

Assessment of Acute Balance and Agility Following Submaximal Plyometrics and Cycling

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Balance and agility are required in competitive sport and well trained athletes are exceedingly skilled at both. A loss of balance or lack of agility has the potential to hinder performance.

PURPOSE: To examine the acute effects of two different exercise protocols (plyometrics vs. stationary cycling) on balance and agility in a college-aged sample. **METHODS:** Eleven undergraduate students participated in this study (7 males, 4 females; age = 21.36 ± 0.67 years, height = 171.17 ± 7.98 cm, mass = 72.26 ± 7.09 kg, BMI = 24.72 ± 1.80 kg/m², and body fat = $17.24 \pm 8.97\%$). Each subject completed an orientation session and two exercise protocol testing days: (1) 8-min of stationary cycling (CYC) and (2) plyometric (PLY) exercises. The protocols were counterbalanced and completed at least 48 hours apart. On testing days, all subjects completed a 5-min warm-up and cool-down on a cycle ergometer and balance and agility were measured before and after the exercise protocol. Agility was assessed using the T-test and balance was measured statically and dynamically using the standing one leg balance and Y-Balance tests, respectively. The data were analyzed using descriptive statistics and a one-way ANOVA with repeated measures. **RESULTS:** No statistically significant differences ($p > .05$) were yielded between exercise conditions. However, there was a statistically significant improvement on the T-test (Pre: CYC = 10.82 ± 0.94 s, PLY = 11.11 ± 1.27 s; Post: CYC = 10.49 ± 0.94 s, PLY = 10.97 ± 1.29 s) and left leg Y-balance (Pre: CYC = 257.03 ± 26.76 cm, PLY = 251.75 ± 26.17 cm; Post: CYC = 264.01 ± 23.23 cm, PLY = 259.02 ± 19.23 cm) after the exercise protocol, regardless of the type of exercise. **CONCLUSION:** Overall, exercise positively influenced agility performance (2% improvement) and dynamic balance (2.8% improvement), regardless of the mode.