

## EFFECT OF LOCAL AND SYSTEMIC PHOTOBIOMODULATION IN AN EXPERIMENTAL MODEL OF OSTEOPENIA IN OVARECTOMIZED RATS

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### ABSTRACT

Osteoporosis mainly affects postmenopausal women due to the marked decrease in Bone Mineral Density (BMD), leading to a greater occurrence of fractures and difficulty in healing. With the increase in life expectancy, osteoporosis can be considered a public health problem, generating significant costs with prevention, surgeries and long-term treatments. Among treatments, Photobiomodulation Therapy (PBM) can contribute positively and has been widely studied to determine effective protocols for osteogenesis. Objective: To evaluate the effects of PBM treatment on repair mechanisms in an experimental model of bone injury in osteopenic rats. Materials and Methods: Wistar rats will be randomly assigned to groups without (CTL) or with ovariectomy (OVX), with bone lesion without treatment (OVX+L) or with photobiomodulation (OVX+PBM), in the following parameters (PBM Local: 808nm, 100mW, 6J, 60s or SYSTEMIC PBM: 808nm, 100mW, 180J, 1800s). The animals will be euthanized 30-60-90-120 days after the injury and blood and bone samples will be collected for analysis: Biochemical – ALP (alkaline phosphatase) and (acid phosphatase-TR); Molecular – RT-PCR (RANKL/OPG); Histological (HE) and Functional (cyclic flexion test).

Keywords: Photobiomodulation Therapy (PBM), osteoporosis, Biomechanical property, Ovariectomy

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