

**ELECTRONIC GUIDE TO THESES APPROVED BY
DEPARTMENT OF BASIC SCIENCE
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED
Department of Basic Science**

**Doctoral Degree
2014**

Author	:	Abeer Abdel Fttah
Title	:	Effect of Body Physique on Postural Parameters in Healthy Subjects
Dept.	:	Department of Basic Science.
Supervisors	1.	Fatma Sedik
	2.	Marzouk El-Leithy
	3.	Ahmed Gneidy
Degree	:	Doctoral.
Year	:	2014.
Abstract	:	
<p>Background: In recent years, body physique has been of growing concern to researchers due to observations of its relation to different skeletal abnormalities and systemic diseases. Purpose: to investigate the effect of body physique on postural parameters in healthy subjects. Methods: A prospective study investigated postural parameters of sixty healthy subjects (17 – 25) years, BMI (<30) kg/m². Results: Lordotic angle ITL-ILS (max) in males showed a significant increase in endomorph ($46.75^{\circ} \pm 3.89^{\circ}$) than ectomorph and mesomorph ($31.4^{\circ} \pm 1.73^{\circ}$) ($35.25^{\circ} \pm 1.48^{\circ}$) respectively, while it showed no significant difference in females. There was no statistical difference between the three groups regarding the other parameters {trunk imbalance, pelvic tilt, pelvic torsion, surface rotation (rms), lateral deviation (rms), and Kyphotic angle ICT-ITL (max)}. Females of the ectomorph group showed lower trunk imbalance ($2.5^{\circ} \pm 0.4^{\circ}$), higher surface rotation ($3.6^{\circ} \pm 0.7^{\circ}$) and lordotic angle ITL-ILS (max) ($48.1^{\circ} \pm 3.93^{\circ}$) than males { ($9.2^{\circ} \pm 1.26^{\circ}$), ($2.5^{\circ} \pm 0.37^{\circ}$), and ($31.4^{\circ} \pm 1.73^{\circ}$)} respectively. Conclusions: This description of the physiological spinal postural parameters help in predicting musculoskeletal conditions to which each body physique may be prone, so before a patient with spinal pathology is treated, his/ her body physique needs to be taken into account.</p>		
Key words	1.	Body physique
	2.	Postural parameters
	3.	trunk imbalance
	4.	pelvic torsion
	5.	surface rotation
	6.	lateral deviation
	7.	lordotic angle ITL-ILS (max)
Classification number	:	
Arabic Title Page	:	تأثير بنية الجسم علي معايير القوام في الأشخاص الأصحاء
Library register number	:	3881-3882.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Ayman Hussein El Khatib
Title	:	Effect of Whole body vibration on ankle's muscle performance and proprioception in elderly.
Dept.	:	Department of Basic Science.
Supervisors	1.	OMAIMA KATTABEI
	2.	ABEER ABD EL RAHMAN
	3.	SHEREEN HAMED
Degree	:	Doctoral.
Year	:	2014.
Abstract	:	
<p>Background: Impairment of muscle strength and proprioception of the lower extremities has been found to be important risk factors for falls among older people. Whole body vibration (WBV) can be used to improve these parameters and prevent falls. Purpose: The purpose of the study was to investigate the effect of whole body vibration on ankle's muscle performance and proprioception in elderly. Materials and methods: Thirty randomly healthy older males and females, participated in this study ranging between 64 and 75 years of age. They were randomly selected by sealed envelopes and divided into two equal groups each contains fifteen subjects. The first control group (A) adopted a squat position with frequency 0 Hz, the second experimental group (B) in addition to the squat position, received a vibration frequency 50 Hz, the amplitude was from 5 – 8 mm. Results: There was a statistical significant difference in the paired t-test between pre and post treatment of ankle's muscle performance and proprioception of the experimental group, P-value was (p<0.05). Conclusion: There was a significant effect of WBV on ankle's muscle performance and proprioception in elderly.</p>		
Key words	1.	Muscle performance
	2.	Whole body vibration
	3.	Proprioception
	4.	Ankle's muscle in elderly.
	5.	Ankle.
Classification number	:	612.98.EAE
Arabic Title Page	:	تأثير الإهتزاز الكلي للجسم على الأداء العضلي والمستقبلات الحسية العميقة لمفصل الكاحل عند كبار السن.
