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Effects of Acute Aerobic vs. Resistance Exercise on Glycemic Control

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Acute exercise has commonly been found to transiently enhance glycemic control during recovery from the exercise. This effect has more commonly been observed following aerobic exercise. **PURPOSE:** This study was designed to contrast the effects of resistance exercise (RT) vs. aerobic interval exercise (AER) on post-exercise blood glucose (BG) control during an oral glucose tolerance test (OGTT). **METHODS:** Ten volunteers completed all testing. All subjects completed a resting control trial (CON) consisting of a 75-min OGTT following consumption of a 25% glucose solution dosed at 1 g/kg body mass. On separate days (minimum 48hrs. between), subjects completed the RT and the AER protocols. For RT, subjects completed a 30-min circuit protocol (6-7 sets) of 6 reps/set using 10-RM load for squat, bench press, knee extension and preacher's curl. For AER, subjects alternated between treadmill exercise (3 min) and arm crank ergometry (2-min) over a 30-min period. BG was assessed via fingertip sampling prior to exercise, mid-exercise, post-exercise and during the 75 min OGTT. Blood lactate was collected at rest, mid-exercise, post-exercise and 15 min post-exercise. **RESULTS:** Both exercise trials elicited significantly increased lactate but were not different from one another. BG was significantly elevated during the OGTT for all conditions, but was not different by condition. BG area under the curve was 6.2% smaller ($p>0.05$) following resistance exercise, and 6.8% smaller for AER vs. CON (11330.6 ± 320 vs. 11551.3 ± 405 arbitrary units). **CONCLUSION:** Based on the results of this investigation, acute resistance and aerobic exercise were not found to elicit enhanced post-exercise glycemic control. However, though not significantly lower, the exercise AUC responses may be meaningful in characterizing the potential for exercise to support blood glucose regulation.

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