Korakot Srikaveepetcharut 2009: Acute Effects of Static, Dynamic, and Proprioceptive Neuromuscular Facilitation Stretching on Peak Torque of Quadriceps Muscle. Master of Science (Sports Science), Major Field: Sports Science, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Udon Ruttanapak, M.A. 81 pages.

The purposes of this research were to study and compare the acute effects of static stretching (SS), dynamic stretching (DS), and proprioceptive neuromuscular facilitation contract-relax (PNF-CR) stretching on peak torque of quadriceps muscle. Thirty male participants of this study were randomly selected from physical education students of Kasetsart University, Kamphaengsaen Campus , 18-21 years. Repeated measures design was used. All subject were tested 4 times (non-stretching and 3 after the stretches), 48 hours apart. During 4 separate laboratory visits, each subject performed 5 minutes of stationary cycling at 60%HRR before performing the control condition, SS, DS, or PNF-CR. The peak torque of quadriceps muscle was measured on isokinetic machine at angular velocities of 60 and 120 °/s immediately after the stretching. The data were analyzed by using ANOVA with repeated measure and multiple comparison was performed by Tukey at 0.05 level of significance.

The results indicated that the peak torque of quadriceps muscle at angular velocities of 60°/s after stretching between each stretching methods (SS, DS and PNF-CR) were significant difference. The highest muscle strength was found in DS (225.17 Nm), second to PNF-CR (213.15 Nm), and the lowest value was observed in SS (209.93 Nm). In addition, the peak torque of quadriceps muscle at angular velocities of 120°/s after stretching between SS (177.73 Nm) and DS (185.20 Nm), DS and PNF-CR (180.58 Nm) were significant difference. However, there were no significant difference between SS and each PNF-CR. The findings suggest that dynamic stretching may increase acute muscular strength. These findings may have important to implications.

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