

# Influence of class IV laser therapy on the outcomes of tibial plateau leveling osteotomy in dogs

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Abstract

**Objective:** To determine the effects of low-level laser therapy (LLLT) on clinical outcomes in dogs with cranial cruciate ligament disease treated with tibial plateau leveling osteotomy (TPLO).

**Study design:** Randomized, placebo-controlled clinical trial. Owners and surgeons (care providers and assessors) were masked.

**Animals:** Ninety-five dogs were admitted for TPLO and assigned to 1 of 2 groups, laser group (LG; n551) or placebo group (PG; n544).

**Methods:** Three treatments (laser or placebo) were administered within a 4-day perioperative period. A fourth treatment was recommended and was accepted in 28.4% of cases (LG, n514; PG, n513). Dogs in the LG group received laser at wavelengths 660 nm red (100 mW) and at 800, 905 and 970 nm infrared (maximum 15 W continuous wave, 20 W peak pulsed wave), administered simultaneously. Dogs in the PG group received placebo laser (660 nm, 4 mW). Other treatments were identical. Outcomes were measured by difference in clinical metrology instruments (Liverpool Osteoarthritis in Dogs and adjusted Canine Orthopedic Index [COI]), osteotomy healing on a radiographic scale, time to cessation of nonsteroidal anti-inflammatory drug administration, and wound healing by owner questionnaire.

**Results:** The only difference detected between groups consisted of a greater improvement in the gait section of the adjusted COI (ACOI) in the LG group (median [interquartile range; IQR]56 [4-7.5]) compared with the PG group (median [IQR]54 [2-6];  $P<.05$ ).

**Conclusion:** The laser protocol used in this study was associated with a greater improvement in ACOI gait in dogs treated with TPLO but did not improve any other clinical metrology instrument scores or bone healing.

**Clinical significance:** This study provides some evidence that LLLT may improve the gait of dogs recovering from a TPLO, as assessed by owners.