Library register number	:	3799-3800.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Khaled Zaki Saleh Fouda
Title	:	Efficacy of Electrical Stimulation Protocols on Muscle Torque and Perceived Discomfort
Dept.	:	Department of Basic Science.
Supervisors	1.	Wadida Hassan Abd El Kader El Sayed
Degree	:	Doctoral.
Year	:	2014.
Abstract	:	
<p>Background: Electrical stimulation (ES) is used extensively throughout the world to augment muscle strength. The pulse parameters that most commonly adjusted to maximize torque output include the amplitude of the current, pulse duration (PD) and frequency of the pulses. Within the available literature there is no recent prospective study has systematically investigated the accumulative training effects of ES following repeated sessions over weeks using different ES protocols of frequency and pulse duration modulations. Purpose of the study was to investigate and compare the efficacy of different ES protocols on the peak isokinetic quadriceps muscle torque and perceived level of discomfort. This may help set a protocol for ES that could be followed by physical therapists. Subjects: Sixty healthy male subjects participated in this study with a mean age of 19.8 ± 0.72 years. They were assigned randomly into three equal groups and received ES for the non dominant quadriceps muscle. Group I received the frequency-modulation protocol, group II received PD modulation protocol, and group III received PD and frequency modulation protocol. Methods: Isokinetic concentric peak torque of the non dominant quadriceps muscle was evaluated before and after training with ES at low velocity ($60^\circ/\text{sec}$) in the functional range from 90 degree knee flexion up to 0 extensions. ES was administered for 10 minutes, three times a week, in alternative days, for four weeks. Subjects rated their perceived level of discomfort in the quadriceps muscle using numerical rating scale after each training session. Results: The percentage of improvement in the quadriceps muscle isokinetic peak torque post training with ES for the combined PD and frequency modulation protocol was 32.54%, for the frequency modulation protocol was 20.24% and for the PD modulation protocol was 6.26% while the discomfort for the PD modulation protocol was 1.33, for the frequency modulation protocol was 2.92 and for the PD and frequency modulation protocol was 2.11. Conclusion: Electrical stimulation protocol that progressively increased PD to the maximum level followed by progressively increased frequency produced better performance in peak torque of the quadriceps muscle than protocols that progressively increased frequency or PD only. Also when muscle comfort is considered only, the PD modulation protocol is the best ES strategy that could be followed.</p>		
Key words	1.	Electrical stimulation protocols
	2.	muscle torque
	3.	perceived discomfort
	4.	Muscles.
Classification number	:	612.74.FKE
Arabic Title Page	:	فاعلية بروتوكولات التنبيه الكهربائي على عزم العضلة والإحساس بعدم الراحة.
Library register number	:	3713-3714.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Magda Ramadan Zahran
Title	:	Influence of foot orthoses on gait pattern
Dept.	:	Department of Basic Science.
Supervisors	1.	Mohsen Mohamed El Sayyad
	2.	Haytham Mohamed El Hafez
Degree	:	Doctoral.
Year	:	2014.
