

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

Basic Science Department

Doctoral Degree 2011

Author	:	Abeer Ramadan Ibrahim Mohamed.
Title	:	Effect of sensorymotor training on balance in subjects with functional ankle instability.
Department	:	Department of Basic Science.
Supervisors	:	Samy Abd El Samad.
	:	Amal Fawzy Ahmed.
	:	Neveen Abdel Latif
	:	Eisa Ragheb Refai
Degree	:	Doctoral.
Year	:	2011.
Abstract	:	<p>Background: Functional instability has described as the subjective sensation of giving way or feeling joint instability after repeated episodes of ankle sprain. Purposes: of this study was to investigate the effect of sensory motor training (SMT) on balance in subjects with functional ankle instability. Materials and Methods: forty subjects (females and males) with unilateral Functional ankle instability were assigned into two matched groups, experimental group who received SMT for four weeks, six sessions a week, 30 minutes for each session, control group who didn't receive SMT. Their mean age was (control group "19.6± 1.5" years and experimental group "19.15 ± 1.66 years). Base line testing included the (1) Overall (OSI) (2) anterior/posterior (APSI), (3) Medial/lateral (MLSI) stability index, at level 2 and level 6 for the involved and uninvolved limb, and (4) ankle joint functional assessment tool (AJFAT). Experimental group completed 4-weeks of SMT, after 4-weeks all subjects were retested with biodex balance system. Results: There were a statistical significant decrease in OSI, APSI and MLSI at stability level 6 and 2 between before and after SMT for involved and uninvolved limbs in subjects of the experimental group while there were no significant difference in OSI, APSI and MLSI at stability level 6 and 2 between before and after 4-weeks for involved and uninvolved limbs in subjects of the control group. The comparison of the results in stability index between both groups showed significant decrease differences between pre and post training values. Additionally there was a significant increase in AJFAT between before and after SMT in subjects of the experimental group while there was no significant difference in AJFAT between before and after 4-weeks in subjects of the control group. There was a significant correlation between AJFT and OSI, APSI and MLSI. There was a significant improvement of number and percentage of cases in the experimental group who able to perform single leg standing test after completion of SMT after 3 months follow up. Conclusion: this study suggests that SMT is an effective means of improving joint proprioception and single-leg balance ability in subjects with functional ankle instability.</p>
Key words	:	Balance.
	:	functional ankle instability.
	:	sensorymotor training.
Arabic Title Page	:	تأثير التدريبات الحسية الحركية على التوازن في الأشخاص الذين لديهم عدم ثبات وظائف لمفصل الكاحل.
Library register number	:	2457-2458.
Author	:	Eman Ahmed Abd El-Moez

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Title	:	Trunk and gluteus medius muscles activation patterns during prolonged standing in low back pain.
Department	:	Department of Basic Science.
Supervisors	:	Samy Abd El-Samed Nasif.
	:	Awatif Mohammed Labeeb.
	:	Halaa Rashad Habashy.
Degree	:	Doctoral.
Year	:	2011.
Abstract	:	<p>Background: Occupations requiring prolonged periods of standing (PS) are associated with low back pain (LBP) development. Altered trunk muscles activation in LBP patients has been previously demonstrated. However, the role of hip abductors has not been studied extensively. Purposes: So, the purposes of this work were to investigate the changes in trunk and gluteus medius (GM) muscles activation patterns during PS in LBP patients and to study the changes in lateral pelvic angle (LPA) following standing. Methods: 15 chronic LBP clinical instructors and 15 matched asymptomatic controls stood in a constrained area (80x80 cm) for 30 min. during which trunk and hip electromyography (EMG) was recorded. Cross-correlation analyses were used to determine co-activation patterns. 3D measurement of LPA was measured before and after the standing task. Results: LBP demonstrated greater ($P<0.05$) bilateral GM co-activation during the standing task. Although not exhibiting any pain reports, asymptomatic group demonstrated co-contraction of trunk and GM muscles during standing. There was no significant ($P>0.05$) change in the LPA in both groups following the standing task. Conclusions: LBP should not be considered in isolation from hip muscles activation patterns. Trunk and GM co-contraction may predispose some individuals to develop LBP.</p>
Key words	:	activation pattern.
	:	gluteus medius.
	:	prolonged standing.
	:	cross-correlation.
	:	pelvic kinematic.
Arabic Title Page	:	أنماط التشبيه لعضلات الجذع و عضلة الإلية الوسطى أثناء الوقوف لفترات طويلة في آلام أسفل الظهر.
Library register number	:	2349-2350.

