

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

Doctoral Degree

2017

Author	:	Ahmed AssemAbd El Rahim
Title	:	Cupping therapy versus interferential cupping therapy on mechanical low back pain
Dept.	:	Department of Basic Science.
Supervisors	1.	Maher Ahmed EL keblawy
	2.	Ahmed SalahAL-Din Hassan
	3.	HanaaKenawy Ata
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Background: Mechanical low back pain is a health problem affecting social and physical performance. Purpose: to investigate the effect of cupping therapy versus interferential cupping therapy on mechanical low back pain. Subjects: Sixty mechanical low back pain patients aged from 20-35years of both sexes, randomly divided into three groups, selected from Sohag University Neurosurgery Department. Methods:group (A) (Study Group): twenty patients received cupping therapy in addition to traditional physical therapy. Group (B) (Study Group): twenty patients received cupping therapy and interferential cupping therapy (IFT) in addition to traditional physical therapy. Group (C) (Control Group): twenty patients received traditional physical therapy. The treatment was applied for four weeks, three sessions per week. Pain was measured by McGill Pain Questionnaire (MPQ), disability was measured by The Roland Morris Disability Questionnaire and ROM was measured by goniometer before and after the treatment. Results: statistical analysis using 3×2 mixed design MANOVA indicated that there was a statistically significant decrease in pain, disability in group (B) than other groups with p-value equal (P=0.0001*, 0.0001* and P=0.0001*) respectively. There was a statistically significant increase in ROMs in group (B) than other groups with p-value equal (P=0.0001*, 0.0001* and P=0.0001*) respectively. Conclusion: Both Cupping therapy and interferential cupping therapy (IFT) can improve pain, disability and ROM when used for treating mechanical low back pain. However, the improvement acquired by cupping therapy and interferential cupping therapy in addition to traditional physical therapy is more indicating that it can be a more effective choice for treating mechanical low back pain.</p>		
Key words	1.	mechanical low back pain
	2.	Cupping therapy
	3.	interferential cupping
Classification number	:	000.000.
Pagination	:	127 p.
Arabic Title Page	:	العلاج بأكووس الهواء مقابل العلاج بأكووس الموجات المتداخلة على الم اسفل الظهر الميكانيكي
Library register number	:	5575-5576.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Basma Mohammed Ibrahim.
Title	:	Impact of Different Neurodynamic Tension Techniques on H Reflex of Sciatic Nerve
Dept.	:	Physical Therapy Department for musculoskeletal disorder and its Surgery.
Supervisors	1.	Awatif Mohamed Labib
	2.	Samy Abdel Samed Nasef
	3.	Sameh Mahmoud Ahmed Said
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Background and Objective: Neurodynamic tension techniques are beneficial in reducing the intrinsic pressures on the neural tissue in symptomatic subjects. However, its effect on asymptomatic subjects still uncertain, so the aim of this study was to investigate the effect of five neurodynamic tension techniques on H reflex and H/M ratio of sciatic nerve in normal asymptomatic subjects. Materials and Methods: Hundred subjects participated in this study, their age ranged between 20-30 years, BMI ranged 19-25 Kg/m². Subjects were assigned into five groups (A, B, C, D and E) and were divided equally, Group A received only slump technique (slider), group B received only piriformis technique (new innovation of neural mobilization technique that utilize a stretching exercise), and group C received only slump technique (tensioner), group D received only straight leg raising (distal slider) and group E received only straight leg raising technique (proximal slider). Every participant was evaluated by measuring H reflex and H/M ratio using Schwarzer topas EMG machine before neurodynamic tension techniques (pre technique) and after neurodynamic tension techniques (post I), and after neurodynamic tension techniques with oscillation (post II). Results: The data was analyzed using “MANOVA with repeated measures” and the results revealed that there was a significant decrease in H reflex latency and increase in H/M ratio of sciatic nerve after application of neurodynamic tension techniques (when $p < 0.05$). Conclusion: all neurodynamic tension techniques have a significant improvement in H reflex latency and H/M ratio on sciatic nerve while piriformis technique was the best one so we can use neurodynamic tension technique as a prophylactic treatment for subjects who are susceptible to have sciatica due to their life style.</p>		
Key words	1.	neurodynamic tension techniques
	2.	sciatic nerve
	3.	H reflex
	4.	H/M ratio
	5.	asymptomatic subjects
Classification number	:	000.000.
