

Shock waves in wound healing

Stimulation of **blood flow** and new **capillary** formation

Clinical experience with shock wave therapy indicates promising results in wound healing treatment. The application of low-energy shock waves not only stimulates the blood flow but also induces new capillary formation (angiogenesis).

A study conducted by Hayashi et al.¹ in 2012 revealed that the release of eNOS and VEGF is one of most important effects produced by shock waves in wound healing. Both proteins are responsible for neovascularization and wound closure. The indications for non-invasive shock wave therapy in dermatology include non-healing.



Fig. 1: Shock wave treatment of an open wound using the F-SW handpiece



Fig. 2: Shock wave treatment of a non-healing wound

wounds, diabetic gangrene, (diabetic and non-diabetic) ulcers, skin burns and other conditions.



Case study 1 (top: before treatment; bottom: after treatment)



Case study 2 (top: before treatment; bottom: after treatment)

The DUOLITH® SD1 »ultra« therapy system uses an electromagnetic shock wave generator. The focused handpiece is characterized by an optimum configuration of the coil and membrane to produce short but strong acoustic pulses which are highly effective in wound healing applications. The large focal zone ensures safe and reliable superficial wound treatment (Fig. 2).

Three case studies

A 72-year-old male patient who had been suffering from a diabetic foot ulcer for four years (case study 1) and who had been advised amputation of his right big toe received 20 shock wave treatments over a period of five months. As a result, toe amputation could be avoided.

The second case study involved a 75-year-old male patient with a non-healing gangrene. Before undergoing shock wave therapy, the patient, who had peripheral arterial disease in addition to type 2 diabetes mellitus, had been advised amputation of both big toes. He then received a total of 18 shock wave treatments over a period of eleven months.

The third case study was that of a 56-year-old female patient who had been suffering from a non-healing ulcer for six years. She received 30 shock wave treatments over a period of eight months and achieved complete wound healing. ■

¹Hayashi D et al. Low-energy extracorporeal shock wave therapy enhances skin wound healing in diabetic mice. *Wound Repair and Regeneration* 2012;20(6).

➔ **Source:** STORZ MEDICAL
www.ultra.storzmedical.com

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