ABSTRACT

Purpose: To compare augmentation index (AIx) between one Moderate-intensity continuous physical exercise (MICPE) and one High-intensity interval physical exercise (HIIPE) session in normal/high normal blood pressure (BP) (120–140 for systolic and 80–90 mmHg for diastolic). Additionally, to compare two AIx methods (SphygmoCor® and Arteriograph®) [1].

Methods: Exercise intensity and energy expenditure (equalizing) were according to the cardiopulmonary stress test. Individuals were randomized to exercise sessions, performed as cross-over. AIx were analyzed at baseline, immediately after and 24 hours after MICPE and HIIPE session and compared among all times. ΔAIxHIIPE (AIxHIIPE - AIxBaseline) and ΔAIxMICPE were calculated. Correlation and agreement analysis was performed between AIx methods.

Results: Individuals (n = 23; 78% women; 48 ± 1 years; systolic/diastolic BP = 125 ± 2/84 ± 1 mmHg) had lower AIxSphygmoCor® at MICPE compared to baseline and to 24 hours MICPE (27.2 ± 2.2 vs 32.8 ± 1 and 31.0 ± 2.5%; p < 0.01). AIxSphygmoCor® was lower in HIIPE than other times (23.2 ± 2.4 vs baseline 32.8 ± 1.9; p < 0.01; vs MICPE 27.2 ± 2.2; p = 0.039; vs 24 hours MICPE 31.0 ± 2.5; p < 0.01 and vs 24 hours HIIPE 32.2 ± 2.0%; p < 0.01). AIxArteriograph® was lower in HIIPE (16.0 ± 3.7%) than baseline (28.9 ± 3.4%; p = 0.001), 24 hours MICPE (25.7 ± 4.0%; p = 0.008) and 24 hours HIIPE (29.5 ± 3.9%; p = 0.005). ΔAIxHIIPE was greater than ΔAIxMICPE (~9.37 vs ~5.15; p = 0.028). AIxArteriograph® showed a positive correlation with AIxSphygmoCor® (r = 0.793; p < 0.01) and showed agreement.

Conclusion: Regardless of intensity, one exercise session improves AIx. The effect seems to be greater after HIIPE than MICPE.

REFERENCES