

# ESWT in Stress Fractures

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## Introduction:

In soccer players, lower extremity stress fractures are common injuries and are the result of repetitive damage that exceeds the intrinsic ability of the bone to repair itself. They may be treated conservatively, but this may cause long-term complications, such as delayed union, muscle atrophy and chronic pain. Stress fractures that fail to respond to this management require surgical treatment, which is also not without risks and complications. Shock Wave Therapy has been used successfully on fracture complications, such as delayed union and non-union. Therefore, we want to examine ESWT in the management of stress fractures.

## Methods:

We present a retrospective study of 10 athletes affected by chronic stress fractures of the 5th metatarsus and tibia that received 3-4 sessions of low-middle energy ESWT.

## Results:

At the follow-up, the clinical and radiographic results were excellent and enabled all players to gradually return to their sports activities.

## Discussion:

In the treatment of fractures, usually high energy is used to induce periosteal detachment and trabecular fractures with haemorrhages, which in turn stimulate callus formation and subsequent fracture healing. We chose to use lower energy ESWT on the rationale that ultrasound induces nitric oxide liberation at low energy. There is a link between NO and osteogenesis via the seven-day expression of the core binding factors cbfa1. Consequently, our application of lower energy shock waves stimulates bone growth by nitric oxide production.

**Conclusion:** These reports show that ESWT is a non-invasive and effective treatment for resistant stress fractures in soccer players.