3.20) | -86.70 (21.90) |  | VAS, 3. Activity | FAAM\* |
| Eslamian,  2016 |  | ESWT |  | 6 weeks |  | 20 | 20 |  | 4.80 (0.56) | 29.70 (20.83) |  | VAS, 2. Morning | Total FFI |
|  | Steroid Inj |  | 6 weeks |  | 20 | 20 |  | 5.40 (0.56) | 38.20 (16.27) |  | VAS, 2. Morning | Total FFI |
|  | ESWT |  | 10 weeks |  | 20 | 20 |  | 3.40 (0.62) | 19.60 (21.26) |  | VAS, 2. Morning | Total FFI |
|  | Steroid Inj |  | 10 weeks |  | 20 | 20 |  | 4.60 (0.62) | 31.50 (20.53) |  | VAS, 2. Morning | Total FFI |
| Hawamdeh, 2016 |  | ESWT |  | 3 weeks |  | 12 | 12 |  | 2.56 (1.33) | 1.56 (0.73) |  | VAS, 4. Overall/others | R&M |
|  | Placebo |  | 3 weeks |  | 12 | 12 |  | 4.00 (3.46) | 2.08 (1.24) |  | VAS, 4. Overall/others | R&M |
| Mahindra,  2016 |  | Steroid Inj+Exe |  | 3 weeks |  | 25 | 25 |  | 2.84 (1.46) | -86.60 (6.77) |  | VAS, 4. Overall/others | AOFAS Ankle-Hindfoot Scale\* |
|  | Exe |  | 3 weeks |  | 25 | 25 |  | 7.12 (1.12) | -53.88 (11.81) |  | VAS, 4. Overall/others | AOFAS Ankle-Hindfoot Scale\* |
|  | Steroid Inj+Exe |  | 3 months |  | 25 | 25 |  | 3.64 (1.62) | -81.32 (6.39) |  | VAS, 4. Overall/others | AOFAS Ankle-Hindfoot Scale\* |
|  | Exe |  | 3 months |  | 25 | 25 |  | 7.44 (1.04) | -50.84 (10.76) |  | VAS, 4. Overall/others | AOFAS Ankle-Hindfoot Scale\* |
| Lizis,  2015 |  | ESWT |  | 12 months |  | 16 |  |  | 3.30 (0.80) |  |  | VAS, 3. Activity |  |
|  | Placebo |  | 12 months |  | 14 |  |  | 4.70 (0.80) |  |  | VAS, 3. Activity |  |
| Mardani-Kivi, 2015 |  | ESWT |  | 6 weeks |  | 34 |  |  | 6.40 (3.20) |  |  | VAS, 4. Overall/others |  |
|  | Steroid Inj |  | 6 weeks |  | 34 |  |  | 2.20 (3.50) |  |  | VAS, 4. Overall/others |  |
|  | ESWT |  | 3 months |  | 34 |  |  | 6.90 (3.10) |  |  | VAS, 4. Overall/others |  |
|  | Steroid Inj |  | 3 months |  | 34 |  |  | 3.40 (3.70) |  |  | VAS, 4. Overall/others |  |
| Oliveira,  2015 |  | Orthoses |  | 6 weeks |  | 36 | 36 |  | 4.40 (2.40) | 31.90 (17.20) |  | VAS, 3. Activity | Total FFI |
|  | Placebo |  | 6 weeks |  | 36 | 36 |  | 4.30 (3.00) | 37.20 (17.70) |  | VAS, 3. Activity | Total FFI |
|  | Orthoses |  | 3 months |  | 35 | 35 |  | 3.50 (2.70) | 27.00 (17.30) |  | VAS, 3. Activity | Total FFI |
|  | Placebo |  | 3 months |  | 35 | 35 |  | 4.20 (3.20) | 34.70 (21.30) |  | VAS, 3. Activity | Total FFI |
| Ryan,  2014 |  | Exe |  | 6 weeks |  | 28 | 28 |  | 47.70 (25.93) | -72.60 (16.40) |  | VAS, 4. Overall/others | FADI\* |
|  | Steroid Inj+Exe |  | 6 weeks |  | 28 | 28 |  | 41.10 (25.93) | -79.40 (16.40) |  | VAS, 4. Overall/others | FADI\* |
|  | Exe |  | 3 months |  | 28 | 28 |  | 31.20 (25.40) | -78.70 (21.17) |  | VAS, 4. Overall/others | FADI\* |
|  | Steroid Inj+Exe |  | 3 months |  | 28 | 28 |  | 29.20 (21.17) | -84.00 (21.17) |  | VAS, 4. Overall/others | FADI\* |
| Yan,  2014 |  | ESWT+Orth |  | 1 month |  | 51 |  |  | 3.14 (1.61) |  |  | VAS, 3. Activity |  |
