Department of Biomechanics

Master Degree
2003

Author	**:**	**Ahmed Salamah Yamani.**
Title	**:**	**Isokinetic peak torque of elbow flexors and extensors at different shoulder joint positions in normal male individuals.**
Dept.	**:**	**Department of Biomechanics.**
Supervisors	**1.**	**Nahed Ahmed Salem.**
Degree	**:**	**Master.**
Year	**:**	**2003.**
Abstract	**:**	

The purpose of this study was to investigate the relation between the isokinetic peak torque of elbow flexors and extensors concomitantly with different shoulder joint positions in normal male individuals and to explore the optimum performance of elbow flexors and extensors with respect to shoulder position . thirty normal male individuals participated in this study . the subjects were chosen randomly from the students of the faculty of physical therapy . the age of the subjects ranged form 17-23 years with a mean age of (19 years and 8 months)years . the weight of all subjects ranged form 57-93kg with a mean weight of (74.97_)kg and their height ranged from 168-190cm with a mean height of (174.83)cm . the peak torque of elbow flexors and extensors was measured by using Akron rehabilitation system in N.m. each subject performed the movement of elbow flexion from (0)flexion strongly to the mid range (75)flexion . then performed the movement of elbow extension from full flexion to the mid range (75)extension strongly . the movements of elbow flexion and extension were performed from five positions of the shoulder joint (30 hyperetension,0,30,60,and 90 flexion). the results were statistically analyzed using the mean , the standard deviation , one-way analysis (ANOVA), confidence interval test and turkey's comparison . the results revealed significant differences in the means of peak torque of elbow flexors and extensors at different shoulder joint positions . in conclusion , it is very important to consider the shoulder joint position during testing or exercising elbow flexors and extensors.

Key words	**1.**	**Isokinetic.**
	2.	**elbow joint.**
	3.	**shoulder joint.**
	4.	**elbow flexors.**
	5.	**elbow extensors.**
Arabic Title Page	**:**	**اقصى عزم ايزوكيناتيكى للعضلات الثانية والباسطة لمفصل المرفق مع الاوضاع المختلفة لمفصل الكتف في الذكور الاصحاء.**
Library register number	**:**	**984-985.**

Author	**:**	**Ahmed Yousry Radwan.**
Title	**:**	**Effect of heat on the mechanical strain of connective tissue proper.**
Dept.	**:**	**Department of Biomechanics.**
Supervisors	**1.**	**Mohamed Fouad Ibrahim Khalil.**
	2.	**Adel Salah El-Din Zohdy.**
	3.	**Ghada Mohamed El-Hafez.**
Degree	**:**	**Master.**
Year	**:**	**2003.**
Abstract	**:**	

The purpose of this study was to investigate the effect of the use of superficial heating prior stretching the connective tissue proper specified subtype. This was conducted by the use of 48 albino rats throughout this study , 30 of them were utilized in the mechanical experiment while the other 18 were involved in the histological examination . the rats were divided into three groups . the animals of group I were sacrificed after single dose exposure to the infrared source , while those of group II were sacrificed after triple dose exposures , and those of group III were sacrificed after 5 successive exposures . the exposures were administered once per day for successive days . the measured parameters from the mechanical experiment were , the maximum force tolerated by the skin samples before failure , its respective change in extension and the strain of each sample . the histological examination involved the use of the light microscope to provide an observational data in addition to the use of the image analyzer soft werar that had the ability to detect the area percentage of the collagen per samples . the results showed no significant difference between the experimental and the control samples within each group regarding any one of the examined variables although there were some minor histological findings . these results concluded the non-significant effect of superficial heating application prior to stretching regarding the measured variables .

Key words	**1.**	**Heat.**
	2.	**connective tissue proper strain.**
Arabic Title Page	**:**	**اثر الحرارة على تغير طول النسيج الضام الاصيل ميكانيكيا.**
Library register number	**:**	**956-957.**

Author	**:**	**Ayman Goda Mohammed Matar.**
Title	**:**	**Isokinetic peak torque of the plantar flexor muscles at different knee joint angles in male subjects.**
Dept.	**:**	**Department of Biomechanics.**
Supervisors	**1.**	**Nahed Ahmed Salem.**
Degree	**:**	**Master.**
Year	**:**	**2003.**
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 plantar flexion). the results were statistically analyzed by using two - way ANOVA with conferring and turkey'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 (0) with dorsi flexion of ankle joint . ln 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	**1.**	**Lsokinetic.**
	2.	**peak torque.**
	3.	**plantar flexor.**
	4.	**knee joint angles.**
Arabic Title Page	**:**	**اقصى عزم ايزوكيناتيكى للعضلات الباسطة لمفصل الكاحل مع الزوايا المختلفة لمفصل الركبة فى الذكور.**
Library register number	**:**	**980-981.**