

ESWT for surgeons and orthopaedists

Not as mystical as it seems.

Shock waves help patients with heel spur.¹ – This statement is about as helpful as “Surgery helps patients with varicose veins”. Why? Because methods and therapeutic success are defined by the all-round ‘package’ of indication, equipment, shock wave application and therapist experience. The more that all these things come together, the more our patients benefit. What, then, is extracorporeal shock wave therapy (ESWT) and what explains its success in practice?

It is plausible and understandable that shock waves should exert their influence through human tissue and have the effect of breaking up obstructions (such as ureteral calculi) with millimetric precision. However, it is far harder to account for the regenerative impact of the same waves. ESWT, therefore, does not have as straightforwardly good a reputation as does extracorporeal shock wave lithotripsy (ESWL) as used by urologists. That said, there are more parallels than differences – and more patients.

Medical professionals have to decide: do I want to get into this market? What therapies should I have in my sights, as it were?

ESWT: What are involved here are *focused or unfocused and low- to high-energy acoustic sound waves* that are, using suitable shock transmitters, applied to specific regions of the body. Other factors also contribute to the shock wave effect in vivo: these shock waves travel at nanosecond speed and at considerable peak pressures before remaining for a few microseconds and receding with a fairly long phase of negative pressure. The effect of these shock waves can be explained by precisely these physical processes that are desirable for the treatment of



ESWT, X-ray showing heel spur

pseudarthrosis, enthesopathy or muscle trigger points. As far as is known, analgesic influences are brought about by a reduction in the release of pain and inflammatory mediators such as substance P, and regenerative effects by means of increased production of angiogenesis factors such as endothelial nitric oxide synthase.

And just for the sake of clarification: ESWT does not generally require anaesthesia. These treatments are loud and perceptible, but rarely painful – and virtually free of complications. And it goes without saying: ESWT is the doctor's job and not to be delegated.

When looking for an organization to bear the very considerable treatment costs, the majority of potential patients are, unfortunately, left in the lurch¹:

- Statutory health insurers never meet the costs.
- Private health insurance companies meet the costs only for defined indications.
- Employers' liability insurance associations pay for treatment of fracture-healing disorders on request.

- Military district administration offices meet the costs for members of the armed forces.
- If no paying organization is available, patients meet the costs themselves.



Treatment of pseudarthrosis of the ulna using focused shock wave therapy (F-SW)



Trigger point treatment using radial shock wave therapy (R-SW)

With regard to amortization of equipment: preference should be given to devices that give the energy flux density in mJ/mm^2 , calculate the total energy in joules from the number of shock waves applied and also the mean energy flux density in mJ/mm^2 . Integrated sonography? Yes, please! If these devices are also network-compatible within the physician's practice, he or she will be completely won over.

Here are three examples of the process taking in all steps from indication to costing:

1. Chronic intractable plantar fasciitis – one of the leading indications for ESWT. Preliminary examination; three sessions of focused medium-energy shock wave therapy; total energy each time: 25 joules. Use of “office line” therapy device. In accordance with the German scale of charges and fees for medical practitioners (GOÄ); item nos. 1, 5 (or 7), 410 (and possibly 420) and three times 1800 (analogue) (2.3-fold rate of increase); approx. € 650.

2. Pseudarthrosis of the radius and ulna; treatment approved by employers' liability insurance associations. For each fracture, two sessions of high-energy focused ESWT; total energy each time: 50 joules. Use of “office line” therapy device. In accordance with GOÄ for accident insurance, item no. 1860 (general medical treatment); four times € 414.15.

3. Acute myofascial pain syndrome, also known as ‘trigger point syndrome’. Location of myogelosis; immediate treatment involving unfocused low-energy pressure wave or focused shock wave therapy, depending on required depth of penetration; three to five single therapy sessions planned. Use of “office line” therapy device. In accordance with GOÄ, item nos. 1, 5, 831 and perhaps 410, 302 (analogue) and/or 1800 (analogue) (1.0-fold rate of increase owing to low level of difficulty); approx. € 150 in each case.

As few as two patients per month – for whom charges are calculated in the correct manner as above – should be sufficient to cover any equipment-leasing rates. Practitioners who are good will acquire enough patients.

The author of this article can look back on 13 years of shock wave therapy



Dr Bätje with STORZ MEDICAL DUOLITH® SD1 »ultra«

experience. He uses three different shock wave therapy devices (STORZ MEDICAL MODULITH® SLK, STORZ MEDICAL DUOLITH® SD1 »ultra«, SIEMENS Modularis Variostar®) at three practitioner and clinical locations, covering the full range of orthopaedic and trauma surgery indications. 95% of his clientele are patients referred by other specialists from practices and clinics, from employers' liability insurance associations, professional sports clubs or the German armed forces.

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¹ following health insurance funds information relevant for Germany, varies from country to country (explanatory note in the English translation)