

## Department of Biomechanics

Master Degree  
2000

Author	:	Medhat Hussien El-Nazer.
Title	:	Relationship between normal lumber lordosis, pelvic tilting and lumbosacral angle.
Dept.	:	Department of Biomechanics.
Supervisors	1.	Bassem G. El-Nahass.
	2.	Magdy Ibrahim El-Bassiouni.
Degree	:	Master.
Year	:	2000.
Abstract	:	
<p>This study was conducted to investigate the relative postural arrangement of the lumbosacral spine and pelvis in neutral standing position . And to quantify the normal pattern of lumbar spine, pelvic and sacral movement during 60 degrees trunk flexion and 20 degrees backward extension of the trunk, from neutral standing position . Fifty healthy volunteers were divided into two equal groups, I included 25 males and group II included 25 females. Three lateral reontgenographs for the lumbosacral region and pelvis were taken for each subject from neutral standing, 60 degrees trunk flexion and 20 degrees backward extension positions. Two inclinometers were used to obtain the selected degrees of forward flexion and backward extension, trunk position . From the x-ray pictures, lumbar lordosis angle, pelvic tilting angle and lumbosacral angle were measured in each position for each subject. The results showed that, there were no significant differences between males and females, lumbar lordosis angle, pelvic tilting angle and lumbosacral angle while they were measured in neutral standing and in 20 degrees backward extension position . Also, from neutral standing to 60 degrees flexion position, pelvic motion in females was significantly greater than that in males.</p>		
Key words	1.	lumber lordosis.
	2.	pelvic tilting.
	3.	pelvic tilting.
	4.	lumbosacral angle.
Arabic Title Page	:	العلاقة بين الانحناء القطني الأمامي و ميل الحوض و الزاوية القطنية العجزية الطبيعية.
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DEPARTMENT OF BIOMECHANICS  
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Raafat Mohamed Fawzy Khalil Ahmed.
Title	:	Muscular function in-patients with mechanical low back dysfunction.
Dept.	:	Department of Biomechanics.
Supervisors	1.	Mohamed Fouad Ibrahim Khalil.
	2.	Naiema Hamdy Hassan.
	3.	Abd Elmeged Abd El-Aty El-Ashmawy.
Degree	:	Master.
Year	:	2000.
Abstract	:	<p>The purpose of this study was to investigate if muscle weakness and / or in-coordination contribute to mechanical low back pain (MLBP) at different positions of the trunk during different activities . Fifty healthy volunteers and fifty patients with MLBP were included in this study. The mean of age, weight , height, and duration of the back pain symptoms were 29.3 year , 77.6 Kg , 162.5cm , and 200 days respectively . Suffice EMG was used to pickup the EMG activities from Longissimus Latissimus dorsi and Transversus abdominus ( TrA ) during active extension and isometric holding of the trunk at angles 60° , and 30° and 15 short of complete extension . ANOVA test showed that, patients group had a significant ( P &lt; 0.05 ) reduction of the normalized EMG amplitude especially at angle 15°, in addition to, delayed onset of activation of the tested muscles during the dynamic test, especially the TrA muscle.</p>
Key words	1.	Muscular function.
	2.	Mechanical low back dysfunction.
	3.	Low back dysfunction.
Arabic Title Page	:	الوظائف العضلية في حالات القصور الوظيفي الميكانيكي لعضلات اسفل الظهر.
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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

<b>Author</b>	:	Soheir Mohamed Abd El-Rahman.
<b>Title</b>	:	Effect of different lumbar supports on myoelectric activity of the erector spinae muscles .
<b>Dept.</b>	:	Department of Biomechanics.
<b>Supervisors</b>	1.	Bassem G. El-Nahass.
<b>Degree</b>	:	Master.
<b>Year</b>	:	2000.
<b>Abstract</b>	:	
<p>The purpose of this study was to investigate the influence of wearing three different types of lumbar supports: soft lumbar corset ( SLC ), flexible lumbar belt ( FLB ), and semirigid lumbar belt ( SLB ) on the electromyographic ( EMG ) activities of the erector spinae muscles during carrying 15% of the total body weight ( TBW ) . Thirty healthy male subjects were participated in this study , their mean age ranged from 18 to 27 years with mean value 23 ( +- 1.25 ) while their weight ranged from 60 to 85 Kg with mean value 66.89 ( +- 7.49 ) .Every subject was instructed to carry carton box ( load container ) four times with and without wearing three different lumbar supports and the EMG activity was collected using bipolar surface electrodes placed bilaterally over the L3 level . Results showed that, there is significant ( <math>p &lt; 0.0001</math> ) decrease in the erector spinae EMG activity as a result of wearing three different lumbar supports. Also it reveals that wearing SLB has a better in decreasing the electrical activity of the erector spinae muscles ( 29% relative to the carrying 15% TBW.</p>		
<b>Key words</b>	1.	lumbar supports .
	2.	myoelectric activity.
	3.	erector spinae muscles .
	4.	spinae muscles .
	5.	muscles .
		Carrying load.
		Electromyography.
<b>Arabic Title Page</b>	:	تأثير السنادات القطنية المختلفة علي النشاط الكهربائي للعضلات الناصبة للظهر.
<b>Library register number</b>	:	734-735.