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# Evaluation of low-level laser therapy in patients with acute and chronic temporomandibular disorders

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## Abstract

The purpose of this study was to address the following question: among patients with acute or chronic temporomandibular disorders (TMD), does low-level laser therapy (LLLT) reduce pain intensity and improve maximal mouth opening? The sample comprised myogenic TMD patients (according Research Diagnostic Criteria for TMD). Inclusion criteria were: male/female, no age limit, orofacial pain, tender points, limited jaw movements and chewing difficulties. Patients with other TMD subtypes or associated musculoskeletal/rheumatologic disease, missing incisors teeth, LLLT contra-indication, and previous TMD treatment were excluded. According to disease duration, patients were allocated into two groups, acute (<6 months) and chronic TMD ( $\geq 6$  months). For each patient, 12 LLLT sessions were performed (gallium-aluminum-arsenide;  $\lambda = 830$  nm,  $P = 40$  mW, CW, ED = 8 J/cm<sup>2</sup>). Pain intensity was recorded using a 10-cm visual analog scale and maximal mouth opening using a digital ruler (both recorded before/after LLLT). The investigators were previously calibrated and blinded to the groups (double-blind study) and level of significance was 5% ( $p < 0.05$ ). Fifty-eight patients met all criteria, 32 (acute TMD), and 26 (chronic TMD). Both groups had a significant pain intensity reduction and maximal mouth opening improvement

after LLLT (Wilcoxon test,  $p < 0.001$ ). Between the groups, acute TMD patient had a more significant pain intensity reduction (Mann-Whitney test,  $p = 0.002$ ) and a more significant maximal mouth opening improvement (Mann-Whitney test,  $p = 0.011$ ). Low-level laser therapy can be considered as an alternative physical modality or supplementary approach for management of acute and chronic myogenic temporomandibular disorder; however, patients with acute disease are likely to have a better outcome.