The Effects of Different Duration of Static Stretching of Quadriceps on the Explosive Force of Lower Limbs

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Abstract

Purpose: This study is to explore how different durations of static stretching as warm-ups will affect the explosive force of legs. **Method:** The experiments were conducted on 20 healthy college students (14 males and 6 females). They participated in four different experiments in which they were observed and measured after doing stretches for 0 second, 15s, 30s and 60s respectively. This study was designed based on repeated measures and the principle of balance of the order. In the experiment, every subject was required to stand on one foot at a time, with one hand drawing the ipsilateral leg closer to the buttocks with maximal voluntary efforts. Either foot stretching exercise had to meet the time requirement. Then the subjects were measured by means of standing long jump and CMJ project on Newtest Force Measurement Board. The data were analyzed by repeated one-way ANOVA and *LSD post hoc* test. **Results:** Significant differences were observed on dynamic parameters of standing long jump and CMJ ($p<.05$). Static stretches for 15s and 30s, compared with those for 0 second and 60 seconds, had worked out better results in terms of dynamic parameters of standing long jump and CMJ ($p<.05$). As the results suggested, different durations of stretching exercise would bring about different performances. **Conclusion:** The study shows the length of time on stretching exercise will determine whether or not acute static stretching will cause negative effects on explosive force. It is, therefore, advisable to perform 30s static stretching exercise and any stretching exercise that takes more than one minute will cause negative effects.

Key words: **static stretching, power, counter movement jump, warm-up, the quadriceps**