|  | ESWT |  | 1 month |  | 53 |  |  | 3.78 (1.64) |  |  | VAS, 3. Activity |  |
|  | Orthoses |  | 1 month |  | 49 |  |  | 3.12 (1.71) |  |  | VAS, 3. Activity |  |
|  | ESWT+Orth |  | 3 months |  | 51 |  |  | 1.95 (1.43) |  |  | VAS, 3. Activity |  |
|  | ESWT |  | 3 months |  | 53 |  |  | 3.61 (1.62) |  |  | VAS, 3. Activity |  |
|  | Orthoses |  | 3 months |  | 49 |  |  | 2.60 (1.46) |  |  | VAS, 3. Activity |  |
| Ball,  2013 |  | Steroid Inj |  | 6 weeks |  | 44 |  |  | 31.70 (27.85) |  |  | VAS, 4. Overall/others |  |
|  | Placebo |  | 6 weeks |  | 19 |  |  | 50.90 (31.40) |  |  | VAS, 4. Overall/others |  |
|  | Steroid Inj |  | 3 months |  | 37 |  |  | 28.30 (24.85) |  |  | VAS, 4. Overall/others |  |
|  | Placebo |  | 3 months |  | 18 |  |  | 53.80 (33.80) |  |  | VAS, 4. Overall/others |  |
| Grecco,  2013 |  | ESWT+Exe |  | 3 months |  | 20 |  |  | 1.30 (1.84) |  |  | VAS, 2. Morning |  |
|  | Exe |  | 3 months |  | 20 |  |  | 1.85 (1.87) |  |  | VAS, 2. Morning |  |
|  | ESWT+Exe |  | 12 months |  | 20 |  |  | 0.80 (1.47) |  |  | VAS, 2. Morning |  |
|  | Exe |  | 12 months |  | 20 |  |  | 1.05 (1.82) |  |  | VAS, 2. Morning |  |
| Guner,  2013 |  | NSAID Inj+Exe |  | 12 months |  | 31 |  |  | 2.94 (2.04) |  |  | VAS, 4. Overall/others |  |
|  | Steroid Inj+Exe |  | 12 months |  | 30 |  |  | 3.17 (2.31) |  |  | VAS, 4. Overall/others |  |
| Walther,  2013 |  | Placebo |  | 3 weeks |  | 10 |  |  | 46.00 (33.90) |  |  | VAS, 4. Overall/others |  |
|  | Orthoses |  | 3 weeks |  | 20 |  |  | 17.95 (17.50) |  |  | VAS, 4. Overall/others |  |
| Yucel,  2013 |  | Steroid Inj |  | 1 month |  | 20 | 20 |  | 3.70 (1.45) | -74.60 (7.89) |  | VAS, 4. Overall/others | FAOS; ADL Subscale\* |
|  | Orthoses |  | 1 month |  | 20 | 20 |  | 4.65 (1.34) | -64.80 (6.32) |  | VAS, 4. Overall/others | FAOS; ADL Subscale\* |
| McMillan,  2012 |  | Steroid Inj+Exe |  | 1 month |  | 41 | 41 |  | 34.31 (25.47) | -70.73 (26.50) |  | VAS, 1. First-step | FHSQ; Function Subscale\* |
|  | Exe |  | 1 month |  | 40 | 40 |  | 44.79 (26.39) | -68.45 (26.55) |  | VAS, 1. First-step | FHSQ; Function Subscale\* |
|  | Steroid Inj+Exe |  | 3 months |  | 41 | 41 |  | 30.77 (29.93) | -78.66 (23.63) |  | VAS, 1. First-step | FHSQ; Function Subscale\* |
|  | Exe |  | 3 months |  | 40 | 40 |  | 37.34 (27.25) | -77.74 (22.62) |  | VAS, 1. First-step | FHSQ; Function Subscale\* |
| Vahdatpour, 2012 |  | ESWT |  | 3 months |  | 20 |  |  | 7.60 (0.70) |  |  | NRS, 3. Activity |  |
|  | Placebo |  | 3 months |  | 20 |  |  | 4.90 (1.60) |  |  | NRS, 3. Activity |  |
| Biswas,  2011 |  | Steroid Inj |  | 1 month |  | 60 |  |  | 1.09 (1.16) |  |  | VAS, 4. Overall/others |  |
|  | Oral NSAID |  | 1 month |  | 60 |  |  | 4.15 (1.18) |  |  | VAS, 4. Overall/others |  |
|  | Steroid Inj |  | 2 months |  | 60 |  |  | 1.92 (1.22) |  |  | VAS, 4. Overall/others |  |
|  | Oral NSAID |  | 2 months |  | 60 |  |  | 5.76 (1.62) |  |  | VAS, 4. Overall/others |  |
