

Translation

Extracorporeal Shock Wave Therapy

Dr. med. Heinz Lohrer



Heinz Lohrer Orthopaedist, Physical Therapy and Rehabilitation Specialist, Sports Medicine, Chirotherapy

Medical Director, Frankfurt am Main Sports Medicine Institute, Primary Sports Medicine Information Centre for the Federal State of Hesse, Sports Medicine Treatment Centre for the Olympic Services Facility Frankfurt-Rhein-Main

The Frankfurt am Main Institute for Sports Medicine was founded in 1984 and has in the meantime become one of the leading national sports medicine centres in Germany. As the Primary Sports Medicine Information Centre for the Federal State of Hesse and the Sports Medicine Treatment Centre for the Olympic Services Facility Frankfurt-Rhein-Main, the Institute concerns itself with the scientific aspects of sports medicine. It also ensures the provision of preventive, therapeutic and rehabilitative aspects of internal medicine, performance-diagnostic and sports/orthopaedic care to some 7000 athletes of all ages and skill levels (from recreational to top athletes) annually.

The first extracorporeal shock wave device (nationally and internationally) used to treat athletes (the Minilith SL1, Storz Medical AG) was installed at the Institute for Sports Medicine Frankfurt Main in 1995. It thus also became possible to test the effects of extracorporeal shock waves on injured athletes under controlled conditions. At that time we were already restricting treatments to the low-energy range and performing them without (local) anaesthesia to take advantage of the regeneration potential induced by shock waves while avoiding necrosis in the treated tissues. In one of the first observations of this application, the anticipated positive effects were clear, especially in chronic insertional tendinopathies in the musculoskeletal system (Lohrer, et al., 1998). By 1996, the technology had already proved so valuable that we put the Minilith SL1 into use as part of the Olympic team's care in Atlanta (USA). At that time the size and weight of the ESWT unit was a substantial disadvantage for the procedure. It was clear from the start that a more compact device and lighter shock transmitter were necessary for ensuring the mobility required for sports. During further testing the original focused shock wave proved to be very well capable of successfully treating small, local lesions, while tendinopathies, which comprised greater tendon volume, could not be effectively treated with the focused shock wave. This was particularly for the case with achillodynia, which occurs frequently in sports, and with patellar tendinopathy.

Further technical development of ESWT led not only to more manageable and therefore transportable devices but, with the radial propagation of shock waves in the body, also to a fundamentally new technology that was to prove especially valuable in sports. In addition to increased flexibility, this development heralded the ability to successfully treat achillodynia and patellar tendinopathy (Lohrer, et al., 2002). We first used a device of this type internationally during the 2000 Olympic Games in Sydney, Australia. The earlier Minilith SD1 was thus also replaced as a purely focusing shock wave system by its successor, the DUOLITH SD1 focused/radial shock wave therapy system (Storz Medical AG).



Among the purely radial ESWT systems, in addition to Masterpuls MP 100/200 (both stationary devices), the Masterpuls MP50 (Storz Medical AG) with its compact design and integrated compressed air supply with a maximum weight of 9 kg has proven itself as a mobile ESWT unit. The measurements of this high-powered ESWT system are minimal at 34 x 34 x 15.6 cm. This makes the device the easiest to handle and simplest to transport shock wave device currently on the market. Its user-friendly operation allows for variably adjustable impulse frequencies from 1 to 11 Hz. The working pressure of 1 to 3 bar (11 MPa) covers the requirements for a powerful radial shock wave machine quite well. The day-to-day costs of the machine are negligible. This device has become a part of our basic sports medicine equipment for providing

treatment at national and international competitions (German, European and International championships) and training sessions. In addition to standard indications (insertional tendinopathies and tendinopathies) treatment now extends to myogenic trigger points, myogelosis, periosteal irritation and, in the context of reflex therapy, to acupuncture shock wave therapy. Our use of the Masterpuls MP 50 as a radial shock wave therapy system is not limited to being part of general sports/orthopaedic therapy at the Frankfurt am Main Sports Medicine Institute. The device is also being used successfully for treating the national table tennis, trampoline and rowing teams. Competitive athletes value this treatment above all because it is well tolerated, safe and free of side effects. In particular, there are no concerns about conflicts with current doping regulations.

Literature

- Lohrer, H., Schöll, J., Alt, W., Hirschmann, M.: *Die extrakorporale Stoßwellentherapie. Erste Ergebnisse beim Einsatz in der Sportorthopädie. Leistungssport* 28: 42-44, 1998
- Lohrer H, Schöll J, Arentz S: *Achillodynie und Patellaspitzensyndrom - Ergebnisse der Behandlung austherapierter, chronischer Fälle mit radialen Stoßwellen. Sportverl Sportschad* 16: 108-114, 2002

Dr. med. Heinz Lohrer
Lohrer@sport.uni-frankfurt.de

Translation of Article: Dr. med. Heinz Lohrer, "Extrakorporale Stoßwellentherapie", published in: medical sports network 03/08