The effects of a calf pump device on second half performance of a simulated soccer match in competitive youth players S. Béliard, J. Cassirame, G. Ennequin, G. Coratella and N. Tordi

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ABSTRACT

During soccer matches, performance decrements have been reported that relate to both physical abilities and technical skills. To investigate the effects of low-frequency electrical stimulation LFES (VeinOPlus Sport®, Ad Rem Technology, France) administered during half-time recovery on performance alterations during the second half. Twenty-two highly trained young players undertook a soccer-match simulation (SAFT^{90}). During half-time, they were randomly assigned to LFES group or Placebo group. Each half was split into 3 bouts of 12 minutes. Following each bout, maximal strike speed (MSS), sprint test (ST), maximal sprint accelerations (MA) and metabolic power (MP) were determined in both groups. Arterial (AF) and venous flows (VF) were measured at rest and at the end of half-time. LEFS group exhibited beneficial effects on performance compared to the Placebo group with a likely effect for MSS, ST, MA, and a possible effect for MP. AF and VF increased statistically more in LEFS group compared to Placebo group. The use of specific calf-pump LFES during half-time of a youth simulated soccer match attenuated the decrease in performance during the second half compared to Placebo group. This effect is most marked at the beginning of the second half with regards to explosive parameters.

Conclusions and practical applications

The use of calf LFES during half-time in youth soccer players during a simulated soccer match attenuates the reduction in performance within the second half. This effect is mainly apparent at the beginning of the second period in relation to explosive tasks such as sprinting capabilities, strike or metabolic power. We emphasized that these kinds of capabilities are very important for soccer players because they can lead to a difference in performance over an opponent and may improve chances of scoring. Given at the elite level teams are well matched and scoring chances are limited any small advantage through more thorough recovery during half-time period may be important. The present study was design as close as possible to a youth soccer match. Our investigation highlighted benefits of calf low frequency electrical stimulation using the VeinOPlus Sport. In order to use this recovery method during competition, we recommend familiarity with this process to create routines that avoid time loss and permit recover while also managing tactical feedback provided by coaches. Typically, this device therapy is perfect for use during halftime intermissions.