

**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**

**Doctoral Degree
2017**

Author	:	Amr Moustafa Yehia
Title	:	Dry Needling Versus Ischemic Compression In Treatment of Lower Back Myofascial Pain Syndrome
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Lilian Albert Zaky
	2.	Osama Ragaa Abdelraouf
	3.	Ghada Mohamed Rashad
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Background: Myofascial pain syndrome is a collection of signs and symptoms in a particular area of the body that indicate muscle trauma. This problem causes pain leads to spasm which is thought to decrease blood flow which in turn causes recurring cycle of spasm, and the cycle continues. Purpose: The aim of study was to compare between the effects of dry needling and ischemic compression in treatment of Myofascial low back pain. Subjects and Methods: Thirty patients participated in the study and were assigned randomly into two equal groups suffering from Myofascial low back pain with the presence of trigger points of quadratus lumborum, iliocostalis lumborum, piriformis and gluteus medius muscles. The first group (A) consisted of 15 patients receiving ischemic compression over trigger points followed by stretching exercise, the second group (B) consisted of 15 patients receiving dry needling over the same trigger points followed by stretching exercise. Their age ranged from 18 - 43 years. Assessment measures: Pain severity was measured by visual analogue scale, functional disability using Oswestry disability questionnaire, trunk range of motion (flexion, extension, right side bending and left side bending) using tape measurement and pain threshold using pressure algometer. All these parameters were measured before and after 2 weeks of treatment. Results: Both groups showed a significant improvement (P-value <0.05) in all evaluated measures except in lumbar flexion and extension there was no improvement, there was no significant difference between both groups at pre and post treatment (p>0.05). Conclusion: According to findings of the study ischemic compression and dry needling were equally effective in improving patients with Myofascial back pain.</p>		
Key words	1.	myofascial pain
	2.	dry needling
	3.	ischemic compression
	4.	trigger points
	5.	Lower Back Myofascial Pain
Classification number	:	000.000.
Pagination	:	168 p.
Arabic Title Page	:	الوخز بالإبر الجافه مقابل الضغط الإقفارى فى علاج متلازمه ألم النسيج العضلى الضام أسفل الظهر.
Library register number	:	5517-5518.

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

Author	:	Mariam Abd El-Rhman Mohamed Abd-Allah
Title	:	Low level laser therapy versus eccentric exercises in treatment of shoulder impingement syndrome
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Salwa Fadl Abd El-Majeed
	2.	Hatem Mohamed El-Azizi
	3.	Maha Mostafa Mohammed
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Back ground: Subacromial impingement syndrome (SIS) is the most common cause of shoulder pain, accounting for 44-65% of all shoulder pain complaints. Purpose: to investigate the effect of low level laser therapy (LLLT) versus the eccentric exercises in the treatment of SIS. Subjects: Thirty patients diagnosed as right unilateral SIS with age range between 25- 45 years, from both genders, complaining for at least 3 months and a maximum of 6 months. They were randomly assigned into 2 groups, group A (8 female and 7 male) received LLLT in addition to strengthening and flexibility exercises and group B (11 female, 4 male) received eccentric exercises in addition to the same exercises as in group A. Both groups received 4 weeks of training. Methods: Patients were evaluated pre and post treatment for pain, functional activity, and tendon structure (represented as supraspinatus tendon echotexture and thickness) using visual analogue scale (VAS), shoulder pain and disability index (SPADI) and ultrasonography (US) respectively. Results: There was significant improvement in both groups for pain, supraspinatus tendon structure and thickness with no significant difference between both groups. On the other hand, the functional activity was improved in both groups with significant improvement in favor of group B. Conclusion: Both LLLT and eccentric exercises are effective in the treatment of SIS when added to scapular and rotator cuff muscles strengthening. However, the eccentric exercises are more effective than LLLT regarding the shoulder function.</p>		
Key words	1.	subacromial impingement
	2.	eccentric exercises
	3.	low level laser therapy
	4.	Scapular
	5.	rotator cuff strengthening.
	6.	shoulder impingement syndrome
Classification number	:	000.000.
Pagination	:	110 p.
Arabic Title Page	:	الليزر المنخفض الشدة مقابل التمرينات اللامركزية في علاج متلازمة الانحشار الكتفى.
Library register number	:	5551-5552.

