

Effectiveness and utilisation of radial pressure waves and focused shock waves in patients with chronic back pain

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We have been accumulating experience in the use of shock wave therapy for treating orthopaedic trauma for more than 10 years, including, for 5 of these, intensive experience with the combined therapy of radial pressure waves and focused high-energy shock waves, both combined in the Duolith SD1 from STORZ MEDICAL AG.



Fig. 1. Combined shock wave device DUOLITH SD1

In addition to successful application for treating recognised standard indications (calcific tendonitis in the shoulder, heel spurs, achillodynia, pseudoarthrosis, radial epicondylitis of the elbow), we have for some time also been at pains to provide holistic uses of the method. Only rarely do we perform treatment solely on the local area; instead we use a functional approach in accordance with musculoskeletal models (e.g. MYERS) using pressure wave and shock wave applicators.

In one study, we described the effectiveness of combined shock wave therapy with conventional manual therapy for reducing defined lower back pain (ISMST Congress, Antibes 2008). The criterion for inclusion in the study was at least 12 weeks of lower

back pain with no radicular symptoms. Patients who had undergone surgical treatment or had destructive diseases of the lumbar spine, motor weaknesses of the lower extremities or reduced or absent reflexes of the lower extremities were excluded from the study. The exclusively segmental nature of the dysfunction was independently verified.



Fig. 2. Superficial back line as specified by MYERS

This first group was treated over a 4-week period using combined shock wave therapy. The treatment zones were primarily the myofascial chains, starting from the foot, via the lower leg, thighs, gluteal region and the area of localised pain up to the cervical spine. In accordance with the chains specified by MYERS, the treatment paths are primarily arranged dorsally, laterally and in spirals.

Treatment sessions were carried out weekly. Where superficial muscle contractions and fascial reactions, which often begin at the soles of the feet, are present, we work primarily with the radial or pressure wave

applicator. For deeper trigger points, e.g. in the thighs (hamstrings; tractus iliotibialis; adductors) we work primarily using the focused applicator, which guarantees penetration depths of more than 60 mm. The focused applicator is particularly useful for treating the piriformis and gemelli muscles and in the area of the quadratus lumborum muscle, areas which are hard to reach with manual therapy.

The intensively treated region was then relaxed and loosened up using the V-ACTOR vibration applicator connected to the radial port of the Duolith SD1

A second group was treated using manual therapy only.

A third control group received a placebo manual therapy only. All 3 groups were then instructed in a home exercise programme.



Fig. 3. V-ACTOR applicator



Fig. 4. Penetration depth of the focused shock wave shock transmitter (left) and the radial applicator (right). Patient in prone position, CT scan of the gluteus minimus region.

The results were controlled in a double-blind experiment by an instructor from our neighbouring rehabilitation centre. Analysis of the Oswestry Low Back Pain Scale showed significantly better results for segmental lumbar spine mobility and subjective reduction in pain in the group treated with combined shock waves compared to the manual therapy only and control groups.

No complications or side effects of combined shock wave therapy were observed. Local anaesthesia was not used.

Combined shock wave therapy has become an indispensable part of our orthopaedic and pain therapy practice. Unfortunately, it has, not least as a result of over-flexible invoicing practices, fallen into disrepute among some of the health insurance companies. It should become established as a service comparable to surgical services in the context of the new negotiations on schedules of charges for medical services being carried out by the DIGEST shock wave association. Certified training curricula are in use. Further investigations into cost efficiency and the duration of pain reduction shall follow.

Literature available from the publisher

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