Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery

Doctoral Degree 2011

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Title	:	**Effect of Galvanic Vestibular Stimulation on Balance in Parkinson's Disease.**
Dept.	:	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
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Degree	:	**Doctoral.**
Year	:	**2011.**
Abstract	:	

The purpose of this study was to to investigate the efficacy of galvanic vestibular stimulation on balance in patients with Parkinson's disease. Thirty patients with Parkinson's disease from both sexes participated in this study. The patients were assigned randomly into two equal groups; the control group (the patients were treated by designed physical therapy program) and the study group (the patients were treated by the same designed physical therapy program and in addition galvanic vestibular stimulation). The patients were treated for 12 weeks three sessions per week. All the patients were assessed for different aspects of standing balance by Biodex stability system (SI & dynamic limit of stability) and clinical tests (Berg balance scale & functional reach test). The measurement was conducted pretreatment and was repeated after 6th week (post I) then after 12th week (post II). The results showed a significant decrease in the mean values of stability index (overall, Antroposerior and Mediolateral stability index) pretreatment, post I and post II in the study group. The results showed also a significant increase in the mean values of directional control and significant decrease in the time elapsed to complete the test which revealed improvement of balance in the study group. The results showed also a significant increase in the mean values of Berg balance scale and functional reach test pretreatment, post I and post II in the study group. The correlations of laboratory test variables and the clinical tests revealed a significant correlations. It was concluded that galvanic vestibular stimulation is a beneficial central non invasive modality to improve Balance in patients with Parkinson's disease.

Key words	:	**Parkinson's disease .**
	:	**Balance.**
	:	**Galvanic vestibular stimulation.**
Arabic Title Page	:	**تأثير التنبيه الجلفانى المستحث لدهليز الأذن على الاتزان فى مرضى الشلل الرعاش.**
Library register number	:	**2495-2496.**

Author	:	**Ayman Anwar Nassif.**
Title	:	**The use of electric muscle stimulation to enhance botulinum toxin action in spastic stroke patients.**
Dept.	:	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
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Degree	:	**Doctoral.**
Year	:	**2011.**
Abstract	:	
Back ground: The purpose of this study was to examine the effect of using of electric muscle stimulation in enhancement of botulinum toxin action in spastic stroke patients. Forty hemiplegic patients were assigned randomly into two equal groups. The patients in the study group treated by botulinum toxin injection plus selected physical therapy program as well as electric muscle stimulation. Whereas subjects in the control group received botulinum toxin injection plus selected physical therapy program as well as placebo electric muscle stimulation. The following parameters including H/M ratio, walking velocity and ankle joint angle at initial contact (planter flexion) were measured before and after one and six weeks of treatment program. Results: there was significant improvement in the study group in comparison to control group. Conclusion: it can be concluded that electric muscle stimulation with the used parameters in this study can increase the effect of botulinum toxin in decreasing spasticity and in improve walking in spastic stroke patients.		
Key words	:	**Stroke, Spasticity.**
	:	**3-D Measurements**
	:	**botulinum toxin.**
	:	**electric muscle stimulation.**
Arabic Title Page	:	**استخدام التنبيه الكهربي العضلي لتفعيل تأثير سم البتيولينوم علي التشنج العضلي لمرضي السكتة الدماغية.**
Library register number	:	**2619-2620.**

Author	:	**Bassam Abd El-Mageed Mohamed Refaat.**
Title	:	**Efficacy Of Proprioceptive Rehabilitation Program In Cervical Discogenic Lesion.**
Dept.	:	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
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Degree	:	**Doctoral.**
Year	:	**2011.**
Abstract	:	

Background: **Management of abnormal cervical somatosensory input in cervical discogenic lesion patients is important for improving their cervical sensorimotor function.** ***Objectives:*** **To determine if there is a disturbance of sensorimotor control function of cervical spine & to detect the effect of proprioceptive rehabilitation program on this function.** ***Methods:*** **Thirty patients with cervical discogenic lesion participated in the study. They were randomly selected from outpatient clinic of Faculty of Physical Therapy, Cairo University and divided into study and control groups. Their mean age was (46.3± 6.59) & (47.93± 5.78) respectively. Neck Pain & Disability Scale was used to measure neck pain intensity & its effect on vocational, recreational & social aspects. Cervical joint position sensibility was measured using the Cervical Position Sense Test and overall Stability Index was measured using the Biodex Balance System. Evaluation was performed pre & post treatment and comparison between patients & age matched subjects in the cervical sensibility and stability index was quantified. Correlations between the three evaluation parameters of the patients were also quantified. The proprioceptive rehabilitation program composed of craniocervical flexion & stabilization exercises and vibration of dorsolateral neck muscles.** ***Results:*** **There was a significant correlation between neck pain & altered cervical sensorimotor function. Cervical proprioceptive rehabilitation program was superior to the selected physical therapy in improving the cervical sensorimotor function.** ***Conclusion:*** **neck pain, cervical muscle's imbalance and weakness have a major contribution to the sensorimotor deficits of the cervical spine. Proprioceptive rehabilitation program was integral for improving the cervical sensorimotor function in patients with cervical discogenic lesions.**

Key words	:	**Cervical Disc Lesions.**
	:	**Proprioceptive Rehabilitation.**
	:	**Sensorimotor Control.**
Arabic Title Page	:	**كفاءة برنامج التأهيل للمستقبلات الحسية العميقة في إصابة الغضروف العنقي.**
Library register number	:	**2625-2626.**

Author	:	**Islam Mahmoud Abd-allah Al-Azab.**
Title	:	**Electrical versus Mechanical Vestibular Stimulation on Balance in Stroke Patients.**
Dept.	:	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
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Degree	:	**Doctoral.**
Year	:	**2011.**
Abstract	:	

Background: The aim of this work was to investigate the efficacy of electrical galvanic vestibular stimulation versus mechanical vestibular stimulation on balance in hemiparetic stroke patients. Subjects and Methods: sixty male hemiparetic stroke patients represent the sample of this study. The patients' ages ranged from 45 to 61 years with a mean value of 51.7 ± 4.39 years. They were assigned randomly into three equal groups; the study group one (G1) and the study group two (G2) and the control group (G3). The control group G3 treated by selected therapeutic physical exercise program. The study group G1 treated by the same program of treatment as the control group in addition to galvanic vestibular stimulation (GVS). The study group (G2) treated by the same program of treatment G3 in addition to mechanical vestibular stimulation on BIODEX system for balance training. The duration of treatment was three months, three times per week. The different aspects of dynamic balance (overall stability, anteroposterior stability and mediolateral stability indices) were assessed pre and post treatment objectively by Biodex balance system and clinically by Short Form of Berg Balance Scale (SFBBS) in all groups. Results: Comparison of each variable pre and post treatment in each group revealed a significant improvement in all different parameters in study groups (G1 & G2) $P \leq 0.05$; however the control group showed a significant improvement only in anteroposterior stability index. Comparison of post treatment results of the three different groups showed that GVS used in study group G1 showed significant reduction in muscle tone than groups two and three (G2 & G3). Conclusion: GVS and Biodex balance system have significant effect on treatment of balance disorders in stroke patients.

Key words	:	**Stroke.**
	:	**Biodex balance system.**
	:	**dynamic balance**
	:	**GVS.**
Arabic Title Page	:	**مقارنة التنبيه الكهربي بالتنبيه الميكانيكي لدهليز الأذن على الإتزان في مرضى السكتة الدماغية.**
Library register number	:	**2375-2376.**