**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	:	Mona Mohamed Ibrahim Ahmed.
Title	:	Effect of exercises on the mechanical properties and bone architecture in adult osteopenic wister rats.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Bassem Galal El Nahass
	2.	Hanaa Abdelkader Ibrahim
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>BACKGROUND: Osteopenia defined as less bone than normal when compared with most healthy people of the same age, height, weight, gender, and race. Osteopenia and osteoporosis negatively affecting older population quality of life especially females both physically and socially. Exercises as a therapeutic modality considered a lifelong activity used to prevent, treat and manage several diseases and health problems. Besides the beneficial effects of exercises, the key metabolic changes secondary to exercises remain largely unknown. Furthermore, the type, frequency, and intensity of the exercise necessary for acquiring and maintaining optimal health or improving the recovery from a disease also remain unclear. OBJECTIVE: The purpose of the current study is two-fold: 1. To evaluate the response of adult osteopenic rats to different forms, weight-bearing and non weight-bearing, of exercises using histomorphometry and mechanical testing, 2. To quantify the architectural changes in terms histomorphometry parameters and mechanical changes regarding stress, and elastic modulus METHODS: Fifty Wistar rats aged 12 weeks, (25 males and 25 females), (initial weight 123.2±24.4g) were tail suspended for 14 weeks to induce hindlimb bone osteopenia. At the end of suspension the rats divided into five groups (n = 10 in each group). Group I: the control group in which the animals were dissected immediately after the end of suspension. Group II: sedentary group in which the animals remains without treatment with free cage movements for six weeks. Group III: Jumping exercise group in which the animals jump ten times per days, 5 days per week for six weeks. Group IV: Swimming group in which the animals swim for 30 min/day, 5 days per week for six weeks. Group V: Treadmill running exercise group in which the animals were run on a treadmill for 30 min/day, 5 days per week for six weeks. At the end of experiment, hind limb bones were dissected and right femur was used for compressive mechanical testing and left femur, right, and left tibia used for histomorphometry testing. RESULT: The treadmill running succeeded to improve most of the histomorphometry parameters at the distal femur but not proximal tibia. The right proximal tibia respond well to jumping exercise, which improved most of its structural parameters but not the left tibia. All types of exercises improved elastic modulus as a primary measure of the material properties of the left femur. Contrary, swimming did not affect the stress developed during the compressive mechanical testing. CONCLUSION: The primary finding of the current study is that the effect of exercise was type, and site dependent.</p>		
Key words	1.	jumping
	2.	Osteopenia.
	3.	mechanical properties
	4.	Rats - mechanical properties
	5.	bone architecture.
	6.	adult osteopenic wister rats.
	7.	Swimming in wister rats.
	8.	Running in wister rats.
Classification number	:	000.000.
Pagination	:	174 p.
Arabic Title Page	:	تأثير التمرينات على الخصائص الميكانيكية والتركييب الدقيق للعظام لدي فئران ويستر البالغة المصابة بوهن العظام.
Library register number	:	5701-5702.

