

APPLICATION OF A NOVEL NEUROMODULATION THERAPY ON TENDON INJURIES AND TENDONITIS.

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Introduction

Tendonitis and tendon injuries requires an extensive assessment and identification of deficits that impact on sports performance.

Rehabilitation must address all these deficits and may take several months of therapies.

Physical modalities treatments such as heat, cold and electricity have been used for many years and the interest in the role of electrical interactions as epigenetic regulators of wound healing had its beginnings nearly 40 years ago.

The mechanisms of action of many of those were not understood (which obviates rational therapy) and the empiric application of electric fields to wounds has produced different outcomes.

Nevertheless, it is theorized that currents may be a modulating controlling factor in wound healing and in order to check this theory we have evaluated Lorenz Therapy™, a novel transcutaneous technology, which demonstrated in vivo to be very active in modulating grow factors, inflammatory cytokines and reducing pain. The purpose of this study was to make a short evaluation of clinical trend of 20 cases of tendonitis.

Methods

At present, as preliminary outcome of the study, only 8 patients underwent to Lorenz Therapy™ and have completed the study, but 5 more have been enrolled and initiated the study. All patients have been treated with Lorenz Therapy™ only for 10 times consecutively during two weeks period, five times a week, from Monday to Friday. No other physical therapy has been done during the treatment analysed period.

All patients have been diagnosed with the following procedure:

- Medical visit with diagnosis
- NMR in clinic
- Static and Dynamic Baro-podometric assessment pre and after treatments series
- Isokinetic test pre- and post- treatments series
- Final medical visit for outcome evaluation.
- Visual analog scale (VAS) and manual pain test were calculated for 3 time points: at baseline, 2 weeks, 4 weeks after therapy.

Results & Discussion

The VAS score improved from 5.2±2.0 to 1.8±1.1 at 2 weeks and to 0.9±0.4 at 4 weeks follow-up. Isokinetic test showed improved functionality of tendons and muscle compartment improving athletic performance after 2 weeks treatments in terms of Force (5 repetitions at 60°/s) and Work (10 repetitions at 100°/s) as reported in the following table:

Isokinetic Test	Increase (%)	± St. Dev. (%)	P value
Force Test (5 repetitions)			
Dorsal Flexion	+38	± 8	<0.033
Plantar Flexion	+28	± 17	NS
Work test (10 repetitions)			
Dorsal Flexion	+51	± 25	<0.006
Plantar Flexion	+33	± 12	<0.043



The Rehabilitation of Sports Muscle and Tendon Injuries

Conclusions

Considering only these preliminary data, the Lorenz Therapy seems to be more effective if compared to conventional physical therapy we have been using so far (as Laser therapy, magnetic therapy etc.), specifically reaching a good performance in a shorter rehabilitation period.

Thus it appear a good approach to tendonitis and tendon injuries. It is necessary to complete analysis on all the 20 patients before to reach a conclusion. In any case, a further controlled study and a comparison with specific state of the art of the therapy is required on selected patients.