Pagination	:	117 p.
Arabic Title Page	:	تأثير طرق مختلفة من الشد الديناميكي العصبي على رد فعل هوفمان لعرق النساء.
Library register number	:	5711-5712.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Heba Mohamed Abd Elshafi
Title	:	Gallium Arsenide Laser Efficacy on Oral Mucosal Immunity in Treating Chemotherapy Induced Oral Mucositis.
Dept.	:	Department of Basic Science.
Supervisors	1.	Awatif Mohamed Labib
	2.	Soheir Shehata Rezk –Allah
	3.	Reem Jan Farid
	4.	Mohamed Abd Elrahman Hassan,
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	Master.
<p>Background: Oral mucositis is an inflammation of mucous membranes in the mouth which ranges from small patches and redness to severe ulceration and hemorrhage; it is a common complication of oncotherapy treatment affecting 40-80% of patients undergoing chemotherapy and almost all those undergoing radiotherapy of the head and neck. The purpose: of this study was to investigate the efficacy of gallium arsenide laser in chemotherapy induced oral Mucositis and level of tumor necrosis factor-alpha as well as interleukin-6 in cancer patients due to various malignancies. Subjects: Eighty cancer patients of both genders, smokers and non-smokers with age ranging from 40 to 65 years old were included, type of cancer was head and neck squamous cell carcinoma, lymphoma and breast cancer. They had oral mucositis of various degrees following chemotherapy treatment. They were randomly selected from the out and inpatient clinic of oncology department of Kasr Elaini hospital, and received chemotherapy in the form of Antimetabolites, Mitotic inhibitors, Anthracyclins, Alkylating agent, corticosteroids and immunotherapy from 4-8 cycles. Methods: World Health Organization assessment scale was used for mucositis assessment. Blood samples were taken from all patients for TNF-α and IL-6 assessment before and after treatment. All patients were treated with gallium arsenide laser (daily 6 days/week) from the start of oral mucositis. Results: There was a significant reduction in the grade of oral mucositis in almost all patients by 51.91 % with p-value = 0.001. Also there was a significant reduction in the grade of oral mucositis of non smoker patients (mean difference = 1.727) versus smoker patients (mean difference = 1.016) with p-value = 0.0001 for both status, younger patients (mean difference = 1.886) versus older patients (mean difference = 1.009) with p-value = 0.0001 for both ages, female patients (mean difference = 1.759) versus male patients (mean difference = 1.173) with p-value = 0.0001 for both genders. There was no significant changes in the mean value of TNF-α or IL-6 for the whole patients with p-value = 0.6965, p-value 0.0827 consequently. Conclusion: Gallium arsenide laser is effective in reducing chemotherapy induced oral mucositis in cancer patients due to various malignancies better results were obvious in younger non smoker female patients and mechanism of action does not seem to be completely linked to the changes of pro or anti-inflammatory cytokines.</p>		
Key words	1.	Oral Mucositis.
	2.	Chemotherapy (CT).
	3.	Low Power Laser Therapy (LPLT),
	4.	Gallium Arsenide Laser
	5.	Immunity of Oral Mucosal.
Classification number	:	000.000.
Pagination	:	191 p.
Arabic Title Page	:	تأثير الجاليوم ارسنيد ليزر على مناعه الغشاء المخاطي للفم في علاج التهاب الاغشية المخاطية الفمية الناتج عن العلاج الكيميائي.
Library register number	:	5689-5690.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Mohamed Elsayed
Title	:	Positional Release versus Myofascial Release Technique in Chronic Low Back Dysfunction.
Dept.	:	Department of Basic Science.
