

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

**Physical Therapy Department for Musculoskeletal
Disorder and Its Surgery
Master Degree 2019**

Author	:	Abd Allah Gamiel Ayed.
Title	:	Effect of Vojta Method on Electromyographic Activity of Multifidus muscle in Chronic Low Back Pain Patients.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia Abd El Azim Fayaz.
	2.	Samah Saad Zahran.
	3.	Mohamed Hamed Rashad.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Low back pain (LBP) is a common complaint worldwide, though some people are able to deal with their LBP, for many the pain can become unbearable and debilitating. Vojta is a neurophysiological method used to obtain reflex responses in muscles following stimulation of particular activation zones using digital pressure. Objectives: To determine the effect of Vojta method on electromyographic activity of multifidus in chronic low back pain patients. Methods: thirty- five patients both males and females with chronic low back pain included in the study from Modern University for Technology and Information (MTI) outpatient clinic. Their mean \pm SD age, weight, height, and BMI ranged from 27.25 ± 6.62 year, 80.42 ± 9.78 kg, 174.25 ± 3.86 cm, 26.45 ± 2.86 (kg/m²). Surface electromyographic recordings for multifidus were performed during resting position, and with maximum voluntary isometric contraction (MVIC). Then surface electromyographic (SEMG) recordings were performed during stimulation at certain zones according to the Vojta methodology Results: there was a significant increase in the EMG amplitude of multifidus in Vojta method compared with that of the resting position and it represents 48% of MVIC. There was a significant increase in activation time of multifidus in vojta method and it represents 204.42% of MVIC. Conclusion: Vojta method increased the activity of multifidus muscle compared with resting position and the time of activation during Vojta increased more than the time of MVIC. So we can use this method for treating chronic LBP.</p>		
Key words	1.	Chronic low back pain.
	2.	Surface electromyography.
	3.	Vojta method.
	4.	Multifidus.
	5.	Electromyographic Activity.
Classification number	:	000.000.
Pagination	:	79 p.
Arabic Title Page	:	تأثير طريقه فويتا على رسم العضلات العديدة الشقوق في مرضى الم اسفل الظهر.
Library register number	:	6443-6444.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Abd Allah Gamiel Ayed.
Title	:	Effect of low intensity pulsed ultrasound in treatment of knee osteoarthritis.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Salwa Fadl Abdel-Mageed.
	2.	Mohamed Farouk Abdel-Latif.
	3.	Hatem Mohamed Al-Azizi.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: It is clear that OA is a complex multifactorial disease process involving cartilage catabolism and anabolism. LIPUS may play a potential chondroprotective role in chondrocyte metabolism; enhance cell proliferation and matrix production. Objective: is to investigate the effect of low intensity pulsed ultrasound (LIPUS) therapy on cartilage repaired and pain in patient with grade 2 or 3 osteoarthritis of the knee Methods: Thirty-two osteoarthritic women with mild and moderate knee osteoarthritis ageing between 50 to 70 years with BMI between 28.7 to 47.2 kg / m² participated in this study. As each subject was her control in a single group pretest posttest study design. All participants received the treatment of low intensity pulsed ultra sound (LIPUS) for successive three months. And evaluated before and after treatment using the musculoskeletal ultrasound for cartilage thickness and visual analogue scale (VAS) for pain severity. Results: The statistical analysis revealed that there was a significant difference between mean values of the relative differences of MSUS and VAS before and after LIPUS treatment. Both knees showed a significant increase in MSUS but the left knees showed a higher increase both knees showed a significant decrease in VAS but the right knee showed a higher decrease. Conclusions: low intensity pulsed ultrasound therapy may be considered as one of the most helpful methods of physiotherapy in management of knee osteoarthritis in female with second and third degree of osteoarthritis.</p>		
Key words	1.	Knee osteoarthritis.
	2.	Musculoskeletal Ultrasonography.
	3.	low intensity pulsed ultrasound - knee osteoarthritis.
	4.	Ultrasound therapy.
Classification number	:	000.000.
Pagination	:	78 p.
Arabic Title Page	:	تأثير الموجات فوق الصوتية منخفضة الشدة في علاج الالتهاب العظمى المفصلي لمفصل الركبة.
Library register number	:	6469-6470.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Abdallah Mohamed Kamel.
Title	:	Effects of Flexible Flat Feet on electromyographic activity of Erector Spinae and Multifidus.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia Abd Elazim Fiyaz.
	2.	Samah Saad Zahran.
	3.	Mohammed Hamed Rashad.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Flexible flatfoot (FFF) has been considered as a risk factor for a number of lower limb injuries and mechanical low back pain. This, was attributed to dysfunction of the lumbopelvic-hip complex musculature.. Objective: To investigate the influence of FFF on electromyographic activities of erector spinae and multifidus . Methods: cross section study was held between an FFF group (20 subjects) and normal foot group (20 subjects). A Surface Electromyography was used to assess the electromyographic activity of erector spinae and multifidus . Group differences were assessed by T test. Results: There was a significant increase in EMG activities of erector spinae and multifidus in FFF group compared with normal group . Conclusion: there is increase in EMG activities in erector spinae and multifidus in FFF subjects compared with normal subjects.</p>		
Key words	1.	Flatfoot.
	2.	electromyography
	3.	paraspinal muscles
	4.	Erector Spinae and Multifidus.
Classification number	:	000.000.
Pagination	:	85 p.
Arabic Title Page	:	تأثير القدم المسحاء اللينة على رسم العضلات الناصبه لفقار والعضلات العديده الشقوق.
Library register number	:	6385-6386.

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AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Adnan Abd ElKhalik Atwa Gharib.
Title	:	Effect of Cold Laser versus Laser Puncture on Post Cervical Laminoplasty Syndrome.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Wadida Hassan Abd Elkader El Sayed.
	2.	Hassan Husein Ahmad.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Determining appropriate cold laser (CL) type in post cervical laminoplasty syndrome (PCLS) is a key challenge in physical therapy practice facing conflicting results. Purpose: to compare CL with laser puncture (LP) effect on chronic neck pain on patients suffering from PCLS. Methods: Sixty participants suffering from PCLS randomly allocated into three groups. All groups received conventional physical therapy (isometric strengthening and core stabilization) exercises, plus group A received CL (632.8 nm, 24 J/cm²) on tender areas; group B received LP (632.8 nm, 24 J/cm²) over specific acupoints. All groups received fourteen sessions, twice weekly for seven consecutive weeks. All participants underwent three evaluations of chronic neck pain intensity level using pain intensity numerical pain rating scale (NPRS), cervical kinematics using C2-C7 Cobb angle as gold method for both cervical sagittal lordotic angle and cervical sagittal range of motion (ROM) and neck disability level using neck pain disability index (NPDI), at the beginning and the end of the study, as well after twelve weeks as a follow up. Results: There were no significant differences at the baseline of the study (P-values > 0.5). Statistical analysis shown high significant improvements (P-values < 0.001) at 7th week in all groups for all outcome measures. There was high statistical significant improvements in pain intensity levels (P-values < 0.001), and significant differences in neck disability scores (P-values < 0.05), while there were no significances for cervical kinematics measures (P-values > 0.5) at follow up in all groups. Only pain intensity level showed significant improvements (P-values < 0.05) in all groups and other outcome measures have no statistical significant improvements (P-values > 0.5) at follow up. Conclusion: The study showed that both CL and LP have extended mild analgesic effect and gained moderate improvement of neck disability scores. It was concluded that CL and LP (632.8 nm, 24 J/cm²) per tender areas and specific acupoints could be recommended as a physical therapy modality added to the conventional physical therapy in treating patients with PCLS</p>		
Key words	1.	Cold laser.
	2.	Chronic neck pain.
	3.	Laser puncture.
	4.	Post cervical laminoplasty syndrome.
Classification number	:	000.000.
Pagination	:	104 p.
Arabic Title Page	:	تأثير الليزر البارد مقابل الليزر الوخزي علي متلازمة بعد رأب الصفيحة العنقية.
Library register number	:	6737-6738.

