PURPOSE: To determine the influence of HIIT vs. moderate training over three weeks on HRQoL and motor/processing performance of activities of daily living (ADL) in pwMS with light- to moderate-disability status.

METHODS: The intervention group (INT; n=36) cycled at 95-100% of HRmax during 5×1.5-min high-intensity intervals, whereas the control group (CON; n=36) cycled for 24 minutes at 65% of HRmax. Performance of ADL was quantified by the Assessment of Motor and Processing Skills. Physical and mental HRQoL were assessed using the Patient-Reported Outcome Measurement Information System-short form Global-10. Between-subject and within-subject effects (baseline vs. post intervention) were analyzed by ANCOVA (Bonferroni corrected). Baseline measures were used as covariates.

RESULTS: Results are presented as MEAN baseline ± MEAN change at post. No significant group interaction for either outcome measure was observed. Physical HRQoL improved significantly in both groups (INT: 12.66±1.256 [SE=0.290], p<.001; CON: 12.66±0.773 [SE=0.290], p=.01), whereas mental HRQoL only improved in CON (13.647±1.247 [SE=0.336], p<.001). Significant improvements in motor (INT: 1.437±0.203 [SE=0.073], p<.001; CON: 1.437±2.10 [SE=0.818], p=.012) and processing (INT: 1.111±0.110 [SE=0.053], p=.042; CON: 1.111±0.145 [SE=0.057], p=.014) performance of ADL have been observed in both groups.

CONCLUSIONS: Compared to moderate training, HIIT over three weeks does not show superior effects on HRQoL and ADL measures. However, both HIIT and moderate training seem to have profound clinical impact by improving overall HRQoL and performance of ADL in pwMS. Trial registration NCT03652519

520 Board #336 May 27 9:30 AM - 11:00 AM
High-intensity Interval Versus Moderate-intensity Continuous Heated Water-based Exercise On Cardiovascular Variables In Hypertensive Older Individuals
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(No relationships reported)

PURPOSE: To evaluate acute hemodynamic and autonomic responses to high-intensity interval (HIT) vs moderate-intensity continuous (MICE) exercise in heated water-based in older hypertensive individuals.

METHODS: 15 sedentary older hypertensives were randomized in 2:1:1 to HIT, MICE or without exercise (CON) sessions. Systolic/diastolic blood pressure (SBP/DBP), pulse wave velocity (PWV), endothelial function (EF) and variability of heart rate (HRV) were assessed pre, immediately after (post), immediately after (REC) and 45 min after intervention (rec). HIT consisted of warm-up (4 min, 21 min of 1 min of high-intensity alternating with 2 min of walking at moderate-intensity. MICE was performed by 4 min warm-up followed by 26 min of walking at moderate-intensity. Sessions were controlled using Rater Perceived of Exertion Scale (RPE). Two-way ANOVA (repeated measures) was used to indicate interventions differences and Bonferroni post hoc was used to identify significant differences (p<0.05).

RESULTS: No significant differences were found for PWV and EF. IRV showed an increase in the frequency of the base band when compared the moments PRE vs REC within CON group (PRE: 906 ± 132 ms vs REC: 942 ± 148 ms; p = 0.007). Moreover, even though POST vs HIT session we found a decrease of HPmax (PRE: 413 ± 874 m2 vs POST: 272 ± 716 m2; p < 0.001), during REC only the HIT group was able to increase the HPmax index (POST: 272 ± 716 m2 vs REC: 530 ± 1336 m2; p < 0.001). The changes in HPmax during REC was followed by a decrease of LFmax (low frequency band index after HIT: POST: 49 ± 24 n. u. vs REC: 33 ± 18 n. u.; p = 0.013). None difference was found in pre SBP/DBP (p>0.05). Although in post moment SBP was different between CON (153±4) vs MICE (141±6, p<0.02) and CON vs HIT (136±5, p<0.001), with no difference in DBP. For REC, only CON (133±3) vs HIIT (123±4, p<0.02), with no difference in CON vs MICE and MICE vs HIIT (p>0.05) were found. Only HIT modality was able to return the SBP values to the PRE (122±4) in REC moment (123±4, p<0.06), but increasing in POST (136±5) moment comparing with PRE (p<0.01) and REC (p<0.02). For DBP, all intensities increase the values in POST (p<0.05) and maintain greater in RIC moment comparing with PRE (p<0.05).

CONCLUSION: Water-based HIT using RPE may be a time-efficient intervention in hypertension treatment of older individuals.

521 Board #337 May 27 9:30 AM - 11:00 AM
Effects Of High Intensity Resistance Training Protocols On Cardiovascular Parameters In Hypertensive Women
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Establishing an ideal resistance training (RT) protocol for hypertensive individuals has been a challenging task, given the many variables that should be considered in these protocols. In general, the protocols established for hypertensive individuals involve the use of lower loads and a higher number of repetitions. However, recent evidence has shown that this approach might generate negative effects on cardiovascular parameters, especially in the short term, which may indicate a potential risk to participants. In contrast, the use of higher loads but with a reduced number of repetitions does not seem to cause such overload to the cardiovascular system and have been shown to promote comparable gains in variables such as strength, body composition, balance and quality of life.

PURPOSE: Analyze the effects of different resistance training protocols with lower and higher loads on cardiovascular parameters in hypertensive women.

METHODS: A randomized crossover design clinical trial was conducted with 20 postmenopausal hypertensive women who underwent a control session and two RT protocols involving 6 and 15 repetition maximum (RM). The cardiovascular variables were collected pre, immediately post, 1 h post and 24 h post each protocol. Repeated-measures ANOVA was used.

RESULTS: The HR indices were higher in 15RM protocol immediately and 1 hour after the exercise (86.5±12.81, 75.96±11.51) when compared with control (67.1±7.38, 66.0±8.88) and 6RM (78.5±9.73, 71.29±9.40) sessions (p<0.05). The rate-pressure product indices that represent the myocardial workload also were higher in 15RM protocol immediately (12809.59±3022.77) and persisted in 1 hour after (9947.44±2184.58) the exercise when compared with control (8830.83±1949.09; 8800.71±1498.79) and 6RM (11002.58±1986.82; 9226.33±1604.68) sessions (p<0.05).

CONCLUSIONS: Performing high intensity RT with lower loads and a higher number of repetitions seems to promote higher heart rate and rate-pressure product, which may be related to an increased cardiovascular stress. Although the 6RM protocol also raises these parameters immediately after, these changes were not evident within 1 hour and may serve as an indication that the use of high loads may be safe to the cardiovascular system in hypertensive individuals.

522 Board #338 May 27 9:30 AM - 11:00 AM
Resistance Training And High-intensity Interval Training Improve Cardiometabolic Health In Older Adults: A Meta-analysis
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PURPOSE: Older adults have an increased risk of developing cardiometabolic disease including cardiovascular disease and type 2 diabetes. Progressive resistance training (PRT) and high-intensity interval training (HIIT) individually improve cardiometabolic health (CMH) in older adults. However, whether a combination of the two prescriptions provides greater benefit is yet to be explored. We conducted a systematic review and meta-analysis of controlled trials investigating the effect of PRT, HIIT and combination PRT+HIIT (COMB) on CMH in older adults with moderate cardiometabolic risk.

METHODS: Nine databases were searched from inception until September 2019. We included studies comparing PRT, HIIT or COMB vs usual care that reported ≥2 modifiable CMH risk factors. Standardized mean (SMD) and mean differences (MD) were calculated using a random-effects inverse variance model. Heterogeneity and risk of bias were assessed according to Cochrane guidelines.