Isokinetic Peak Torque of the Plantar Flexor Muscles at Different Knee Joint Angles in Male Subjects.

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ABSTRACT

The purpose of this study was to investigate and compare the changes of plantar flexor isokinetic peak torque at two ankle positions due to changes in knee joint angle in male subjects. Thirty male healthy volunteers participated in this study. (Aged18-23 years) with the mean age of (19.57) years. The subjects were assessed by using Akron Rehabilitation system for measuring and recording isokinetic peak torque of plantar flexor muscles at (0, 30, 60, 90, 120°) knee angles at two ankle positions (10° dorsiflexion and 20°plantarflexion). The results were statistically analyzed by using Two-Way ANOVA with Bonferroni and Tukey s Post Tests, which revealed a significant difference of the first independent variable (different knee angles) and also of the second independent variable (different ankle positions) in their effect on the dependant variable (plantar flexor peak torque), while revealed non significant difference in the interaction between those independent variables. The study proved that changing knee angle position was associated with changing of plantar flexor peak torque and the best position for the highest torque was anatomical knee extension position (0º) with dorsiflexion of ankle joint. In conclusion considering this optimum position of knee and ankle joints helps to obtain the highest torque of plantar flexor muscles, to use it in assessment, training and rehabilitation programs.

Key Words: Isokinetic, Peak torque, Plantar flexor.