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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Ahmed Abdul-Moneem Mohamed Fahmy.
Title	:	Efficacy of Shockwave Therapy Versus Therapeutic Exercises On Pain And Dynamic Balance In Patients With Plantar Fasciitis.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Abdel-Rahman Chabara.
	2.	Hamed Mohamed El-Khozamy.
	3.	Ayman Abdulsameea Shaheen.
Degree	:	Master.
Year	:	2019.
Abstract	:	<p>Background: Plantar fasciitis is a painful disorder of the plantar fascia. It is the most common cause of plantar heel pain and accounts for approximately 11–15% of foot symptoms presenting to physicians. Purpose of study: The purpose of this study was to compare the effects of radial shock wave (RSW) alone, therapeutic exercises (stretching and strengthening) alone and RSW combined with therapeutic exercises (stretching and strengthening) on pain severity and dynamic balance in patients with chronic plantar fasciitis (CPF). Methods: Forty five males and females patients with unilateral CPF participated in this study; their age ranged from 40-50 years. Patients randomly assigned into three groups. Group (A): Received three sessions of RSW therapy. Group (B): Received stretching and strengthening exercises as a home program. Group (C): Received three sessions of RSW therapy (one session every week), stretching and strengthening exercises as a home program. Patients were evaluated for pain by using visual analogue scale (VAS) and dynamic balance by using y- balance test before 1st session and at the end of treatment program. Results: There was significant decrease in visual analogue scale (VAS) in favor of group C compared with that of group A and that of group B ($p < 0.01$) and in favor of group A compared with that of group B ($p < 0.001$). There was a significant increase in anterior, posterolateral and posteromedial excursion of Y balance test in favor of group A compared with that of group B ($p < 0.05$); and a significant increase in anterior, posterolateral and posteromedial excursion in favor of group C compared with that of group B ($p < 0.001$). However; there was no significant difference in anterior, posterolateral and posteromedial excursion between group A and C post treatment ($p > 0.05$). Conclusion: RSW therapy only or combined with therapeutic exercises are more effective than therapeutic exercises only on pain and dynamic balance in patients with CPF Conclusion: It was concluded that therabite was a beneficial therapeutic modality in the treatment of patients with microstomia after facial burn in expression of increment of maximal interincisal opening and improving mandible function.</p>
Key words	1.	Plantar fasciitis.
	2.	Therapeutic exercises.
	3.	Radial Shockwave.
	4.	Pain.
	5.	Dynamic Balance - Plantar Fasciitis.
Classification number	:	000.000.
Pagination	:	81 p.
Arabic Title Page	:	فعالية العلاج بالموجات التصادمية مقابل التمرينات العلاجية على الألم والاتزان الحركي في مرضى التهاب لفافة القدم الاخمصية.
Library register number	:	6717-6718.

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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Ahmed Mohamed Asim Shady.
Title	:	Relationship Between Sacroiliac Joint Dysfunction And Lumbar Flexibility.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Salwa Fadl Abd Almageed.
	2.	Walid Mohamed Ahmed Abd El Baky.
	3.	Hamed Mohamed Elkhozamy.
Degree	:	Master.
Year	:	2019.
Abstract	:	<p>Introduction: Low Back Pain (LBP) is a symptom rather than a disease diagnosis. Pathology in the low back might affect the pattern of movement rather than only the range of movement. Although most people with LBP recover relatively rapidly, approximately 10% do not respond to treatment and eventually develop chronic LBP. The most likely cause for this non-response to treatment is lack of specific diagnosis and inability to distinguish, in some people, pain arising from the sacroiliac joints (SIJs) or the lumbar spine. The SIJ has been implicated as a source of low back and lowers extremity pain. Objective: To investigate the relationship between Sacroiliac joint dysfunction (SIJD) and lumber movement in sagittal and frontal plane. Methods: 40 subjects were assigned into 2 groups. group (A) control group of 20 subjects. group (B) study group 20 patients. Both groups spinal flexibility and pelvic inclination are measured. Results: There is correlation between SIJD and lumbar spine flexibility on sagittal plan. On the other hand, the results of comparison between study and control group shows that study group with less flexion and extension range of motion (ROM) with increase of pelvic asymmetry. Also Results proved no correlation between sacroiliac dysfunction and lumbar spine flexibility on frontal plan. Conclusion: There was change of lumbar spine mobility in sagittal plan on extension and overall sagittal ROM with SIJD patients, while no relationship was found with sacroiliac dysfunction on frontal plan though in comparison between groups it showed that patient with SIJD had less overall frontal plan ROM.</p>
Key words	1.	Sacroiliac joint dysfunction.
	2.	Lumbar flexibility.
Classification number	:	000.000.
Pagination	:	97 p.
Arabic Title Page	:	العلاقة بين خلل المفصل العجزي الحرقفي ومرونة المنطقة القطنية.
Library register number	:	6711-6712.

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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Ahmed Rageh Saber Ali
Title	:	Comparitive Study Among Three Physical Therapy Programs Of Shoulder Impingment Syndrome In Bodybuilding Athelets.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia Abd Elazeem Fayaz.
	2.	Ebtessam Fawzy Gomaa.
	3.	Ahmad Hamdi Azzam.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Shoulder impingement syndrome (SIS) is the most common cause of shoulder pain. Weight training places shoulder in unfavorable positions such as end-range external rotation while under heavy loads, creating joint and muscle imbalances and predisposing the shoulder to injury. Porpuse: this study was to evaluate differences among three physical therapy programs in treatment of impingment syndrome in bodybuilding players. Subjectes and methods:45 patients (25-40 years old) with impengiment syndrome selected from athletes participating in practice body-building. Patients were randomly assigned into three groups (15 patients in each group).Outcoms: posterior capsule tightness (PCT), glenohumeral internal rotation deficit (GIRD), dyskinesia (type2) and rotator cuff strength were assessed using Hand held dynamometer, goniometer and tape measurement before and after 4 weeks of treatment. Result : There was a statistical significant difference between the three groups post one month of intervention in external rotator strenrngth ($P=0.034$), lower trapezius strength ($P=0.005$) and scapular load test (dayskinesia) ($P=0.214$). the diffrences was to the favor of group C .Although all groups had a significal improvemrnt post treatment in all other measured parameters ,but there was no statistical significal diffrences between the three groups ($P>0.05$) .Conclusion: Based on the scope and findings of this study , We can conclude that Group C which received stretching exercises for posterior capsule and pectoralis minor with strengthening exercises for rotator cuff and correction of scapular dyskinesia had much better improvement in external rotator and lower trapezius strength, lateral scapular slide than the other groups so we can conclude that treatment of SIS should be combind with stretching exercises for Posterior capsule and pectoralis minor with strengthening exercises for rotator cuff and correction of scapular dyskinesia.</p>		
Key words	1.	Physical therapy Programs.
	2.	Shoulder impengiment syndrome.
	3.	athelets.
	4.	body building.
Classification number	:	000.000.
Pagination	:	80 p.
Arabic Title Page	:	دراسة مقارنة بين ثلاثة برامج علاج طبيعي في متلازمة انحشار الكتف عند رياضى كمال الأجسام.
Library register number	:	6207-6208.

