

## Effect of Recovery Modality on Rate of Force Development, Vertical Jump, and Lactate Clearance.

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**Purpose:** The purpose of this study was to investigate the efficacy of 3 recovery interventions in their ability to maintain muscular performance and promote lactate clearance following a fatigue protocol. **Methods:** Healthy men ( $n = 9$ ;  $22.4 \pm 2.2$  yr) and women ( $n = 9$ ;  $21 \pm 1.2$  yr) agreed to participate in this investigation. On 3 occasions participants completed preliminary muscular testing including countermovement vertical jump and maximal effort isometric squat initiated from a knee angle of  $140^\circ$  followed by a 60 s maximal effort fatigue protocol. Participants then completed, in counterbalanced fashion, 1 of 3 recovery protocols which each lasted 20 minutes. In short, active recovery consisted of low intensity aerobic exercise completed on a cycle ergometer, passive recovery involved seated rest, and the combination protocol included both low intensity walking and use of foam rollers on all major muscles of the lower body. Blood lactate measurements were obtained at 1, 5, 10, and 20 minutes of recovery. Following the completion of each recovery protocol, preliminary testing was repeated. **Results:** All data are presented as mean  $\pm$  SD. Baseline testing values were not significantly different between days ( $p > 0.05$ ), nor were the number of squat jumps completed during the fatigue protocol ( $p > 0.05$ ). Following fatigue and recovery protocols, changes in vertical jump height and rate of force development measures did not differ (all  $p > 0.05$ ). Initial lactate measurements were not significantly different following the fatigue protocol on any of the 3 days ( $p > 0.05$ ). Significant differences were detected in lactate levels between passive and combination recovery protocols at minute 5 ( $11.3 \pm 1.2$  vs.  $10.2 \pm 1.9$  mM;  $p < 0.05$ ) and minute 10 ( $10.2 \pm 1.9$  vs.  $8.6 \pm 2.4$  mM;  $p < 0.01$ ). Measurements obtained at minute 20 displayed significant differences between passive ( $7.2 \pm 2.0$  mM), combination ( $4.9 \pm 1.8$  mM;  $p < 0.001$ ), and active ( $4.7 \pm 1.6$  mM;  $p < 0.001$ ) recovery protocols while no difference was detected between active and combination protocols ( $p > 0.05$ ). **Conclusion:** The recovery method utilized had an effect on circulating lactate levels, but it did not have a consistent impact on vertical jump or rate of force development measures in the fatigued state.