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Longer Rest Intervals Attenuate Rate Pressure Product Response to Resistance Exercise in Untrained Young Women

Angelica R. Del Vecchio, Peter A. Hosick, David A. Phillips, Evan L. Matthews.
Montclair State University, Montclair, NJ

It is recommended for most sedentary adults to adopt strength based resistance exercise as a means of improving or maintaining health. However, previously untrained individuals may be at elevated risk of a cardiovascular event when initiating a resistance exercise program due to acute increases in cardiovascular stress. Previous research has suggested that increasing rest intervals between sets of resistance exercise may attenuate blood pressure (BP) responses. However, it is unknown if this is true for healthy, untrained young women beginning muscular strength focused exercise programs.

PURPOSE: To compare the effect of rest interval duration [60s vs 180s] during muscular strength resistance exercise on BP, heart rate (HR), and rate pressure product (RPP) in untrained women.

METHODS: 15 healthy untrained women performed 5 sets of 10 repetitions of leg extension exercise at 70% of their 1 repetition maximum on two occasions with differing rest interval durations; 60s (short rest [SR]) and 180s (long rest [LR]). Cardiovascular responses were continuously measured during exercise and recovery using finger photoplethysmography. **RESULTS:** Participants were generally young (22 ± 2 yrs) and normotensive with normal resting values (averaged across trials: SBP 106 ± 7 mmHg; DBP 77 ± 6 mmHg; HR 76 ± 10 BPM). During the final 10s of exercise epoch SBP was greater in the SR vs LR condition ($p = 0.020$; $\eta^2_p = 0.329$). During the 31-60s rest epoch the following were greater in the SR vs LR conditions: SBP ($p = 0.002$; $\eta^2_p = 0.503$), HR ($p = 0.020$; $\eta^2_p = 0.329$), and RPP ($p = 0.016$; $\eta^2_p = 0.347$). During the final 30s of each rest interval (SR: 31-60s; LR: 151-180s) the following were greater in the SR vs LR conditions: SBP ($p = 0.002$; $\eta^2_p = 0.524$), HR ($p = 0.001$; $\eta^2_p = 0.546$), and RPP ($p < 0.001$; $\eta^2_p = 0.552$). **CONCLUSION:** Longer rest intervals attenuated the SBP, HR, and RPP responses during resistance exercise. This indicates that longer rest intervals may reduce unnecessary risk associated with starting resistance exercise training in untrained women.