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Alexandra Reiner[1]

Repeated electromyography measures of leg muscles during force- controlled submaximal multi- joint leg extensions**.** Implications on the development of an EMG-controlled feedback control system.

Summary

This study was accomplished as a foundation for the development of an Electromyography (EMG) -controlled feedback system for multi-joint leg extensions. Ten subjects performed 15 submaximal multi-joint leg extensions in a motor driven leg press and had to maintain these isometric extensions for a time period of 30 seconds. Visual force- feedback was shown on a screen while EMG was recorded from nine different leg muscles. Correlation, ANOVA and exploratory factor analysis were used to obtain muscular activation pattern and revealed that Musculus (M.) gastrocnemius lateralis and M. vastus lateralis are appropriate for an EMG- controlled feedback system in order to represent leg extension muscles.

Key words: Biofeedback, isometric, muscle redundancy

[1] Adviser of the bachelor's thesis was Dr. Wolfgang Seiberl.