PHOTOBIOMODULATION THERAPY IMPROVES PERFORMANCE AND ACCELERATES RECOVERY OF HIGH-LEVEL RUGBY PLAYERS IN FIELD TEST: A RANDOMIZED, CROSSOVER, DOUBLE-BLIND, PLACEBOCONTROLLED CLINICAL STUDY

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ABSTRACT

Pinto, HD, Vanin, AA, Miranda, EF, Tomazoni, SS, Johnson, DS, Albuquerque-Pontes, GM, de Oliveira Aleixo Junior, I, Grandinetti, VdS, Casalechi, HL, de Tarso Camillo de Carvalho, P, and Pinto Leal Junior. Photobiomodulation therapy improves performance and accelerates recovery of high-level rugby players in field test: A randomized, crossover, double-blind, placebo-controlled clinical study. J Strength Cond Res 30(12): 3329–3338, 2016—

Although growing evidence supports the use of photobiomodulation therapy (PBMT) for performance and recovery enhancement, there have only been laboratory-controlled studies. Therefore, the aim of this study was to analyze the effects of PBMT in performance and recovery of high-level rugby players during an anaerobic field test. Twelve male high-level rugby athletes were recruited in this randomized, crossover, double-blinded, placebo-controlled trial. No interventions were performed before the Bangsbo sprint test (BST) at familiarization phase (week 1); at weeks 2 and 3, pre-exercise PBMT or placebo were randomly applied to each athlete. Photobiomodulation therapy irradiation was performed at 17 sites of each lower limb, employing a cluster with 12 diodes (4 laser diodes of 905 nm, 4 light emitting diodes [LEDs] of 875 nm, and 4 LEDs of 640 nm, 30 J per site, manufactured by Multi Radiance Medical). Average time of sprints, best time of sprints, and fatigue index were obtained from BST. Blood lactate levels were assessed at baseline, and at 3, 10, 30, and 60 minutes after BST. Athletes' perceived fatigue was also assessed through a questionnaire. Photobiomodulation therapy significantly (p # 0.05) improved the average time of sprints and fatigue index in BST. Photobiomodulation therapy significantly decreased percentage of change in blood lactate levels (p # 0.05) and perceived fatigue (p # 0.05). Pre-exercise PBMT with the combination of super pulsed laser (low-level laser), red LEDs, and infrared LEDs can enhance performance and accelerate recovery of high-level rugby players in field test. This opens a new avenue for wide use of PBMT in real clinical practice in sports settings.