Delayed-onset muscle soreness: lack of effect of combined phototherapy/low-intensity laser therapy at low pulse repetition rates.

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A double-blind, placebo-controlled study using male subjects (n = 60), was conducted to investigate the efficacy of three different frequencies of combined phototherapy/low-intensity laser therapy (CLILT) in alleviating the signs and symptoms of delayed-onset muscle soreness (DOMS). The study was approved by the University's ethical committee. After screening for relevant pathologies, recent analgesic or steroid drug usage, current pain, diabetes, or current involvement in regular weight-training activities, subjects were randomly allocated to one of five experimental groups: Control, Placebo, or 2.5-Hz, 5-Hz, or 20-Hz CLILT groups (660-950 nm; 31.7 J/cm2; pulsed at the given frequencies for a duration of 12 min; n = 12 all groups). Once baseline measurements were obtained, DOMS was induced in the nondominant arm, which was exercised in a standardized fashion until exhaustion, using repeated eccentric contractions of the elbow flexors. The procedure was repeated twice more to ensure exhaustion was achieved, after which subjects were treated according to group allocation. In the CLILT/placebo groups, the treatment head was applied directly to the affected arm at the level of the musculotendinous junction. Subjects returned on two consecutive days for further treatment and assessment. The range of variables used to assess DOMS included range of movement (universal goniometer), mechanical pain threshold/tenderness (algometer) and pain (visual analogue scale and McGill Pain Questionnaire). Measurements were taken before and after treatment on each day, except for the McGill Pain questionnaire, which was completed at the end of the study. Analysis of results using repeated measures and one-factor analysis of variance with relevant post hoc tests showed significant changes in ranges of movement accompanied by increases in subjective pain and tenderness for all groups over time ($p = 0.0001$); however, such analysis failed to show any significant differences between groups on any of the days. These results thus provide no convincing evidence for any putative hypoalgesic effect of CLILT upon DOMS at the parameters used here.

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