

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

PREPARED BY NERVEEN ABD EL SALAM ABD EL KADER AHMED

Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and Its Surgery

Master Degree 2021

Author	:	Jasmine Magdy Mahmoud.
Title	:	Bilateral reinforced arm swing versus single arm restraining on gait kinematics in stroke patients.
Dept.	:	Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.
Supervisors	1.	Eman Samir Fayez
	2.	Sandraa Mohamed Ahmed
	3.	Mahmoud Yassin El-Zanaty
Degree	:	Master.
Year	:	2021.
Abstract	:	
<p>Background: Stroke is one of the major leading causes of morbidity and mortality worldwide. Some studies suggested that bilateral reinforced (powerful) swinging of upper extremities instead of natural movement is more helpful for improving weight shifting of the trunk, and gait kinematics. It was found that single (affected) arm restraining has positive effects in enhancing gait patterns especially during gait training sessions in hemiparetic patients who have excessive motion of COG. The upper limb swing function during walking has not yet been clarified, and still subject of debate. Aim of Study: To determine and compare between effect of spontaneous (normal) arm swing, bilateral reinforced arm swing (powerful) and single (affected) arm restraining on spatiotemporal gait parameters in stroke patients. Patients and Methods: Thirty male patients with chronic cerebrovascular stroke participated in this study. All patients performed overground ten-meter walk test (10-MWT) without any assistive devices at self-selected comfortable walking speed (SSCWS) in three different conditions: normal arm swing, affected arm restraining using arm sling and bilateral reinforced arm swing randomly for three trails each to calculate average walking speed. The same speed calculated was set on the treadmill of Biodex Gait Trainer 2TM system in meter per second (m/sec.) Subjects performed a three-minute walk under each of the previous conditions randomly for recording spatiotemporal gait parameters. Results: There was a significant increase in walking speed, total distance, and time on affected side at powerful arm swing compared with that at normal arm swing and arm sling conditions. There was a significant increase in walking speed, and total distance at normal arm swing compared with that at arm sling condition while there was no significant difference between normal arm swing and arm sling conditions on time on affected side. There was a significant increase in step cycle at powerful and normal arm swing compared with that at arm sling condition with no significant difference between them. There was a significant increase in step length of the affected side at normal arm swing compared with that at powerful arm swing and arm sling conditions with no significant difference between them. There was no significant difference in step length of the non-affected side and time on the non-affected side between the three conditions. Conclusion: bilateral reinforced (powerful) arm swing significantly improves spatiotemporal gait parameters in chronic stroke patients.</p>		
Key words	1.	Stroke
	2.	Spatiotemporal gait parameters
	3.	Biodex gait trainer2 TM system
	4.	Ten-meter walk test
	5.	arm swing.
	6.	gait kinematics
Classification number	:	000.000.
Pagination	:	104 p.
Arabic Title Page	:	التأرجح الثنائي الإجباري للذراعين مقابل تثبيت حركة أحد الذراعين على كفاءة المشي في مرضى السكتة الدماغية.
Library register number	:	7457-7458.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
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Author	:	Mostafa Ibrahim Ahmed
Title	:	Systematic Review: The Effectiveness Of Physical Therapy Interventions For Fatigue In Multiple Sclerosis Patients
Dept.	:	Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.
Supervisors	1.	Abeer Abo Bakr Elwishy
	2.	Nevin Mohieldin Shalaby
	3.	Mahmoud Yassin Elzanaty
Degree	:	Master.
Year	:	2021.
Abstract	:	
<p>Objective: The aim of this systematic review was to examine the effectiveness of physical therapy interventions for fatigue in multiple sclerosis patients. Subjects and Methods: The current study was made on patients with multiple sclerosis aged ≥ 18 years. We searched the PubMed, Pedro, Cochrane and goggle scholar web site from inception up till now. Systematic review of randomized controlled trials, the intervention used was Physical therapy interventions as a group programs. Nine studies were selected according to inclusive and exclusive criteria and descriptive analysis were conducted due to heterogeneity. Outcomes Fatigue Severity Scale (FSS), Modified Fatigue Impact Scale (MFIS), Visual Analogue Scale (VAS), and MS Quality of Life 54 (MSQoL-54). Results: Seven studies assessed fatigue by fatigue severity scale. There was very high heterogeneity in fatigue severity scale among studies ($n= 7$studies, $n= 941$participants, $P<0.00001$; $I^2=95\%$). There was significant overall effect between exercise therapy group and control group in fatigue by fatigue severity scale (SMD= -1.24; 95% CI, -1.38 to -1.10; $P<0.00001$), Two studies assessed fatigue by modified fatigue impact scale. There was very high heterogeneity in modified fatigue impact scale among studies ($n= 2$studies, $n= 131$participants, $P=0.004$; $I^2=88\%$). There was significant overall effect between exercise therapy group and control group in fatigue by modified fatigue impact scale (SMD= -0.57; 95% CI, -0.93 to -0.22; $P=0.002$) Three studies assessed fatigue by visual analogue scale. There was very high heterogeneity in visual analogue scale among studies ($n= 3$studies, $n= 234$participants, $P<0.00001$; $I^2=98\%$). There was significant overall effect between exercise therapy group and control group in fatigue by visual analogue scale (SMD= 0.96; 95% CI, 0.66 to 1.27; $P<0.00001$), Four studies assessed fatigue by multiple sclerosis quality of life-54. There was no heterogeneity in multiple sclerosis quality of life-54 among studies ($n= 4$studies, $n= 177$participants, $P=0.62$; $I^2=0\%$). There was significant overall effect between exercise therapy group and control group in fatigue by multiple sclerosis quality of life-54 (SMD= 0.35; 95% CI, 0.05 to 0.65; $P=0.02$). Sensitivity analysis showed that fatigue assessed by multiple sclerosis quality of life-54 was non-significant by excluding one trial at a time from pooled effects to determine whether any one study was particularly influential. No significant or change in heterogeneity ($I^2=0\%$) among including four studies was observed after removal one study according to sensitivity analysis matrix. Conclusion: The current level of evidence supports the effectiveness of physical therapy interventions for reducing fatigue in multiple sclerosis patients.</p>		
Key words	1.	Systematic Review
	2.	Physical therapy interventions
	3.	Fatigue.
	4.	Multiple sclerosis
Classification number	:	000.000.
Pagination	:	79 p.
Arabic Title Page	:	مراجعة منهجية: فاعلية تدخلات العلاج الطبيعي في علاج الاجهاد لدى مرضى التصلب المتعدد.
Library register number	:	7375-7376.

