

EFFECT OF MLS® LASER THERAPY WITH DIFFERENT DOSE REGIMES FOR THE TREATMENT OF EXPERIMENTALLY INDUCED TENDINOPATHY IN SHEEP: PILOT STUDY.

ABSTRACT

Objective. The aim of this preliminary study was to investigate the effect of Multiwave Locked System (MLS®), a particular model of low-level laser, in the acute phase of collagenase-induced tendon lesions in six adult sheep randomly assigned to two groups.

Background data. Tendon injuries are common among human athletes and in sport horses, require a long recovery time, and have a high risk of relapse. Many traditional treatments are not able to repair the injured tendon tissue correctly. In recent years, the use of low-level laser therapy (LLLT) produced interesting results in inflammatory modulation in different musculoskeletal disorders.

Methods. Group 1 received 10 treatments of MLS® laser therapy at a fluence of 5 J/cm² on the left hindlimb. Group 2 received 10 treatments of MLS® laser therapy at a fluence of 2.5 J/cm² on the left hindlimb. In every subject in both groups, the right hindlimb was considered as the control leg.

Results. Clinical follow-up and ultrasonography examinations were performed during the postoperative period, and histological examinations were performed at day 30 after the first application of laser therapy. In particular, results from histological examinations indicate that both treatments induced a statistically significant cell number decrease, although only in the second group did the values return to normal. Moreover, the MLS® laser therapy dose of 2.5 J/cm² (group 2) caused a significant decrease of vessel area.

Conclusion. In this study, clinical and histological evaluation demonstrated that a therapeutic dose <5 J/cm² furnished an anti-inflammatory effect, and induced a decrease of fibroblasts and vessel area. Overall, our results suggest that MLS® laser therapy was effective in improving collagen fiber organization in the deep digital flexor tendon.

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