

ABSTRACT

Title: Influence of immersion in cold water on repeated strength endurance performance in football players

Objectives: The aim of this study was to assess the acute effects of cold water immersion on repeated strength endurance performance in the form of 30 maximum vertical jumps in football players.

Methods: The effect of immersing the lower limbs to the level of the navel in cold water on repeated strength endurance performance in the form of CMJ (countermovement jump) in football players.

Twenty-two football players (men) performed an entry and exit strength endurance test in the form of vertical jumps on the Kistler board. Between the input and output performance tests, two cold water immersion regeneration procedures (CWI) and passive rest (PAS) were applied. For the evaluation of force endurance performance, data on jump height (cm), force impulse (Ns), flight time (ms), speed (m / s), force (N), force / weight (N / kg), power (W), power / weight (W / Kg). As a marker of fatigue, blood lactate levels (mmol / l) were monitored, we also monitored skin temperature (° C) during CWI and subjective feeling of fatigue (1-10). The influence of two types of regeneration procedure and two strength endurance performances were evaluated using ANOVA.

Results: No statistically or materially significant difference was found in any of the observed endurance performance data between ES1 (CWI) and ES2 (PAS). A statistically significant difference was measured between baseline and control blood lactate levels ($P = 0.04$) at ES1, which reduced lactate by $-13.3 (3.3)$ mmol / L. For ES2, lactate was reduced by $-10.2 (2.2)$ mmol / l. Subjective difficulty rating was lower for ES2 (PAS) 6.48 compared to ES1 (CWI) 7.4.

Conclusion: The cold water immersion regeneration procedure (CWI) is not beneficial for repeated strength endurance exercise, when there is a 3 hour spacing between two performance tests. CWI appears to be an effective procedure for reducing lactate immediately after strength endurance exercise.

Keywords: cold water immersion, fatigue, recovery, soccer, strenght, endurance,
lactate