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

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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 ± 22.7 W; SS, 57.8 ± 28.4 W; NS, 62.7 ± 19.3 W, $p = 0.82$) or at 180°/s (DS, 28.3 ± 9.50 W; SS, 30.5 ± 14.7 W; NS, 32.2 ± 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 ± 3.36 cm; SS, 20.83 ± 3.55 cm; NS, 20.9 ± 3.14 cm, $p = 0.893$) or the CMJ (DS, 23.8 ± 3.9 cm; SS, 23.7 ± 5.7 cm; NS, 24.7 ± 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.