Abstract	:	
<p>Background: The manifestations of flat foot make the foot unable to absorb the forces of weight bearing effectively and as a result, the arthrokinematic relation of all body joints from foot to back will be altered resulting in an abnormal gait pattern and abnormal posture. The purpose: of this study was to investigate the differences in gait pattern between normal subjects and subjects with bilateral flexible second- degree flat feet, the effect of foot orthosis on gait pattern, the difference in the effect between both types of orthosis, and the differences in gait pattern between males and females. Subjects: 60 subjects (30 males and 30 females). Their age ranged from 18-30 years old. Subjects were assigned randomly into two equal groups. Group A (The control group) included thirty normal subjects with mean age of 24.50 ± 3.48 years old, weight 65.00 ± 7.88 kg, height 163.63 ± 9.44 cm and BMI 24.18 ± 0.60 kg/m². And group B (The experimental group) included thirty subjects with bilateral flexible second degree flat feet with mean age of 24.07 ± 3.76 years old , weight 64.50 ± 8.35 kg, height 163.23 ± 9.11 cm and BMI 24.11 ± 0.60 kg/m² . Method: feet assessment using lateral weight bearing radiographs were performed bilaterally for each subject in both groups then gait pattern was assessed using motion analysis system to measure spatiotemporal parameters and joint angles. The results: indicated that, there was a statistical difference in walking velocity while walking barefoot (WB) and with shoes (WS) ($p = 0.012, 0.001$). In addition there was a statistical difference in stride length while WB and WS ($p = 0.004, 0.007$). Also there was a statistical difference in right and left hip internal rotation, knee internal rotation, ankle dorsiflexion and subtalar joint inversion angles between both groups while WB & WS in stance and swing phases where ($P = 0.000$). The results also indicated that both types of orthosis decreased knee internal rotation angle and increased walking velocity, stride length, ankle dorsiflexion and subtalar joint inversion angles without significant difference between them. In addition the results showed that stride length and ankle dorsiflexion angle were higher while WS than WB. The results revealed that there was no statistical difference in gait pattern between males and females. Conclusion: The study concluded that subjects with bilateral flexible second degree flat feet have abnormal gait pattern than normal subjects and that the use of foot orthosis may be effective in correction of the abnormal gait pattern of knee and ankle joint with little or no effect on gait pattern of hip joint and pelvis.</p>		
Key words	1.	Flat foot
	2.	gait
	3.	pelvic inclination
	4.	kinematics
	5.	spatiotemporal parameters
	6.	prefabricated orthosis
	7.	insoles
Classification number	:	
Arabic Title Page	:	تأثير جبائر القدم على طريقة المشى.
Library register number	:	3811-3812.

**ELECTRONIC GUIDE TO THESES APPROVED BY
DEPARTMENT OF BASIC SCIENCE
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Author	:	Marwa Shafiek Mustafa Saleh
Title	:	Influence of Stance Width And Load Knowledge On Squat And Stoop Lifting: Biomechanical Analysis
Dept.	:	Department of Basic Science.
Supervisors	1.	Mohsen M. El-Sayyad
	2.	Ahmed Fathy Genedy
Degree	:	Doctoral.
Year	:	2014.
Abstract	:	<p>Back ground: Lifting has been the subject of research for many years. Even though the area of lifting biomechanics is saturated with numerous studies, there still limited data exist regarding the effect of some factors on the biomechanical analysis of lifting in particular, the effect of stance width and load knowledge. Purpose: To investigate the effect of stance width and load knowledge on trunk kinematics and myoelectric activity of lumbar erector spinae muscles during squat and stoop lifting. Subjects: Thirty male subjects with a mean age of 22.2 ± 2.95 years, weight 66.86 ± 3.89 Kg, height 167.7 ± 4.23 cm and shoulder width 39.43 ± 1.67 cm participated in this study. Method: Trunk kinematics were recorded using 3D Motion Analysis System, while myoelectric activity of erector spinae muscles were picked up by using surface electrode at L3 level. Each subject performed a total of 24 squat and stoop lifting trials, using two stance width: wide (140% of shoulder width) and narrow (75% of shoulder width), with two levels of load knowledge (known and unknown). Results: Showed that, erector spinae muscles activity and trunk velocity were significantly impacted by load knowledge in both lifting techniques, while stance had minimal effect compared to knowledge. All of the tested dependent variables were not significantly affected by the interaction between stance and knowledge. Conclusion: Lifting an object with unknown weight put a high risk on the lower back, so it is critical to know the weight of the object to be lifted either from squatting or stooping to avoid back injury.</p>
Key words	1.	Squat and stoop lifting
	2.	Load knowledge
	3.	Stance width
	4.	Spine biomechanics
	5.	Biomechanics.
Classification number	:	612.76.SMI
Arabic Title Page	:	تأثير قاعدة الإرتكاز و معرفة وزن الثقل على الرفع من وضعى القرفصاء و إنحناء الظهر: تحليل ميكانيكى.
