TACSM Abstract

Fatigue Inducing Resistance Training Produces Differences in Perceived Recovery Status and Session Rate of Perceived Exertion Responses

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ABSTRACT

Psychophysiological tools have gained substantial traction as methods of assessing fatigue during exercise. Borg's rate of perceived exertion (RPE) measures exertion levels of various modes of exercise, including resistance training. The perceived recovery status (PRS) scale is recognized as an effective tool when assessing recovery following fatiguing bouts of exercise. Previous PRS and RPE sprint training research, recognized PRS decline with concurrent sRPE increases. However, the relationship between PRS and sRPE during resistance training is unknown. **PURPOSE:** The aim of this study is to explore the relationship between PRS and sRPE within resistance training. **METHODS:** Fourteen resistance trained males (n = 7) and females (n = 7) participated in five resistance training sessions. Session 1 consisted of one-repetition maximum (1RM) testing of bench press (BP) and squat (SQ), and familiarization of PRS and sRPE. Sessions 2-5 involved a standardized dynamic warm up followed by four sets of SQ - three warm up sets (55, 65, 75% 1RM) and one working set of as many repetitions as possible (AMRAP) at 85% 1RM. A 10-minute rest period was allotted, followed by four sets of BP adhering to the 4 set protocol. Following a 5-minute rest period, participants completed 4 sets of 2-repetitions in reserve for three accessory lifts (barbell reverse lunge, overhead press, and bent-over row) performed in circuit training fashion (90s rest between circuits). In order, 72hrs, 48hrs, 24hrs, then 6hrs rest was assigned as between session recovery. Prior to each session PRS was recorded and 30 minutes after completion of each session sRPE was logged. PRS and sRPE were measured using a 2 (fatigue) x 4 (sets) repeated measures ANOVA. **RESULTS**: A significant main effect was revealed within PRS and sRPE ($F(2.319, 60.287) = 8.050$, $p < .001$), as well as between PRS and sRPE across sessions ($F(2.319, 60.287) = 14.803$, $p < .001$). Bonferroni post hoc adjustment revealed differences in sessions 1 and 2 (2.214(95% CI, 1.091 to 3.338), $p < .001$), 1 and 3 (2.00 (95% CI, .328 to 3.672), $p < .013$), 1 and 4 (3.571 (95% CI, 2.425 to 4.718), $p < .001$), 2 & 4 (1.357 (95% CI, .273 to 2.441), $p = .008$), as well as 3 and 4 (1.571 (95% CI, .390 to 2.753), $p = .005$) PRS scores. A Furthermore, a significant difference was recognized between PRS and sRPE of sessions 4 (-3.143 (95% CI, -4.456 to 2.192), $p < .001$). **CONCLUSION:** These results support and mirror intermittent sprint training PRS and sRPE reports. Moreover, as PRS values decrease, due to fatiguing resistance training sessions, global levels of fatigue (sRPE) increased; thus, further illustrating the PRS scale as a valid metric of assessing pre-exercise recovery.