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The Effects of Aerobic, Concurrent, and Resistance Exercise on Compensatory Eating Behaviors

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Obesity is a worldwide epidemic and can be defined as a disorder of positive energy balance, which occurs when the amount of energy consumed is greater than the amount of energy expended. PURPOSE: To observe the differences in compensatory eating behaviors between four groups (aerobic training, concurrent training, resistance training, and a non-exercise control) in recreationally active, resistance trained, college-aged subjects. METHODS: Ten recreationally active college-aged (21.7 ± 1.3yrs) males and females participated in this study. A 5-week, randomized, crossover design with one full week between each session. Preliminary assessments consisted of a PAR-Q, informed consent, body composition, rep-set best, and VO_{2max}. Aerobic exercise (AE) consisted of 30-minutes of cycling at 70% HR_{max}. Resistance exercise (RE) consisted of seven, full-body circuit of three sets of 12 repetitions at 70% set-rep best. Concurrent exercise (CE) consisted of four resistance exercises at the same intensity with 15-minutes of cycling at 70% HR_{max}. The control (CON) consisted of 30-minutes of sitting. Food logs via MyFitnessPal were required for the 24-hour period following each session. SPSS 24.0 was used for data analysis using one-way and two-way ANOVAS and deltas. Level of significance was set at $p \leq 0.05$. RESULTS: There were no significant difference in total caloric (CON: 2,145 ± 807.9kcal, AE: 2,040 ± 657.2kcal, CE: 1,973 ± 764.8kcal, RE: 2,354 ± 1,077.0kcal, p = 0.743), carbohydrate (CON: 219 ± 66.4g, AE: 244 ± 87.3g, CE: 204 ± 55.4g, RE: 237 ± 94.9g, = 0.657), fat (CON: 57 ± 21.9g, AE: 58 ± 24.0g, CE: 59 ± 31.3g, RE: 63 ± 23.8g, p = 0.964), or protein intake (CON: 97 ± 48.6g, AE: 101 ± 48.0g, CE: 89 ± 53.4g, RE: 99 ± 46.4g, p = 0.942), HR (CON: 77 ± 10.3bpm, AE: 151 ± 21.9bpm, CE: 153 ± 16.2bpm, RE: 136 ± 15.8bpm, p = 0.122), or RPE (CON: 6 ± 0.0, AE: 11 ± 2.1, CE: 12 ± 1.9, RE: 10 ± 2.7, p = 0.147) between the four sessions. CONCLUSION: These findings demonstrate that the exercise-induced caloric deficit was not compensated via an increase in caloric and/or macronutrient intake, therefore, resulting in a negative energy balance. Further, the aforementioned findings provide evidence that exercise is a viable mechanism to create an energy deficit, which can ideally lead to successful weight loss.