

RPW Shockwave Therapy
Scientific Literature
Clinical Evidence

- ⇒ [Plantar Fasciitis](#)
- ⇒ [Achilles Tendinopathy](#)
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PLANTAR FASCIITIS

Comparative Effectiveness of Focused Shock Wave Therapy of Different Intensity Levels and Radial Shock Wave Therapy for Treating Plantar Fasciitis: a Systematic Review and Network Meta-analysis.

Chang KV et al. Arch Phys Med Rehabil. 2012;93(7):1259-68.

Key message

- Radial shock wave therapy is a good alternative choice for plantar fasciitis treatment because of its lower price and possible equal or better effectiveness than traditional focused shock wave.

More info

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Chronic Plantar Fasciitis Treated with Two Sessions of Radial Extracorporeal Shock Wave Therapy.

Ibrahim MI et al. Foot Ankle Int. 2010;31(5):391-7.

RCT – 50 patients – RSWT versus placebo treatment

Key message

- RSWT was a safe, effective and easy treatment for patients with chronic PF and successful treatment can be achieved with only two sessions of RSWT which increases the attractiveness of this treatment method.
- The authors recommend considering RSWT treatment for every patient with chronic plantar fasciitis who is irresponsive to conventional treatment.

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Radial Extracorporeal Shock Wave Therapy Is Safe and Effective in the Treatment of Chronic Recalcitrant Plantar Fasciitis. Results of a Confirmatory Randomized Placebo-Controlled Multicenter Study.

Gerdesmeyer L et al. Am J Sports Med. 2008;36(11):2100-9.

RCT – 245 patients – RSWT versus placebo treatment

Key message

- Radial extracorporeal shock wave therapy significantly improves pain, function, and quality of life compared with placebo in patients with recalcitrant plantar fasciitis.
- Radial ESWT can be strongly recommended for patients with therapy-resistant plantar painful heel syndrome.

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Comparison of radial shockwaves and conventional physiotherapy for treating plantar fasciitis.

Greve JM et al. Clinics (Sao Paulo). 2009;64(2):97-103.

Randomized, prospective, comparative clinical study – 32 patients.

Key message

- Three sessions of shockwave treatment was equally effective as ten sessions of conventional physical therapy, providing faster immediate pain relief.

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ACHILLES TENDINOPATHY

Extra-corporeal pulsed-activated therapy ("EPAT" sound wave) for Achilles tendinopathy: a prospective study.

Saxena A et al. J Foot Ankle Surg. 2011;50(3):315-9.

Prospective cohort study – 60 patients/78 tendons – baseline vs. 1 yr post-treatment

Key message

- Statistically and clinically significant improvements in 78.38% of tendons treated with the low-energy radial shockwave device at least 1 year after treatment.
- Improvement in activity level, which is beneficial not only for athletic individuals but also for anyone required to work on their feet.
- The authors conclude shockwave therapy serves as a safe, viable, and effective option for the treatment of Achilles tendinopathy.

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Eccentric loading versus eccentric loading plus shock-wave treatment for midportion achilles tendinopathy: a randomized controlled trial.

Rompe JD et al. Am J Sports Med. 2009;37(3):463-70.

RCT – 68 patients

Key message

- The combined approach of eccentric loading plus repetitive low-energy SWT produced significantly better results (82% success rate) than eccentric calf muscle training alone.

More info

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Eccentric Loading Compared with Shock Wave Treatment for Chronic Insertional Achilles Tendinopathy.

Rompe JD et al. J Bone Joint Surg Am. 2008;90(1):52-61.

RCT – 50 patients

Key message

- Better results with radial shock wave therapy compared to eccentric training in patients with recalcitrant chronic insertional Achilles tendinopathy.
- The favorable results after shock wave therapy at four months were stable at the one-year follow-up evaluation.

More info

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Shockwave therapy for chronic Achilles tendinopathy. A double-blind, randomized clinical trial of efficacy.

Rasmussen S et al. Acta Orthop. 2008;79(2):249-56.

RCT – 48 patients – ESWT vs. sham treatment

Key message

- Treatment of Achilles tendinopathy with ESWT led to a clinically relevant effect, with significant improvement of the AOFAS score.

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HAMSTRING TENDINOPATHY

Shockwave Therapy for the Treatment of Chronic Proximal Hamstring Tendinopathy in Professional Athletes.

Cacchio A. et al. Am J Sports Med. 2011;39(1):146-53.

RCT – 40 athletes – RSWT vs. traditional conservative therapy.

Key message

- Significantly better results with radial shockwave therapy for Proximal Hamstring Tendinopathy than with traditional conservative (NSAID + PT) treatment.

More info

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PATELLAR TENDINOPATHY

“A single application of low-energy radial extracorporeal shock wave therapy is effective for the management of chronic patellar tendinopathy.” Furia et al. Knee Surg Sports Traumatol Arthrosc. 2013 Feb;21(2):346-50.

Retrospective study – 33 patients RPW versus 30 controls

Key message:

- SWT is safe and effective up to 12 months from the last application, and provides significantly better results than current conservative care.

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ROTATOR CUFF TENDINOPATHY

Radial extracorporeal shock wave therapy in the treatment of shoulder calcific tendinitis.

Avancini-Dobrović V et al. Coll Antropol. 2011;35 Suppl 2:221-5.

Clinical trial (no control group) - 30 patients – baseline vs. post-treatment and 4-month follow-up.

Key message

- Radial ESWT applied to patients with shoulder calcific lesions of the rotator cuff resulted in pain relief, increase in the range of motion and increase in the muscular strength.
- X-ray showed results were associated with a decrease in the size of the rotator cuff calcifications.
- The beneficial effects remained for at least 6 months.

