



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

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performance characteristics of an elite inter-county squad at three time points. Following ethical approval and informed consent 26 participants were assessed at the start of preseason (November), following preseason (January) and in-season (March). Measurements included stature, body mass, sum of 8 skinfold sites (Σ Skf8), estimated body fat (bf%), squat jump (SJ) and countermovement jump (CMJ) height, 5-, 10- and 20-m sprint speed, 1 repetition maximum (1RM) bench press (1RM-BP), 1 RM deadlift (1RM-DL) and YoYo intermittent recovery test (IRT) 2. A multivariate analysis of variance (MANOVA) was used to determine variations. The mean squad stature, body mass, Σ Skf8 and bf% were 183.5 ± 7.5 cm, 85.4 ± 10.4 kg, 96.2 ± 32.4 mm and $12.4 \pm 2.6\%$, respectively. Anthropometric variations were observed with an overall increase in participants' body mass, with subsequent decreases in Σ Skf8 and bf% (-21.5% , $P = .002$; -1.43% , $P = .004$) from November to March. A positional variation was observed with midfielders having greatest stature (192.4 ± 4.3 cm), while full-forwards showed highest body mass and adiposity (93.2 ± 16.5 kg, 130.3 ± 36.4 mm, $15.2 \pm 2.7\%$). Performance variations showed improvements in average speed over 5 and 10 m (-7% , $P = .001$; -3.4% , $P = .008$, respectively), SJ ($+10.1\%$, $P = .013$), CMJ ($+9.8\%$, $P = .013$), 1RM-DL ($+19.7\%$, $P = .013$), YoYo IRT2 ($+34.9\%$, $P < .001$) and estimated $\dot{V}O_{2\max}$ (8.8% , $P < .05$) noted from November to March, with minor improvements observed in January. Performance variations (all $P < .05$) showed half-forwards performed the best for SJ and CMJ (36.7 ± 4.2 cm, 38.3 ± 4.1 cm, respectively) and achieved higher distances in the YoYo IRT2 (1432 ± 422 m). Midfielders possessed the lowest jump height in SJ (30.3 ± 3.8 cm) and CMJ (31.5 ± 4.1 cm). Half-backs achieved the fastest sprint speeds over 5 and 10 m (1.1 ± 0.1 s, 1.8 ± 0.1 s) while midfielders were significantly slower than all other positions over 20 m ($P = .029$). Variations are evident with respect to anthropometric and performance profiles across a Gaelic football season. Anthropometric variations are more pronounced following preseason to in-season, while performance variations are noted between start of preseason and following preseason. Applied practitioners should consider these findings when implementing a season training plan.

D1.P51. 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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