| Ibrahim, 2010/2017 |  | ESWT |  | 1 month |  | 25 | 25 |  | 0.60 (7.50) | 1.20 (0.50) |  | VAS, 4. Overall/others | R&M |
|  | Placebo |  | 1 month |  | 25 | 25 |  | 7.60 (2.00) | 3.60 (0.50) |  | VAS, 4. Overall/others | R&M |
|  | ESWT |  | 3 months |  | 25 | 25 |  | 1.10 (1.50) | 1.40 (1.00) |  | VAS, 4. Overall/others | R&M |
|  | Placebo |  | 3 months |  | 25 | 25 |  | 7.70 (1.00) | 3.20 (1.00) |  | VAS, 4. Overall/others | R&M |
|  | ESWT |  | 12 months |  | 25 | 25 |  | 2.30 (2.15) | 1.90 (0.75) |  | VAS, 4. Overall/others | R&M |
|  | Placebo |  | 12 months |  | 25 | 25 |  | 6.90 (3.20) | 2.80 (1.20) |  | VAS, 4. Overall/others | R&M |
| Yucel,  2010 |  | Steroid Inj |  | 3 months |  | 33 |  |  | 1.10 (0.90) |  |  | VAS, 4. Overall/others |  |
|  | ESWT |  | 3 months |  | 27 |  |  | 1.20 (1.10) |  |  | VAS, 4. Overall/others |  |
| Chow,  2007 |  | ESWT |  | 5 weeks |  | 17 | 17 |  | 3.72 (0.69) | 8.89 (2.62) |  | VAS, 4. Overall/others | Total FFI |
|  | Placebo |  | 5 weeks |  | 14 | 14 |  | 5.71 (1.07) | 14.77 (1.72) |  | VAS, 4. Overall/others | Total FFI |
| Radford,  2007 |  | Exe |  | 2 weeks |  | 46 | 46 |  | 51.10 (29.10) | -72.40 (23.60) |  | VAS, 1. First-step | FHSQ; Function Subscale\* |
|  | Placebo |  | 2 weeks |  | 46 | 46 |  | 62.50 (29.50) | -66.40 (26.20) |  | VAS, 1. First-step | FHSQ; Function Subscale\* |
| Kudo,  2006 |  | ESWT |  | 3 months |  | 53 |  |  | 3.90 (3.20) |  |  | VAS, 1. First-step |  |
|  | Placebo |  | 3 months |  | 52 |  |  | 5.30 (2.70) |  |  | VAS, 1. First-step |  |
| Landorf,  2006 |  | Orthoses |  | 3 months |  | 89 | 89 |  | -71.60 (21.90) | -82.95 (21.35) |  | FHSQ; Pain Subscale, 4. Overall/others\* | FHSQ; Function Subscale\* |
|  | Placebo |  | 3 months |  | 44 | 44 |  | -63.40 (21.50) | -79.70 (22.30) |  | FHSQ; Pain Subscale, 4. Overall/others\* | FHSQ; Function Subscale\* |
|  | Orthoses |  | 12 months |  | 88 | 88 |  | -83.45 (19.70) | -89.85 (18.40) |  | FHSQ; Pain Subscale, 4. Overall/others\* | FHSQ; Function Subscale\* |
|  | Placebo |  | 12 months |  | 43 | 43 |  | -82.30 (18.00) | -87.80 (20.60) |  | FHSQ; Pain Subscale, 4. Overall/others\* | FHSQ; Function Subscale\* |
| Porter,  2005 |  | Steroid Inj+Exe |  | 3 months |  | 64 |  |  | 1.48 (1.75) |  |  | VAS, 2. Morning |  |
|  | ESWT+Exe |  | 3 months |  | 61 |  |  | 3.69 (2.00) |  |  | VAS, 2. Morning |  |
|  | Steroid Inj+Exe |  | 12 months |  | 64 |  |  | 0.84 (1.75) |  |  | VAS, 2. Morning |  |
|  | ESWT+Exe |  | 12 months |  | 61 |  |  | 0.84 (1.00) |  |  | VAS, 2. Morning |  |
| Theodore,  2004 |  | ESWT |  | 6 weeks |  | 72 |  |  | 4.60 (3.10) |  |  | VAS, 1. First-step |  |
|  | Placebo |  | 6 weeks |  | 71 |  |  | 5.00 (3.00) |  |  | VAS, 1. First-step |  |
|  | ESWT |  | 3 months |  | 73 |  |  | 3.40 (2.70) |  |  | VAS, 1. First-step |  |
|  | Placebo |  | 3 months |  | 73 |  |  | 4.10 (3.10) |  |  | VAS, 1. First-step |  |
