TACSM Abstract

Binge Drinking Following Resistance Exercise: Effect on Muscle Power Recovery

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ABSTRACT

Alcohol impairs recovery of isokinetic performance following muscle damaging resistance exercise but no knowledge exists regarding alcohol's effect on recovery of performance in explosive isotonic movements following resistance exercise that induces only limited muscle damage. **PURPOSE:** To investigate the effect of alcohol on recovery from resistance exercise for explosive performance measures. **METHODS:** Nine healthy men (Mean ± SD: 24.8 ± 3.2 years, 176 ± 7 cm, 86.4 ± 14.6 kg) completed 2 identical acute heavy resistance exercise tests (AHRET) separated by 1 week. The AHRET consisted of 6 sets of 10 repetitions of smith machine squats at 80% of 1-repetition maximum (1-RM) with 2 min of rest between sets. From 10-20 minutes post-AHRET participants consumed either 190 proof grain alcohol (EtOH) equal to 1.086 g of alcohol per kg lean mass (82-122 ml total) or no alcohol (Placebo) diluted in an artificially sweetened and calorie free beverage. The participants were blinded to conditions and the order of conditions was counter-balanced. Blood alcohol concentration (BAC) was measured using a breathalyzer. Sixty-five minutes pre-exercise, participants ingested a meal replacement beverage (33.5 kJ per kg body mass). Before the AHRET (PRE) and the following morning (AM), participants performed three high pulls and three bench press throws with 30% of 1-RM, and 10 consecutive vertical jumps, all at maximal effort. Peak power was measured for all exercises. Muscle soreness was measured using analog scales at PRE and AM. **RESULTS:** BAC peaked 60-90 min post-exercise in all participants (0.084 ± 0.017 $g \cdot dl^{-1}$) on alcohol ingestion days. No effect of alcohol was found for peak power in the high pull (EtOH, PRE: 1658 ± 432 W, AM: 1659 ± 260 W; Placebo, PRE: 1599 ± 397 W, AM: 1579 ± 301 W), bench press throw (EtOH, PRE: 1120 ± 276 W, AM: 1105 ± 295 W; Placebo, PRE: 1119 ± 202 W, AM: 1089 ± 257 W), or vertical jump (EtOH, PRE: 52.6 ± 13.5 $W \cdot kg^{-1}$, AM: 48.5 ± 6.3 $W \cdot kg^{-1}$; Placebo, PRE: 52.2 ± 9.4 $W \cdot kg^{-1}$, AM: 47.9 ± 9.0 $W \cdot kg^{-1}$). Leg soreness increased moderately from PRE to AM with no difference between conditions. **CONCLUSION:** A moderate BAC does not appear to affect explosive upper or lower body power capability on the morning following a heavy squat session that induces only limited muscle damage.