



## Mid Atlantic Regional Chapter of the American College of Sports Medicine

Annual Scientific Meeting, November 1<sup>st</sup> – 2<sup>nd</sup>, 2019  
Conference Proceedings

International Journal of Exercise Science, Volume 9, Issue 8



### **The Effect of Static and Dynamic Stretching on Power Output in Dancers**

Sydney R. De Poto, Abigail K. Gibson, Elizabeth R. Vlieg, Grace M. Brewster, Emily A. Walter, H. Scott Kieffer (FACSM). Messiah College, Mechanicsburg, PA

Flexibility and power output are two critical components of dance performance; however, recent research suggests that acute bouts of stretching may decrease muscular power. **PURPOSE:** The purpose of this study was to compare the effects of dynamic stretching (DS) and static stretching (SS) on muscular power in dancers. **METHODS:** 12 female, collegiate dance majors volunteered for this study. The subjects attended a familiarization session, gave informed consent, and were oriented to all testing procedures. Three different experimental sessions were conducted in randomized order for each stretching condition: DS, SS, and no stretching (NS), with a minimum of 48 hours between testing days. Each session began with a warm-up (5 min walk) followed by a guided stretching protocol, specific to dancers, for each condition. Muscular power (peak torque, Watts) was obtained for the plantar/dorsiflexors with an isokinetic dynamometer (60°/s and 180°/s) and vertical power (W/kg BW) was obtained using both a squat (SJ) and countermovement jump (CMJ). One-way ANOVA with repeated measures with Tukey HSD post-hoc tests were conducted to determine significance ( $p \leq 0.05$ ) for each variable. **RESULTS:** The results indicated that there were no significant differences for the power output of dancers after incorporating DS, SS, or NS as part of a warm-up. Isokinetic muscular power isolating the plantar flexors demonstrated no significant difference at 60°/s (DS,  $57.1 \pm 22.7$  W; SS,  $57.8 \pm 28.4$  W; NS,  $62.7 \pm 19.3$  W,  $p = 0.82$ ) or at 180°/s (DS,  $28.3 \pm 9.50$  W; SS,  $30.5 \pm 14.7$  W; NS,  $32.2 \pm 16.2$  W,  $p = 0.76$ ). In addition, measurements of power incorporating whole body power demonstrated no significant difference in jump height for the SJ (DS,  $21.05 \pm 3.36$  cm; SS,  $20.83 \pm 3.55$  cm; NS,  $20.9 \pm 3.14$  cm,  $p = 0.893$ ) or the CMJ (DS,  $23.8 \pm 3.9$  cm; SS,  $23.7 \pm 5.7$  cm; NS,  $24.7 \pm 6.8$  cm,  $p = 0.98$ ). **CONCLUSION:** Although some research suggests that varying form of stretching may decrease muscular power, this study suggests that neither acute static stretching nor dynamic stretching will elicit a significant change in muscular power in dancers.