Supervisors	1.	Wadida H. Abdelkader Elsayed
	2.	Hasan Huseen Ahmed
	3.	Rabab Ali Mohamed
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Background: Chronic low back dysfunction (CLBD) has direct and great influence on psychological, physical and socioeconomic aspects of the person's life. Myofascial release technique (MFR) is a therapeutic treatment that uses gentle pressure and stretching to facilitate the release of fascial restrictions caused by accidents, injury, stress, repetitive use, and traumatic or surgical scarring (PRT) Positional release therapy is a method of total body evaluation and treatment using tender points (TPs) and a position of comfort (POC) to resolve the associated dysfunction. PRT is an indirect (the body part moves away from the resistance barrier for example the direction of greatest ease) and passive method of treatment (the therapist performs all the movements without help from the patient). Purpose: this study was conducted to compare the effect of PRT, MFR and conventional physical therapy treatment on pain intensity level, spinal mobility and functional disabilities level in patients with CLBD. Also, to compare the effect among PRT, MFR and conventional physical therapy treatment on pain intensity level, spinal mobility and functional disabilities level in patients with CLBD. Methods: Forty two patients from both genders were diagnosed as CLBD, aged from 40 to 60 years. Assigned randomly into three groups, each group consisted of 14 patients with mean age, weight, height and BMI of Control group A 51.21±6.98, 72.85±6.19, 171.57±5.95 and 24.86±3.030 respectively received conventional physical therapy program. Group B 49.35±7.36, 72.64±6.42, 171.57±5.95 and 24.78±3.064 received conventional physical therapy program and PRT. Group C 49.35±6.23, 72.28±6.99, 171.57±5.95, and 24.65±3.176 respectively received conventional physical therapy program and MFR technique. Sessions were conducted three days / week every other day for 12 sessions. Pain intensity level was measured by Visual Analogue Scale, Lumbar range of motion (ROM) was measured by the modified Schober technique and the finger tip-to-floor technique and finally functional disability level was measured by Oswestery Low Back Pain Disability Questionnaire. Measurements were conducted pre-treatment and post-treatment. Results: showed that, there was a significant differences between pre and post treatment within each group A, B and C for pain intensity level, lumbar ROM and functional disability level (p<0.05). There was no statistical significant differences between A and B in pain intensity level, lumbar ROM, and functional disability level (p<0.05). There was statistical significant differences between A and C in pain intensity level, lumbar ROM, and functional disability level (p<0.05). There was statistical significant differences between B and C in pain intensity level and lumbar ROM but there was no statistical significant differences in functional disability level (p<0.05). Conclusion: There is no significant difference between PRT and MFR in reducing pain, increasing the range of motion and functional disability in patients with CLBD.</p>		
Key words	1.	Chronic low back dysfunction,
	2.	Myofascial release technique
	3.	Positional release technique
	4.	Oswestery Low Back Pain Disability Questionnaire.
Classification number	:	000.000.
Pagination	:	115 p.
Arabic Title Page	:	فاعلية الموجات فوق الصوتية المصاحبة للتيارات المتداخلة المعدلة مسبقاً في علاج التهاب عصب النسا غضروفي المنش.
Library register number	:	5439-5440.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Mohamed Ibrahim Fathallah Abdelhay
Title	:	Mulligan versus maitland mobilization on thoracic kyphotic angle in postural kyphosis
Dept.	:	Department of Basic Science.
Supervisors	1.	Mohamed Hussein Elgendy
	2.	Yasser Ramzy Lasheen
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	<p>Background: Postural kyphosis is asymptomatic and is the most common type of idiopathic kyphosis . There is lack in literature supporting efficacy of spinal mobilization techniques in restoring normal thoracic curvature. Mulligan and maitland mobilization were used to improve rang of motion and referred pain not to restore normal kyphotic angle. The purpose: This study was conducted to investigate and compare the effect of mulligan and maitland spinal mobilization on kyphotic angle in postural kyphosis. Subjects: This study was performed on 75 students from faculty of physical therapy their age was (17-21)years. They were included in the study by initial postural examination and have been randomly assigned into three equal groups. Method: Group I Each subject in this group received mulligan mobilization in addition to postural awareness exercises as conservative treatment . 18 mulligan mobilization sessions were given to the subjects over a period of 12 weeks. 5 postural awareness exercises were performed daily under the supervision of the therapist then alone as a home program . Group II Each subject in this group received maitland mobilization in addition to postural awareness exercises as conservative treatment. Number of mobilization sessions and frequency of exercises as group I .Group III This group was a control group. Subjects within this group performed exercises only as a conservative treatment daily as the previous two groups. Kyphotic angle was measured using formetric raster-stereography pre and post treatment. Result: the result of the study showed significant effect of mulligan mobilization in decreasing kyphotic angle in patients with postural kyphosis p value was (0.001) and there was not any significant effect of maitland mobilization on kyphotic angle and p value was (0.256). Conclusion :Mulligan mobilization is effective in decreasing kyphotic angle in (asymptomatic) postural kyphosis. Maitland mobilization has no significant effect in decreasing kyphotic angle in (asymptomatic) postural kyphosis.</p>
