

# Post Traumatic Reduction of the Range of Motion and Impairment of the Athletic Gesture - Therapeutic Potential of Shock Waves

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Occasional traumas, often occurring outside sports activity, may lead to a reduction of the muscle extension. After a traumatic event, residual muscular-tendinous pain and significant difficulty in performing the typical movements of a given sports activity is often reported by patients, both when training and when playing sport professionally. The evolution signs of post-traumatic stiffness appear at a very early stage, after a few weeks. The traditional therapeutic approach uses different physical therapies, ranging from mesotherapy to manual debridement. Shock waves may represent an interesting therapeutic opportunity to restore the physiological conditions of the muscle-tendon extensibility.

**Materials:** Over the past few years I have been able to evaluate various post-traumatic cases (12) concerning athletes affected by reduced articular mobility (between 40 and 180 days after trauma) showing a subjective significant impairment in performing sports activity. The subjects had suffered from direct contusive traumas or stab wounds mainly affecting the thigh (7 quadriceps, 2 abductors, 1 bicep of thigh, 1 bicep of arm, 1 sural triceps). In some cases they had also been immobilized due to concurrent bone lesions. All subjects had already undergone physical and rehabilitation therapies without reporting satisfactory results. **Methods:** The treatment modality was ESWT (with an OSSATRON OSA 140 device from HMT) performed in different sessions (from 2 to 4), at intervals of at least 3 weeks apart. Neither local nor general anesthesia was used. During each treatment an average of 1,350 shock waves were administered with an average intensity of approx. 16 kV. The therapy was coupled with a rehabilitation treatment performed both by a rehabilitation therapist and by the patient himself. The patient's examination included a clinical evaluation (with the following score: 0-null, 1-fairly good, 2-good, 3-very good), ROM deficit measuring, a VAS test (from 0 to 10) and Fisher algometer (from 1 to 6). Follow-up was made every month until resumption of sports activity.

**Results:** The first signs of clinical recovery were reported only 48 hours after the first shock wave treatment, becoming more and more evident within the first 14 days. Additional significant improvement was reported after each subsequent treatment. At least two therapy sessions were conducted to recover complete functionality. The clinical result was positive for all patients 1 month after the final shockwave treatment. At the end of the observation period the result proved to be very good in 9 cases (4 subjects were even able to resume the same professional level of play they had experienced before trauma only three months after end of therapy), good in 2 cases, and fairly good in 1 case. The radiological evidence proved peculiar since the x-ray did not show any significant variation during the first 6 months after ending therapy, despite a satisfying clinical recovery. Only the examination 12 months after cessation of therapy showed a reduction of calcific deposits.

**Conclusions:** ESWT coupled with appropriate rehabilitation represents an efficient method to treat post-traumatic results with reduced muscle-tendon extensibility. The therapy proves to be effective when performed at an early stage and shows a clinical as well as a functional recovery that differ from the radiological evidence, which at present cannot be easily interpreted.