| Haake,  2003 |  | ESWT |  | 6 weeks |  | 129 |  |  | 5.20 (3.10) |  |  | VNRS, 2. Morning |  |
|  | Placebo |  | 6 weeks |  | 131 |  |  | 4.90 (3.10) |  |  | VNRS, 2. Morning |  |
|  | ESWT |  | 3 months |  | 127 |  |  | 4.00 (3.20) |  |  | VNRS, 2. Morning |  |
|  | Placebo |  | 3 months |  | 129 |  |  | 4.50 (3.40) |  |  | VNRS, 2. Morning |  |
|  | ESWT |  | 12 months |  | 112 |  |  | 1.50 (2.60) |  |  | VNRS, 2. Morning |  |
|  | Placebo |  | 12 months |  | 114 |  |  | 1.70 (2.40) |  |  | VNRS, 2. Morning |  |
| Rompe,  2003 |  | ESWT |  | 12 months |  | 16 | 16 |  | 1.50 (1.70) | -90.40 (8.30) |  | VAS, 1. First-step | AOFAS Ankle-Hindfoot Scale\* |
|  | Placebo |  | 12 months |  | 19 | 19 |  | 4.40 (1.70) | -75.40 (17.30) |  | VAS, 1. First-step | AOFAS Ankle-Hindfoot Scale\* |
| Buchbinder, 2002 |  | ESWT |  | 6 weeks |  | 80 | 80 |  | 52.80 (34.50) | -65.60 (18.70) |  | VAS, 2. Morning | Maryland Foot Score\* |
|  | Placebo |  | 6 weeks |  | 81 | 81 |  | 47.40 (34.20) | -66.60 (17.60) |  | VAS, 2. Morning | Maryland Foot Score\* |
|  | ESWT |  | 3 months |  | 79 | 79 |  | 48.80 (35.40) | -69.90 (20.00) |  | VAS, 2. Morning | Maryland Foot Score\* |
|  | Placebo |  | 3 months |  | 81 | 81 |  | 44.40 (34.20) | -67.20 (20.20) |  | VAS, 2. Morning | Maryland Foot Score\* |
| Crawford,  1999 |  | Steroid Inj |  | 1 month |  | 27 |  |  | 2.90 (2.50) |  |  | VAS, 4. Overall/others |  |
|  | Placebo |  | 1 month |  | 27 |  |  | 4.00 (2.90) |  |  | VAS, 4. Overall/others |  |
|  | Steroid Inj |  | 3 months |  | 27 |  |  | 3.60 (2.80) |  |  | VAS, 4. Overall/others |  |
|  | Placebo |  | 3 months |  | 27 |  |  | 3.70 (3.30) |  |  | VAS, 4. Overall/others |  |

Abbreviations: ESWT=Extracorporeal shockwave therapy, ESWT+Exe= Extracorporeal shockwave therapy combined with exercise, ESWT+Orth= Extracorporeal shockwave therapy combined with orthoses, Exe=exercise, NSAID Inj+Exe=oral nonsteroidal anti-inflammatory drug combined with exercise, Oral NSAID=oral nonsteroidal anti-inflammatory drug, Orthoses=prefabricated or customised foot orthoses, Placebo=usual care/placebo, Steroid Inj=corticosteroid injection, and Steroid Inj+Exe=corticosteroid injection combined with exercise, n\_pain= number of participants at follow-up for pain outcomes, n\_function= number of participants at follow-up for function outcomes, SD= standard deviation, VAS=visual analogue scale, NRS=numerical rating scale, FHSQ=foot health status questionnaire, VNRS=verbal numerical rating scale, FFI=foot function index, AOFAS=American orthopaedic foot and ankle society, FAAM=foot and ankle ability measure, R&M=Roles and Maudsley score, FADI=foot and ankle disability index, FAOS=foot and ankle outcome score, ADL=activities of daily living.  
  
\* Direction of scale reversed by multiplying mean outcome values by -1 (to ensure all outcomes are interpreted with lower values indicative of improvements in pain or functional disability)