Key words	1.	Mulligan
	2.	Kyphotic Angle.
	3.	Maitland
	4.	Mobilization
	5.	thoracic kyphotic angle
	6.	postural kyphosis
Classification number	:	000.000.
Pagination	:	107 p.
Arabic Title Page	:	تحريك الفقرات بموليجان مقابل ميتلاند على الزاوية الحديبية الصدرية في التحديب الوضعي.
Library register number	:	5543-5544.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Naglaa Gadallah Mohammed Gadallah
Title	:	Comparison between Mediterranean, Low Fat and Balanced Diet on Blood Lipids in Obese Women
Dept.	:	Department of Basic Science.
Supervisors	1.	Wdida Hassan
	2.	Omaima Mohammed Ali Kattabei
	3.	Aliaa Atia Diab
	4.	Dr. Eman Ahmad Sultan Mohammed
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Background: Lifestyle behaviors, including diet and exercise, are the cornerstone of weight control and human health. Over the last 50 years, many studies ensured that diet and nutritional factors play strong roles in the prevention / development of chronic diseases, such as Dyslipidemia, obesity and metabolic syndrome, as well as mortality. Purpose: of current study was to compare the effect of restricted Mediterranean diet, restricted low fat diet and restricted balanced diet each combined with endurance training exercise on body weight and blood lipids (total cholesterol (TC), triglycerides (TG), low density lipoprotein cholesterol (LDL) and high density lipoprotein cholesterol (HDL) in obese women . Subjects: 60 obese women with age of 20 - 40 years were selected by distributed random way for this study; their body mass indexes (BMI) were ranged from 30 -34.99 kg/m² (obesity class I according WHO classification (2010) They were randomly divided into three groups (A, B and C) each group included 20 subjects and this study applied for 12 week for measurement of body weight ,BMI and blood lipids (TC ,TG , LDL and HDL) Methods :The three groups received endurance training exercise (moderate intensity, three times / week) in form of bicycling using stationary bicycle plus the diet models detected for each group , (Group A) included those on restricted Mediterranean diet (1200 cal /day, daily), (Group B) included those on restricted low fat diet (1200 cal /day, daily) and (Group C) included those on restricted balanced diet (1200 cal /day, daily). The biochemical changes on body weight, BMI and blood lipids were measured at the beginning of the study and after 12 weeks. Results: Showed that restricted Mediterranean diet with endurance training exercise was more powerful, favorable and effective in controlling blood lipids abnormalities in terms of TC ,TG and LDL (the percentages of improvement of TC was -- 13.14 %, TG was -- 28.7% and LDL was -- 14.83 %), restricted low fat diet with endurance training exercise was better in treatment of dyslipidemic patient who has increase in body weight and body weight was his main problem (the percentages of improvement of body weight was --15.39 % and BMI was -- 15.43 %) and restricted balanced diet with endurance training exercise was better in treatment of dyslipidemic patient who suffer from decrease HDL mainly (the percentage of improvement was ++ 17.78 %). Conclusion: Restricted Mediterranean diet with endurance training exercise improves TC, TG and/or LDL better than restricted low fat diet with endurance training exercise or restricted balanced diet with endurance training exercise. Regarding changes in body weight and BMI, restricted low fat diet with endurance training exercise improves body weight and BMI better than restricted Mediterranean diet with endurance training exercise or restricted balanced diet with endurance training exercise. Regarding changes in HDL, restricted balanced diet with endurance training exercise improves HDL better than restricted Mediterranean diet with endurance training exercise or restricted low fat diet with endurance training exercise.</p>		
Key words	1.	Restricted Calorie Diet
	2.	Blood Lipids
	3.	Mediterranean Diet
	4.	Low Fat
	5.	Low Fat
	6.	Balanced Diet
	7.	Obese Women
	8.	Endurance Exercise
	9.	Obesity in Women
Classification number	:	000.000.
