Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and Its Surgery

Doctoral Degree
2018

Author	**:**	**Ahmed Shawky Ali Salim**
Title	**:**	**Effect of Aerobic Exercises on Immune System in Patients with Multiple Sclerosis**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
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	2.	**Mohamed Soliman El Tamawy**
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Degree	**:**	**Doctoral.**
Year	**:**	**2018.**
Abstract	**:**	

Background: The immune pathogenesis is one of the hallmark of multiple sclerosis. Aerobic exercises may affect the immune regulation in MS patients. The aim of this study is to determine the effect of aerobic exercises on the immune system anti inflammatory (IL-10) and pro inflammatory (IL-17) cytokines and its consequences on the functional status in the Multiple Sclerosis patients. . Methods: Thirty male & females MS patients and fifteen normal matched subjects to detect normal references range values of IL-10 & IL-17 represented the sample of the study. Their age ranged from 25 to 45 years. The patients were assigned into two equal groups; study group (GA) and control group (GB) in addition to normal subjects (GC). GA treated by the disease modifying drug (interferon beta-1a) "Rebif" in addition to a physical therapy program of aerobic exercises conducted two times per week for eight weeks for 40 min . GB treated by the same disease modifying drug only. Pre and post assessment were done by measurement of the immune parameters through measurement of serum IL-10 & IL-17 by ELISA test .The functional status and severity of the disease were assessed by expanded disability status scale (EDSS) . Results: There was a significant increase of anti inflammatory (IL-10) cytokine as well as significant decrease of pro inflammatory (IL-17) cytokine and EDSS in the study group compared to the control group (P<0.05). Conclusion: Aerobic exercises has a positive effect on the immune system and consequently improving functional status in MS patients.

Key words	**1.**	**MS.**
	2.	**Immune system.**
	3.	**IL-10 .**
	4.	**IL-17.**
	5.	**EDSS**
	6.	**Aerobic Exercises on Immune System**
	7.	**Multiple Sclerosis**
Classification number	**:**	**000.000.**
Pagination	**:**	**124 p.**
Arabic Title Page	**:**	**تأثير التمرينات الهوائية علي الجهاز المناعي لمرضي التصلب المتعدد .**
Library register number	**:**	**5769-5770.**

Author	**:**	**Hager Rasmy Ibrahim El-Serougy**
Title	**:**	**Impact of somatosensory rehabilitation on upper limb motor deficits in patients with stroke**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
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Degree	**:**	**Doctoral.**
Year	**:**	**2018.**
Abstract	**:**	

Methods. Thirty hemiparetic stroke patients in the subacute phase participated in this study, with 22 completing it. They were randomized into two equal groups (Gr. I) and (Gr. II). Their age ranged from 40-65 years. Upper extremity function of both groups was evaluated, pre- and post-treatment using different clinical scales. Cortical and sub-cortical plasticity was measured pre- and post-treatment using BOLD fMRI in both groups. Group I received standard physical therapy treatment program, while Group II received both standard treatment in addition to sensory stimulation program. Duration of treatment was six weeks for both groups. Results. There were significant changes between the affected and non-affected upper extremities in clinical outcome measures and in activation patterns of ipsilesional and contralesional hemispheres in (Gr. I) and (Gr. II), post-treatment. On the other hand, comparisons between (Gr. I) and (Gr. II), post-treatment showed no change in clinical measure outcomes of the affected upper extremity. No comparisons were performed between activation patterns of ipsilesional and contralesional hemispheres, between (Gr. I) and (Gr. II), as activity indicating recovery was unalike. Conclusion. Both standard physical therapy and sensory stimulation programs were effective in improving motor function of the affected UE, but none of them had the advantage over the other, in terms of improving motor function and/ or the activation patterns in stroke patients.

Key words	**1.**	**Stroke.**
	2.	**Phase.**
	3.	**Hemiparesis.**
	4.	**upper extremity.**
	5.	**BOLD fMRI.**
	6.	**somatosensory rehabilitation**
	7.	**neural plasticity.**
	8.	**sensory stimulation**
	9.	**motor function**
	10.	**subacute**
Classification number	**:**	**000.000.**
Pagination	**:**	**316 p.**
Arabic Title Page	**:**	**تأثير التأهيل الحسي الجسدي على الاعتلال الحركي للطرف العلوي في مرضى السكتة الدماغية.**
Library register number	**:**	**5787-5788.**

