

## 51. COMPARATIVE STUDY OF LASER AND LED SYSTEMS OF LOW INTENSITY APPLIED TO TENDON HEALING

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Laser is one of the most effective resources of treatment for tendinous injury when anti-inflammatory and cicatrizing effects are wanted. However, it is considered an expensive treatment and so, an alternative and cheaper light therapy as effective as it has been searched and the light emitting diodes, LEDs, are a promising candidate for it. Results from the studies already done have been useful to predict the possible effects of LED on the injured tissues, but are not enough to establish a treatment protocol that guarantees its safe recommendation as a substitute therapeutic tool for tendon repair. The aim of this study was to compare the effects of laser and LED of low intensity on the treatment of lesioned Achilles tendon. The experimental model consisted of a partial mechanical lesion of the right Achilles tendon of 46 rats, which were divided in 5 groups, 4 with 10 animals and one, the control group, with 6. One hour after the lesion, the injured animals received the respective applications of laser (685nm / 830nm, 6J/cm<sup>2</sup>) or LED (630nm / 880nm, 6J/cm<sup>2</sup>), and the same procedure was repeated each 24h, for ten days. The healing process and the deposition of collagen fibers were evaluated through polarization microscopy. The data showed that significant differences be-

tween laser and LED treatments were not observed on fifth or tenth day of therapy ( $P > 0,05$ ), making possible the establishment of a safe and effective protocol for tendon healing by the use of LED light. Phototherapies based on LEDs have proved to be effective on tendon healing, presenting results similar to low-intensity laser therapy (LILT). A better collagen fibers alignment and organization with dose of  $6\text{J}/\text{cm}^2$  were achieved through applications of laser 830nm and LED 880nm.