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Manipulating training load 48 hours after a match: effects on recovery responses in elite youth soccer players

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## INTRODUCTION:

Manipulation of training load represents the starting point in any recovery strategy to increase or decrease fatigue over the microcycle [1]. Soccer match-play has the highest load of the week and 48 hours after a match youth players are not fully recovered [2]. It is therefore important that early in the microcycle, training-based interventions favour both regeneration and exposure to optimize youth player development. However, no information exists on the effect of modifying soccer-specific training load on recovery responses. This study investigated two training load-based recovery interventions following a match, and observed recovery responses up to 72 hours post-match in elite youth soccer players.

## METHODS:

Thirty-three elite youth soccer players (under-16: n = 15; under-15: n = 18) from an Italian Serie A team completed an 80-minute match (MD) and were assessed before (baseline) and after (+0.5h, +48h, +72h) the match. Countermovement jump (CMJ), isometric posterior-chain (IPC) and muscle soreness (VAS) were used as neuromuscular and perceptual recovery indicators. Using a parallel group design, on the second day after the match (MD+2) participants were randomly assigned to either a complete training (CT: 105min session) or a reduced training group (RT: 75min session). Training and match loads were quantified using global positioning systems, heart rate sensors and RPE. For each squad, differences between training groups at MD and MD+2 were analysed using an independent t-test and Hedge's g effect size (g). Differences between training groups and time points were analysed using a two-way mixed (group x time) ANOVA for each recovery measure, with Bonferroni post-hoc correction.

## RESULTS:

Verification of the intervention showed that both groups were exposed to similar match demands ( $p > 0.05$ ; g: trivial to small) and that the CT group had significantly greater training loads on MD+2 compared to RT ( $p < 0.05$ ; g: moderate to very large). There was a significant interaction (group x time) effect on CMJ, IPC and VAS in the under-16, while in the under-15 a significant interaction effect was only observed in IPC ( $p < 0.05$ ). CMJ, IPC and VAS significantly declined at +0.5h ( $p < 0.05$ ), recovering at +48h after the match. Following the training load interventions, at +72h CT showed significant decrements in CMJ and IPC compared to +48h in under-16 players ( $p < 0.05$ ), while no significant changes were observed in under-15 players between +48 and +72h ( $p > 0.05$ ).

## CONCLUSION:

Neuromuscular and perceptual status declined immediately after the match, recovering to baseline levels at 48 hours. A complete training session, characterized by higher training loads on MD+2, may negatively influence neuromuscular recovery at 72 hours. Modifications of training load early in the microcycle may be applied as a strategy to promote the desired recovery and acute training effects in elite youth soccer players.

## References:

- [1] Mujika et al. (2018)
- [2] Pooley et al. (2020)

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