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EFFECT OF SELF-SELECTED VS. STANDARDIZED RECOVERY ON SQUAT POWER AND FORCE PRODUCTION

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Introduction

Repeatedly documented within the exercise science literature, elevated measures of power production is indicative of optimal inter- and intra-session recovery times.

Hourly recovery requirements between power training sessions are unambiguously prescriptive; however, research articulating between-set rest interval protocol involves an arbitrary selection within the range of 2-5 minutes of recovery. Considerable variance in standardized recovery time selection necessitates the examination of alternative intra-session rest selection procedures.

Purpose Statement

The current investigation examined kinetic (force and power measures) differences between standardized power training rest intervals and perceptually regulated rest intervals during resistance training.

Method

Fourteen (7 men, 7 women) completed three testing sessions. Session one consisted of obtaining one-repetition maximum (1RM) for squat using the NSCA standardized procedures. The second and third sessions were counterbalanced and consisted of 5 sets of 6 repetitions at 80% 1RM for SQ using either a perceptually guided or standardized 2-minute recovery period between sets. Average concentric power (ACP), peak concentric power (PCP), average concentric force (ACF), peak concentric force (PCF), average eccentric power (AEP), peak eccentric power (PEP), average eccentric force (AEF), and peak eccentric force (PEF) were measured during each lift.

Method Cont.

Following each set of work, rating of perceived exertion (RPE) was recorded. During the perceptually regulated session, participants utilized the Perceived Recovery Status (PRS) scale to guide their recovery. Participants were instructed that when they reach a '7' (out of 10) to begin their next set. Data were analyzed utilizing a 2 (session) x 5 (set) repeated measures ANOVA with Tukey's HSD post-hoc analyses performed when appropriate.



Perceived Recovery Status Scale

10	Very well recovered / Highly energetic	} <u>Expect Optimal Performance</u>
9	Well recovered / Somewhat energetic	
8	Well recovered / Somewhat energetic	} <u>Expect Average Performance</u>
7	Adequately recovered	
6	Adequately recovered	} <u>Expect Weak Performance</u>
5	Somewhat recovered	
4	Somewhat recovered	
3	Not well recovered / Somewhat tired	
2	Not well recovered / Somewhat tired	
1	Very poorly recovered / Extremely tired	
0	Very poorly recovered / Extremely tired	

Results

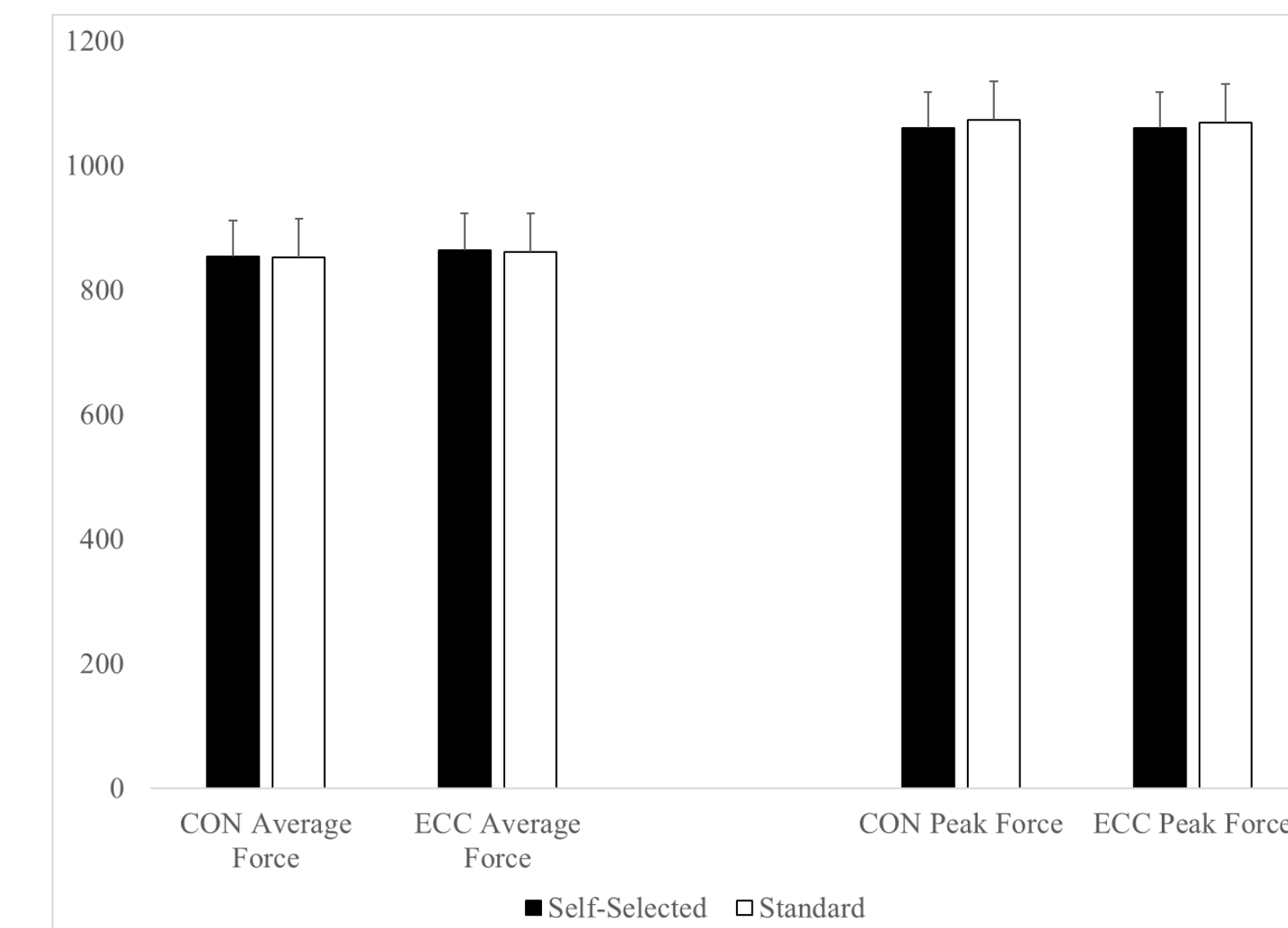
No significant differences were found between self-selected and standardized recovery strategies for ACP ($p = 0.94$), PCP ($p=0.36$), ACF ($p = 0.41$), or PCF ($p=0.21$). There was also no significant difference in ACP ($p=0.19$), PCP ($p=0.13$), ACF ($p=0.82$), or PCF ($p=0.32$) across sets. Similarly, there were no significant differences in AEP ($p=0.54$), PEP ($p=0.15$), AEF ($p=0.13$), or PEF ($p=0.39$).

