

ABSTRACT

The Relative Effectiveness of Two Exercise Programs in Improving the Outer Range of Motion of the Gastrocnemius and Joint Position Sense at the Ankle Joint

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Purpose

The purpose of this study was to determine whether passive stretching or concentric/eccentric exercises to end range of motion was more effective in improving the outer range of motion of the gastrocnemius muscle (dorsiflexion with the knee extended) and joint position sense at the ankle joint in older adult subjects with limited ankle dorsiflexion.

Methodology

The research design was a single blinded, randomized, three group experimental design with repeated measures, in which one group received concentric and eccentric exercises, the second group received static stretching exercises, and the third group received no exercises.

Subjects comprising the sample were sixty years of age or older who had limited active ankle dorsiflexion of ten degrees or less due to restriction in the gastrocnemius.

Analysis of Covariance (ANCOVA) was used to analyze changes in dorsiflexion while Analysis of Variance (ANOVA) was used to analyze the joint position sense data.

Findings

Changes in mean dorsiflexion scores were greatest for the concentric/eccentric exercise group, and, when compared with mean changes in the static stretching and control groups, narrowly missed achieving statistical significance.

Changes in mean joint position sense scores were greatest for the concentric/eccentric group, but did not achieve statistical significance when compared with mean changes in the static stretching and control groups.

Conclusions

Current findings support the literature that has demonstrated the lack of relationship between concentric/eccentric exercise on ankle dorsiflexion, while current findings are also consistent with the literature which demonstrated that static stretching does not improve ankle dorsiflexion. Current findings regarding joint position sense could not be compared with current literature because no studies were found that

addressed the relationship between this variable and either concentric/eccentric or static stretching exercises.

Recommendations for further research include replicating the current study with changes in the duration of exercises, increased supervision to insure exercises are being done correctly, and changes and additions to the measurements taken.