Pagination	:	247 p.
Arabic Title Page	:	دراسة مقارنة بين تأثير نظام البحر المتوسط الغذائي قليل السعرات مقابل النظام قليل الدهون قليل السعرات والنظام المتوازن قليل السعرات علي مستوى الدهون بالدم في السيدات البدنيات.
Library register number	:	5559-5560.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Shereen Mohamed Said Badawy
Title	:	Mulligan Self Mobilization Versus Mulligan SNAGs on Cervical Position Sense
Dept.	:	Department of Basic Science.
Supervisors	1.	Neveen Abd El-Latif Abd El-Raouf
	2.	Olfat Ibrahim ALI
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Background: Neck pain is very common. It can negatively affect the patient's life, and may result in disability. Purpose: This study was conducted to compare between the effect of two Mulligan techniques either of them was more effective (Mulligan self-mobilization or Mulligan SNAGs) on pain, cervical position sense and function on chronic mechanical neck pain. Subjects: 87 patients of both sexes, their age ranges between(20-35) and BMI≤ 25, suffering from chronic mechanical neck pain, were randomly assigned into 3 groups: Group (1)29 subjects received Mulligan self-mobilization plus conventional treatment. Group (2)29 subjects received Mulligan SNAGs and conventional treatment. Group (3)29 subjects received conventional treatment only(Infra-red And TENS). Methods: for all patients pain was measured by visual analogue scale(VAS), Position sense was measured by Joint reposition error(JPE) and cervical function by Functional Neck disability index(NDI). Measurements were taken pre and post the intervention period 3 sessions/ week, day after day, which last for one month. Results: MANOVA test revealed that there was significant improvement in values of the post treatment in all groups compared with pre treatment of JPE (pre: P=0.725, post:P<0.001), VAS (pre=0.984, post:P<0.001) and NDI(pre=0.903, post:P<0.001). Conclusion: both Mulligan self-mobilization and Mulligan SNAGs techniques have similar effect on VAS, JPE and NDI more than conventional in treating chronic mechanical neck pain patients.</p>		
Key words	1.	Mulligan Self Mobilization
	2.	Mulligan SNAGs
	3.	Joint Reposition Error
	4.	Neck Disability Index
	5.	Visual Analogue Scale
	6.	Cervical Position Sense
Classification number	:	00.0.
Pagination	:	127 p.
Arabic Title Page	:	التحريك الذاتى لموليجان مقابل التحريك الطبيعي المستمر للمفاصل المسطحة لموليجان على الحس الوضعى للرقبة.
Library register number	:	5627-5628.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Shimaa Taha Abu El-Kasem
Title	:	Effect of Forward Head Posture on Sensorimotor Integration
Dept.	:	Department of Basic Science.
