

**Low-Level Laser Effect On Neurosensory Recovery After Sagittal Ramus Osteotomy**

Oral surgery, oral medicine, oral pathology, oral radiology, and endodontics.

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This study examined the potential benefit of perioperative and short-term postoperative low-level laser (LLL) therapy on objective and subjective neurosensory recovery after bilateral sagittal split osteotomy surgery. Six consecutive patients undergoing bilateral sagittal split osteotomy procedures were enrolled in this prospective study. A complete preoperative clinical neurosensory test, consisting of brush stroke directional discrimination, 2-point discrimination, contact detection, pin prick nociception, and thermal discrimination, was performed on each patient; and a subjective assessment of neurosensory function was made by using a visual analog scale (VAS). The protocol for LLL treatments consisted of real LLL (4 x 6 J per treatment) along the distribution of the inferior alveolar nerve at 4 sites, for a total of 7 treatments, delivered immediately before surgery; at 6 and 24 hours after surgery; and on postoperative days 2, 3, 4, and 7. The clinical neurosensory test and VAS were completed just before each of the treatment sessions and on days 14 and 28, by one examiner. When the results of the patients treated with LLL were compared with published values for neurosensory recovery after orthognathic surgery, there was a significant acceleration in the time course, as well as in the magnitude, of neurosensory return. Brush stroke directional discrimination approached normal values by 14 days, whereas 2-point discrimination and contact detection showed significant improvement at 14 days and returned to near-normal values by 2 months. The results of thermal discrimination and pin prick nociception revealed few neurosensory deficits; however, those patients who were affected showed a slower recovery trend and remained neurosensory-deficient for up to 2 months. The VAS analysis revealed a rapidly progressive improvement in subjective assessment, showing a 50% deficit at 2 days and only a 15% subjective deficit at 2 months. This study demonstrates that neurosensory recovery after bilateral sagittal split osteotomy procedures can be significantly improved, both in terms of time course and magnitude of return of function.

