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Prevention, therapy and sports life for amateurs and professionals

Tibor Pleiß at the age of 22, is attempting the step from the Brose Baskets Bamberg to the NBA with Oklahoma City Thunder

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Linearly focused shock wave therapy

Dr. med. Hannes Müller-Ehrenberg

Linearly focused shock wave technology

First user experiences with the new ESWT-line source

Dr. med. Hannes Müller-Ehrenberg,
Private orthopaedic practice Münster

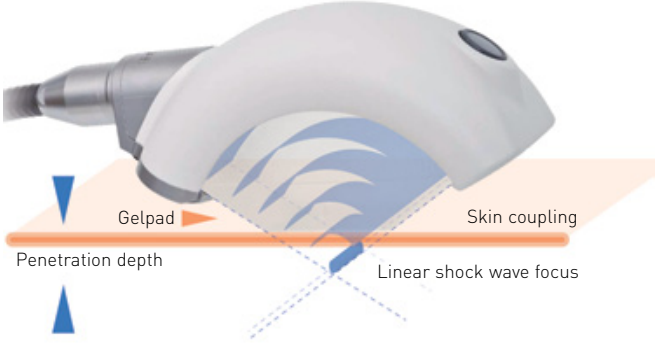
Picture: © panthermedia | JCB Prod

The use of focused shock waves has been an established procedure in the treatment of complaints of the locomotor system for many years. Focussed ESWT has become increasingly important, particularly in the area of chronic, and also acute injuries of athletes.

Clear evidence of this is provided by the number of sports medicine specialists, also the sports clubs with professional medical supervision, many of which use appropriate medical devices in their medical departments. Meanwhile, focused ESWT is seen as a standard indication for the most common athlete's complaint of insertion tendinosis, so-called enthesopathy. Based on fundamental research and clinical studies, it has emerged that the effects of ESTW, in particular with the indications in sports, are based less on the mechanical destruction of tissue (mainly with high energy), but more through activation of tissue substances which promote healing processes. It was further established that there were effects of pain relief through reduction of vasonozizeptive substances, such as substance P, and promotion of neovascularisation. Furthermore, via an increase of the satellite cell activity in the muscle, focused ESWT leads to an increase of the regenerative ability of muscular and tendinous tissue not only for minor but for major injuries too. The advantage of focused ESWT is the exact application of the acoustic energy directly to deep tissue layers without causing damage or even a nociceptive irritation of the skin. This fact in particular has led to the use of a specific pain point diagnostic, following the principle of patient-oriented feedback, for nearly all applications of ESWT to the musculoskeletal system. The principle is particularly helpful for the treatment of myofascial trigger points, as the important diagnostic criteria of referred pain and pain recognition can be established with focused ESWT much more often than with traditional diagnostic techniques. The disadvantage of selective focusing is the concentration of the energy of the shock wave on a relatively small zone, without treating the tissue structures in their anatomical course.

The new focused line source (Richard Wolf/Elvation) is an excellent therapeutic opportunity for use with these pathologies, where it is ideal as a broad-based application of the focused energy, or one that follows the course of the fibres. Especially in enthesopathically-changed tendon insertions, where there is a painful lesion with its structural and functional anatomical changes in the tendon and the muscle, treatment can exactly follow the course of the fibres using the line source. Particularly good examples for the use of the line source for enthesopathy are the typical diagnoses of tennis and golfer elbow and patellar pain (jumper's knee). Exceptionally useful is the treatment of the Achilles tendon using linear ESTW on the plane and in the course, for anatomical reasons alone, as this is the strongest tendon of all and the line source can be applied with precision. A further particularly effective application of focused ESWT with the line source is the complaint of symphisitis, as the large bony insertion area can be treated effectively. Pain of the feet due to plantar fasciitis

Therapy of the trochanteric pain syndrome with linear ESWT



Principle of the linear distribution of focused ESWT in the tissue

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Network

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1. ISMST and DIGEST (ESWT)
2. MGMS and IMTT (myofascial trigger point therapy)
3. Trainerakademie des deutschen olympischen Sportbundes (DOSB) Köln (Training Academy of the German Olympic Sports Confederation (DOSB) Cologne)

with the line source can be treated following the exact anatomical course of the plantar fascia. This therapy source is very helpful for the treatment of lateral hip pain, now diagnosed as trochanteric pain syndrome. Here linear ESWT can anatomically and functionally treat the pain points over the trochanter major, the additional pain points on the tractus iliotibialis and the trigger points in the M. tensor fasciae latae as well. In the area of the musculature, it is especially advantageous to use the long line application of focused ESWT, as minor and major injuries can be treated exactly in the course of the fibre. This application form of focused ESWT delivered very good results in muscular treatments not only for manifest damage but also for regeneration of the skeletal muscles after hard training, enabling a more efficient training regime.

Conclusion

The new technology of linear ESWT has proven itself as a good form of therapy in many applications in sports medicine, and has improved the possibilities of the exact application of focused ESWT to a larger area of tissue. Due to the longer focusing distance, it can treat tissue lesions with focused ESWT at the tendon insertion point and also the corresponding anatomical and functional structures. In the area of the musculature, it is especially advantageous to use linear ESWT, as both minor and major injuries can be treated exactly along the course of the fibre.

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