**ELECTRONIC GUIDE TO THESES APPROVED BY PHYSICAL
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Author	:	Mostafa Sherif Mohamed El Sayed Eissa.
Title	:	Transcranial Direct Current Stimulation Effect On Demented Patients.
Dept.	:	Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.
Supervisors	1.	Gehan Mousa Ahmed
	2.	Hanan Abd Allah Amer
	3.	Amina Mohammad Awad
Degree	:	Master.
Year	:	2021.
Abstract	:	
<p>Background: Elderly individuals with dementia are commonly presented with impaired spatial navigation function, as a consequence of cognitive dysfunction, and declined mobility that all influence their participation in life. Transcranial direct current stimulation (tDCS) is a safe, non-invasive, promising treatment intervention for improving cognitive changes in dementia. Objective: To investigate the effectiveness of tDCS on improving spatial navigation and mobility in patients with dementia. Methods: A double-blinded, randomized, sham-controlled trial was conducted. Twenty-nine demented patients participated and were randomly divided into two; intervention (n=16; mean age 62.98 ±10.11 years) and sham (n=13, mean age 60.23±7.57 years) groups. The patients in the intervention group received active tDCS for 20 minutes by applying an intensity of (2 mA). The patients in the sham group received a sham tDCS for 20 minutes as well; however, the current was ramped up to 1 mA and remained constant for 30 seconds before ramping down. The primary outcomes measures included the timed and error measures of the Floor Maze test (FMT), Timed Up and GO test (TUG), and the 10 Meter Walk Test (10 MWT). All measures were recorded pre- and post-stimulation for all patients, and the adverse effects were also measured. Results: Post-stimulation, performance on the FMT was significantly improved in the intervention group. Furthermore, a statistically significant change in both of the TUG and 10-MWT (p<0.05) was detected only in the intervention group. No serious adverse effects were reported in either group. Conclusion: The transcranial direct current stimulation can enhance both spatial navigation and mobility in demented patients.</p>		
Key words	1.	Non-Invasive Brain Stimulation
	2.	Stimulation, Dementia
	3.	Transcranial Direct Current
	4.	Floor Maze Test,
	5.	Spatial Navigation
Classification number	:	000.000.
Pagination	:	175 p.
Arabic Title Page	:	تأثير التنبيه الدماغي الغير التداخلي على مرضي الخرف.
Library register number	:	7347-7348.

