

## **ABSTRACT**

### **The Immediate Effects of Passive Stretching versus Concentric/Eccentric Exercise in the Outer Range of Motion for Increasing Range of Motion and Improving Coordination**

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#### **Purpose**

The purpose of the study was to determine whether passive stretching or concentric/eccentric exercise in the outer range of motion would be more effective in increasing range of motion and improving coordination.

Changes in active knee extension were used as the criterion for measuring relative changes in range of motion, while relative changes in coordination were measured by changes in single limb standing.

#### **Methodology**

The research design utilized in this study was a randomized, single-blinded, multigroup (with control group) experimental design with repeated measures.

Subjects were sixty healthy volunteers, 22 males and 38 females, who exhibited at least twenty degrees less than full knee extension and who had no impediments to range of motion or coordination that might become confounding variables.

The data analysis technique employed to test both of the range of motion and coordination hypotheses was a two way analysis of variance (ANOVA) that utilized a 3 X 2 table (three groups and two treatments). T-tests for independent groups were computed to determine which of the treatments produced statistically significant changes.

#### **Findings**

It was found that the mean changes in range of motion scores on the active knee extension test were statistically significant for concentric/eccentric exercise group when compared with the control group. It was also found that changes in coordination scores on the single limb standing test were not statistically significant for the three groups when compared with each other.

#### **Conclusions**

Conclusions involving comparisons between the findings of this study and those of other studies were not possible because of the lack of literature related to the hypotheses tested in this study, thus recommendations for further research pertain to replications of the current study to establish an evidence baseline, and extending this

study both in terms of length of treatment and in terms of alternative measures for improving range of motion and coordination.