Author	:	Magda Gaid Sedhom Guirguis.
Title	:	Normative Isokinetic Data of Trunk Muscles Performance in

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	: Adolescents.
Department	: Department of Basic Science.
Supervisors	: Omaina Kattabei.
Degree	: Doctoral.
Year	: 2011.
Abstract	:
<p>The Purpose: of this study was to provide physical therapy field with normative objective data of abdominal and back muscles performance in adolescents who are typically developing, and to establish reference data of isokinetic measurement of both muscles. Subjects and method: two hundred adolescents (100 males and 100 females), from 15 to 18 years old were participated in this study. They were classified into eight groups of equal number and were assessed using Biodex system 3 Pro isokinetic dynamometer to measure the peak torque, work, power, abdominal to back muscle ratio in concentric mode at two angular velocities (60 and 180°/sec) and peak torque in isometric mode at upright position. Results: The study revealed that the back muscle produces a greater torque than the abdominal muscle at each of the two test velocity. A significant difference demonstrated between the two speeds; at the higher velocity, peak torque of abdominal ms. increased significantly, while peak torque of back ms. decreased significantly during concentric contractions. There was significant difference between males and females trunk muscles performance in concentric mode of test in favor to males. There was significant difference between males and females trunk muscles performance in isometric mode of test in favor to males. Abdominal to back torque ratios increased significantly at the higher speed during concentric activity. Conclusion: On basis of the present data, it is possible to conclude that there was significant increase in peak torque with decreasing angular velocity. Males have greater muscle performance either in concentric or isometric mode than females' adolescents.</p>	
Key words	: <i>Normative.</i>
	: <i>Isokinetic.</i>
	: <i>Abdominal.</i>
	: <i>Back muscles.</i>
	: <i>Adolescent.</i>
Arabic Title Page	: البيانات الطبيعية للأداء الايزوكينتيكي لعضلات الجذع لدى المراهقين.
Library register number	: 2567-2568.

Author	: Mohamed Serag El-Dein.
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Title	:	Effect of obesity on plantar pressure and kinematic knee pattern in adult.
Department	:	Department of Basic Science.
Supervisors	:	Maher Ahmed El-Keblawy.
	:	Mohamed Hussein El-Gendy.
	:	Mohamed Saad Hamed.
Degree	:	Doctoral.
Year	:	2011.
Abstract	:	<p>The purpose of this study was to determine the effect of obesity on plantar pressure and kinematic knee pattern in adult. Subjects: Sixty subjects of both sexes (32M-28F) P value (0.22) ranged in age from twenty to forty years participated in this study. They were classified according to body mass index into four groups of equal numbers (normal- overweight- obese class I- obese class II). Method: A foot scans system and motion analysis system for evaluation was used for all groups. Results: The overweight and obese subjects showed significantly higher peak force (over forefoot, rear foot, and mid foot areas) among the four groups its P value was (0.0001) and higher peak pressure (over forefoot and rear foot areas) than those showed in normal subjects its P value was (0.0001). But there was no significant differences in the peak pressure over mid foot among the four groups as P value was (0.78). Also, the overweight and obese subjects showed significant difference knee joint angle than normal subjects in the mid stance phase of the gait cycle its F value was (116.92) and P value was (0.0001). Conclusion: From the obtained results it may be concluded that there were significant effect of obesity on changing the plantar pressure pattern .Also, there were significant effect of obesity on kinematic knee pattern in adults.</p>
Key words	:	Obesity in adult
	:	Plantar pressure pattern.
	:	kinematic knee pattern.
Arabic Title Page	:	تأثير السمنة على توزيع الضغط أسفل القدم ونموذج حركة الركبة عند البالغين.
Library register number	:	2461-2462.