Author	**:**	**Hanan Hosny Mohammed.**
Title	**:**	**Core stability training and desensitization therapy in patients with type II diabetic neuropathy.**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
Supervisors	**1.**	**Gehan Mousa Ahmed**
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	3.	**Amira Mohamed El Gohary**
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Degree	**:**	**Doctoral.**
Year	**:**	**2018.**
Abstract	**:**	

Background/Aims: The ability to maintain a standing and dynamic posture is a problem in patients with diabetic peripheral neuropathy. The purpose of this study was to investigate the effect of core stability exercises, desensitization therapy and the combination of them on posture stability, ankle dorsiflexors muscle power and pain in patients with type II diabetic peripheral neuropathy. Methods: A total of sixty adult patients from both sexes diagnosed as diabetic peripheral sensorimotor neuropathy with average age ranged from 55–70 years participated in this study. The patients assessed for power of ankle dorsiflexors by using hand held dynamometer, pain intensity by using Patient Reported Outcomes Measurement Information System (PROMIS) pain intensity instrument and limit of stability by using Biodex Balance System before and after treatment program. The patients were randomly divided into four equal groups. Group 1 (the control group) received a selected physical therapy program for diabetic peripheral neuropathy patients (proprioceptive training, active ankle ROM and foot care).Group 2 received core stability exercises in addition to the same selected physical therapy program for group one. Group 3 received desensitization therapy in addition to the same selected physical therapy program for group one. Group 4 received core stability exercises combined with desensitization therapy in addition to the same selected physical therapy program for group one. The intervention took place three times a week for total six weeks (every other day). Results: The results revealed that there was a statistical significant difference of ankle dorsiflexors muscle power and posture stability while no significant difference of pain intensity in group two (G2). A statistical significant difference of pain and posture stability while no significant difference of power of dorsiflexors in group three (G3). A statistical significant difference of ankle dorsiflexors muscle power, pain intensity and posture stability in group four (G4). So the results revealed that there was more significance improvement found in group four (G4) for all variables. Conclusion: Combined effect of core stability exercises and desensitization therapy was more effective than using each one of them alone to improve posture stability, muscle power of dorsiflexors and reduction of pain in patients with type II diabetic neuropathy.

Key words	**1.**	**Biodex balance system.**
	2.	**Diabetic peripheral neuropathy.**
	3.	**Core stability.**
	4.	**Desensitization therapy.**
	5.	**Hand-Held dynamometer.**
	6.	**PROMIS.**
Classification number	**:**	**000.000.**
Pagination	**:**	**157 p.**
Arabic Title Page	**:**	**تدريب الثبات المحوري وعلاج قله الإحساس فى مرضى إلتهاب الأعصاب الناتج عن (النوع الثاني) للبول السكري.**
Library register number	**:**	**5879-5880.**

ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL THERAPY DEPARTMENT FOR NEUROMUSCULAR AND NEUROSURGICAL DISORDER AND ITS SURGERY

PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Author	**:**	**Lama Saad El-Din Mahmoud.**
Title	**:**	**Effect of Motor Imagery training with Augmented cues of Motor Learning on cognitive functions in Parkinson patients**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
Supervisors	**1.**	**Nawal Abd EL-Raouf Abu Shady**
	2.	**EHAB SHAKER HAFEZ**
	3.	**Nawal Abd EL-Raouf Abu Shady**
Degree	**:**	**Doctoral.**
Year	**:**	**2018.**
Abstract	**:**	

Background: Cognitive impairments associated with Parkinson are mainly related to the executive functions with deficits in attention, planning, concept formation, and working memory, which in many cases impair everyday motor functioning. A successful treatment is yet to be found. Several techniques have been proposed in the last decades. Purpose: to investigate the extent to which the use of motor imagery training with augmented cues of motor learning on Parkinson patients experiencing cognitive dysfunctions. Subjects: thirty referred medically & radiologically diagnosed idiopathic Parkinson patients from both genders experiencing cognitive dysfunction. Methods: patients were randomly assigned to equal two groups; a study group and control group. The study group received motor imagery training combined with augmented cues of motor learning and selected designed physical therapy program CRT and control group received selected physical therapy designed program including Cognitive Remediation Therapy (CRT) including: 1-restorative reminiscence therapy exercises,2-compensatory complex task training, both groups received treatment program for six weeks every other day 3 sessions/ week & each session for 1 hour. All patients were evaluated with Reha Com device programs, The Mini–Mental State Examination (MMSE) scale and Time up & go (TUG) test pre & post treatment. Results: There was a high significant difference between study and control groups as p-value was (0.0001) which indicated that study group shows improvement in cognitive functions more than control group, and there was correlation between Reha Com, MMSE and performance motor test TUG. Conclusion: this study revealed that six weeks of the motor imagery training combined with augmented cues of motor learning rehabilitation for every patient was a beneficial physical therapy techniques on cognitive dysfunctions in Parkinson patients.