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Radial extracorporeal shock-wave therapy in rotator cuff calcific tendinosis.

Mangone G et al. Clin Cases Miner Bone Metab. 2010; 7(2): 91–96.

Observational study – 62 patients – RSWT versus Laser

Key message

- Patients treated with Radial ESWT have shown an improvement at the end of the treatment as well as 3 months post-treatment.
- Radiography and echography showed disappearance (31%) or decrease (19%) of calcification in 50% of the shoulders treated with ESWT.

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Effectiveness of Radial Shock-Wave Therapy for Calcific Tendinitis of the Shoulder: Single-Blind, Randomized Clinical Study.

Cacchio A et al. Phys Ther. 2006;86(5):672-82.

RCT – 90 patients – active versus placebo treatment

Key message

- RSWT effectively reduces pain (improvement of VAS scores) and increases shoulder function (improvement of UCLA Shoulder Rating Scale scores) without device-related adverse effects.
- The results seen after the treatment were maintained over the following 6 months.
- RSWT was unexpectedly better in dissolving calcifications of the shoulder than focused shock wave therapy in the literature: calcifications disappeared completely in 86.6% of the subjects in the treatment group and partially in 13.4% of subjects.

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Radial shock wave therapy in calcifying tendinitis of the rotator cuff - a prospective study.

[Article in German] Magosch et al. Z Orthop Ihre Grenzgeb. 2003;141(6):629-36.

Prospective study – 35 patients - 1/3/6/12-months follow-up

Key message

- Radial shock wave treatment produced significant improvement of pain and shoulder function and induced resorption of the calcific deposit.

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LATERAL EPICONDYLITIS

Radial shock wave therapy in patients with lateral epicondylitis.

Ilieva EM et al. Folia Med (Plovdiv) 2012;54(3):35-41.

Prospective study - 16 patients – baseline vs. post-treatment and 3/6/12-months follow-up.

Key message

- Significant improvement of pain and function with RPW treatment of recalcitrant lateral epicondylitis.

More info

- [Pubmed link](#)
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-

Radial shock wave therapy for lateral epicondylitis: a prospective randomised controlled single-blind study.

Spacca G et al. Eura Medicophys. 2005;41(1):17-25.

RCT – 62 patients – active versus placebo treatment

Key message

- The use of radial shock wave therapy allowed a decrease of pain and functional impairment, and an increase of the pain-free grip strength test, in patients with tennis elbow, without device related adverse effects.
- 87% of patients were satisfied with the treatment.

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OSGOOD-SCHLATTER

Extracorporeal Shock Wave Therapy for Patients Suffering from Recalcitrant Osgood-Schlatter Disease.

Lohrer H et al. Sportverletz Sportschaden. 2012 Oct 9. [Epub ahead of print]

Retrospective study – 14 patients.

Key message

- 75% of patients became free of symptoms following RPW treatment.
- Radial ESWT is a safe and promising treatment for adolescent athletes with recalcitrant Osgood-Schlatter disease.

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MEDIAL TIBIAL STRESS SYNDROME

Low-Energy Extracorporeal Shock Wave Therapy as a Treatment for Medial Tibial Stress Syndrome.

Rompe JD et al. Am J Sports Med. 2010;38(1):125-32.

Cohort study with matched control group – 94 patients – RSWT vs. standard home training

Key message

- This cohort study on running athletes demonstrates that low-energy radial SWT is safe and effective for treating subjects with chronic MTSS
- Satisfactory improvement is maintained for at least 1 year.

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GREATER TROCHANTERIC PAIN SYNDROME

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

Furia et al. Am J Sports Med. 2009;37(9):1806-13.

Retrospective case control study – 66 patients – RSWT vs. standard conservative care

Key message

- Shock wave therapy is an effective and safe treatment for greater trochanteric pain syndrome;
- The satisfactory improvement is maintained for at least 1 year.

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

Rompe JD et al. Am J Sports Med. 2009;37(10):1981-90.

RCT – 229 patients

Key message

- The significant short-term superiority of a single corticosteroid injection over home training and shock wave therapy declined after 1 month.
- At 4-month follow-up, radial shockwave therapy was significantly more successful than home training or corticoid injections.
- At 15-month follow-up corticosteroid injection was significantly less successful than was home training or shock wave therapy.

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BONE HEALING

Radial Extracorporeal Shock Wave Therapy (rESWT) Induces New Bone Formation in vivo: Results of an Animal Study in Rabbits.

Gollwitzer H et al. Ultrasound Med Biol. 2013 Jan;39(1):126-33.

Animal laboratory study – 13 rabbits

Key message

- rESWT has proven effectiveness to induce new bone formation in normal bone and might be advantageous in the clinical setting because of its distribution to larger treatment areas.

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TRIGGER POINT RELIEF

Orthopedic trigger point shock wave therapy with focused and radial shock waves: a review of the current situation.

Gleitz M et al. Orthopädische Praxis 42, 5 (2006), 303-12

Key message

- Shockwave therapy, ideally combined radial and focused, has proven to be effective for a variety of myofascial pain syndromes in the authors' experience.

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CELLULITE

Controlled, randomized study evaluating the effects of treating cellulite with AWT/EPAT.

Adatto M et al. J Cosmet Laser Ther. 2010;12(4):176-82.

Key message

- Radial shockwave therapy significantly improves the visual appearance of cellulite.

More info

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 - [DealerNet link](#)
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Acoustic Wave Treatment for Cellulite - A New Approach

Russe-Wilflingseder K et al. AIP Conf Proc;1226:25-30

Key message

- Radial acoustic waves are effective and safe to treat cellulite with high patient satisfaction and acceptance.

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