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Author	:	Rania Reffat Ali.
Title	:	Effect of Splinting at Different Wrist Angles on Carpal Tunnel Syndrome.
Department	:	Department of Basic Science.
Supervisors	:	Awatef Mohammed Labib.
	:	Fatma Sediek Ameen.
	:	Emam Hassan El-Negamy
	:	Hisham Mosbah Soliman.
Degree	:	Doctoral.
Year	:	2011.
Abstract	:	
<p>Background: Carpal tunnel syndrome (CTS) is one of the most common peripheral nerve entrapment syndromes in the upper limb, causing sensory and motor disturbances in the hand. It has been increasing over the past two decades and CTS is a known cause of work disability.</p> <p>Purpose of the study: to investigate the effect of splinting at different wrist angles on altering pain level, sensory, motor distal latencies of the median nerve (MSDL and MMDL), and handgrip strength in patient with CTS.</p> <p>Materials and methods: Sixty CTS patients (43 females and 17 males) with the mean age of (40.2) years were assigned randomly into four equal groups. Group A received traditional treatment (ultrasound and nerve tendon gliding exercises) for the wrist 3 times per week for 6 weeks. Group B received traditional treatment with wrist splint in neutral position at night time and during the day when symptoms aggravate. Group C received traditional treatment with wrist splint in 15 degrees extension at night time and during the day when symptoms aggravate. Group D received traditional treatment with wrist splint in 30 degrees extension at night time and during the day when symptoms aggravate. Pain level, MSDL and MMDL, and handgrip strength were measured pre and post treatment by visual analogue scale, electromyography, and hand held dynamometer, respectively.</p> <p>Results: There was significant decrease in pain level, MSDL and MMDL, and increase in hand grip strength in all groups with higher significance in group B and C.</p> <p>Conclusion: This study showed the feasibility, safety and cheapness of the splinting as an additional tool in treating CTS patients. It provides statistical significant improvement in pain level, objective neuronal functions of the median nerve, and handgrip strength especially at neutral and 15 degrees of wrist hyperextension.</p>		
Key words	:	Carpal tunnel syndrome.
	:	Pain.
	:	Electrodiagnosis.
	:	Wrist.
	:	Handgrip strength
	:	Splinting.
Arabic Title Page	:	تأثير التجبير عند الزوايا المختلفة لمفصل الرسغ على متلازمة اختناق العصب الاوسط.
Library register number	:	2629-2630.

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Author	:	Reem Sayed Sayed Dawood.
Title	:	Efficacy of Kinesio Taping Versus Cervical Traction on Mechanical Neck Dysfunction.
Department	:	Department of Basic Science.
Supervisors	:	Omaima Mohamed Ali Kattabei.
	:	Samy Abdul-Sammad Nasef.
	:	Khalid Abdul-Jallil Battarjee.
Degree	:	Doctoral.
Year	:	2011.
Abstract	:	
<p>Background: Neck pain is a very common problem which produces a high level of morbidity by affecting occupational and vocational activities of daily living and by affecting the quality of life. Mechanical Neck Dysfunction (MND) affects about two thirds of people in middle age with common cause of bad posture. Kinesio taping is a new therapeutic modality used to correct and treat many musculoskeletal disorders. It is based on natural healing process and it's beneficial in reducing pain and restoring function. Posture pump cervical traction is a new traction device for the treatment of neck pain and postural dysfunction. <u>The purpose:</u> of this study was to investigate the efficacy of kinesio taping versus cervical traction posture pump on MND. <u>Subjects:</u> Forty five patients with MND participated in this study, their age ranged from 20-35 years (24.8±3.1). They were assigned randomly and equally into three groups; Group (A) received kinesio taping every 4 days for 8 sessions with exercises program, Group (B) received cervical traction posture pump with exercises program 3 days/week for 12 sessions, and control Group C (exercises program only) received exercises program inform of stretching, postural and isometric exercises for neck and shoulder joint 3 days/week for 12 sessions. <u>Methods:</u> Absolute Rotatory Angle (ARA), pain intensity and neck function disability were measured pre and post treatment by digital radiography, Visual Analogue Scale (VAS) and Neck Disability Index (NDI) respectively. <u>Results:</u> For the experimental groups there was a significant increase in ARA, significant decrease in VAS and NDI with the superior effect of kinesio taping on cervical traction. The control group had a significant decrease in VAS and NDI with least effect, but with no effect on ARA. <u>Conclusion:</u> It was concluded that the results were skewed toward the kinesio taping than cervical traction posture pump on ARA, pain intensity and function neck disability in MND.</p>		
Key words	:	Kinesio taping.
	:	cervical traction posture pump.
	:	mechanical neck dysfunction.
Arabic Title Page	:	كفاءة شريط كينيسيو مقابل الشد العنقي في حالات الخلل الوظيفي الميكانيكي للرقبة
Library register number	:	2693-2694.