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

Author	:	Nabil AbdoAbdellah Mohamed
Title	:	Relationship between core stability and the risk of different lower extremity injuries in athletes
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	AlaaEldinAbdElhakemBalbaa
	2.	AmiraAbdallahAbd El MegeidAbdallah
	3.	Ahmed Hazem Abdel Azeem
	4.	MahaMostafaMohamme
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	<p>Background:Prevention of lower extremity injuries in soccer players became an interesting issue in sports medicine. Poor core endurance and hip muscles' weakness contribute to lower extremity injuries in soccer players. Purpose:This study investigated the relationship between core muscles' endurance and hip abductors' and external rotators' strengthsand the frequency of different lower extremity injuriesamong soccer players during one season. The second purpose was to investigate the relationship between core muscles' endurance and the risk of different lower extremity injuries. Methods: Eighty-three male soccer players (mean age 20.69±3.85 years, weight 76.3±14 kg and height 178±9.6 cm) were tested. The core endurance was tested by the Prone Bridge, Lateral Bridge, Trunk Flexors and ExtensorsEndurance tests. The peak eccentric isokinetic hip abductors' and external rotators' torques weretested by Isokinetic dynamometer. Finally, the frequency of lower extremity injury was recorded during one season.Results: The Negative Binominal regression revealed that the maximum hold time for the trunk flexors' endurance andthe peak eccentric isokinetic hip abductors'torques were significantly related to the frequency oflower extremity injury (p<0.05). The core endurance hold time of the four tests was related to an increased risk of lower extremity injury.Conclusion: Trunk flexors' endurance and hip abductors' strength deficits areassociated withincreased frequency of lower extremity injury. Poor core endurance is associated withincreased risk of lower extremity injury.</p>
Key words	1.	Lower extremity injury
	2.	Core stability
	3.	Hip muscles strength
	4.	Core muscle endurance, Soccer
	5.	athletes - lower extremity injuries.
Classification number	:	000.000.
Pagination	:	99 p.
Arabic Title Page	:	العلاقة بين تأثير الثبات المركزي و مدى حدوث الاصابات في الطرف السفلي بين الرياضيين
Library register number	:	5683-5684.

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

Author	:	Omar Medhat Mounir Hagag
Title	:	Low level laser therapy and plasma rich platelets in treatment of hamstrings strain.
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Khaled Elsayed Ayad
	2.	Hatem Mohamed El Azizi
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Background: Majority of muscle injuries are results of excessive strain on muscle, which occurs during sprinting or jumping. This injury often affects the myotendinous junction of superficial muscles spanning across two joints, such as the rectus femoris, semitendinosus, and gastrocnemius muscles. The muscle injury recovery process is slow and often changes the original mechanical properties of the damaged muscle. The goal of rehabilitation is to recover the muscle as fast as possible offering the lowest risk of injury recurrence. Hamstrings muscle strains are among the most common injuries in sport. Purpose: the purpose of this study was to compare between the effect of low level laser therapy and plasma rich platelets on recovery of hamstrings strain. Subjects: Thirty male athletes diagnosed as grade I and II hamstrings strain with age between 20-35 years. Methods: Patients were distributed randomly into three groups. The first group (A) consisted of 10 patients with mean age (27.20±3.71) who received plasma rich platelets (PRP). The second group (B) consisted of 10 patients with mean age (27.10± 3.70) who received laser treatment was applied .3times/week starting from second day for 2 weeks with irradiation beam with 60 sec/point with dose 1 J/cm². The third group (C) consisted of 10 patients with mean age (26.60± 4.25) who received both treatments at the same time. Treatment was given as follow; in group (A) PRP was injected second day after injury, in group (B) laser was applied 3 times/week starting from second day after injury for 2 weeks, in group (C) PRP was injected and laser applied from second day after injury with same program in group (B). All players admitted in same exercise program. Patients were evaluated pre-treatment and post-treatment for muscle healing, function, and angle of peak torque of both hamstrings post treatment. Results: there was no significant difference between all groups while there was a significant difference within each group. Conclusion: No significant differences between low level laser therapy and plasma rich platelets or the combined method on recovery of hamstrings strain.</p>		
Key words	1.	lasers
	2.	hamstrings strain
	3.	Low level laser hamstrings strain.
	4.	Plasma rich platelets
Classification number	:	000.000.
Pagination	:	104 p.
Arabic Title Page	:	الليزر منخفض المستوي والبلازما الغنيه بالصفائح الدمويه في علاج تمزق العضلة الخلفية.
Library register number	:	5329-5330.

