

Department of Biomechanics

Master Degree
2001

Author	:	Anees Saleh Soliman.
Title	:	Influence of flat foot on some mechanical measurements of the lumbar spine.
Dept.	:	Department of Biomechanics.
Supervisors	1.	Amira El-Tohamy.
	2.	Bassem G.El Nahass.
	3.	Gannat Ali Motawa.
Degree	:	Master.
Year	:	2001.
Abstract	:	
<p>Background: Flat foot deformity consists of maximally pronated subtler joint; this abnormal position of pronation unlocks and destabilizes the midtarsal joint. The purpose of the study was to investigate the structural changes that might occur in the lumbar spine, as a result to the disturbed normal mechanical function in patient with flat food deformity. Methods: Thirty healthy subjects (the control group) and thirty flat foot subjects (the study group) were included in this study. X- Ray films of the lumbar spine (lateral views) were obtained for each subject in the natural standing position. from the lateral X- ray films the lumbar curve angle (LCA)measured as the angle between the line passing parallel to the superior end plate of L1 and the line passing parallel to the superior sacral plateau, the lumbasacral angle (LSA)measured as the angle between the line passing parallel to the inferior end plat of L5 and the line passing parallel to the superior sacral plateau and the sacral inclination angle (SIA)measured as the angle between the line passing parallel to the superior sacral plateau and the horizontal line. The results the independent T-test was used to compare the study and the control groups regarding the LCA, LSA and SIA. Conclusion the study provides that there is no significant difference between the study and the control groups regarding the LCA, LSA and SIA.</p>		
Key words	1.	lumbar spine.
	2.	Foot.
	3.	sacral inclination angle.
	4.	lumbosacral angel.
	5.	Flat foot.
	6.	lumbar curve angle.
Arabic Title Page	:	تأثير القدم المسطحة على بعض القياسات الميكانيكية لل فقرات القطنية.
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**ELECTRONIC GUIDE TO THESES APPROVED BY
DEPARTMENT OF BIOMECHANICS
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Enas Ahmed Hanafy.
Title	:	Isokinetic peak torque of elbow flexors at different forearm positions in normal and diabetic individuals.
Dept.	:	Department of Biomechanics.
Supervisors	1.	Amira Mohamed El-Tohamy.
	2.	Mohamed Fouad Ibrahim Khalil.
Degree	:	Master.
Year	:	2001.
Abstract	:	
<p>Twenty five patients with type 2 diabetes mellitus forming group I and twenty five healthy volunteers forming group II participated in this study. The age subjects ranged from 30 to 50 years. The peak torque of elbow flexors was measured by using Akron rehabilitation system. Each subject performed the movement of elbow flexion at three angles which are 45° and 90° and 135°. In each angle of elbow flexion, the movement was performed from supination, pronation, and mid position of the forearm. The results revealed a significant difference in the mean of peak torque of elbow flexor between the two groups at the three angles of elbow flexion and at the three forearm positions with reduction in the diabetic group. And there was no significant difference in the mean of peak torque of elbow flexors within the normal or within the diabetic group with respect to angles of elbow flexion and respect to forearm positions.</p>		
Key words	1.	Diabetic.
	2.	Isokinetic peak torque.
	3.	elbow flexors.
	4.	forearm positions.
Arabic Title Page	:	أقصى عزم أيزوكيناتيكي للعضلات القابضة لمفصل المرفق مع تغيير أوضاع الساعد في الأشخاص الأصحاء ومرضى البول السكري.
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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Hossam El-Dien Hassan Hassan.
Title	:	Influence of unilateral knee osteoarthritis on some radiological parameters of the lumbar spine.
Dept.	:	Department of Biomechanics.
Supervisors	1.	Amira El-Tohamy.
	2.	Magdi Bassiouni.
Degree	:	Master.
Year	:	2001.
Abstract	:	
<p>Osteoarthritis (OA) is one of the most common diseases affecting the knee joint that is characterized clinically by pain, stiffness, tenderness at the joint margins, effusion, ligamentous laxity, impairment of motion, copular contracture, muscle weakness, spasm, and impairment of function and loss of independence. These clinical findings causes a symptomatic change in the functional performance of the patient that would result in change of the location of the line of gravity in relation to various body segments in static situations and abnormal oscillation of the center of gravity in dynamic activities. Thus, the purpose of this study is to determine the structural changes in the lumbar spine in patients with unilateral knee OA. Thirty healthy subjects (the control group) and thirty subjects with unilateral knee OA (the study group) were included in this study. X-Ray images of the lumbar spine (A-p and Lateral) were obtained for each subject in the natural standing position. From the lateral X-ray films the radiological parameters concerning the lordotic curve angle (LCA)(measured as the angle between the tangential line of the superior end-plate of L1 and the tangential line of the superior sacral plateau), the lumbosacral angle (LSA) (measured as the angle between the tangential line of the inferior endplate of L5 and that of the superior sacral plateau and the sacral inclination angle (SIA) (measured between the tangential line of the superior sacral plateau and a horizontal line) were recorded for each subject. also, the radiological findings regarding osteophytes, disc degeneration and spondylolisthesis were recorded form both views. The group regarding the LCA, LSAA and SIA. Also the incidence of osteophytes, disc degeneration and spondylolisthesis were calculated. The results of this study suggested that there is no significant difference ($p < 0.05$) between both groups regarding the LCA, LSA and SIA. While the incidence of ostoeophytes, disc degeneration and spondylolisthesis were higher in the study group.</p>		
Key words	1.	Osteoarthritis.
	2.	Lordotic.
	3.	curve angle.
	4.	Lumbosacral.
	5.	Angle.
	6.	sacral inclination
	7.	Knee.
	8.	lumbar spine.
	9.	Joint.
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