Article

# The Effect of Delayed Photobiomodulation Therapy on Inferior Alveolar Nerve Recovery After Third Molar Removal: A Triple-Blinded Randomized Clinical Trial

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Abstract and Figures

Background: Third molar removal is the primary reason for inferior alveolar nerve (IAN) damage, with 2% causing persistent neurosensory deficits. This study aimed to investigate how delayed photobiomodulation therapy affects long-lasting neurosensory disturbances. Methods: This study was conducted on patients with neurosensory disturbances lasting longer than 6 months. Patients were randomly allocated to the study and control groups, with the study group receiving a low-power diode laser (continuous wavelength of 810 nm, power of 200 mW) on 16 points (30 sec at each) for 12 sessions (2 sessions/week), while the control group received a placebo treatment by switched-off laser probe. Visual analog scale (VAS; ranging from 1 to 5), static light touch, two-point discrimination, direction discrimination, pinprick, and thermal discrimination tests were performed on each visit up to 9 months post-therapy to evaluate the recovery status. Results: Each group comprised 18 participants. The mean time since injury was 8.26 – 2.05 and 8.38 – 1.98 months for the control and intervention groups, respectively ($p = 0.81$). There was a significant improvement in the intervention group on the static light touch ($p = 0.041$), two-point discrimination ($p = 0.028$), VAS ($p = 0.031$), and pinprick ($p = 0.014$) tests on the 11th session and subsequent visits and also on direction discrimination test on the 12th session ($p = 0.044$) and after that. There was no significant difference in the thermal discrimination tests between the two groups ($p > 0.05$). Conclusion: Photobiomodulation demonstrated potential benefits in resolving persistent neurosensory deficits of the IAN, with noticeable improvements typically observed after around 35 days of treatment initiation (10 sessions).



Points of laser irradiation. A:…



Neurosensory tests to evaluat…



Trend of neurosensory t…



PRISMA flowchart.…

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Sharifi R, Fekrazad R, Taheri M, et al. Effect of photobiomodulation on recovery from neurosensory disturbances DELAYED PHOTOBIOMODULATION THERAPY 9