TACSM Abstract

The Effects of Prior Aerobic Exercise on Lipid and Lipoprotein Responses Following a High-Carbohydrate Meal in Postmenopausal Women

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ABSTRACT

Elevations in lipid and lipoprotein concentrations have been associated with the consumption of high-carbohydrate (CHO) meals. It is not clear if aerobic exercise performed prior to consuming a high-CHO meal will improve blood lipid and lipoprotein concentrations. **PURPOSE**: To observe if prior aerobic exercise improves lipid and lipoprotein concentrations following a meal high in CHO in post-menopausal women. **METHODS**: Twenty-two post-menopausal women completed 2 trials, one with exercise (EX) and the other without exercise (NE), in a randomized cross-over design, with a washout period of 7 days. The EX trial required the completion of 60 min of treadmill walking at a target heart rate of 75% of each subject's age-predicted max, 13-16 h prior to the consumption of the test meal. In the NE trial, the subjects remained at rest during the period corresponding to the exercise. In both conditions, the subjects fasted for 12 h prior to consuming the test meal, which had a caloric content that met 33% of the subject's energy needs, with 73.09% energy from CHO, 23.4% energy from fats, and 3.49% energy from protein. Blood samples were collected before the meal, and at 60, 120, and 180 min of the post-prandial period. Blood samples were analyzed for lipid and lipoprotein concentrations. **RESULTS**: There were no significant differences between EX and NE in the lipid or lipoprotein concentrations; however, there were some tendencies for an exercise effect when analyzing area under the curve (AUC). Median, and percentile AUC responses are shown below (median (25^{th}, 75^{th})).

Condition→	EX	NE	P Value
Triglycerides (mg/dL*hr)	245.0 (210.9, 380.3)	277.5 (212.5, 423.4)	0.05
LDLC (mg/dL*hr)	309.3 (281.0, 355.8)	316.5 (283.0, 359.6)	0.26
HDLC (mg/dL*hr)	184.5 (160.6, 228.5)	190.0 (165.1, 230.8)	0.97
VLDL (nmol/L*hr)	120.0 (72.5, 185.5)	145.5 (93.4, 195.9)	0.02

CONCLUSION: Prior aerobic exercise did not affect blood lipid or lipoprotein concentrations after consuming a high-carbohydrate meal in postmenopausal women; however, prior exercise may improve postprandial triglyceride and VLDL responses.

TEXAS CHAPTER
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