

The Effects of Niacin and Aerobic Exercise in Postmenopausal Women Glucose, Insulin and C-Peptide Profiles

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The effects of niacin and exercise on lipid and glucose metabolism are well documented in men and premenopausal women, however no studies have been conducted that looked at extended release niacin therapy and exercise in postmenopausal women.

PURPOSE: To determine the effects of niacin and a single bout of aerobic exercise on glucose, insulin, and C-peptide profiles in sedentary postmenopausal women.

METHODS: Seventeen sedentary, postmenopausal women (mean \pm SD; 57 \pm 7.5 years; 160.1 \pm 7 cm; 77.2 \pm 14.8 kg, 47.0 \pm 6.2 % body fat) served as participants. They were randomly assigned to the resting (R) or exercise (EX) without niacin (WON) trial followed by the with-niacin (WN) trial (1000 mg/day of Niaspan niacin for 4 weeks). The EX trial consisted of treadmill walking at 60% HRR until 400 kcal were expended. Blood samples were collected immediately before (0 hr), 24 hr and 48 hr post R and EX for each trial. Changes in glucose, insulin, and C-peptide were determined via a 2 x 2 repeated measures analysis of variance (ANOVA) for each dependent variable and the Bonferroni adjustment served as the post hoc test. The level of statistical significance was set at $p < .05$. **RESULTS:** Only the 24 hr time point was used in this data analysis. Exercise alone or combined with niacin showed no significant change in values. The mean fasting values for glucose, insulin, and C-peptide all significantly increased between the WON and WN trials; glucose increased 10.6%, from 95.03 \pm 10.67 mg/dL to 105.07 \pm 13.56 mg/dL; insulin increased 61.8%, from 16.98 \pm 12.49 μ U/mL to 27.48 \pm 14.84 μ U/mL; and C-peptide increased 46.1%, from 1.65 \pm 0.75 ng/mL to 2.41 \pm 0.97 ng/mL. **CONCLUSION:** Although niacin was generally well tolerated by the participants, given its adverse effects on glucose, insulin, and C-peptide profiles, the use of niacin in postmenopausal women should be done so with caution and under medical supervision until further investigations consisting of niacin alone or with aerobic exercise for longer periods of time are conducted.