Sex-Specific Pre-Session PRS Difference between Bouts of Fatiguing Resistance Training

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ABSTRACT

The perceived recovery status (PRS) scale, a valid psychophysiological tool, provides a scalar representation of varying levels of an individualized recovery status before or during various modes of exercise. Previous investigations recognize females as more fatigue resilient, quantified via the PRS scale, than males during repeated sprint performance. To the best of our knowledge, no investigations have examined the sex-specific PRS responses during multi-session resistance training. **PURPOSE**: The purpose of this study was to compare male and female PRS scores for multi-session fatiguing resistance training with incremental decline intersession recovery periods. **METHODS**: Subjects consisted of 14 trained males (n = 7) and females (n = 7) that participated in five resistance training sessions. Session 1 consisted of one repetition maximum (1RM) testing for barbell back squat (SQ) and barbell bench press (BP); additionally, during session 1, subjects were given standardized instructions explaining how to interpret the PRS scale (familiarization). PRS was collected prior to each training session. Seventy-two hours after session 1, participants completed a standardized dynamic warm up, followed by a comprehensive, fatiguing resistance training session that began with 3 sets of 55%, 65%, and 75% 1RM, followed by 1 set of as many repetitions as possible (AMRAP) at 85% 1RM for SQ. Ten minutes of recovery was provided upon completion of SQ, before completing the same 4 set routine for BP. Upon 5-minute rest, participants completed 4 set of 2 repetitions in reserve (RIR) for barbell reverse lunge, barbell shoulder press, and barbell bent-over row in circuit format with 90 seconds rest between circuits. In order, 72hrs, 48hrs, 24hrs, and 6hrs rest periods were assigned as intersession recovery. A 2 (sex) x 4 (session) mixed factorial ANOVA was used to determine the sex-specific responses to resistance training. **RESULTS**: No significant main effect was revealed between males and females PRS scores across sets. However, a statistically significant main effect of PRS scores was illustrated across sets [F (2.323, 27.875) =19.363, p<.001]. Bonferroni post hoc analysis showed PRS significantly decreased from session 2 to 5 [3.571(95%CI, 1.411 to 5.731), p<.001] and session 4 to session 5 [2.0(95%CI, .355 to 3.645), p=.014] for females. Post hoc analysis revealed significant decline in PRS from session 2 to session 3 [2.429(95%CI, .261 to 4.596), p=.025] and session 2 to session 5 [3.571(95%CI, 1.411 to 5.731), p<.001] for males. **CONCLUSION**: These results suggest males and females globally recover similarly from fatigue induced resistance training. However, these data also suggest optimal intersession recovery duration may differ between the sexes – males reported significantly less recovered 48hr after training (between set 2 and 3), while female recovery decline after 48hr was an insignificant change; thus, aligning with previous reports of greater fatigue resilience appearing in females versus males.