

Photobiomodulation therapy before futsal matches improves the staying time of athletes in the court and accelerates post-exercise recovery

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Received: 5 July 2018 / Accepted: 14 September 2018

Springer-Verlag London Ltd., part of Springer Nature 2018

Abstract

This study aimed to analyze PBMT effects on futsal player's performance and recovery in a non-controlled field environment. It is a randomized, triple-blinded, placebo-controlled, crossover clinical trial. The research included six professional athletes and in each match phototherapy treatments were performed before matches (40 minutes), blood samples were collected before treatments, and samples immediately after the end of the matches and 48 h after. Furthermore, videos were analyzed to quantify the time athletes spent on the pitch and the distance they covered. PBMT was performed at 17 sites of each lower limb (40 mins before matches), employing a cluster with 12 diodes (4 laser diodes of 905 nm, 4 LEDs of 875 nm, and 4 LEDs of 640 nm, 30 J per site). The performance of the athlete could be quantified considering the time on the pitch and the distance covered; the biochemical markers evaluated were creatine kinase, lactate dehydrogenase, blood lactate, and oxidative damage to lipids and proteins. PBMT significantly increased the time of staying in the pitch and a significant improvement in all the biochemical markers evaluated. No statistically significant difference was found for the distance covered. Pre-exercise PBMT can enhance performance and accelerate recovery of high-level futsal players.