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The Acute Effects of Loaded Jump on Vertical Jump Performance and Perception

Austin D. Hoffman, Taylor Halteman, Selma Hamzabegovic, Caitlin Wallace, Sally Paulson, Joohee Sanders. Shippensburg University, Shippensburg, PA

The ability to increase one's vertical jump (VJ) can translate to sport performance and performance testing. Dynamic loaded warm-ups may increase performance through post-activation potentiation (PAP). **PURPOSE:** To investigate if there was performance/perception effects on VJ when using externally loaded jumps prior to VJ. **METHODS:** 16 college-aged (age 20.6 ± 0.7 yrs, mass 77.4 ± 18.3 kg) female ($n=7$) and male ($n=9$) subjects completed 3 sessions of testing, in a randomized order, with each session consisting 3 sets of 5 VJ, where first set of jumps served as the baseline (B), the 2nd set with the weighted vest (V), and 3rd set with vest removed (PT). During 2nd set of each session, subjects wore weighted vest at either 5, 10 or 15% of their body weight (kg) and performed VJ. VJ (in), peak power (W), peak velocity ($m \cdot s^{-1}$) and the perception of subjects' own performance were measured. Two-way ANOVA with repeated measures was used to compare differences in conditions and time. **RESULTS:** Significant differences were found in VJ between all conditions, for each of the weighted vest conditions ($p < 0.05$). The 5% condition showed the greatest increase in mean VJ (+0.75 in.) from the B. Peak power and velocity were also higher during PT when compared to B, although the difference was not significant (Peak Power %change: 2.8-7.7%; Peak Velocity %change: 3.6-11.2%). Perception results showed that all subjects, under 10 and 15% conditions, perceived to jump higher and feel lighter, while only 75% of subjects in 5% condition perceived to jump higher and feel lighter during PT.

Conditions	Baseline (in)	Weighted Vest (in)	Post-test (in)	Difference (B to PT) (in)	Difference (B to PT) (%)
5%	19.39 \pm 5.71	18.53 \pm 5.73*	20.14 \pm 5.90*	0.75	3.9%
10%	19.41 \pm 5.92	17.38 \pm 5.39*	19.89 \pm 5.95*	0.48	2.5%
15%	19.86 \pm 5.69	16.72 \pm 5.38*	20.48 \pm 5.86*	0.62	3.1%

*Significantly different from baseline ($p < 0.05$).

CONCLUSION: It appears that performing VJ with external load can increase VJ performance after the load is removed. According to this study, the 5% condition showed the greatest impact on VJ performance.