

User Study  
Rehabilitation and Treatment Practice  
Peter Herrmann, Röthenbach

**enPuls**  
Version 2.0



## Shockwave therapy can help patients who have had no success with other forms of treatment

### What is shock wave therapy?

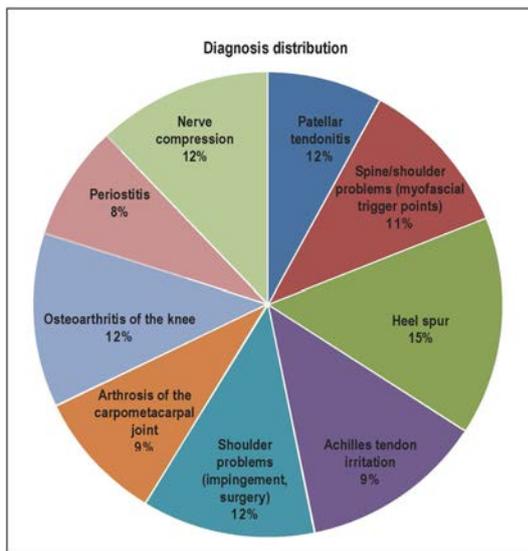
Radial shock wave therapy emits mechanical energy into the tissue. The shockwaves, generated by an accelerated projectile in the handpiece, penetrate much deeper than it is possible with manual therapy. Despite this, the patient is never exposed to radiation or anything similar. The mechanical impulse alone triggers a therapeutic reaction, such as is achieved with massage, etc. Convinced of the future treatment benefits of radial shock wave therapy, the Reha Herrmann team in Röthenbach decided to expand the range of treatments it offers for radial shockwave therapy.

### enPuls Version 2.0 – compact and user-friendly



After testing various pneumatic systems, the team decided on the enPuls version 2.0 from Zimmer MedizinSysteme GmbH. The device is small and compact in shape. Since it is driven electronically, it does not require a compressor and therefore needs only little space in the practice. In addition, it does not produce noise or floor vibrations such as with conventional compressor-driven systems, so the experience is a lot more pleasant for patients and therapists alike. Its small dimensions and lightweight design mean it is portable and flexible to use. The ergonomically shaped applicator of the enPuls version 2.0 particularly is agreeable to hold.

### Convincing treatment outcomes



An overview of the patients who have received shock wave treatment should indicate how effective the treatment is. Included in this analysis are 65 male and female patients of varying age groups and professions, with the following problems after injury, strain or surgery: patellar tendonitis, cervical spine/shoulder problems (myofascial trigger points), heel spurs, achilles tendon irritation, shoulder problems (impingement), arthrosis of the carpometacarpal joint, osteoarthritis of the knee, periostitis, nerve compression.

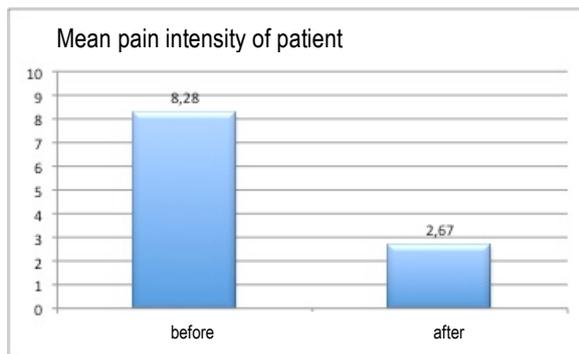
Applicator 2 (diameter 15 mm) was the applicator most commonly used. Patients with arthrosis of the carpometacarpal joint, osteoarthritis of the knee and periostitis were treated using applicator 1 (6 mm) also. Radial shockwave therapy was administered once or twice a week.

### Treatment details

	Frequency	Pulse energy (mJ)	Number of shocks/treatment	Number of treatments
Patellar tendonitis	12 – 16	60 – 90	2,000 – 4,500	6 – 8
Cervical spine/shoulder problems (MTPs)	8 – 16	60 – 90	2,000 – 4,000	8
Heel spurs	10 – 16	60 – 90	2,000 – 5,000	7
Achilles tendon irritation	10 – 16	60 – 90	1,500 – 3,000 – 4,000	8

	Frequency	Pulse energy (mJ)	Number of shocks/treatment	Number of treatments
Shoulder problems (impingement, surgery)	12 – 16	60 – 90	2,500 – 5,000	12
Carpometacarpal joint arthrosis	4 – 12	60 – 90	800 – 2,000	8 – 10
Osteoarthritis of the knee	6 – 15	60 – 90	1,000 – 2,000	8
Periostitis	6 – 15	60 – 90	1,000 – 2,000	8
Nerve compression	10-16	60 – 90	4,000 – 6,000	6

MTPs = myofascial trigger points



Although radial shock wave therapy is a relatively intensive intervention, it is well tolerated by the majority of patients. Naturally the intensity of the impulses must be adjusted to the patient's individual pain sensitivity and reduced if necessary. The results from 65 subjects followed up speak for themselves. Even patients who had no success with other forms of treatment experienced a significant improvement in symptoms or even complete freedom from pain. In none of them the therapy did not respond or had to be aborted.

### Treatment examples: Achilles tendon problems

Radial shock wave therapy proved particularly effective in Achilles tendon problems and heel spurs. Fundamental to treatment, of course, is a thorough patient history, including a review of the areas secondarily affected. The eight patients included in the study had trauma-induced as well as chronic conditions. Therapy was planned accordingly. Almost all had simultaneous treatment to the sacroiliac and knee joint, in the chronic cases usually also to the vertebrae and plantar tendon. At the start of radial shock wave treatment each patient's individual pain threshold was determined and the maximum impulse intensity was adjusted accordingly. Shock wave therapy was used to treat all the primary problems in all patients, subsequently supplemented by cryotherapy to soothe the tissues, and manual therapy for areas that were too sensitive. In trauma-induced cases involving partial rupture of the tendon, radial shock wave therapy was not applied until later sessions as it would have been too painful initially. Once the tissue has already started to heal and healing can be promoted by stretching therapy and deep friction, shock wave treatment can be initiated.



### Conclusion

Shock wave therapy is not an all-purpose tool for solving all problems, however it is a sensible and efficient complement to the range of therapies in a physiotherapist's arsenal of equipment. It can reach deeper structures more easily. Even patients who had had no success with other forms of treatment experienced a significant improvement in symptoms.

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