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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Asmaa Mahmoud Hussin.
Title	:	Effects Of Smartphone Usage Duration On Neck Dysfunction In Young Versus Middle-Aged Patients With Chronic Mechanical Neck Pain.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Aliaa Mohammed Rehan Youssef.
	2.	Mohamed Shawki Abdelsalam.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: The use of handheld devices such as smartphone has been associated with neck pain. However, it is unclear whether the deleterious effect of smartphone use is dependent on duration and/or user's age or not. Therefore, the purpose of this study was to compare the effects of smartphone usage duration on neck dysfunction in young and middle-aged adults with chronic mechanical neck pain. Methods: Eighty females, 40 young and 40 middle-aged adults, with mechanical neck pain were recruited for this study. Patients browsed the internet continuously for 10- and 30-min, at two different sessions. Neck pain, proprioception acuity and fatigue were assessed before (baseline) and immediately after net surfing (post-task). Results: Patients in the two groups showed significant pain accentuation after smartphone usage, regardless to the duration. However, changes in pain severity were not different between the two groups ($P>0.05$). For Deep Cervical Flexors (DCF) fatigue, there were no significant differences within and between the two groups ($P>0.05$). For proprioception acuity, the middle-aged group showed increased neck extension error after the 10 min task and neck flexion error after the 30 min task ($P<0.05$). The young adults showed significant increase in neck flexion error after the 10-min task compared to the middle-aged patients. Conclusion: Smartphone continuous use for net browsing up to 30 min increases pain and proprioception deficit in selected directions with no evidence of change in DCF fatigue within the same session. Age did not affect the pain severity, DCF fatigue or proprioception acuity after smartphone usage.</p>		
Key words	1.	Neck pain.
	2.	Smartphone On Neck.
	3.	Neck endurance.
	4.	Chronic Mechanical Neck Pain.
	5.	Young- Neck Pain.
	6.	Middle-Aged Neck Pain.
Classification number	:	000.000.
Pagination	:	71 p.
Arabic Title Page	:	تأثير استخدام الهواتف المحمولة على اعتلال الرقبة في الصغار و متوسطي العمر من مرضى آلام الرقبة الميكانيكية المزمنة.
Library register number	:	6419-6420.

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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Eman Moh. H Sherif.
Title	:	Efficacy of Sacro-occipital Technique on Sacroiliac Joint Instability in Females.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Salwa F.Abdel-Mageed
	2.	Mahmoud Moh. Ibra. Abdel-Ghaffar
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Sacroiliac function is considered to be important in many manual therapy systems because of the complexity and location of the Sacroiliac joint in the kinetic chain, 98% of patients having Low back pain had mechanical dysfunction of the sacroiliac joints. Aim of the study: The Aim of this study is to explore the effect of Sacro- occipital technique on pelvic obliquity in patients with Sacroiliac joint instability. Patient and Methods: Thirty female patients were randomly assigned into two groups and each group consists of 15 patients. Control Group (A) treated by Therapeutic ultrasound and Study Group (B) treated by Sacro-occipital technique + Pelvic belt + Therapeutic ultrasound. Referred from orthopedist with the diagnosis of Sacroiliac joint pain with mean age, weight and height 29.5(± 3.8) years, 74.7(± 5.3) kg, and 163(± 4.4) cm respectively. Pelvic obliquity was objectively measured by using pelvic inclinometer. Results: No statistically significant difference between groups in pelvic obliquity before treatment. But A significant reduction in pelvic obliquity was observed in the study group (B) compared to the control group (A). Conclusion: The study proved that Sacro occipital technique decreased the pelvic obliquity in patient with sacro iliac joint instability.</p>		
Key words	1.	Sacro-occipital technique,
	2.	sacro iliac joint instability.
	3.	pelvic obliquity
	4.	Females in Sacroiliac Joint Instabilit.
Classification number	:	000.000.
Pagination	:	78 p.
Arabic Title Page	:	فاعلية تقنية العجزية الفذالية على عدم ثبات مفصل العجزية الحرقفية عند السيدات.
Library register number	:	6333-6334.

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AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Eman Ramadan Abd Esatar Ab Turkey.
Title	:	Cross-cultural Adaptation, Validity and Reliability of The Arabic Version of The Foot Ankle Ability Measure Questionnaire.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Salwa Fadl Abd Elmajeed.
	2.	Samah Saad Al Moogy Zahran.
	3.	Hazem Refaat Ahmed Ibrahim.
Degree	:	Master.
Year	:	2019.
Abstract	:	<p>Introduction: The Foot Ankle Ability Measure (FAAM) Questionnaire developed to assess the level of disabilities due to ankle pain. However, its use is limited to non-English speaking countries. Objective: To determine whether the FAAM is a valid and reliable tool in a population in Egypt. Methods: Trans-cultural adaptation of FAAM was performed. Then, 101 patients with Chronic Ankle Instability filled the FAAM and a previously validated SF-36 Health Survey and Numerical Pain Rating Scale (NPRS). 50 females and 51 males with age range from 18-50 years. After that, internal consistency and test re-test reliability were measured by the Cronbach's α and intraclass correlation coefficients (ICC), Concurrent validity against Arabic version of SF-36 Health Survey and NPRS, and construct validity by factorial analysis. Results: The FAAM showed a wide range of score distribution with no floor or ceiling effect, also it revealed that the internal consistency of observer scale of the FAAM ADL was high level with Cronbach's alpha = 0.947. As well as, that the internal consistency of the observer scale of the FAAM sport was high level with Cronbach's alpha = 0.93, high test re-test reliability (Intraclass correlation coefficient = 0.971). Pearson correlation coefficient showed good correlation between the FAAM ADL, FAAM sport and NRS with ($r=-0.446$, $p=0.0001^*$ and $r=-0.494$, $p=0.0001^*$) respectively. As well as there was good correlation between the FAAM ADL, FAAM sport and SF-36 Physical functioning with ($r=0.548$, $p=0.0001^*$ and $r=0.478$, $p=0.0001^*$) respectively. Conclusion: The trans-culturally adapted FAAM is a valid and reliable tool that can be used clinical evaluation of Arabic Egyptian chronic ankle instability patients.</p>
Key words	1.	Chronic Ankle Instability.
	2.	Foot And Ankle Ability Measure Questionnaire.
	3.	Validity.
	4.	Reliability.
	5.	Cross-cultural adaptation.
Classification number	:	000.000.
Pagination	:	123 p.
Arabic Title Page	:	الموائمة الثقافية و صلاحية و اعتمادية النسخة العربية من استبيان قياس قدره القدم والكاحل.
Library register number	:	6591-6592.

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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Enas Fathy Abd El-Hady Soliman.
Title	:	Effect of Plyometric Training on Performance and Incidence of Injury in Volleyball Players.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Alaa El-Din Abd El Hakim Balbaa.
	2.	Youis Mahmoud Akl.
	3.	Khaled El-Sayed Ayad.
Degree	:	Master.
Year	:	2019.
Abstract	:	<p>Introduction: Volleyball is one of the most popular sports in the world, volleyball is a non-contact game, where players from the opposing teams are separated by the net, it may be expected that the incidence of injuries is low. However, studies have indicated that injuries in volleyball are quite frequent. The purpose: of this study was to assess the effect of plyometric training on performance and incidence of injury in volley ball players, thirty male volley ball players were selected and divided randomly into two equal groups. Patients and methods: Thirty male volleyball players playing, divided randomly into two equal groups (A and B) each was composed of fifteen players. Group (A) study group: this group received four practical trainings (running for 20 minutes, hopping for 15 minutes, jogging for 15 minutes and specific volley ball activities for 30 minutes) and two gymnastic workout trainings sessions a week in addition to plyometric exercises practiced twice a week for six weeks. Group (B) control group: this group received four practical trainings (running for 20 minutes, hopping for 15 minutes, jogging for 15 minutes and specific volley ball activities for 30 minutes) and two gym workout trainings sessions a week without plyometric training. All players in both groups(A and B) were assessed before and after training by using Backward overhead medicine ball throw test, 1-RM Leg press test, Vertical jump test and Rate of incidence of injury. Results: showed that plyometric exercises show significant increase in the following aspects (Backward overhead medicine ball throw, 1-RM Leg press and Vertical jump when comparing pre-and post training) also, the results showed that there was a significant decrease in incidence of injury in the group A compared with that of group B when comparing pre-and post training. Conclusion : At the end of present study all research hypotheses were accepted as plyometric exercises show significant difference in the following aspects ((Backward overhead medicine ball throw, 1-RM Leg press and Vertical jump when comparing pre-and post training) also results showed there was a significant decrease in incidence of injury in the group (A) compared with that of group (B) when comparing pre-and post training.</p>
Key words	1.	volleyball, plyometric.
	2.	backward overhead medicine ball test.
	3.	1-RM leg press test.
	4.	vertical jump test.
	5.	incidence of injury.
	6.	Plyometric exercises.
	7.	Performance.
Classification number	:	000.000.
Pagination	:	87 p.
Arabic Title Page	:	تأثير تمارينات البليومترية على الأداء وحدوث الاصابات للاعبين الكرة الطائرة.
Library register number	:	6377-6378.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
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AND ITS SURGERY**

PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Enas Mohamed Atyia Esmail.
Title	:	Effects of Myofascial Release on Pain and Function Post Total Knee Replacement.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia Abd Elazim Fiyaz.
	2.	Samah Saad AL Moogy Zahran.
	3.	Ahmad Hamdi Azzam.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Total Knee Replacement (TKR) is one of the most successful orthopedic procedures. However, approximately 10 percent of patients complain of pain similar to or worse than initial pre-operative complaints. Myofascial release (MFR) restore optimal length, decrease tone & pain and improves function, vascular and lymphatic circulation. Despite this theoretical basis, no study has evaluated effects of MFR on pain and function post TKR. Objective: To investigate effects of MFR on pain and function in patients post TKR. Methods: We randomized fifty patients (male and female) post TKR by sealed envelopes method into 2 groups: group A (n=25) received MFR and exercises, while group B (n=25) received exercises only. Group differences were assessed by using unpaired t-tests. Results: There was a significant improvement in pain, function and MTrPs PPT post treatment compared to pre treatment in both group A & B. While there was significant differences between the two groups and these significant differences were in favor to group A compared to group B. Conclusion: MFR is effective treatment in improving pain, function and MTrPs pressure pain threshold (PPT) in patients post TKR. The proposed exercise program alone or in combination with MFR technique has a significant effect in improving pain, function and MTrPs PPT in patients post TKR, although the combination of the two interventions has the priority</p>		
Key words	1.	Total knee replacement.
	2.	trigger points.
	3.	knee osteoarthritis.
	4.	Pain.
	5.	Myofascial Release.
	6.	Function Post Total Knee
Classification number	:	000.000.
Pagination	:	135 p.
Arabic Title Page	:	تأثير الانفراج الليفي العضلي علي ألم الركبة و أداؤها الوظيفي بعد الاستبدال الكلي لمفصل الركبة.
Library register number	:	6253-6254.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Fatma Abd El Aziz Gabr
Title	:	Relationship Between Head Posture And Ankle Joint Range of Motion And Dynamic Balance In Collegiate.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Khaled Ayad.
	2.	Inas Metwally.
	3.	Mohammed Safwat.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Various activities of daily living require sitting for prolonged periods of time. These activities include driving a car, working on a computer . This can lead to postural changes such as exaggerated forward head posture, which can lead to over activation of the ankle plantar flexor to maintain body balance. On the other hand, ankle movement may be restricted as the body is connected through fasciae network were the upper quadrant disturbance may affect lower quadrant. Aim of the study: The current study aimed to determine the relationship between forward head posture and both ankle joint range of motion and dynamic balance in 35 healthy students. Their age ranged from 19 to 22 years. Method: Posture was evaluated using Biotonix posture print while Biodex stability system was used to evaluate dynamic postural control. Universal goniometer was used to measure ankle joint range of motion. Results: three-dimensional (3-D) head posture changes affected dynamic balance at level four of the Biodex dynamic balance test (only medio-lateral stability index), while no changes were observed in the dynamic balance at level eight. Three-dimensional head posture changes affected ankle joint range of motion. Conclusion: three-dimensional head posture changes affected ankle joint range of motion through the fascial system which connects different body segments with each other. Dynamic balance was also affected as changes of head posture alters center of gravity position.</p>		
Key words	1.	forward head posture.
	2.	ankle range of motion.
	3.	Balance.
	4.	Posture.
	5.	Dynamic Balance In Collegiate.
Classification number	:	000.000.
Pagination	:	88 p.
Arabic Title Page	:	العلاقة بين وضعية الرأس وكل من مدى الحركة لمفصل الكاحل و الاتزان الديناميكي للطلبة الجامعيين.
Library register number	:	6287-6288.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Fatma el zahraa Abd el Aziz El bayomi
Title	:	Relationship between pelvic inclination and navicular drop in subjects with chronic low back pain.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia Abd el Azem Fayyaz.
	2.	Ahmed Hany Khater.
	3.	Mohammed Ali Mohammed Sarhan.
Degree	:	Master.
Year	:	2019.
Abstract	:	<p>Background: Chronic low back pain could cause pelvic torsion and lumbar lordosis, which led to postural problems. Postural abnormalities caused repeated attacks of low back pain. Anterior pelvic tilt, Genu recurvatum and navicular drop were important for lower extremity alignment screening and were associated with acute and chronic lower extremity injuries. Altered foot position would affect the pelvic position and might be the cause of low back pain. Objectives: The purpose of this study was to determine the relation between pelvic inclination angle and navicular drop in CLBP patients. Materials and Methods: Seventy-Five patients with CLBP (more than 3 months). Their mean age, weight, height and BMI were 36.32 ± 10.61 years, 76.4 ± 14.63 kg, 164.94 ± 8.92 cm and 28.11 ± 5.23 kg/m². Pelvic inclination angle was measured bilaterally using digital pelvic inclinometer while the patient standing erect bare feet. The navicular drop difference was measured while the patient was sitting and standing. The navicular tuberosity was marked and the distance from it to the floor was measured using a ruler. The difference between the two positions was measured to determine the navicular drop. Results: The relation between right pelvic inclination and right navicular drop was weak positive non-significant ($r = 0.14$, $p = 0.2$). The relation between left pelvic inclination and left navicular drop was very weak positive non-significant ($r = 0.03$, $p = 0.76$). Conclusion: There was no relation between pelvic inclination angle and navicular drop in CLBP patients.</p>
Key words	1.	Chronic low back pain.
	2.	navicular drop.
	3.	Pelvic inclination.
	4.	Feet overpronation.
Classification number	:	000.000.
Pagination	:	85 p.
Arabic Title Page	:	علاقة ميل الحوض بسقوط عظم الزورق في مرضي ألم أسفل الظهر المزمن.
Library register number	:	6741-6742.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY**

PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Hadeer Salah El din Mahmoud.
Title	:	Cross-cultural Adaptation, Validity and Reliability of The Arabic Version of The Northwick Park Neck Pain Questionnaire.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia Abd ElAzem Fayyaz.
	2.	Samah Saad Al Moogy Zahran.
	3.	Hazem Refaat Ahmed Ibrahim.
Degree	:	Master.
Year	:	2019.
Abstract	:	<p>Introduction: Northwick Park neck pain Questionnaire developed to assess the level of disabilities due to neck pain, concentrating on self-reported subjective feelings and reductions in daily neck pain. However, its use is limited in non-English speaking countries. For this reason, translation, cross-cultural adaptation, validity and reliability for other languages are needed. Objective: To determine whether the NPQ is a valid and reliable tool in a population in Egypt. Methods: Trans-cultural adaptation of NPQ in Egyptian context was performed according to the international guidelines. Then, 100 patients with non specific neck pain filled the NPQ and a previously validated NDI .50 females and 50 males with age ranges from 18-50 years. After that, internal consistency and test re-test reliability were measured by the Cronbach's α and intraclass correlation coefficients (ICC), Concurrent validity against Arabic version of Neck Disability Index (NDI), and construct validity by factorial analysis. Results: The NPQ showed wide range of score distribution with no floor or ceiling effect, also it showed very good global internal consistency (Cronbach's $\alpha = 0.886$), good test re-test reliability (Intraclass correlation coefficient = 0.792), a and very good Pearson correlation coefficient (-0.779) between the NPQ and NDI. Conclusion: The trans-culturally adapted NPQ is a valid and reliable tool that can be used clinical evaluation of Arabic Egyptian neck pain patients, though the function domain may need further revision.</p>
Key words	1.	Non-specific neck pain.
	2.	Northwick Park Neck Pain Questionnaire.
	3.	Validity, Reliability
	4.	Cross-cultural adaptation.
	5.	Arabic Version of The Northwick Questionnaire.
Classification number	:	000.000.
Pagination	:	91 p.
Arabic Title Page	:	المواءمة الثقافية و صلاحية و اعتمادية النسخة العربية من استبيان نورثويك بارك لألم الرقبة.
Library register number	:	6217-6218.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY**

PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Hend Mohamed Mahmoud Sayed.
Title	:	Effect of genu valgum deformity on sacral angle and lumbar range of motion.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia Abd El Azim Fayaz.
	2.	Mohamed Mohamed Bahi El Den.
	3.	Nasr Awad Abdelkader
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Genu Valgum is a deformity in which the axial alignment of the lower limb is disturbed with exaggeration of the tibio-femoral angle. Such deformities resolve by themselves during infancy and childhood, but if they persist in adolescent age, there is no chance of resolution and might pose serious problems for the individual in the future. The aim of this study was to determine effect of genu valgum deformity on sacral angle and lumbar range of motion. Subjects and Methodology : Sixty-four female students with bilateral genu valgum participated in the study. They recruited from Deraya University. Their age ranged from 18 to 25 years old, Q angle >20 and BMI ≥ 30 (kg/m²). X-ray of the lower limbs used for measurement of tibio-femoral angle; in addition, X-ray of lumbosacral spine used for measurement of sacral angle and modified Shobber test used for measurement of lumbar range of motion. Results: However, there was a statistical significant effect of left tibio-femoral angle on sacral angle (p < 0.05), there was no statistical significant effect of right tibio-femoral angle on sacral angle (p > 0.05) and there was a statistical significant effect of right tibio-femoral angle on lumbar range of motion (p < 0.05). Conclusion: According to our current study, females who have bilateral genu valgum exhibit change in sacral angle and lumbar range of motion. Therefore, treatment of genu valgum in childhood period will lead to avoidance of risk of change in sacral angle and lumbar lordosis, as it was found that the increase in sacral angle leads to spondylolithesis and low back pain and the decrease of sacral angle leads to degenerative disc disease.</p>		
Key words	1.	Genu valgum.
	2.	lumbar range of motion
	3.	Sacral angle.
Classification number	:	000.000.
Pagination	:	88 p.
Arabic Title Page	:	تأثير تشوه التصاق الركبتين علي الزاويه العجزيه والمدي الحركي للفقرات القطنية.
Library register number	:	6473-6474.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Hend Wageh Mostapha Elsayd.
Title	:	Effects of Swimming Frequency on Healing of Induced-Muscle Strain in Rodents.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Aliaa Rehan Youssef.
	2.	Nabila Salah Hassan.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Muscle injuries are common in sports resulting in increased athletics' absenteeism from games and tournaments. Injuries may present as soreness, contusion or strain; with the two latter presentations account for more than 90% of all muscle injuries. Strain may occur when muscle is subjected to active or passive load that strain the muscle to its failure point. This injury is usually localized to the myotendinous junction (MTJ). Swimming is widely used in orthopedic rehabilitation as it is considered a safe exercise. The buoyancy of water reduces weight bearing, and reaction force. However, the effect of swimming frequency on strain injury healing is lacking scientific evidence. Purpose: to investigate the effects of different swimming frequency (daily versus every other day) on tissue healing and functional recovery during the sub-acute and chronic stages after induced-strain injury of Tibialis Anterior (TA) muscle in rats. Animals: Seventy healthy adult male Wistar rats weighing between 222 ± 18 g. Methods: Rats were randomly divided into seven groups (10 rats/group): normal, injured control (sub-acute), daily swimming (sub-acute), day after day swimming (sub-acute), injured control (chronic), daily swimming (chronic) and day after day swimming (chronic). TA strain was induced in all animals except those in the normal group. Rats swam for 45 min. per session, for 8 consecutive days, starting from the 1st day after injury. All animals were assessed functionally using the sciatic functional index (SFI) before they were euthanized at the 9th day (sub-acute groups) or the 21st day (chronic groups). Then, the TA was harvested and its structure morphology was assessed using a semi-quantitative 4-point modified Movin histopathology score Results: Normal and injured control animals were not different in SFI and Movin score in all tested time points. This was also true when animals in the two swimming frequency groups were compared to their corresponding controls, except animals in the swimming day after day group that showed significantly more worse lesions when they were compared to the normal animal (P value < 0.001) and injured control groups (P value = 0.001) at the sub-acute stage. Conclusion: There is no evidence to support the effectiveness of swimming exercise, regardless to frequency, on functional recovery and structural healing, after strain injury.</p>		
Key words	1.	Muscle strain injury.
	2.	Swimming exercise.
	3.	Sciatic functional index.
	4.	Movin score.
	5.	Induced-Muscle Strain in Rodents.
	6.	Rodents Muscle strain.
Classification number	:	000.000.
Pagination	:	104 p.
Arabic Title Page	:	تأثير تكرار السباحة علي إلتئام التمزق العضلي المحدث في الفئران.
Library register number	:	6429-6430.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Hossam alden ALbassiouny.
Title	:	Effect of Upper Thoracic Mobilization on Chronic Mechanical Neck Pain.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Salwa Fadl Abdelmegid.
	2.	Hamed Mohamed Elkhozamy.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>BACKGROUND: Recently, attention has been given to use the manual therapy for thoracic spine to treat mechanical neck pain (MNP). OBJECTIVE: To investigate the effect of upper thoracic mobilization on cervical range of motion (CROM), resting pain level and functional abilities of the neck in patients with chronic mechanical neck pain. METHODS: Thirty patients with chronic mechanical neck pain participated in this study. Subjects were divided into two groups, fifteen in each group. The first group was the treatment group (group A) who received upper thoracic mobilization and traditional physical therapy program; and the second group was the control group (group B) who received the traditional physical therapy program only. Before and after the treatment, the CROM was measured by baseline cervical inclinometer, the rest pain level was measured by a visual analog scale (VAS) and neck disability was measured by neck disability index (NDI). Patients in treatment group were treated with upper thoracic mobilization, infra-red, transcutaneous electrical nerve stimulation and cervical muscle stretching exercises. On the other hand, patients in control group were treated the same like treatment group without upper thoracic mobilization. RESULTS: there is a statistical significant difference between both groups. There is a positive effect of upper thoracic mobilization on CROM and neck function when comparing with routine physical therapy, There was no a statistical significant effect of upper thoracic mobilization on resting pain level when compared with routine physical therapy. CONCLUSIONS: there is a positive effect of upper thoracic mobilization on all CROM and neck function, although there was no a significant effect on resting pain level.</p>		
Key words	1.	mechanical neck pain.
	2.	upper thoracic spine.
	3.	mobilization.
Classification number	:	000.000.
Pagination	:	79 p.
Arabic Title Page	:	تأثير التحريك المفصلي للفقرات الصدرية العلوية على ألام الرقبة الميكانيكي المزمّن.
Library register number	:	6355-6356.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY**

PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Lamyaa Ahmed Neyazi.
Title	:	The Effect Of Adding Kinesio Tape To Mulligan's Mobilization In Patients With A Cervicogenic Headache.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia AbdelzimFayaz.
	2.	Samah Saad Almoogy Zahran.
	3.	Ahmed Hamdi Azzam.
Degree	:	Master.
Year	:	2019.
Abstract	:	<p>Background: Cervicogenic headache is a major problem in many people suffering from upper cervical dysfunction with a great conflict in its physical therapy management. Objective: To determine the effect of Adding Kinesio tape To Mulligan's mobilization in patients with a Cervicogenic Headache. Methods: Fifty four patients with cervicogenic headache included in the study ; from outpatient clinic of Faculty of Physical Therapy and Kasr El Aliniy Clinics of Cairo University. Were randomly assigned into two equal groups ; group A (Kinesiotaping and Mulligan techniques), Group B (Mulligan techniques). Their mean \pm SD age, weight, height and Body Mass Index (BMI) were 37.74 ± 5.55 years, 80.62 ± 6.27 kg, 170.11 ± 5.5 cm and 27.48 ± 2.73 kg/m². Flexion rotation test used to assess rotation Range of Motion (ROM) at level of C1- C2 by cervical range of motion device. The Visual analogue scale (VAS) is also used for measuring musculoskeletal pain and Arabic neck disability index test (ANDI) to examine neck disability and headache symptoms. Correlations between the examined parameters were also measured. Kinesiotaping application with Mulligan techniques were applied to group A while Mulligan techniques done only in group B. Results :There was significant improvement (increase) of flexion rotation test and Visual analogue scale (VAS) outcome scores results in Group (A) more than Group (B) but there is no difference of Arabic neck disability index test (ANDI) between two groups. Conclusion: Adding kinesio tape to Mulligan's mobilization in patients with a cervicogenic headache is found to be an effective in treatment of cervicogenic headache.</p>
Key words	1.	Cervicogenic headache.
	2.	KinesioTaping.
	3.	Mulligan's Mobilization.
Classification number	:	000.000.
Pagination	:	101 p.
Arabic Title Page	:	تأثير إضافة شريط الكينيسو إلى التحريك المفصلي لموليجانفي مرضى الصداع عنقي المنشأ.
Library register number	:	6381-6382.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY**

PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Maha Mohamed Ahmed Abdullah.
Title	:	Efficacy of biofeedback exercise of deep neck flexors on cervicogenic headache.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Salwa Fadl Abdelmaged.
	2.	Emad Samuel Boles.
	3.	Karima Abdelaty.
Degree	:	Master.
Year	:	2019.
Abstract	:	<p>Background: Cervicogenic headache (CGH) is a common condition causing significant disability. Patients with CGH had less strength and endurance of deep neck flexors (DNFs).Purpose: The purpose of this study was to investigate efficacy of (DNFs) strength exercise using pressure biofeedback unit (PBU) for CGH patients. Methods: Thirty patients (19 females and 11 males) with cervicogenic headache, their age ranged from twenty to forty years, were randomly allocated into group A received DNFs strength exercise using PBU in addition to conventional program and group B received conventional program. Treatment applied three times per week for 4 weeks. Each patient was assessed for pain, functional disability, cervical range of motion, using visual analogue scale (VAS), neck disability index (NDI) and OB Myrin goniometry respectively in addition to headache frequency per week pre and post treatment. Results: The results showed there was no significant difference in the mean values of the headache pain ($p = 0.13$), neck pain ($p = 0.78$), NDI ($p = 0.77$) and ROM ($p > 0.5$) between DNFs group and conventional group post-treatment but there was a significant decrease in the mean values of headache frequency of the DNFs group post-treatment compared with that of conventional group B ($p = 0.003$).Conclusion: These results suggest that DNFs exercise using PBU is effective in the reducing headache frequency in individuals with cervicogenic headache than conventional exercise.</p>
Key words	1.	Cervicogenic headache, ,
	2.	Pressure-biofeedback stabilizer.
	3.	Chronic neck pain.
	4.	Deep neck flexors training.
	5.	biofeedback exercise of neck.
Classification number	:	000.000.
Pagination	:	124 p.
Arabic Title Page	:	فاعلية تدريب العضلات العنقية القابضة العميقة بالتنبيه الرجعي الحسي على الصداع عنقي المنشأ.
Library register number	:	6415-6416.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Manar obbaha El-Syed El-Mogadem.
Title	:	Relationship Between Acromio Humeral Distance, Glenohumeral Internal Rotation Deficit And Scapular Dyskinesis In Patients With Shoulder Impingement Syndrome.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Alaa Abd Hakim Balbaa.
	2.	Mohammed Ali Sarhan.
	3.	Hatem Mohammed El-Azizi.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: A loss of glenohumeral internal rotation range of motion, tightness in the posterior capsule of shoulder and scapular dysskinesis have been associated with altered kinematics of the glenohumeral as well as the scapulothoracic joint. The purpose of this study was to evaluate the association between Acromio-humeral distance (AHD), gleno-humeral internal rotation deficit (GIRD), and posterior capsule tightness (PCT) and scapular dyskinesis (typeII) Methods: Forty impingement patients with age ranged from 25 to 45 years old, participated in this study, They were evaluated by ultrasonography for acromio-humeral distance(AHD), Inclinometer for gleno-humeral internal rotation deficit(GIRD), tape measurment for Posterior capsule tightness, and clinical Assessment for dyskinesis, the relations between independent variables (GIRD, PCT, scapular dyskinesis) and dependent variable (AHD) were statistically analysed . Results of this study showed a negative significant effect of scapular dyskinesis and posterior capsule tightness (PCT) on acromio-humeral distance (AHD), the study found when PCT and scapular dyskinesis increase, the AHD decrease, positive significant relation between gleno-humeral internal rotation deficit (GIRD) and acromio-humeral distance (AHD) was found, when GIRROM decrease , AHD decrease.. Conclusion: Glenohumeral internal rotation deficit, scapular dyskinesis, and posterior capsule tightness decrease acromiohumeral distance and lead to compression of the rotator cuff and subacromial bursa in this limited space in patients with shoulder impingement syndrome</p>		
Key words	1.	Impingement syndrome.
	2.	glenohumeral internal rotation deficit.
	3.	Scapular dyskinesis.
	4.	acromiohumeral distance.
	5.	Shoulder Impingement Syndrome.
	6.	Posterior capsule tightness.
Classification number	:	000.000.
Pagination	:	155 p.
Arabic Title Page	:	العلاقة بين المسافة بين النتوء الغرابي و رأس عظمة لوح الكتف و قصور الدوران الداخلي لمفصل الكتف و الخلل الحركي للوح الكتف في مرضى متلازمة انحشار الكتف.
Library register number	:	6577-6578.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Menan Aliy El-Deen Mohamed El-Mahdy.
Title	:	Predictors of overuse running related musculoskeletal injuries.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia Abdelazim Fayaz..
	2.	Khaled Elsayed Ayad.
	3.	Hamed Mohamed Elkhozamy.
Degree	:	Master.
Year	:	2019.
Abstract	:	<p>Background: Running is one of the most widespread activities during which overuse injuries of the lower extremity occur. Long-distance running is very popular among participants of recreational sports. Objectives: The purpose of this study was to identify changes in degree of Q-angle, degree of foot pronation and hamstring flexibility as a significant predictor of overuse running related musculoskeletal injuries in distance runners as a result of their participation in training and competitions. Study design: prospective study. Methods: Thirty athletes from National Egyptian team participated in this study. Data were collected from all athletes regarding intrinsic risk factors (age, gender, BMI, previous injury) and extrinsic risk factors (running experience, intensity, events ,surface and exposure/week). Athletes in this study were assessed for intrinsic and extrinsic risk factors as a predictors for running related musculoskeletal injuries. The outcome measures: Q angle, foot pronation and hamstring flexibility were assessed using Auto cad system, navicular drop test and active knee extension test respectively. Data were collected regarding intrinsic and extrinsic risk factors. Results: Results regarding age, gender, BMI, previous injuries, running experience, surface, intensity, events and exposure/week showed no statistical significant difference between injured and non-injured groups. While there was statistical significant difference in Q angle as the main predictor for overall running related injuries, and non-dominant foot pronation as the main predictor for leg injuries between both groups. There was no statistical significant difference in hamstring flexibility as a predictor for overall injuries or hamstring injuries between both groups. conclusion: Q angle and foot pronation are the main predictors for running related musculoskeletal injuries.</p>
Key words	1.	Running related musculoskeletal injuries
	2.	Q angle.
	3.	Hamstring flexibility.
	4.	foot pronation.
Classification number	:	000.000.
Pagination	:	83 p.
Arabic Title Page	:	التنبؤ بالإصابات العضلية الهيكلية الناتجة عن الاستخدام المفرط المصاحبة للعدو.
Library register number	:	6233-6234.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Mirna Magdy Mauries Elias
Title	:	Effects of deep friction massage versus augmented soft tissue mobilization on the healing of induced muscle strain in rodents
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Aliaa Rehan Youssef.
	2.	Nabila Salah Hassan.
	3.	
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Deep friction massage (DFM) and Augmented Soft Tissue Mobilization (ASTM) are used to enhance healing after strain injury. However, their clinical effectiveness is lacking scientific evidence. Purpose: To compare the efficacy of DFM and ASTM on tissue healing and functional recovery after induced-strain injury of Tibialis Anterior (TA) muscle in rodents. Further, to determine whether treatment effectiveness is dependent on massage onset time. Animals: Sixty adult male Wistar rats, Methods: Rats were randomly and equally assigned to 6 groups as following: two animal groups receiving DFM either at the sub-acute or chronic stages, two animal groups receiving ASTM either at the sub-acute or chronic stages, an injured and a normal control groups. All animals, except those in the normal control group, had the TA strained. Massage was applied using a solid tool, with 1.5 N/mm² pressure for 3 min, every 4 days for 4 sessions. DFM was applied transversely while the ASTM was applied longitudinally. At the 27th day, functional recovery was assed prior to euthanasia. Then, TA was harvested and processed for histopathological examination. Results: Injured control group showed significantly worse tendon pathology compared to the normal control group (p= 0.03). Animals in the ASTM sub-acute group were different from the injured control (p= 0.04), whereas those in the DFM sub-acute group were different from normal control (p=0.004). DFM effects were worse at the sub-acute than the chronic stage (p= 0.03). Initiation time had no effect on animals response to ASTM (p=0.37). No differences in functional recovery between all study groups were found (P>0.05). Conclusion: DFM and ASTM are not better than the “wait and see” approach.</p>		
Key words	1.	Muscle Induced Strain
	2.	Peroneal function index
	3.	Deep friction massage
	4.	Augmented soft tissue mobilization
	5.	Initiation time
	6.	rodents muscle strain.
Classification number	:	000.000.
Pagination	:	125 p.
Arabic Title Page	:	تأثير تدليك الاحتكاك العميق و زيادة تعبته الأسجة اللينة على التئام التمزق العضلي المحدث في الفئران.
Library register number	:	6439-6440.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY**

PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Mina Magdy Wahba
Title	:	Association between the duration of smart phone use and back dysfunction in patients with chronic mechanical low back pain
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Aliaa Rehan Youssef.
	2.	Dina Othman Shokri Morsi Galal.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Excessive smart phone use has been associated with pain in the upper quadrant, however, the relationship between usage duration and low back pain (LBP) is still unclear. Objective: This study aimed at investigating the association between continuous smart phone use for game playing up to 30 minutes and changes in back pain and proprioception acuity in patients with chronic mechanical LBP. Methods: Fifty-six patients with chronic mechanical LBP played a game while seated in two separate sessions; either for 10- or 30-minutes. In each session, pain and the angle of back repositioning error were measured at baseline and immediately after game playing using the visual analogue scale and the Biodex isokinetic dynamometer system 3, respectively. Results: Immediately after smart phone use, pain significantly increased compared to baseline values, regardless to the duration ($p < 0.05$). However, the changes in perceived pain scores between baseline and post-playing scores were not significantly different between the two tested durations ($p > 0.05$). The angle of repositioning error was not significantly different within the same testing session nor between the two durations tested ($p > 0.05$). Conclusion: Smart phone use slightly increases back pain immediately after continuous game playing up to 30 minutes; however, this was independent of the device usage duration. There is no evidence to support that back proprioception is affected by the two tested durations in this study.</p>		
Key words	1.	Smart phone
	2.	Chronic low back pain
	3.	Proprioception
	4.	Angle of repositioning error
	5.	back dysfunction.
Classification number	:	000.000.
Pagination	:	71 p.
Arabic Title Page	:	الارتباط بين مدة استخدام الهاتف الذكي وخلل الظهر في مرضى آلام أسفل الظهر الميكانيكي المزمن.
Library register number	:	6303-6304.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Nada Magdy Saad el-deen abd el-aziz
Title	:	Validity and reliability of autocad software assessment of knee joint position sense in patellofemoral pain syndrome.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Salwa Fadel Abd El-mageed.
	2.	Karima Abdelaty Hassan.
	3.	Ahmad Hamdi Azzam.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>BACKGROUND: Patellofemoral pain syndrome is a common, painful musculoskeletal condition that affects physically active young adults and adolescents. Proprioception is an important mechanism in knee stability and function. In PFPS changes appear in knee proprioception which play a major role in rehabilitation. There are several methods to measure proprioception; therapists require portable, valid, and cost-effective methods to monitor knee joint-position-sense (JPS) ability. Purpose: to investigate the validity and reliability of Autocad software in measuring joint position sense in patients with patellofemoral pain syndrome. Methods: thirty-nine patients (11 males and 28 females), with age ranged from 18 to 35 years with mean age (24.25±3.40) years, mean weight (68.71±16.01) Kg, and mean height (164.07±10.14) cm. All subjects were assessed by the same examiner on two occasions two days apart. Validity was assessed for image capture and AutoCAD software analysis against isokinetic dynamometer device (IKD) also intra-tester reliability for image capture and AutoCAD software was obtained by the same examiner on two days apart. Results: the results showed moderate to good relationship (0.60) between Autocad software and IKD at angle 20°, and good to excellent relationship (0.79) at angle 60°. Intrarater reliability coefficients (ICC) was (0.64) at angle 20°, and (0.50) at angle 60° that indicate moderate to good relationship at both angles with a standard error of measurement of (2.2) degree at angle 20°, and (2.9) at angle 60°. Conclusion: image capture with Autocad software is a valid and reliable method to assess the knee JPS in patients with PFPS, the therapist can evaluate the knee JPS to monitor its changes throughout the rehabilitation. This method had high accuracy, a low exam cost, and not involve radiation exposure.</p>		
Key words	1.	patellofemoral pain syndrome.
	2.	isokinetic dynamometer.
	3.	Autocad software.
	4.	joint position sense.
	5.	Validity and reliability.
	6.	knee joint.
Classification number	:	000.000.
Pagination	:	81 p.
Arabic Title Page	:	مدي صلاحية و مصداقية استخدام برنامج الاوتوكاد في قياس الاحساس المفصلي العميق في مرضى متلازمة الم الرضفة.
Library register number	:	6315-6316.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Nadia Abdo Mohammed Abdelhafez.
Title	:	Validity and reliability of smartphone application in assessment of balance in chronic ankle instability.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Aliaa Mohammed Rehan Youssef.
	2.	Eman Ahmed Abd El-moez.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Lateral ankle sprain is a common injury that may persist leading to chronic ankle instability (CAI). In those patients, assessment of postural control is essential for proper clinical decision-making and treatment selection. Available objective methods are limited by their availability and costs, thus, there is a need for alternative valid and reliable methods such as wearable sensors embedded in smartphones. Purpose: to assess the concurrent validity and reliability of a smartphone application in assessing balance in patients with CAI. Methods: Sixty-five participants were enrolled in this study. Balance was simultaneously measured by smartphone "MyAnkle" application and the Biodex balance system. Patient was instructed to perform a single leg stance protocol on the Biodex system at three levels: 4 (hard), 6 (moderate), and 8 (easy). The testing was done at two conditions: opened eyes and closed eyes. Both limbs were tested at a random order. All data were collected by an assessor who was blinded to participants' grouping (unilateral CAI, bilateral CAI and healthy volunteers) and limb condition. Results: There was a significant positive correlation between the overall score of smartphone and that of Biodex balance system in both limbs in all tested conditions in all study groups ($p < 0.05$). This was also true for reliability between the two successive sessions in both limbs with opened and closed eyes at almost all the tested levels of difficulty ($p < 0.05$). Conclusion: smartphone is valid and reliable alternative method for balance assessment in patients with CAI and healthy adults.</p>		
Key words	1.	Balance in chronic ankle instability.
	2.	Reliability.
	3.	Smartphone.
	4.	Validity.
	5.	Chronic ankle instability.
Classification number	:	000.000.
Pagination	:	80 p.
Arabic Title Page	:	مصداقية وموثوقية الهاتف الذكي في تقييم التوازن للمرضى اللذين يعانون من عدم الاتزان المزمن بالكاحل.
Library register number	:	6423-6424.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Omnia Mahros Younes Ali.
Title	:	Prevalence of Adolescent Idiopathic Scoliosis in Selected Urban and Countryside Schools in Egypt.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Salwa Fadl Abdelmajeed.
	2.	Emad Gaber Kamel.
	3.	Nasr Awad Abdel-kader Othman.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Scoliosis is a lateral curvature of the spine when the Cobb angle is more than 10° on the frontal plane. Curve detection before skeletal maturation gives a good opportunity for early treatment or prevention of curve progression. Purpose: to compare between the prevalence of adolescent idiopathic scoliosis in selected urban and countryside areas in Egypt. Methods: This study was conducted on 840 Egyptian male students with age range from 10 to 15 years. Students were divided into two groups, (group A: urban and group B: countryside). Screening was conducted on both groups by using Adam's forward bend test (FBT), students with rib hump (positive test) and students with no hump (negative test). Then by the Scoliometer High Definition application with reading 7 □ or more (≥20 degrees Cobb angle). Results: The forward bending test group A showed higher positive results (41.43%) than group B (17.14%). The scoliometer HD application readings (7 □ or more) showed significance difference between two groups as group A (12.61%) and group B (5%). Conclusion: Urban male schools students have a higher prevalence of adolescent idiopathic scoliosis than that in countryside schools</p>		
Key words	1.	School student.
	2.	Scoliosis.
	3.	scoliometer HD.
	4.	Adolescent Idiopathic Scoliosis.
	5.	Schools in Egypt.
Classification number	:	000.000.
Pagination	:	110 p.
Arabic Title Page	:	مدى انتشار الجنف مجهول السبب بين المراهقين في بعض مدارس الحضر والريف المصري.
Library register number	:	6623-6624.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY**

PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Rana Rayan Abdel-Wareth.
Title	:	Predictors of Shoulder Impingement among Egyptian Physiotherapists.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Alaa Eldin Balbaa.
	2.	Hamed El-Khozamy.
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Background: Work related musculoskeletal injuries are more common among Egyptian physiotherapists with the upper limb is the second most common area of disorders and the highest percentage of complain from shoulder pain. Purpose: this study was conducted to identify the significant predictors of shoulder impingement among physiotherapists which may provide information about possible prevention and intervention strategies. Subjects and methods: forty participants aging 21:35 years with one side affected, were divided into two groups (injured and non-injured) depends on the affected side then they were assessed bilaterally for pectoralis minor tightness, shoulder girdle muscles isometric strength and scapular posture asymmetry in five positions S1 (neutral), S2 (abduction 45°), S3 (abduction 90°), S4 (abduction 45° with weight) and S5 (abduction 90° with weight). Results: Regression analysis was used and indicated that all variables were not significant predictors for shoulder impingement among Egyptian physiotherapists. Conclusion: Biomechanical and functional disorders are not the actual cause in the development of shoulder impingement among Egyptian physiotherapists. It may be associated with job-related risk factors that therapists identified as major contributors to their injury and this needs further research.</p>		
Key words	1.	Shoulder impingement syndrome.
	2.	Work related musculoskeletal disorders.
	3.	Physiotherapists.
	4.	Shoulder injuries.
	5.	Egyptian Physiotherapists.
Classification number	:	000.000.
Pagination	:	86 p.
Arabic Title Page	:	التنبؤ بإصابات الكتف في أخصائي العلاج الطبيعي المصريين.
Library register number	:	6403-6404.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY
PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED**

Author	:	Salma Mohamed Ahmed
Title	:	Relationship between Forward head posture and Sacral Slope Angle
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Prof.Dr Alaa El-Din Abdelhakim Balbaa,
	2.	Dr Hamed Mohamed Elkhozamy
Degree	:	Master.
Year	:	2019.
Abstract	:	
<p>Back ground: Nowadays, maintaining in poor position for long time results in many musculoskeletal disorders. Forward Head Posture is one of them which characterized by upper cervical extension and lower cervical flexion. These changes in the cervical region may lead to altered location of the line of gravity. Mal-alignment make the body to recruit compensatory mechanism to maintain horizontal eye gaze and line of gravity within the base of support. Although the body compensate to maintain the erect posture, compensatory mechanism could result in adverse effects such as increase load on mechanical and neurological structures that lead to pain in distant area away from source of dysfunction. To our limited knowledge, these is the first study investigate the relationship between forward head posture and sacral slope angle. Purpose: to investigate the relationship between Forward Head Posture and Sacral slope angel in chronic neck pain patients. Methods: Forty patients of both genders 13 male and 27 female with chronic neck pain aged (18-30) years old, were recruited from the outpatient physiotherapy clinic of kaser elany medical school. Patients were divided into Group A (cranio-vertebral angel is < 45°) and Group B (cranio-cervical angle is >45°), the visual analogue scale, Oswestry disability index, electronic head posture instrument, x ray were used to measure neck pain, cranio-vertebral angle, back function, Sacral slope angle and Pelvic Incidence, respectively. Results: The Pearson correlation coefficient revealed that, Forward head posture is not significantly correlated neither with sacral slope angle ($r=0.188$; $P <0.05$) nor with Pelvic Incidence ($r=0.077$; $P <0.05$). Further Cranio-cervical angle) has no correlation neither with neck pain ($r=0.077$), nor Oswestry disability index ($r=0.04$). Conclusion: there is no correlation between Forward head posture and pelvic parameters (Pelvic incidence and sacral slope angle), these faulty head posture has no influence on neck pain and back function.</p>		
Key words	1.	Forward head posture.
	2.	Pelvic incidence.
	3.	sacral slope angle.
	4.	neck pain back function.
Classification number	:	000.000.
Pagination	:	89 p.
Arabic Title Page	:	العلاقة بين الميل الامامي للراس وزاويه ميل الفقرات العجزيه.
Library register number	:	6497-6498.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
THERAPY DEPARTMENT FOR MUSCULOSKELETAL DISORDER
AND ITS SURGERY**

PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Shreen ahemed Lashien.
Title	:	Relationship Between Hip Muscles Torque And Navicular Drop In Medial Tibial Stress Syndrome.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia Abd El Azim Fayaz
	2.	Ashraf Abd El Kafy
	3.	Ebtessam Fawezy Gomaa
Degree	:	Master.
Year	:	2019.
Abstract	:	<p>Background: Medial tibial stress syndrome (MTSS) also called shin splints; its incidence ranges 4-35% in athletic & military populations manifested by pain at posteromedial tibia which is cumulative with activity & persists for a long time. Purpose: this study was conducted to determine the relationship between hip muscles torque abductors, external rotators with Q-angle and navicular drop in medial tibial stress syndrome patients. Subjects and methods: forty participants were included in this study divided into two groups, group A (20 subjects with MTSS) ,While group B(20 normal subjects). Both groups were assessed for hip abductors and external rotators peak torque through Isokinetic Biodex system, Q-angle through Stander plastic goniometer and navicular drop through The Navicular drop test a modification of the Brody's method). Results: The results of the study revealed that there was a significant decrease in the hip abductors' peak torque ($p = 0.001$) in the MTSS group compared with normal group, but There was no significant difference in the hip external rotators' peak torque ($p = 0.8$) between the MTSS and normal. There was a significant increase in the Q angle ($p = 0.0001$) and navicular drop ($p = 0.0001$) in the MTSS group compared with normal group ,There was a moderate negative significant correlations between navicular drop and hip muscles' peak torque in total sample and there was a moderate negative significant correlations between Q angle and hip muscles' peak torque in total sample. Conclusion: Participants with medial tibial stress syndrome demonstrated significantly decrease in the hip abductors' peak torque, increase in Q-angle and navicular drop with regard to this study results, It can be concluded that, weakness of hip abductors is one of the causes of medial tibial stress syndrome as well as changes in the Q-angle and poor foot posture which include abnormal foot pronation are risk factors for medial tibial stress syndrome.</p>
Key words	1.	Medial tibial stress syndrome
	2.	Rehabilitation.
	3.	Hip Muscles Torque.
	4.	Navicular Drop.
	5.	Assessment.
	6.	Torque.
Classification number	:	000.000.
Pagination	:	63 p.
Arabic Title Page	:	العلاقة بين قوة عزم عضلات الفخذ و السقوط الزورقي في متلازمة الاجهاد الوسطى بالساق.
Library register number	:	6229-6230.