

The Effects of a Professional Rugby Union Match on Neuromuscular Fatigue and Rate of Recovery



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Introduction

Acute post-game fatigue caused by high-intensity activities and collisions can last for several days.¹

Increased neuromuscular fatigue (NMF) levels have a negative effect on training performance and increases the risk of sustaining an injury.^{1,2}

Greater understanding on the rate of recovery from post-game NMF levels will assist the development of conditioning programmes and management of training loads of rugby players.^{2,3}

The purpose of this research was to ascertain the rate of recovery of rugby players post-games.

Methodology

Fourteen professional rugby players completed a countermovement squat jump (CMJ) and a plyometric press-up (PPU) test pre, post, 24-hours post, and 48-hours post-game.

The CMJ and PPU test included 5 reps at individual, self-selected 'maximum' effort.

Magnitude based inferences via effect sizes were used for statistical analyses.⁴



CMJ



PPU

Findings

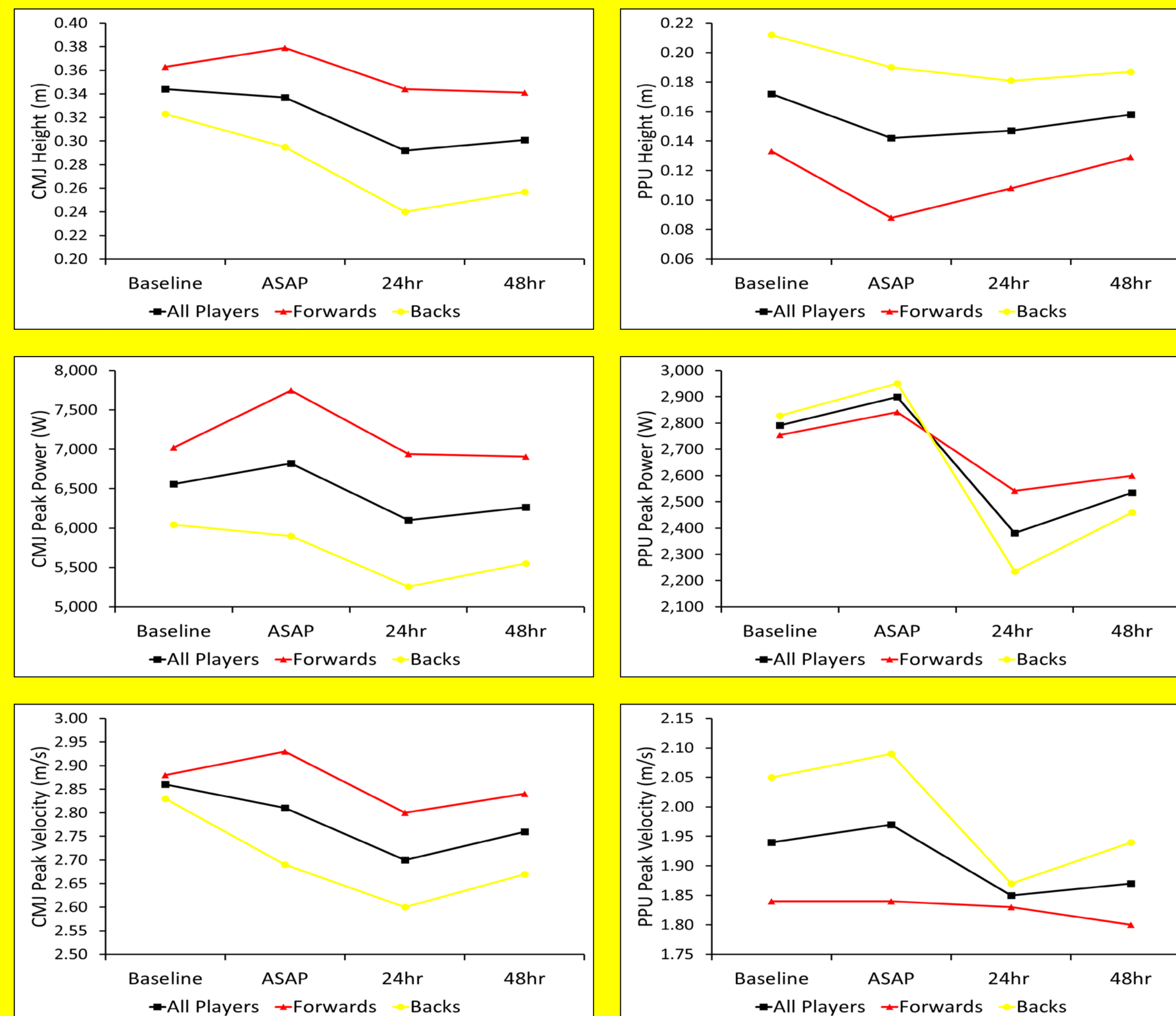


Figure 1: Performance Responses in CMJ and PPU at pre and post game intervals.

CMJ – Peak velocity was significantly less at 24-hours post-game for forwards (-3.5, ± 2.7%; p = 0.037; ES = -0.43, ± 0.32), while peak height was significantly less at 48-hours post-game (-6.5, ± 5.6%; p = 0.049; ES = -0.58, ± 0.47). For backs, peak velocity was significantly less at 24-hours post-game (-8.5, ± 4.3%; p = 0.004; ES = -1.15, ± 0.54).

PPU – Peak power was significantly less at 24-hours post-game for forwards (-12.4, ± 3.8%; p = 0.0003; ES = -0.50, ± 0.14). No significant changes were present between pre and post game measures for backs.

Discussion

Forwards experienced higher upper-body NMF compared with backs, which may be attributed to their extensive exposure to blunt trauma during physical collisions with other players.^{1,2}

Similar levels of lower-body fatigue existed between players, which may be attributed to both running loads and exposure to contact.^{1,2}

Differences do exist in the recovery rates of players and should be monitored on an individual basis.^{1,2}

Take Home Message

Upper- and lower-body NMF was greatest at 24-hours post-game, after which NMF returned to baseline measures.

Speed and/or power training should be performed more than 24-hours post-game.



References

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