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

Author	:	Rabab Mohamed Monged
Title	:	Pilates mat exercises versus stabilization exercises for treatment of nonspecific acute low back pain
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Lilian Albert Zaky
	2.	Alaa Eldin Mohyee Suliman
	3.	Ghada Mohamed Rashad koura
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	<p>Purpose: The purpose of this study was to investigate the effectiveness of Pilates mat exercises as compared with Stabilization exercises in treatment of nonspecific acute low back pain. Subjects: sixty male and female patients referred from an orthopedic surgeon. Methods: Patients were randomly assigned into two equal experimental groups. The first experimental group (A) consisted of 30 patients with a mean age of 25.33 (\pm 3.72) years old, body mass of 70.43 (\pm3.43) Kg, and height of 166.53 (\pm1.61) cm; received Pilates mat exercises, which consists of: breathing, pelvic placement, rib cage placement, scapular movement and stabilization, head and cervical placement, hamstring stretch with resistance band, quadriceps stretch, dead bug and circle squeeze. The second experimental group (B) consisted of 30 patients with mean age of 25.26 (\pm 3.4) years old body mass of 69.52 (\pm2.82) Kg, and height of 166.73 (\pm1.77) cm; received Stabilization exercises, which consists of: abdominal brace (Static abdominal contraction), multifidus muscle isometric activation, bridge, quadruped position exercise and wall slide. Treatment was given 3 times per week, each other day, for one month. Patients were evaluated pretreatment and posttreatment for back pain severity, back function, lumbar flexion, extension and side bending range of motions. Results: Patients in both groups showed significant improvement in all measured variables. In between groups difference the first group showed a significant improvement than the second group in lumbar flexion range of motion, and no statistical difference in increasing lumbar extension, however there is clinical difference and high percent of improvement in the favor of the first group. There was no significant difference between both groups in reduction of pain and functional disability. Conclusion: Pilates mat exercises and Stabilization exercises are effective in relieving pain and functional disability. Pilates mat exercises is more effective in increasing the lumbar flexion range of motion. There was no difference between Pilates mat exercises and Stabilization exercises groups in increasing the lumbar extension range of motion; however there was clinical difference and high percent improvement in favor of Pilates mat exercises group.</p>
Key words	1.	Nonspecific acute low back pain
	2.	Pilates mat exercises
	3.	Stabilization exercises
Classification number	:	000.000.
Pagination	:	99 p.
Arabic Title Page	:	تمريبات بيلاتس مقابل تمرينات الاستقرار لعلاج الام أسفل الظهر الحاد الغير محدد.
Library register number	:	5531-5532.

