

Effects of Static and Dynamic Hamstring Stretching on Anaerobic Exercise Performance

Kimberly Berenbaum, Binh Bui, Sal Megaro, David Stearne, W. Craig Stevens, Melissa Whidden.
West Chester University of Pennsylvania, West Chester, PA

Pre-activity stretching is commonly performed by active individuals as part of their warm-up routine. However, previous studies have been mixed on the effect of both static and dynamic stretching on anaerobic exercise performance. **PURPOSE:** To determine whether 3 weeks of either static or dynamic hamstring stretching affects range of motion (ROM), sprint, vertical jump, and horizontal jump performances in active individuals. **METHODS:** Twenty-two healthy college-aged students were randomly divided into a static (n=9), dynamic (n=8), or no-stretch control group (n=5). All subjects warmed up with a 5 minute walk before a hamstring stretching protocol. The stretching protocols consisted of four repetitions performed for 30 seconds, 3 days per week for both the hamstring and quadriceps muscles. Three variables of hamstring ROM (sit and reach test, active knee extension test (AKET) using a goniometer and an inclinometer) and three variables of anaerobic exercise performance (50 meter sprint, vertical jump, and horizontal jump) were analyzed using repeated-measures ANOVA. **RESULTS:** No significant differences ($P < 0.05$) were found between groups for the 50 meter sprint ($P = 0.899$), vertical jump ($P = 0.983$), or horizontal jump ($P = 0.261$). Furthermore, three weeks of either static or dynamic hamstring stretching did not improve ROM in our active subjects. **CONCLUSION:** It does not seem that static stretching has a negative impact on anaerobic exercise performance, while dynamic stretching may not be as beneficial to exercise performance as previously thought. Supported by College of Health Sciences Faculty/Student Research Award, West Chester University