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HISTOLOGICAL AND PHYSICAL ANALYSIS OF BONE NEOFORMATION BY OSTEOGENESIS DISTRACTION: A PRELIMINARY REPORT

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OBJECTIVE: evaluated, by histological methods, tomography, and physical, examination, the effect of low level laser therapy (LLLT - 830 nm) in the newly formed bone in the mandible of rabbits subjected to fracture, with or without distraction osteogenesis (DO). **MATERIAL AND METHODS:** Twelve rabbits were used, for histological analysis were used eight (four for the control group and four for the trial) and four rabbits for the tomographic analysis and physical (a non-distracted and without laser irradiation, a non-distracted and laser irradiation, a distracted and without laser irradiation, a distracted and laser irradiation). For rabbits that underwent bone lengthening by DO was adopted the following protocol: latency - three days, activation - seven days 0.7 mm / d and consolidation - ten days. For the irradiated animals, was used infrared laser (GaAlAs) the (J = 830 nm, 40 mW) with the following protocol: point dose of 10 J/cm2, directly on the site underwent bone fracture and / or DO, the period of bone healing, respecting every 48 hours. **RESULTS:** The percentage of newly formed bone was higher in the LLLT group (57.89%) than controls (46.75%), p = 0.006. The tomographic analysis revealed increased density, measured in Hounsfield units (HU), fractured bones that were irradiated with laser. With respect to physical properties, bones undergoing DO, the laser did not promote change in nanohardness, but changed the values of modulus of elasticity. The chemical composition has, from the ratios of Ca and P to a mineralization higher in patients with LLLT. CONCLUSION: it was concluded that LLLT had a positive effect on density and percentage of new bone formation.