Library register number	:	3747-3748.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Mohamed Yahya Abd-El-Hamid
Title	:	Influence of ultrasound cavitation and electrolipolysis in obesity management
Dept.	:	Department of Basic Science.
Supervisors	1.	Mohamed H. El-Gendy
	2.	Ezzat M M. Abd El Rahman
Degree	:	Doctoral.
Year	:	2014.
Abstract	:	<p>Background: obesity can be an underlying cause of many disorders and even early death. Aesthetic physical therapy has recently gotten more attention in obesity management. Purposes: The aim of this study was to explore the role of the ultrasound cavitation (UC) and/or electrolipolysis for management of obese persons. Design: Pre-test Post-test research design. Subjects: 60 participants' obese females, their age ranged from 20 to 35 years were participated in this study. The participants were randomly assigned into three equal groups; each group included 20 participants. Group (A) received UC (40 Kilo-Hertz (KHz) 2.5 watt/cm²; 40 min), once per week (Wk.) for 4 weeks (Wks.), Group (B) received needle electrolipolysis (30 Hz, not exceeding 900 micro amps; 50 min); twice per Wk. for 4 Wks., Group (C) received combination of UC (40 min), once per Wk. and needle electrolipolysis (50 min), twice per WK for 4WKS. All groups were undergone a low calorie diet and auricular acupuncture. Methods: weight (Wt.), body mass index (BMI), skin fold thickness (SFT) and waist circumference (WC) were measured before treatment, after 1Wk. and after 5Wks. of treatment. Lipid profile also was measured before treatment and after 5Wks. of treatment. Results: All groups showed significant improvement after 1WK and after 5Wks. as regard to Wt., BMI, SFT, WC and lipid profile except group B showed no-significant difference between before and after 1Wk. In comparison between groups, there were no significant difference between the 3 groups as regard to Wt. and BMI, but there were significant difference for WC, SFT and lipid profile post treatment in favor to group C. Conclusion: Combination of UC and electrolipolysis in addition to low calorie diet and auricular acupuncture were more effective than each method separately in improving the WC, SFT and metabolic parameters (Total cholesterol (TC), Triglyceride (TG), High density lipo-protein (HDL) and Low density lipo-protein (LDL).</p>
Key words	1.	Obesity
	2.	Aesthetic Physiotherapy
	3.	Ultrasound Cavitation
	4.	Electrolipolysis
	5.	Electrolipolysis.
Classification number	:	
Arabic Title Page	:	تأثير الموجات فوق الصوتية التجويفيه وإذابة الدهون كهربانياً في علاج السمنة.
Library register number	:	3915-3916.

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Author	:	Noha Soliman Abd El Hafeez
Title	:	Fixed versus different pulse amplitude of transcutaneous electrical nerve stimulation in treatment of chronic mechanical low back dysfunction
Dept.	:	Department of Basic Science.
Supervisors	1.	Omaima Kattabei
	2.	Samir El Sayed
	3.	Haytham El Hafez
Degree	:	Doctoral.
Year	:	2014.