Across sets, however there was a significant difference in PEP from set1 to set 2 (682.5 ± 80.5 vs. 735.4 ± 87.8 Watts; $p<0.01$) as well as between set 2 and set 5 (735.4 ± 87.8 vs. 696.7 ± 87.6 Watts; $p=0.03$). No other sets for any other force or power outcome were significantly different.

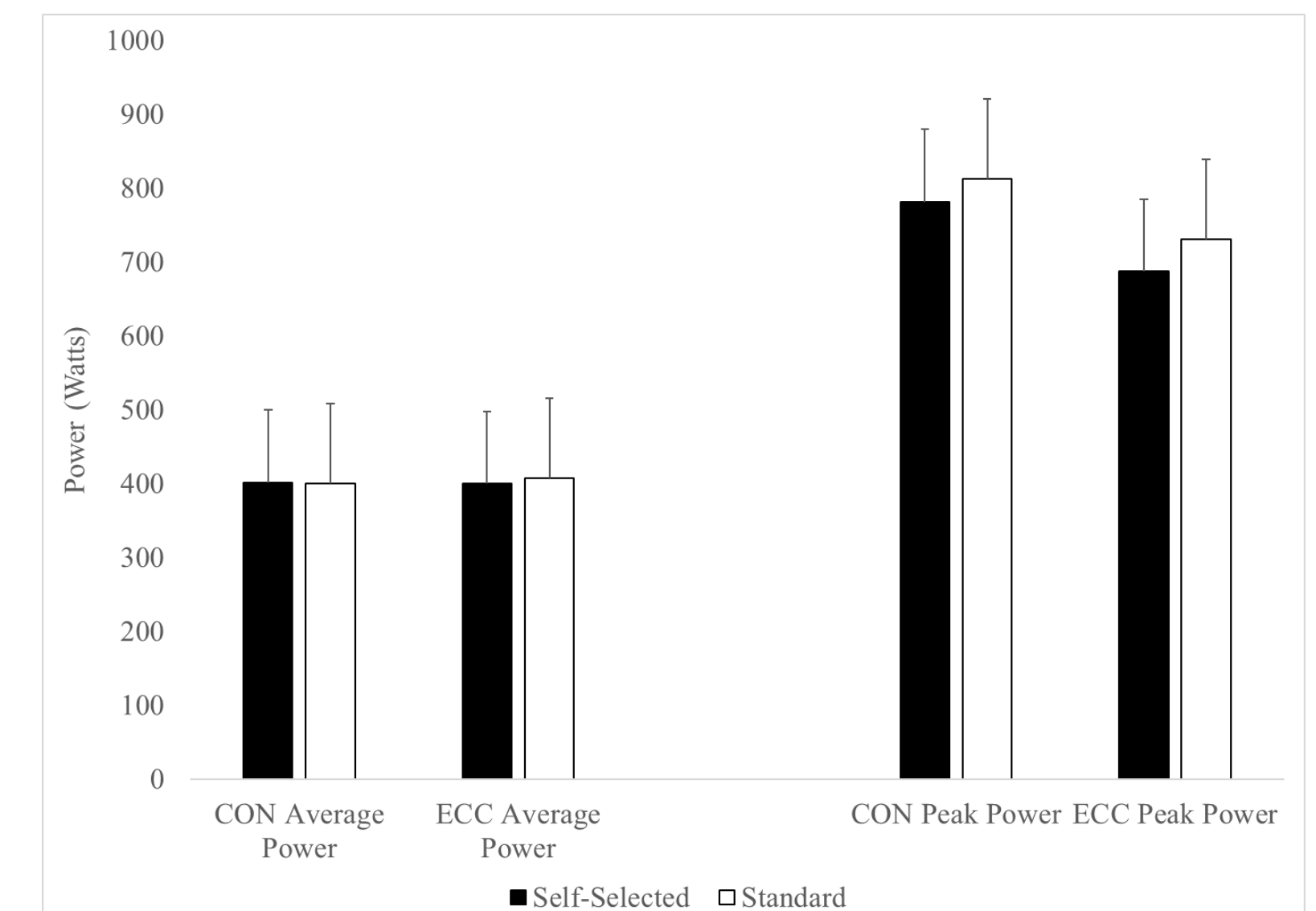
Finally, there was no significant different between self-selected vs. standardized work-to-rest strategies on RPE ($p=0.29$).

Result Cont.

Average Force between Self-Selected and Standardized Recovery



Average Force between Self-Selected and Standardized Recovery



Discussion

These findings support the notion that women may experience either relatively less fatigue during exercise or can recovery from similar intensities faster than men. Further work is needed to determine optimal work-to-rest ratios between men and women during resistance training and what implications this may have on training adaptations.

References

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