Supervisors	1.	Neveen Abd Ellatif Abd El Raouf
	2.	Omaima Mohamed Ali Kattabei,
	3.	Ibrahim Moustafa Moustafa
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Back ground: Forward head posture (FHP) is a common type of postural abnormality seen clinically. Repetitive strain injuries , repetitive muscular activity and dysfunction which are common found in FHP are playing a role in altering the sensorimotor integration (SMI) .The purpose :This study was conducted to measure the effect of FHP and subsequent typing task on SMI. Methods: Sixty volunteers subjects(18-25 years) participated in the study ,30 normal subjects with CVA angle from 49° to 59° are in group A (Normal), 30 forward head subjects with CVA angle ≤ 49 are in group B (forward head) measured by CVA angle . Cortical and sub cortical amplitude (N20-P25,N30-P22,N24-P22and N18-P14) of somatosensory evoked potential (SSEPs) were recorded for both groups after stimulation of right median nerve before and after performing motor typing task. Results: <i>Regarding the forward head posture:</i> There was statistical significant increase in cortical amplitude of SSEPs in group (A) compared with group (B) as p value was ≤ 0.05 while there was no statistical difference in subcortical amplitude of SSEPs between group A and B as p value ≥ 0.05. <i>Regarding the typing task:</i> Within group analysis revealed that in group A there was significant increase in amplitude of cortical and sub cortical SSEP after typing task as p was ≤ 0.05, In group B there was statistical significant increase between pre typing and post typing for cortical amplitude (N20-P25,N30-P22) P=0.001but there was no statistical difference for cortical (N24-P22) and sub cortical (N18-P14) as P=0.53 and P=0.92. Between groups analysis revealed there was statistical significant increase in post typing cortical and subcortical amplitude of SSEPs in group A compared with group B as p value ≤ 0.05. Conclusion: forward head posture attenuate the cortical amplitude of SSEPs while it has no effect on subcortical amplitude of SSEPs,which mean it cause change in the brain response to afferent input (SMI),Typing task in the presence of FHP decrease the post typing cortical and subcortical amplitude of SSEPS.</p>		
Key words	1.	Forward head posture
	2.	Somatosensory evoked potential
	3.	sensorimotor integration
Classification number	:	000.000.
Pagination	:	146 p.
Arabic Title Page	:	تأثير الوضع الامامي للرأس على التكامل الحسي الحركي.
Library register number	:	5425-5426.

**ELECTRONIC GUIDE TO THESES APPROVED BY
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Author	:	Yomna Farag
Title	:	Immediate and late effect of cryotherapy on balance in healthy subjects
Dept.	:	Department of Basic Science.
Supervisors	1.	Neveen Abdel- Latif Abdel Raouf
	2.	Mohsen Mohamed El Sayyad
	3.	Doaa Ibrahim Amin
Degree	:	Doctoral.
Year	:	2017.
Abstract	:	
<p>Background: Cryotherapy application is commonly used as a physical therapy tools with many known advantage, however several research have reported decrease in subject balance which affect quality of movement following cryotherapy application, therefore the purpose of study to investigate the immediate and late effect of cryotherapy on ankle dominant joint on static and dynamic balance and the difference in both gender. Methods: Thirty healthy subjects (fifteen male and fifteen female), their age from 18-40 years old. Subjects firstly assisted their static and dynamic balance by biodex balance system, closed eyes standing on dominant leg (control condition). Then subjects received the cryotherapy application by using cooled gel pack to the dominant ankle joint for fifteen minutes. Static and dynamic balance tests were performed immediately, post 30 minutes and post 60 minutes after cryotherapy application (experimental condition). Result: Showed non-statistically significant immediate and late effect in all aspect of static balance within females group and within males group with p value of overall stability index for females =0.669, for males =0.382, Anterior/posterior stability index for females =0.196, for males=0.552 and medial/lateral stability index for female =0.989, for male=0.46 and no statistically significant immediate and late effect between males and females in all aspect of static balance / Also showed statistically significant immediate and late effect in all aspect of dynamic balance within females group and within males group with p value of overall stability index for females =0.033, for males =0.028, Anterior/posterior stability index for females =0.024, for males=0.029and medial/lateral stability index for females =0.018, for males=0.026 and statistically significant immediate and late effect between males and females in all aspect of dynamic balance. Conclusion: The result of current study suggested that fifteen minutes of cold gel pack on ankle dominant joint had no immediate and late effect on static balance on both sexes and had a negative immediate and late effect on dynamic balance.</p>		
Key words	1.	static balance
	2.	cryotherapy
	3.	biodex balance system.
	4.	dynamic balance
	5.	balance in healthy subjects
Classification number	:	000.000.
Pagination	:	82 p.
Arabic Title Page	:	التأثير الفوري والمتأخر للعلاج بالتبريد على التوازن في الأشخاص الأصحاء
Library register number	:	5629-5630.