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Author	:	Radwa Talaat Mohammed Hamed El- Shorbagy
Title	:	Cognitive task versus focus of attention in dynamic postural control in recurrent ankle sprain
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Alaa EL-Din Balbaa
	2.	Khaled Ayad,
	3.	Waleed Red
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Introduction: Research has demonstrated clear advantages of using an external focus of attention in postural control tasks, presumably since it allows a more automatic control of posture to emerge. However, the influence of cognitive tasks on postural stability has produced discordant results especially in recurrent ankle sprained patients. Objective: to investigate whether or not diverting attention away from postural control using a continuous cognitive task will produce greater dynamic postural control than an internal and external focus of attention in recurrent ankle sprain patients. Methods: forty three patients with recurrent ankle sprain participated in this study divided randomly into three group .group (A) fourteen patients with external focus of attention, group (B) fifteen patients with internal focus of attention, group (C) fourteen patients with continuous cognitive task. Dynamic postural control was measured in three groups in two levels of difficulty (7&5) by Biodex Balance System Results: mixed design MANOVA was used to compare within and between groups differences and showed that there is no significant differences within groups in overall stability index (OASI), anteroposterior stability index (APSI) and mediolateral stability index (MLSI) in both levels of difficulty except in group (C) in OASI. However, between groups (A&C) there is statistical reduction in dynamic postural control in group C in both levels OASI (p= 0.00), APSI level 7 & 5 (p= 0.015 and 0.006 respectively) and MLSI in both levels (p= 0.00). Moreover, between (B&C) there is significant reduction in dynamic postural control in group C in OASI in 7 & 5 (p= 0.018 and 0.006 respectively),MLSI in 7 & 5 (p= 0.001 and 0.019 respectively) with no significant difference in APSI in both levels Conclusion: The automaticity of postural control in patient with recurrent ankle sprain reduced with dual tasks (continuous cognitive task) versus the focus of attention clinical relevance: the postural control in patients with ankle sprain need cognitive concentration and with secondary task the postural control disturbed which needed for more training in treatment program (dynamic postural control with cognitive task).</p>		
Key words	1.	ankle sprain
	2.	dynamic postural control
	3.	continuous cognitive task
	4.	focus of attention
	5.	recurrent ankle sprain
Classification number	:	000.000.
Pagination	:	103 p.
Arabic Title Page	:	المهارات المعرفيه مقارنه بتركيز الانتباه على الاتزان الحركى فى التواء الكاحل المتكرر.
Library register number	:	5519-5520.

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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Sahar Mowad Abd-El Mutilib A Abd El Bary
Title	:	Effect of Mulligan Technique on the Pathogenesis of Lateral Epicondylitis
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Lilian Albert Zaky
	2.	Ali M.E El Zawahry
	3.	Ghada Mohamed Rashad Koura
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Background: Mulligan's MWM is widely used in management of musculoskeletal disorders and is effective in the treatment of LE . Aim : The aim of this study was to investigate the effect of mulligan technique on the pathogenesis of Lateral Epicondylitis . Materials and methods: Thirty patients in each group participated in the study and selected randomly in both groups. In group A , the mean of age was 39.13 ± 5.04 , mean weight was 84.2 ± 8.94 kg, mean height was 166.4 ± 5.58 , and the mean of body mass index was 29.29 ± 3.49. The patient divided into 2 groups when group A received MWM following by rigid tapping plus traditional treatment, while group B received traditional treatment only. pain was measured by VAS , pain free grip muscle strength(PFGS) was measured by digital hand held dynamometer , functional disability of affected upper limb was measured by PRTEE , hypoechoogenicity in common extensor tendon was measured by gray scale sonography and hypervascularity was measured by colour Doppler sonography. The results : this study included that there was significant improvement of pain level(VAS) in both groups but in group A there was better improvement than group B , as the change in VAS in group A was 75.78% but in group B , it was 20.42% , $p < 0.05$. There was significant improvement of PFGS in both groups but improvement in group A is better than group B , as the change in group A equal 65.45% but in group B equal 16.73% , $p < 0.05$, functional disability was improved in both groups but also group A is better improvement than group B as in DASH score in group A, the change equal 68.1% but in group B equal 28.11% , $p < 0.05$ while in PRTEE score, in group A the change equal 72.64% but in group B equal 14.02 % . For sonographic measurement, there was significant decreasing in the size of hypoechoogenicity in group A but there was no significant reduction in it in group B, where the change in group A equal 65.11% but in group B equal 0%. For hypervascularity , the number of vessels decreased in group A by change 71.42% but in group B , there was no change in it 0% , $p < 0.05$. Conclusion: MWM followed by tapping is more effective than traditional treatment in patients of lateral epicondylitis .</p>		
Key words	1.	Lateral epicondylitis
	2.	mulligan technique on the Pathogenesis
Classification number	:	000.000.
Pagination	:	143 p.
Arabic Title Page	:	تأثير طريقة موليجن على التغيرات المرضية في التهاب اللقيمة الجانبي.
Library register number	:	5515-5516.

