SLEEP DEPRIVATION AND ALCOHOL CONSUMPTION INFLUENCE POST-MATCH RECOVERY IN RUGBY LEAGUE PLAYERS

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Introduction

Sleep deprivation and alcohol consumption may be common practices for many athletes, often coinciding in post-match social environments and potentially harming ensuing recovery. However, no research reports the combined effects of these practices, or from ecologically valid environments. Accordingly, this study investigated the effects of sleep deprivation and alcohol ingestion on recovery following rugby league matches.

Methods

Twelve male rugby league players competed in 3 randomized, competitive rugby league matches which were followed by a habitual night's sleep (8h; CONT), a sleep deprived night (0h; SDEP) or a sleep deprived night with alcohol consumption (0h+1g alcohol/kg as vodka and juice; ALSDEP). All matches were filmed to code for collisions, while players wore GPS devices for recording movement patterns. Performance measures were obtained pre- and immediately, 2h and 20h post-match, including repeated counter-movement jump (CMJ), maximal voluntary contraction (MVC) and evoked contractile properties, including voluntary activation (VA). Further, muscle soreness (MS), cognitive function (Stroop Test) and venous blood markers of creatine kinase (CK), C-reactive protein (CRP), cortisol (CORT) and testosterone (TEST) were measured at each time point. Throughout each night subjects were supervised, with core temperature (Tcore) and heart rate (HR) recorded every 30 min. Recovery between 2-20h post-match was analyzed (ANOVA) for the effects of the respective interventions.

Results & Discussion

No differences ($P>0.05$) were present between conditions for distance covered or collisions during the matches, suggesting similar external loads. There were no differences in the recovery of MVC or VA ($P>0.05$), although CMJ was reduced (6±11 and 5±10%) in SDEP and ALSDEP conditions ($P<0.05$); suggesting peak power, but not centrally activated peak force may be affected by such practices. Further, CK concentrations seemed amplified (40±70%;$P>0.05$;$d>0.8$) following conditions involving SDEP, without differences between conditions in CRP, CORT or TEST ($P>0.05$). Cognitive function was slower in both SDEP and ALSDEP conditions compared to CONT ($P<0.05$), suggesting slower interpretation and reaction to visual stimuli. Finally, both HR and Tcore were elevated during the night in the two conditions involving SDEP ($P<0.05$) highlighting greater physiological demand of wakefulness.

Conclusion

These findings suggest negative consequences of post-match sleep deprivation and alcohol ingestion on physiological state and cognitive function, possibly suppressing peak power. Accordingly, appropriate control of such post-match practices is suggested.