

## **P74: Muscle Energy Technique versus PNF: effectiveness on hamstring muscle stretching**

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**Introduction:** Although PNF's Contract-Relax with Antagonist Contraction (CRAC) and Muscle Energy Techniques (MET) increase muscle flexibility and Range of Motion (ROM), few studies compared their effectiveness. They share several features but one major difference, the intensity of muscle contraction prior to stretch, perceived maximum in CRAC, and a percentage of the perceived maximum in the MET.

**Objectives:** Confirm if CRAC and MET are effective in stretching the hamstring muscle in the short term, if both are determine the most effective.

**Materials and Methods:** We conducted an experimental study with 45 volunteers randomly assigned to groups CRAC (n=15), MET (n=15) and Control (n=15). We evaluated the passive knee extension range before and after applying the techniques, using a goniometer. The isometric contraction of 40% was measured with a hand-held dynamometer.

**Results and Discussion:** There was an effect of the techniques between assessments (ANOVA repeated measures factor time:  $p < 0.001$ ) and between groups (time \* group:  $p < 0.001$ ). Comparing the two by two groups, there were differences between the CRAC and Control groups (Post Hoc Test Games-Howell:  $p = 0.001$ ) and between the MET group and Control group ( $p = 0.009$ ), with no differences between groups CRAC and MET ( $p = 0.376$ ). CRAC and MET groups achieved a gain of 10.7 ° and 11.4 °, respectively, with no significant differences between gains (Independent Student's T-Test:  $p = 0.599$ ).

**Conclusion:** Both were effective in increasing the flexibility of the hamstring muscle in the short term, but because of the lower complexity and lower request MET was considered more efficient.

### **References**

1. Fryer, G. (2011). Muscle energy technique: An evidence-informed approach. *International Journal Osteopathic Medicine*, 14(1), 3-9.
2. Mitchell, U. H., Myrer, J. W., Hopkins, J. T., Hunter, I., Feland, J. B., & Hilton, S. C. (2009). Neurophysiological reflex mechanisms' lack of contribution to success of PNF stretches. *Journal of sport rehabilitation*, 18(3), 343-357.