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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Samah Saad Al Moogy Zahran
Title	:	Effects of bilateral flexible flat feet on trunk and hip muscle torque
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Nadia Abd-Elazim Fiyaz
	2.	Aly Mohamed El-Zawahry
	3.	Lilian Albert Zaky
Degree	:	Doctoral.
Year	:	2017.
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, theoretically, was attributed to dysfunction of the lumbopelvic-hip complex musculature. Despite this theoretical basis, no study has evaluated the effect of FFF on the strength of the trunk and hip muscles. Objective: To investigate the influence of FFF on the concentric hip and trunk torque generation. Methods: A case-control comparison was held between an FFF group (20 subjects) and normal foot group (20 subjects). An isokinetic dynamometer was used to assess the concentric torque of hip flexors, extensors, internal rotators, and external rotators; and trunk flexors, and extensors. Group differences were assessed by using a one-way multivariate analysis of variance. Results: There was a significant decrease in hip flexors, extensors, internal rotators, and external rotators peak torque of both sides in the FFF group compared to the normal group, while there was no significant difference in trunk flexors and extensors peak torque between the two groups. Conclusion: Impairment in hip muscles concentric strength was observed in subjects with FFF when compared to normal controls. Our results may support the interrelationship between foot misalignment and proximal joints pathology.</p>		
Key words	1.	flatfoot
	2.	words
	3.	torque
	4.	low back pain
	5.	lumbosacral region
	6.	hip
	7.	bilateral flexible flat feet
	8.	trunk
Classification number	:	000.000.
Pagination	:	128 p.
Arabic Title Page	:	تأثير ثنائية القدم المسحاء اللينة على عزم عضلات الفخذ و الظهر.
Library register number	:	5279-5280.

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PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	:	Sara Mohamed Samir Mohamed
Title	:	Efficacy of centrally applied Mulligan Sustained Natural Apophyseal Glide Mobilization on patients with chronic mechanical neck dysfunction
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Lilian Albert Zaki
	2.	Mohamed Omar Soliman,
	3.	Enas Metwaly Abd Elmenam
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	<p>Background: mechanical neck dysfunction (MND) is a common disorder prevailing among individuals of different population. This study conducted to investigate the efficacy of cervical central sustained natural apophyseal glides (SNAGs) on neck pain severity level, ROM and functional disability in patients with chronic mechanical neck dysfunction. Methods: Thirty male and female patients who met the inclusion criteria were randomly assigned into two groups. Group A(n=15) received central SNAGs in addition to conventional exercise therapy program for the neck in form of (isometric exercises, stretching exercises, and postural exercises), Group B (n =15) were treated by same exercise therapy program only, treatment received three sessions per week for successive 4 weeks . Visual analogue scale (VAS), Myrin OB goniometer for cervical ROM and neck disability index (NDI) were measured at two intervals pre-treatment and post-treatment. Results: MANOVA and post hoc tests revealed that there was statistical significant reduction in pain severity level, and functional disability only ,within both groups (p< 0.001) although there was no statistical significant results between groups(P=0.134). But there was clinical difference and high percent of improvement “clinically” in favor to group A concerning pain level, flexion, extension, bilateral side bending ROM and functional disability, however bilateral rotation ROM showed clinical difference in favor to group A. Conclusion: Both conventional exercise therapy and SNAGs mobilization are effective modalities in alleviating pain ,ROM and improving neck dysfunction in patients with chronic mechanical neck dysfunction. Centrally Mulligan SNAGs mobilization has an acceptable clinical applicability.</p>
Key words	1.	Mechanical neck dysfunction
	2.	Neck Disability Index questionnaire
	3.	Mulligan SNAGs on neck dysfunction
	4.	Mobilization
Classification number	:	000.000.
Pagination	:	99 p.
Arabic Title Page	:	تأثير التحريك الطبيعي المستمر المركزي (بطريقة موليجن) للمفاصل المسطحة على الخلل الوظيفي الميكانيكي المزمن للرقبة.
Library register number	:	5527-5528.