The effect of acute fatigue on countermovement jump performance in rugby union players during preseason training

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A countermovement jump (CMJ) is routinely used in many sporting settings to provide a functional measure of neuromuscular fatigue. However, the variables that are most sensitive to fatigue remain somewhat unclear (Gathercole, Sporer, Stellingwerff, and Sleivert, 2015, *International Journal of Sports Physiology and Performance*, 10, 84–92). The aim of this study was to examine the usefulness of selected CMJ variables to monitor the post-exercise fatigue and recovery cycle. With institutional ethics approval, nine male academy rugby union players performed five CMJ trials on three occasions, at baseline, 24 h and 48 h post-baseline. The fatiguing protocol consisted of a typical intense training day during the preseason period (speed/skills training AM and resistance training PM). A total of 21 CMJ variables were derived from the force–time curve, 15 relating to output (CMJ-OUT) and 6 relating to the mechanics of the jump (CMJ-MEC). Data were analysed using a repeated measures one-way ANOVA with Bonferroni post hoc comparisons. There were no significant differences for any CMJ variable at the 24 h time point. At 48 h, three CMJ-MEC variables (eccentric duration, total duration and the force at zero velocity) demonstrated a significant decrement in performance when compared to baseline (P < 0.05). Neuromuscular fatigue may manifest itself as an altered movement strategy rather than a simple reduction in physical output, when measured using a CMJ. Practitioners are therefore advised to incorporate CMJ-MEC variables when trying to identify subtle changes in the bimodal recovery pattern associated with stretch-shortening cycle induced fatigue. Such information may help with the prescription of optimal training loads, whilst attempting to avoid overtraining and injury.

D1.P52. Lower body compression tights elicit a practically significant benefit on sub-maximal running economy but not vertical jump performance

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