

## Post Activation Potentiation of Back Squat and Trap Bar Deadlift on Acute Sprint Performance

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**PURPOSE:** We investigated the ability of back squat (BS) and trap bar deadlift (TBD) to elicit post activation potentiation (PAP) and hence improve 40m sprint performance in college age female rowers. **METHODS:** Twenty division III collegiate female rowers, whose  $\bar{X} \pm SD$  for age, height, weight, and  $VO_2$  Max were  $19.2 \pm 1.1$  y,  $1.7 \pm 0.06$  m,  $67.4 \pm 6.8$  kg and  $42.5 \pm 3.9$   $ml \cdot kg^{-1} \cdot min^{-1}$ , completed a 40m sprint timed at 10m, 20m, and 40m with a timing system. Based on sprint times, subjects were divided into two groups: BS and TBD. Subsequently, we determined their one repetition maximum (1 RM) for the BS and TBD. One week later, subjects completed a 40m sprint, and then three repetitions at 90% of their 1RM for BS or TBD; after 7 min of active rest, they completed another 40m sprint. A dynamic warm-up and active cool down preceded and followed all testing sessions. Data were analyzed with three 2x2 repeated measures ANOVA. **RESULTS:** We found both conditions significantly increased 20m and 40m sprint times as shown below:

*Sprint Times (s) by Group*

	Trap Bar Dead Lift (n=10)			Back Squat (n = 10)		
	10m	20m	40m	10m	20m	
40m						
Pre	2.06 ± 0.11	3.53 ± 0.19	6.48 ± 0.44	2.10 ± 0.09	3.62 ± 0.14	6.61 ± 0.32
Post	2.07 ± 0.11	3.60 ± 0.19*	6.57 ± 0.42*	2.10 ± 0.09	3.66 ± 0.17*	6.67 ± 0.36*

Note. \* =  $p < 0.05$

**CONCLUSION:** The data show that three repetitions at 90% of 1RM for BS or TBD did not elicit PAP in female college rowers. These findings may be related to sex, load, training incompatibility, and sprinting proficiency in this subject population.