Key words	**1.**	**Cognition.**
	2.	**Motor learning.**
	3.	**Motor imagery.**
	4.	**Augmented cues.**
	5.	**Rehabilitation.**
Classification number	**:**	**000.000.**
Pagination	**:**	**156 p.**
Arabic Title Page	**:**	**تأثير التدريب بتصور الحركة مع إضافة إشارات التعلم الحركي على وظائف المعرفة في مرضى الشلل الرعاش.**
Library register number	**:**	**5853-5854.**

Author	**:**	**Lamyaa Ahmed Moh. Fergany**
Title	**:**	**Electromagnetic Therapy Versus Transcutaneous Electrical Nerve Stimulation in Treatment of Neurogenic Bladder in Patients with Spinal Cord Injury**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
Supervisors	**1.**	**Hussein A. Shaker**
	2.	**Magdi A. Arafa,**
	3.	**Mohammed S. El Badry**
Degree	**:**	**Doctoral.**
Year	**:**	**2018.**
Abstract	**:**	

Purpose: The purpose of various treatments proposed for neurogenic overactive bladder has been widely tested. The aim of this study was to compare urodynamic findings between the effects of electrical magnetic field therapy versus transcutaneous electrical nerve stimulation on neurogenic overactive bladder dysfunction as a result of spinal cord injured patients. Patients and methods: forty patients with neurogenic overactive bladder secondary to suprasacral spinal cord injury were studied. There were 27 men and 13 women with a mean age 40.15± 8.76. Patients underwent urodynamic study before and after treatment. Patients were divided into two equal groups:Group 1: consisted of 20 patients who received 20 minutes of transcutaneous electrical nerve stimulation three times per week for 20 sessions. Frequency used 10 Hz with a generated pulse of 700s.Group 2: consisted of 20 patients received electromagnetic field therapy, 15 Hz. with 50% intensity output for 5 seconds per minute for 20 minutes 3 sessions per week for 20 sessions . Results: The results of this study revealed a statistical significant increase in the Q max as p- value was (<0.02) for group Band a highly statistical significant increase in the maximum cystometric capacity the p-value was (<0.0001) for group B and a highly statistical significant increase in 1st uninhibited detrusor contraction as p- value was (<0.002) for group B, favoring group B. Conclusion: It could be concluded that urodynamic investigations demonstrated that the effects of electromagnetic field therapy for neurogenic overactive bladder patients secondary to suprasacral spinal cord injury would be better than transcutaneous electrical nerve stimulation on inducing an inhibitory effect on neurogenic detrusor overactivity through stimulation of sacral nerve roots.

Key words	**1.**	**Magnetic field therapy.**
	2.	**neurogenic overactive bladder.**
	3.	**spinal cord injury.**
	4.	**transcutaneous electrical nerve stimulation**
Classification number	**:**	**000.000.**
Pagination	**:**	**116 p.**
Arabic Title Page	**:**	**العلاج الكهرومغناطيسى مقابل التنبيه الكهربى العصبى الحسى فى علاج المثانة العصبية فى مرضى إصابات النخاع الشوكى.**
Library register number	**:**	**5793-5794.**

Author	**:**	**Nadia Mohamed Abdelhakiem.**
Title	**:**	**Influence of dual task paradigm on postural instability in patients with multiple sclerosis**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
Supervisors	**1.**	**Nawal Abd El -Raouf Abou shady**
	2.	**Ebtesam Mohammed Fahmy**
Degree	**:**	**Doctoral.**
Year	**:**	**2018.**
Abstract	**:**	

Objective: This study aimed to investigate the effect of dual task training on postural stability in patients with multiple sclerosis (MS). Subjects and Methods: Thirty patients with clinically definite MS according to McDonald criteria (2010), of the remitting relapsing subtype, were included in the study. Their age ranged from 20-45 years. The expanded disability status scale (EDSS) ranged from 2 - 5.5. Patients were randomly assigned into 2 groups, study group and control group. The study group received primary task activities (postural control activities) in addition to secondary task activities (cognitive training) while the control group received primary task activities only. The treatment sessions were conducted three times per week for six successive weeks. Both groups were assessed by Biodex Balance System and Berg Balance Scale (BBS). Static postural stability measures (overall balance index, anterior/posterior balance index and medial/lateral balance index), dynamic postural stability measures (overall directional control and total time to complete test) and BBS scores were assessed before and after six weeks of training. Results: There was post treatment significant improvement of static postural stability measures, dynamic postural stability measures, and BBS scores in the study group who received dual task training (p< 0.05). The improvement in the control group was non-significant. significant positive correlation between overall directional control and berg balance scale scores and significant negative correlation between total time to complete the test and berg balance scale scores, (p = 0.0001, 0.044) respectively. Conclusion: Dual-task training is beneficial in improving static and dynamic postural stability in patients with MS who had balance problems.

