

## **PHOTOBIMODULATION EFFECT OF 810 nm DIODE LASER ON NEUROSENSORY RECOVERY: BEHAVIORAL ASSESSMENT IN RATS**

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Nerve tissue injuries may occur during various dental & routine surgical procedures and inferior alveolar nerve (IAN) is the most affected nerve in this area, considering the limitations of conventional treatments and encouraging results of previous studies on the effect of photobiomodulation (PBM) on nerve injuries, we aimed to assess the photobiomodulation effect of 810nm diode laser on neurosensory recovery of crushed inferior alveolar nerve in rats by behavioral analysis. 36 male wistar rats were enrolled in the study in 3 groups of: IAN injury+laser treatment, IAN injury+sham laser and IAN without injury. before surgery neurosensory threshold of IAN in each group was recorded with von-frey filaments test. in groups of 1 and 2: IAN was exposed and crushed and in group 3: the rats had the sham surgery without injury. one day after surgery, laser therapy with 810nm laser was done every other day in laser group and sensory thresholds of the nerve in all groups were monitored in one month period after surgery. after IAN injury in group of 1 and 2 we had the increase in the neurosensory threshold of the nerve that in laser group was recovered to the baseline in maximum of 15 days postsurgery, while in untreated IAN injury group we didn't observe complete recovery after 1 month postsurgery. PMB with 810nm diode laser significantly enhanced neurosensory recovery of injured IAN in rats. According to the encouraging results of this study, PBM can be proposed as a novel and noninvasive treatment modality in neurosensory disturbances .