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

Author	:	Nour El eman Mostafa Ayad.
Title	:	Effect of high-power laser therapy on Chemotherapy-Induced Peripheral Neuropathy.
Dept.	:	Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.
Supervisors	1.	Eman Samir Fayez
	2.	Mohamed Abd Elrahman
	3.	Heba Ahmed Metwally
Degree	:	Master.
Year	:	2021.
Abstract	:	
<p>Background: chemotherapy induced peripheral neuropathy (CIPN) is the most common neurological complication of cancer treatment. It may have a significant negative impact on the quality of life (QOL) and treatment outcome. Studies showed that high power laser therapy (HPLT) has an effect on peripheral neuropathy. The Purpose of this study was to investigate the effect of high-power laser therapy on chemotherapy induced peripheral neuropathy. Methodology: thirty patients with CIPN who received taxanes , platinum or vincristine agents were assigned to two equal groups (Study group & Control group): Study group received high power LASER therapy and control group received sham laser ,treatment was conducted for 30 minutes ,3days/week for six weeks and both groups were given routine medical treatment .Modified Total Neuropathy Score (mTNS) was used to assess severity of CIPN. The sural sensory nerve action potential amplitude (SNAPA),Conduction velocity (CV), tibial compound motor action potential amplitude (CMAPA) and conduction velocity (CV) were measured pre and post treatment to assess severity of CIPN. Results: There was a significant increase in sural sensory nerve action potential amplitude and tibial compound motor action potential amplitude in the study group post treatment compared with that of control group, and there was a statistically significant decrease in the mTNS score in the study group post treatment compared with the control group. Conclusion: High power LASER therapy has a significant positive effect in reduction of severity of CIPN. So, high power LASER therapy is an effective and beneficial method in chemotherapy induced peripheral neuropathy in patients with cancer receiving taxanes, platinum or vincristine treatment.</p>		
Key words	1.	Platinum.
	2.	Modified total neuropathy score.
	3.	vincristine
	4.	Chemotherapy induced peripheral neuropathy.
	5.	High-power laser therapy.
	6.	nerve conduction study
Classification number	:	000.000.
Pagination	:	136 p.
Arabic Title Page	:	تأثير العلاج بالليزر عالي الشدة على إلتهاب الاعصاب الطرفية نتيجة العلاج الكيماوى.
Library register number	:	7353-7354.

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Author	:	Yousra Sayed Ahmmed Mohamed.
Title	:	Relationship between Deep Neck Flexors Strength and Balance in Patients with Cervical Spondylosis.
Dept.	:	Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.
Supervisors	1.	Mohamed Nabil ElBahrawy
	2.	Ebtessam Mohammed Fahmy
	3.	Nagwa Ibrahim Mohammed Rehab
Degree	:	Master.
Year	:	2021.
Abstract	:	
<p>Background: Patients with cervical spondylosis are commonly suffering from neck pain that may lead to decline in deep neck flexors (DNFs) strength. DNFs strength is critical in the maintenance of the stability of cervical spine, so its assessment has gained importance in recent clinical practice. Objective: This study aimed to evaluate the relationship between DNFs strength and balance in patients with cervical spondylosis. Methods: Forty five participants from both sexes with age ranged from 45-55 years. Participants were assigned into two groups (study and control groups).The study group included thirty patients with cervical spondylosis suffering from neck pain and the control group included fifteen matched healthy subjects. The DNFs strength was assessed using pressure biofeedback unit (PBU) , ,balance was assessed using biodex balance system (BBS) in both groups and pain intensity was assessed using visual analogue scale (VAS) in the study group. Results: showed a statistically significant difference in the median value of DNFs strength and all balance measures (overall stability index (OSI), antro-posterior stability index (APSI) and time needed to complete limits of stability test) except medio-lateral stability index (MLSI) and overall direction control between both groups. There was non-significant correlation between all balance measures and DNFs strength in both groups. Also, there was non-significant correlation between DNFs strength and VAS scores or between dynamic balance indices and VAS scores in the study group. While there was a significant correlation between dynamic limits of stability parameters (time needed to complete test and overall direction control) and VAS scores in the study group. Conclusion: Patients with cervical spondylosis have deficits in DNFs strength and balance So, balance and DNFs strengthening exercises should be recommended in the rehabilitation programs of patients with cervical spondylosis. Also, it was concluded that DNFs dysfunction might not affect balance in these patients</p>		
Key words	1.	Deep Neck Flexors
	2.	Cervical Spondylosis
	3.	Balance
	4.	Pressure Biofeedback
	5.	Cranio-cervical flexion test
	6.	Neck pain.
Classification number	:	000.000.
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Arabic Title Page	:	العلاقة بين قوة عضلات الرقبة العميقة القابضة والتوازن في مرضي خشونة الفقرات العنقية.
Library register number	:	7377-7378.