Key words	**1.**	**Multiple sclerosis.**
	2.	**Postural stability.**
	3.	**Dual task paradigm.**
Classification number	**:**	**000.000.**
Pagination	**:**	**161 p.**
Arabic Title Page	**:**	**تأثير نموذج المهمة المزدوجة علي عدم ثبات القوام في مرضي التصلب المتعدد .**
Library register number	**:**	**6057-6058.**

Author	**:**	**Noura Abd Elhamid Ahmed Elkafrawy**
Title	**:**	**Effect Of Transcranial Direct Current Stimulation Combined With Constraint-Induced Movement Therapy On Cortical Reorganization And Functional Outcome In Stroke Patients.**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
Supervisors	**1.**	**Abdaleem abdalfattah Atteya,**
	2.	**Waleed Talat**
	3.	**Amani Mahmoud Nawito,**
Degree	**:**	**Doctoral.**
Year	**:**	**2018.**
Abstract	**:**	

Background: **The brain has an intrinsic capacity to compensate for structural damage through reorganizing of surviving networks. These processes are fundamental for recovery of function after stroke.** ***Objectives:*** **To investigate the combined effect of bihemispheric transcranial direct current stimulation (tDCS) and constraint induced movement therapy (CIMT) on cortical reorganization and functional recovery of the affected upper extremity in chronic stroke patients. In addition, it assessed the correlation between changes of ipsilesional cortical excitability as a measure of reorganization and functional improvements post intervention.** ***Methods:*** **Forty stroke patients with age ranged from 45 to 60 years were randomly assigned to receive 10 consecutive sessions of either 1) bihemispheric tDCS with simultaneous CIMTor 2) sham stimulation with simultaneous CIMT. Outcome measures include changes in Fugl-Meyer Upper Extremity Motor Assessment (FMUE), Motricity Index (MI) and Action Research Arm Test (ARAT). Cortical excitability of pre and post intervention was assessed using motor evoked potential (MEP) amplitude to identify neural correlates of functional improvement.** ***Results:*** **The improvement of motor function was significantly greater in the real stimulation group when compared to the sham group ($p < 0.001$ for FMUE, MI and ARAT). In addition, ipsilesional MEP amplitude were significantly greater in the real stimulation group compared with the sham group ($p = 0.028$). No statistically significant difference in the contralesional MEP amplitude was found between real stimulation and sham groups ($p = 0.11$). The increase in the ipsilesional MEP amplitude correlated with functional improvements post intervention.** ***Conclusion:*** **Bihemispheric tDCS combined with CIMT provide additional improvement in upper extremity function and cortical reorganization of stroke patients than caused by CIMT alone.**

Key words	**1.**	**Stoke.**
	2.	**Transcranial direct current stimulation.**
	3.	**Cortical reorganization.**
	4.	**Motor evoked potential.**
	5.	**Constraint induced movement therapy.**
Classification number	**:**	**000.000.**
Pagination	**:**	**142 p.**
Arabic Title Page	**:**	**التأثير المزدوج للتيار المباشر عبر الجمجمة والعلاج الحركي المستحث بالتقييد على إعادة تنظيم القشرة المخية والناتج الوظيفي في مرضى السكتة الدماغية.**
Library register number	**:**	**6051-6052.**

Author	**:**	**Shymaa Abdelhamed Abdelrahman Ahmed Salem.**
Title	**:**	**Effect of transcranial direct current stimulation on cognitive functions in stroke patients.**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
Supervisors	**1.**	**Hussien Ahmed shaker**
	2.	**Salah Abdelmonem Sawan**
	3.	**Ebtesam Mohamed Fahmy**
Degree	**:**	**Doctoral.**
Year	**:**	**2018.**
Abstract	**:**	