Abstract	:	<p>Background: Low back pain is a relevant public health problem affecting sufferers' quality of life and individual functional performances so management of low back pain continuous to be a challenge. Purpose: to investigate the effect of fixed versus different amplitude of transcutaneous electrical nerve stimulation (TENS) on treatment of chronic low back dysfunction. Methodology: forty five patients with chronic low back pain assigned randomly into three equal groups. Their age ranged from 20- 50 years. The three groups received the same exercise program and group (A) received fixed amplitude of TENS for 40 min. group (B) received different amplitude TENS for 40 min, the amplitude was adjusted every 5 min. group (C) received exercises only. Three groups received treatment 3 sessions/ week for 4 weeks. Visual analogue scale, Oswestry disability index and dual inclinometer were used for evaluation before and after treatment. Results: There was a significant effect of TENS on treatment of chronic low back dysfunction while there is no significant difference between fixed versus different pulse amplitude of TENS in treatment of chronic low back dysfunction. Conclusion: TENS is effective in treatment of chronic low back dysfunction with no difference between fixed and different pulse amplitude.</p>
Key words	1.	TENS
	2.	Amplitude
	3.	Low Back Dysfunction
Classification number	:	
Arabic Title Page	:	التيارات الثابتة مقابل التيارات المختلفة الشدة من التنبيه الكهربى للأعصاب الحسية عبر الجلد فى علاج خلل وظائف اسفل الظهر المزمنة.
Library register number	:	3845-3846.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Wafaa Mahmoud Amin.
Title	:	Measurement of Scapular Kinematics in Healthy Adults.
Dept.	:	Department of Basic Science.
Supervisors	1.	Fatma Seddik Amin.
	2.	Haytham M. El Hafez.
Degree	:	Doctoral.
Year	:	2014.
Abstract	:	
<p>Background: Scapular Kinematic assessment of shoulder girdle is needed to determine the extent of injury and calculate an overall score. This method of assessment is problematic and there is no globally adopted standard. Purposes: the primary purpose to offer a three-dimensional description of static and dynamic scapular kinematics and scapulohumeral rhythm (SHR) in healthy subjects during arm elevation, and secondary to compare it between the dominant and nondominant arms. Subjects: 100 healthy subjects with right dominant hand participated in this study, their age ranged from 19 to 35 years (49 females and 51 males) with mean age of (27.03 ± 4.81 years), weight (70.72 ± 11.24 kg), height (168.11 ± 7.63 cm), and BMI (25.6 ± 2.9 kg\ m²). Method: a computerized 3-dimentional (3-D) motion analyzer system was used to collect the data of scapular kinematics in the scapular plane. Measurements of static kinematics were taken with the arm at side, elevated to horizontal position (90°), and at maximum elevation of the arm. Dynamic kinematics data were record at each 30° increments of arm elevation (at 30°, 60°, 90°, and 120°) Results: There were a high significant differences among the means of scapular rotation angles ($P = <0.0001$) at the three static position of both arms. The upward rotation angle highly increased at the non-dominant side at resting, horizontal, and maximum elevation position ($p = <0.0001, 0.003, 0.013$ respectively), while there was no significant difference in posterior tilt and internal rotation angles between both arms, but the internal rotation angle increased at maximum elevation position of the dominant arm ($p = 0.03$). Scapular upward rotation angle and SHR increased progressively during dynamic arm elevation at both arms ($p < 0.0001$). There was no significant difference in SHR between both arms, while the upward rotation angle significantly increased at the non-dominant arm ($p = 0.008$), there was a strong positive correlation between upward rotation angle and glenohumeral elevation angle; also, glenohumeral elevation angle had a medium linear influence on the upward rotation angle. It was found that SHR ratios consistently increased at each 30° increment of arm elevation. Conclusion: Healthy subjects elevate both arms in a consistent pattern of scapular kinematics and data of this study could be used for evaluation and treatment of shoulder pathologies to restore normal shoulder motion.</p>		
Key words	1.	Scapular kinematics
	2.	scapulohumeral rhythm
	3.	dominance
	4.	healthy adult subjects
	5.	Measurements.
	6.	Healthy Adults.
Classification number	:	616.71.AWM
Arabic Title Page	:	قياس كينماتيكيه عظمه لوح الكتف فى الأشخاص الأصحاء البالغين.
Library register number	:	3615-3616.