EFFECT OF TWO ACTIVE DYNAMIC STRETCH FREQUENCIES ON THE RANGE OF MOTION: A PILOT STUDY

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INTRODUCTION: Active dynamic stretching (ADS) is a bouncing, rhythmic motion that causes lengthen of the muscle (BANDY et al., 1998). Only few studies have investigated the effects of dynamic stretching programs on the range of motion (ROM). There are few investigations that provide information about the effectiveness of different active dynamic stretch loads. The purpose of this study was to compare the effect of two different active dynamic stretch frequencies on the gain of the range of motion ROM.

METHOD: Eight male volunteers were randomly assigned to one of two groups: free and controlled stretch frequency. The quadriceps muscle of both groups was submitted at one active dynamic stretching session that consisted of four sets of 20 seconds with 40-second rest interval between each set. The subjects of the free and controlled group performed a stretching frequency of 27,6 ± 4,9 Hz and 20 ± 0 Hz, respectively. The subjects were positioned on a specific testing apparatus and sagital view kinematics data were collected using a digital video camera (200Hz) to guarantee the specificity of the measurement of the maximum ROM during active dynamic flexibility test in the pre and post-stretching conditions. Mann-Whitney's test was used ($p<0,05$) to compare the results of pre-stretching between both groups, as well as, the pre-post difference (Dif pre-post). The pre and post data were compared using Wilcoxon tests.

RESULTS: The results for both groups are described in the table 1.

Table 1 – Means and standard deviation of the knee flexion angle (0°= full knee flexion) for pre, post-stretching and gain of knee flexion ROM (Dif pre-post) for both groups. (* p<0,05 pre x post comparison)

Group	Pre-stretching (º)	Post-stretching (°)	Dif (pre-post) (º)
CONTROLLED	41,7 ± 10,7	37,4 ± 8,4*	4,3 ± 2,8
FREE	41,6 ± 12,2	37,4 ± 10,2*	4,2 ± 3,5

DISCUSSION: Both stretch loads increased the ROM. Although the free group has performed significantly different number of repetitions for set (NRS), no statistical difference between groups was found in the gain of ROM. The involved mechanisms in the acute response using ADS are not yet completely clarified. Reciprocal inhibition reflex and viscoelastic behavior (creep) component could influence the ADS. The difference in the NRS between groups was insufficient to cause a significant difference in the response of the underlying mechanisms. We suggest that other aspects of the training load are controlled in future studies.

CONCLUSION: The results suggested that the active dynamic stretching realized with a controlled or free stretch frequency revealed similar effects.

REFERENCES:

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