Background: Cognitive impairment after stroke is common and can cause disability with major impacts on quality of life and independence. Transcranial direct current stimulation is a non invasive brain stimulation improving cognitive impairment. **Purpose:** The aim of this study was to investigate the effect of transcranial direct current stimulation on improving cognitive functions in stroke patients.**Subjects and Methods:** Forty male stroke patients were included in this study. Patient's age ranged from 40-60 years. The patients were divided into two equal groups (A and B). Group (A) was treated with transcranial direct current stimulation (tDCS) in combination with selected cognitive training program (by Rehacom). Group (B) was treated with sham transcranial direct current stimulation in combination with the same cognitive training program (by Rehacom). Patients were evaluated by Mini Mental state examination (MMSE), functional independence measure (FIM) and Rehacom system (attention and concentration, figural memory, logical reasoning and reaction behavior) before and after treatment.**Results:** There was significant improvement in the scores of MMSE and FIM post treatment in both groups, the improvement was significantly higher in group (A) compared to group (B). Moreover, there was significant improvement in the scores of attention & concentration, figural memory, logical reasoning and reaction behavior post treatment in both groups, the improvement was significantly higher in group (A) compared to group (B). **Conclusion:** Transcranial direct current stimulation is effective in improving cognitive functions in stroke patients. So, it is recommended to use transcranial direct current stimulation in the cognitive rehabilitation programs in stroke patients in order to improve functional outcome

Key words	**1.**	**Stroke .**
	2.	**Cognitive functions**
	3.	**Transcranial Direct Current Stimulation**
Classification number	**:**	**000.000.**
Pagination	**:**	**122 p.**
Arabic Title Page	**:**	**تاثير التيار المباشر عبر الجمجمة علي وظائف الإدراك في مرضي السكته الدماغيه.**
Library register number	**:**	**6119-6120.**

Author	**:**	**Tarek Kamal Aly Mostafa Zayed**
Title	**:**	**Effect of extracorporeal shock wave therapy on different severities of carpal tunnel syndrome**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
Supervisors	**1.**	**Usama Mohammad Rashad**
	2.	**WaleedTalat Mansour**
	3.	**Nirmeen Adel Kishk**
	4.	**Amani Mahmoud nawito**
Degree	**:**	**Doctoral.**
Year	**:**	**2018.**
Abstract	**:**	

Background: Carpal tunnel syndrome (CTS) is the most common peripheral nerve entrapment syndrome worldwide. Purpose: To determine the Effect of extracorporeal shock wave therapy (ESWT) on different severities of carpal tunnel syndrome Methodology: Sixty patients with unilateral carpal tunnel syndrome from both genders (11 men and 49 women) were participated in this study .They assigned into three equal groups according to severity to Mild, Moderate and Severe .All patients received Shock Wave therapy one session per week, for six weeks for 2000 pulses at energy flux density (EFD) of 0.03 mJ/mm^2, 1.6 bar.Nerve conduction instrumentation was used for measuring motor latency (ML), motor amplitude, peak sensory latency (PSL), sensory amplitude and sensory conduction velocity (SCV) of median nerve, Pinch dynamometer was used to measure the degree of lateral pinch power, Visual Analogue Scale (VAS) was used to assess degree of pain and Ultrasonography analysis measured cross-sectional area (CSA) of median nerve for all patients at the beginning and at the end of the study. Results: The statistical analysis revealed that there were highly significant improvement (P<0.05) in PSL, SCV, CSA, lateral pinch power and VAS after shock wave therapy in all groups; It also revealed that there were highly significant improvement in ML, motor and sensory amplitudes after shock wave therapy in mild and moderate groups only (P<0.05) with no significant difference (P>0.05) in severe group. By comparing the degree of improvement among groups; ANOVA test revealed non-significant differences in CSA, PSL and lateral pinch as (P>0.05) .However, there was a significant differences in ML, motor and sensory amplitudes, SCV and VAS (p<0.05) with a lowest degree of improvement in those parameters in severe group. In all group sample, results revealed a highly significant correlations (p<0.001) between PSL with VAS, CSA with ML, CSA with PSL, CSA with VAS, CSA with lateral pinch and ML with lateral pinch. Conclusion: It is recommended to use ESWT as a conservative treatment in patients with different severities of CTS, except patients with severe motor affection.

Key words	**1.**	**Carpal tunnel syndrome.**
	2.	**Median Nerve.**
	3.	**shock wave.**
	4.	**extracorporeal shock wave therapy.**
Classification number	**:**	**000.000.**
Pagination	**:**	**110 p.**
Arabic Title Page	**:**	**تأثير العلاج ب الموجات التصادمية على الحدد المختلفة لمتلازمة اختناق العصب الأوسط عند رسغ اليد.**
Library register number	**:**	**5931-5932.**