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Influence of Caloric Expenditure on Postprandial Triglyceride and Glucose Responses Following a High-Carbohydrate Meal

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Int J Exerc Sci 2(1): S5, 2009. **Purpose:** To examine the effects of aerobic exercise expending 350 and 700 kcal of energy on postprandial triglyceride (Tg) and glucose responses following a high carbohydrate (CHO) meal. **Methods:** Non-active individuals (n=9 women/4 men; age=22.8±3.7 yrs; Ht=169±10.4 cm; Wt=75.7± 22.4 kg; BMI=26.1±5.8 kg/m²; VO₂ max=34.1±6.9 ml/kg/min) completed three trials in a random order: 1) control trial, 2) single exercise session expending 350 kcal (EX350), and 3) single exercise session expending 700 kcal (EX700). Exercise consisted of treadmill walking at 60% VO₂ max until 350 and 700 kcal of energy had been expended. The control session consisted of seated rest. The morning after each experimental session, a fasting (12hr) blood sample was collected followed by consumption of a high-CHO liquid meal (2.44 g/kg of fat free mass (CHO), 0.33 g/kg FFM fat, and 0.56 g/kg FFM protein. Blood was collected again at 1, 2, 3, 4, 5, and 6 hrs post-meal and analyzed for (Tg) and glucose concentrations. The areas under the curve (AUC) were calculated for both (Tg) and glucose concentrations. A repeated measures ANOVA was used to determine statistical significance (p<0.05). **Results:** Baseline glucose concentrations were not different between trials (p=0.71). Postprandial AUC for glucose concentrations were not different between trials (p=0.38). Baseline Tg concentrations were not altered with exercise (p=.94) of 350 kcal (102.7±77.1 mg/dl) or 700 kcal (112.2±80.6 mg/dl) when compared with rest (115.3±113.9 mg/dl). Postprandial Tg concentrations following rest (937.3± 928.4 mg/dl) were not altered (p=0.37) following exercise of 350 kcal (807.1±605.1 mg/dl) or 700 kcal (867.3±672.6). **Conclusion:** The glucose and Tg responses following a high-CHO meal were unaffected by a prior exercise session. These results are in contrast to previous investigations that have used high-fat test meals demonstrating that a single bout of exercise reduces the postprandial Tg response. Substantial inter-subject variability was seen in the postprandial Tg responses following exercise ranging from reductions of 27.4% to increments of 17.4%. This study was supported by Texas Woman's University's Research Enhancement Program.