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Author	:	Reham Hussein Diab.
Title	:	Efficacy of Spinecor Brace on Posture in Adolescent Idiopathic Scoiosis.
Department	:	Department of Basic Science.
Supervisors	:	Omaina M. Aly Kattabei.
	:	Mohammed Abd-El Fatah.
	:	Aliaa Attiah Diab.
Degree	:	Doctoral.
Year	:	2011.
Abstract	:	
<p>Back ground: The patients acceptance to the rigid spinal orthosis is always a concern as it could greatly affect the clinical outcome. But SpineCor brace is a relatively new design for tackling those inevitable drawbacks found in rigid orthosis. The purpose: This study was conducted to investigate the efficacy of SpineCor brace on posture in adolescent idiopathic scoliosis. Subjects: thirty scoilotic patients from both genders aged ranged from 11-20 years were randomly assigned into two equal groups (study and control). Both groups received the exercises pograms (stretching and strengthening), in addition to SpineCor brace for the study group only. Method: postural parameters included (trunk imbalance, surface rotation (rms), pelvic torsion, lateral deviation (rms), pelvic tilt) were measured before and after 6months of SpineCor as indicator of postural improvement. Results: there was significant improvement in all measured variables after treatment in study group than more control group. while there was no significant difference in (pelvic torsion, surface rotation (rms)) in control group after treatment. Conclusions: SpineCor is an effective tool in the management of adolescent idiopathic scoliosis. Long term studies are necessary to determine the sustainability of these early positive out comes.</p>		
Key words	:	SpineCor brace.
	:	Posture.
	:	Scoilosis.
	:	Adolescent idiopathic scoliosis.
	:	Postural parameters.
Arabic Title Page	:	كفاءة دعامة العمود الفقري على القوام للمصابين بالانحناء الجانبي للظهر.
Library register number	:	2445-2446.

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Author	:	Yasser Mohamed Aneis.
Title	:	Multi-dimensional Analysis as A predictor of Fall in Elderly with Diabetic Peripheral Neuropathy.
Department	:	Department of Basic Science.
Supervisors	:	Maher Ahmed El-Keblawy.
	:	Sadek M. Helmy.
	:	Amir M. Saleh.
Degree	:	Doctoral.
Year	:	2011.
Abstract	:	<p>Despite extensive preventive efforts, falls continue to be a major source of morbidity and mortality among older adults. Falls often lead to serious injuries such as hip fractures, hospitalization, and even death. The wide ranging effects of falls and the potentially high cost of these interventions necessitate identification and targeting of those persons at risk of falling before the first incident. <u>The Purpose:</u> of this study was to assess if Multi-dimensional analysis is a predictor of fall in elderly with diabetic peripheral neuropathy. <u>Subjects:</u> Sixty subjects from both sexes with age ranged from 50 to 65 years old were assigned into three equal groups: the control group (C) consisted of twenty normal subjects with mean age of (57.35 ± 1.16) years and mean body mass index (BMI) of (28.04 ± 0.25) Kg/cm², a diabetic neuropathic group (DN) consisted of twenty subjects with mean age of (57.70 ± 0.94), mean BMI of (27.73 ± 0.26) Kg/cm², mean duration of illness (14.55± 0.51) years, and a mean glycosylated hemoglobin [HbA1c %] of (6.55 ± 0.24) , and a diabetic neuropathic group with previous history of plantar ulceration (DPU) consisted of twenty subjects with mean age of (58.15 ± 0.97) years, mean BMI of (27.73 ± 0.26) Kg/cm², mean duration of illness (15.05 ± 0.48) years, and a mean [HbA1c %] of (7.21 ± 0.22). <u>Methods:</u> Kinetic, kinematic, and Electromyographic data of subjects with diabetic peripheral neuropathy and those of the age and sex-matched control subjects were assessed then any associations between Kinetic, Kinematic, and Electromyographic data and prospective fall data that was tracked monthly for 6-months of follow-up following the testing procedures were investigated. <u>Results:</u> regression analysis revealed that seven variables ; double support time (s), ankle mobility, hip ROM (PO), braking force peak (% BW), propulsion force peak (% BW), medial gastrocnemius activity (PO), and tibialis anterior firing lag were associated with fall. Moreover; double support time (s), braking force peak (% BW), and tibialis anterior firing lag constituted the best predictive model for falling attacks in elderly with diabetic peripheral neuropathy. <u>Discussion and Conclusion:</u> These results would seem to imply that Multi-dimensional analysis could be used in assessing fall in diabetic peripheral neuropathy subjects. In turn, health care professionals could use these results in the successful identification of fallers and subsequently enroll these individuals in a fall prevention program as well as monitor their progress on a monthly or yearly basis.</p>
Key words	:	Diabetic Peripheral Neuropath.
	:	Prospective Study.
	:	Fall Prediction.
	:	Multi-dimensional Analysis.
Arabic Title Page	:	التحليل متعدد الأبعاد كمؤشر تنبني للوقوع في المسنين المصابين بالتهاب الأعصاب الطرفية الناتج عن مرض السكر
Library register number	:	2599-2600.