

The development and state of the art treatment of ESWT

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Device and producing company:

Various (experimental sources)

Introduction: Previous research addressing effects of extracorporeal shock waves on the musculoskeletal system mainly focused on connective tissue and bone. However, several clinical effects of shock waves could not be explained this way.

Methods:

We and others performed a variety of experimental studies analyzing the peripheral nervous system after application of extracorporeal shock waves to the musculoskeletal system.

Results: These studies showed several effects of extracorporeal shock waves applied to the musculoskeletal system on the peripheral nervous system. Perhaps the most intriguing among these effects was the recent finding that application of shock waves with energy flux density of 0.9 mJ/mm² on the ventral side of the distal femur of rabbits resulted in a selective, substantial loss of unmyelinated nerve fibres within the femoral nerve of the treated hind limb, whereas the sciatic nerve of the treated hind limb remained unaffected (Hausdorf et al., Neuroscience: in press).

Discussion:

Collectively, these data indicate that alleviation of chronic pain by selective partial denervation may play an important role in the effects of clinical shock wave application to the musculoskeletal system.

Conclusion: The actual role of the peripheral nervous system in mediating effects of extracorporeal shock waves on the musculoskeletal system might have been underestimated so far and should be reconsidered in both experimental and clinical studies focusing on the application of extracorporeal shock waves to the musculoskeletal system.